



Electric Vehicle Readiness Plan

for the Rockford Region



Final Report
April 30, 2021

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This document has been prepared by the Region 1 Planning Council in collaboration with its member agencies, partnership organizations, and local stakeholders.

This report was prepared in cooperation with the following:

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The contents, views, policies, and conclusions expressed in this report are not necessarily those of the above agencies.



COLLABORATIVE PLANNING FOR NORTHERN ILLINOIS

127 North Wyman Street, Suite 100
Rockford, Illinois 61101
815-319-4180 | info@r1planning.org

For complaints, questions, or concerns about civil rights or nondiscrimination; or for special requests under the Americans with Disabilities Act, please contact: Sydney Turner, Director of Regional Planning/MPO Title VI Coordinator at (815) 319-4180 or sturner@r1planning.org.

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Part 1

Introduction

Background & Purpose

More Americans are turning to cleaner alternative energy sources for both their homes and vehicles as a way to reduce their impact on the natural environment. As one of the largest producers of pollution, the automobile and transportation industries are rapidly responding to this shift toward alternative fuel sources for vehicles. In 2018, there were 203 models of alternative fuel vehicles (AFV) in the U.S. market, of which 100 were either hybrid electric vehicles or electric vehicles (EV).¹ As these types of vehicles become more readily available and affordable, their popularity among consumers will continue to increase.

The shift toward hybrid electric and plug-in electric vehicles can be seen throughout the nation, including in the Rockford Region. This is demonstrated by the significant increase in the number of these types of vehicles being registered with the Illinois Secretary of State. Despite the growing number of registered electric and hybrid electric vehicles, the region is lagging behind its peers in becoming EV-Ready. EV readiness planning is a collection of strategies, policies, and actions that empower a community to support and encourage electric vehicles and electric vehicle charging infrastructure.

As a way to support local governments in the evolving automobile market, Region 1 Planning Council (RPC), serving as the Metropolitan Planning Organization (MPO) for the Rockford Region, began investigating how to prepare for the proliferation of electric vehicles at a regional level and assist local jurisdictions in becoming EV-Ready. The Electric Vehicle Readiness Plan for the Rockford Region is a comprehensive, regionally coordinated approach to introducing electric vehicles and electric vehicle supply equipment in the three county region of Boone, Ogle, and Winnebago Counties. This plan was developed in coordination with key stakeholders, incorporates public and stakeholder feedback, national best practices, and strategies to facilitate electric vehicle and electric vehicle infrastructure deployment.

To achieve these goals, the development process for this plan has been divided into the following three phases.

The first phase in planning process was dedicated to research best practices and national trends. Research conducted included identifying the types of electric vehicles available on the market and the associated electric vehicle supply equipment (EVSE) needed to fuel them, as well as the existing national, state, and local programs supporting electric vehicles. Following this initial research, staff conducted a nationwide scan for best practices of how local governments have incorporated provisions in their zoning ordinances, building codes, and parking ordinances related to EV charging. This research was completed in Summer 2020 and is highlighted further in [Technical Memorandum #1: Research and Best Practices](#).

The second phase took into consideration the local perspective on electric vehicles and how ready local governments are to address EV trends. A two-prong approach was taken for this phase of the development process. First, a survey was posted online to gauge public opinion on the likelihood of owning an electric vehicle and some of the reasoning behind their apprehensions in purchasing an EV, as well as some of the challenges current EV owners face within the region. Second, RPC staff met with various county and municipal staff to discuss their jurisdiction's approach to planning for electric vehicles both within their codes and ordinances, as well as their considerations for electric vehicle fleets. The resulting insights from both the public and local stakeholders are highlighted further in [Technical Memorandum #2: Public & Stakeholder Engagement](#).

The third and final phase of the Electric Vehicle Readiness Plan consisted of setting the regional goals and targets aimed at becoming a more EV-Ready region and drafting the final plan. The resulting plan provides partners with the tools needed to accomplish the set goals and targets. These tools include guidance for updated language and processes for zoning ordinances, residential and commercial building codes, permitting, and parking regulations, as well as a draft sole source procurement process to further increase coordination between all jurisdictions.

The accumulation of these three phases resulted in an Electric Vehicle Readiness Plan aimed at removing the barriers to EV adoption and installation of electric vehicle supply equipment (EVSE) in the Rockford Region. While not all of the barriers can be addressed by regional or local governments, such as the high upfront cost of EVs, there are action items and strategies that can be implemented to reconcile barriers related to information, coordination, and policies.

Acting as a guide and toolbox for regional EV readiness planning, this document has been organized into seven sections, detailed below.

Part 1. Introduction: The first chapter of the plan sets the stage for the remainder of the document by providing the purpose and intent behind the Electric Vehicle Readiness Plan. This chapter also contains information about the Rockford Region, including an overview of current conditions in the region in relation to EVs and charging infrastructure. Additionally, this section provides background knowledge on the barriers to and benefits of EV readiness, allowing readers to better understand the recommendations provided later within the document. The introduction concludes with an overview on partnerships needed to successfully become an EV-Ready region and the role each partner plays.

Part 2. Goals & Strategies: Part 2 presents the three overarching goals and numerous strategies needed to reach the vision of being an EV-Ready region. The chapter also lists the metrics that will be utilized to track the region's progress in achieving its vision.

Part 3. Zoning, Ordinances, & Building Codes: Regulatory policies and processes of local governments play a huge role in the adoption of EVs and the installation of EVSE. To address the policy and process component of EV readiness, this section of the document highlights this role and provides suggested language to effectively incorporate EVs and EVSE into existing zoning, parking and development ordinances, building codes, and permitting processes.

Part 4. Procurement Process: A variety of options for EVSE exist on the market, creating a need for a multifaceted charging infrastructure procurement process. This section of the plan highlights some of the considerations that need to be taken into account when developing a procurement process and provides local governments a sample request for proposals (RFP) for acquiring EVSE.

Part 5. EV Charging Station Network: This section of the plan identifies public EV charging priority areas and describes the methodology used to create the identified priority areas.

Part 6. Funding Opportunities: Funding can be a major barrier in the development of a robust EV charging network, both for local governments and the private sector. This portion of the plan describes a variety of existing federal and state assistance programs that are available for installation of publicly accessible EVSE, as well as a variety of incentives that encourage private sector deployment of EVs and EVSE.

Part 7. Conclusion: Concluding the document is a section dedicated to the next steps to accomplish the overarching vision of this document.

Benefits & Barriers

Lessons learned from around the country on efforts to advance electric vehicle readiness planning have provided valuable insights into the benefits of EV readiness planning, as well as barriers to effectively prepare for EV adoption. Understanding these benefits and barriers helped develop the goals and strategies set forth for the Rockford Region and acted as a baseline to begin building a guide for local partners. The following section highlights some the benefits of and barriers to EV readiness planning efforts identified through previous planning efforts and programs and is supplemented by the public and stakeholder engagement conducted by the RPC in the summer 2020.

Benefits of Electric Vehicles

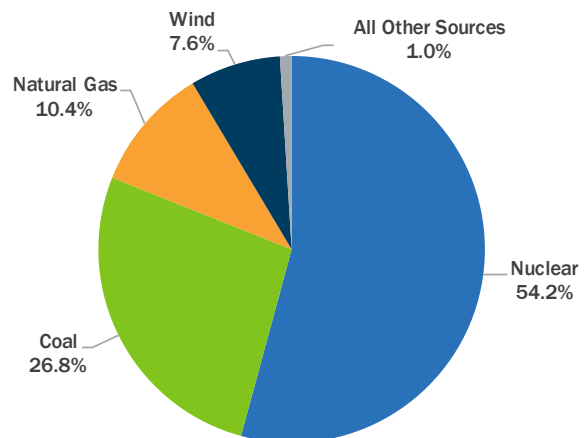
Numerous benefits associated with the widespread adoption of electric vehicles have been noted in larger EV markets, such as Chicago, Philadelphia, and San Francisco. These benefits cover a spectrum of topics such as lowering greenhouse gas emissions, better local air quality, improved public health, electric utility connectivity, lower vehicle maintenance costs, etc. For the purposes of this document, there are two primary benefits discussed: environmental and economic.

Environmental

One of the most commonly cited benefits of electric vehicles is their contribution to the reduction of greenhouse gases and pollution. Within the Rockford Region, one of the primary reasons individuals would consider purchasing an EV or hybrid vehicle as their next vehicle purchase were for environmental considerations. There are two emissions categories which electric vehicles impact: direct and lifecycle emissions. Because they are powered at least in part by batteries, electric vehicles produce lower direct emissions, also known as tailpipe emissions, compared to conventional internal combustion engine (ICE) vehicles. All-electric vehicles produce zero direct emissions, which specifically helps improve air quality in urban areas. Plug-in hybrid electric vehicles (PHEVs), which have a gasoline engine in addition to an electric motor, produce evaporated emissions from the fuel system, as well as tailpipe emissions. However, because most PHEVs are generally more efficient, they produce less direct emissions even when relying on gasoline.ⁱⁱ

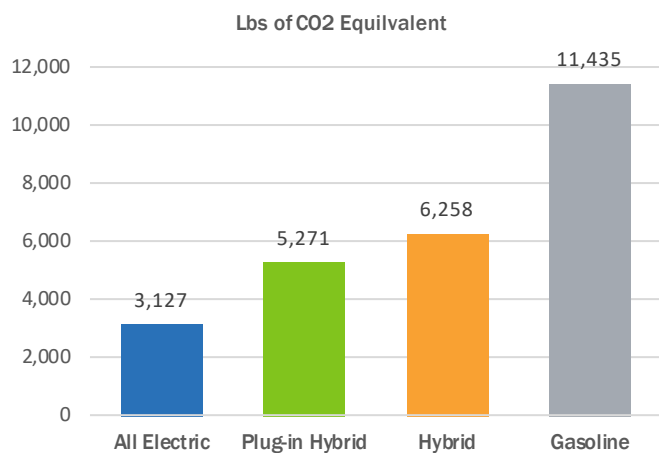
While harder to quantify, all vehicles produce life cycle emissions. Life cycle emissions, or well-to-wheel emissions, include all emissions related to fuel production, processing, distribution, and use.ⁱⁱⁱ EVs typically produce less life cycle emissions than conventional vehicles, because most emissions are lower for electricity generation than burning gasoline or diesel. The full benefit of reduced life cycle emissions for EVs is based upon the mix of fuels and technologies in the region used to generate electricity. As shown in Figure 1-1, Illinois uses an average of 62.5 percent of clean and/or renewable energy sources to generate electricity.^{iv} As a result, PHEVs and EVs in the Rockford Region have less life cycle emissions when compared to other parts of the country. Electric vehicle owners can also help reduce the life cycle emissions of their EV by installing renewable electricity sources in their home, such as solar or wind. Figure 1-2 shows a comparison of the annual emissions produced by each type of vehicle within Illinois.

Figure 1-1. Electricity Sources in Illinois



Source: U.S. Department of Energy. Alternative Fuels Data Center.

Figure 1-2. Annual Emissions by Vehicle Type in Illinois



Source: U.S. Department of Energy. Alternative Fuels Data Center.

Economic

Many economic benefits have contributed to EV adoption for both owners and local communities. For owners, the lifetime costs of owning and maintaining an EV can be less expensive than a conventional vehicle. Lower maintenance and fuel costs were the second most commonly identified reasons individuals in the Rockford Region would consider purchasing an EV or hybrid vehicle for their next vehicle.

First, many EV owners see an economic benefit through fuel savings. While fuel saving depends largely on the relative prices for electricity and gasoline, many EV owners pay only one-quarter to one-third as much to fuel their vehicle compared to ICE vehicles.^v For example, if gasoline costs \$3.60 dollars per gallon and the price of eGallon is \$1.20, an EV owner could drive the same distance as a conventional car for a third of the cost.^{vi}

Secondly, EV owners typically have lower maintenance costs over the lifetime of their vehicle. While all-electric vehicles and PHEVs have different maintenance requirements due to varying technologies, both typically require less maintenance than conventional vehicles. Both types require minimal scheduled maintenance for the electrical systems, such as battery, electrical motor, and associated electronics. All-electric vehicles require significantly less maintenance than conventional vehicles due to fewer fluids to change and far fewer moving parts, while PHEVs require maintenance similar to conventional vehicles.^{vii}

For communities, the economic benefits are largely seen through the adoption of a municipal electric fleet through a reduction in expenditures on gasoline offer the most benefit.^{viii} Unlike private owners, however, the impacts on fuel savings from EV adoption at the local and state level can be reallocated to other municipal

eGallon

Represents the cost of fueling a vehicle with electricity compared to a similar vehicle that runs on gasoline.

Source: U.S. Department of Energy

services and show good stewardship over municipal taxes. Additionally, EV readiness can provide economic benefits for local businesses. Businesses who offer public charging infrastructure on their premises may capture additional local customers, as well as customers who may be passing through the region. However, the level of this benefit still needs to be studied further.

Barriers to Electric Vehicle Readiness

The U.S. Department of Energy's *A Guide to the Lessons Learned from the Clean Cities Community Electric Vehicle Readiness Project*, highlights several key barriers to readiness for expanded EV adoption, including barriers to EV purchase and to charging station installation and utilization. A brief overview on each of these types of barriers is provided below.

Barriers to EV Purchase

The first key barrier to the adoption of EVs is the actual purchase of the vehicle. Barriers to the EV purchase can be subcategorized into two groups: financial and informational. A substantial barrier for many individuals and municipalities is the higher initial purchase cost of an EV compared to conventional vehicles. The market value of electric vehicles can range from \$30,000 to upwards of \$90,000 depending upon the manufacturer, model, and features. The most common EVs and PHEV models, such as the Chevrolet Bolt, Nissan Leaf, and Toyota Prius, typically range between \$30,000 and \$40,000.^{ix} The higher market price compared to conventional vehicles was the most common barrier identified by survey respondents in the Rockford Region.

In addition to the financial barrier, many consumers and policymakers lack information related to EVs. From the consumer perspective, many potential owners are simply unfamiliar with electric vehicles. Some of the most common informational barriers for consumers include:

- Not being aware of available vehicle types and attributes;
- Misconceptions about EV performance and safety;
- Not being aware of potential fuel and maintenance savings;
- Not being aware of available government incentives for EVs; and
- Real or perceived concerns about battery degradation and potential cost of replacement.^x

Range anxiety is another major informational barrier to consumers and was the second most commonly identified barrier to EV purchase in the Rockford Region. Range anxiety can come from a variety of factors, including overestimation of daily range needs, unfamiliarity with existing public charging stations, and insufficient public charging infrastructure in local communities or along major corridors.

Lack of information can also be a barrier for policymakers, who may not be familiar with the economic and environmental benefits of EV adoptions; they may also be unaware of the policy and market barriers to EV adoption and options for increasing EV readiness.^{xi} Lack of information at the policy-level can amplify existing or potential barriers to both consumers, business owners,

and developers.

Barriers to Charging Station Installation and Utilization

Another major barrier is the installation and utilization of EVSE itself. Similar to the barriers associated with EV purchases, barriers to EVSE can be subcategorized into three groups: financial, information and coordination, and policy. Financially, installation barriers occur both from a residential and commercial standpoint. The cost of retrofitting a residential property to support at home charging can be substantial. These costs are often associated with the purchase of the equipment, installation, and permitting fees. From a commercial standpoint, there is often difficulty in establishing a profitable business case for charging stations. For example:

- Charging stations experience low utilization rates during early EV market development;
- Low margins on electricity sales relative to upfront costs and maintenance of charging stations;
- Demand charges by electric utilities for fast charging, especially in less populated areas; and
- Difficulty establishing the terms under which charging providers can offer services in regulated markets.^{xii}

In addition to the financial barriers to installation and utilization of charging stations are the informational and coordination barriers. A range of information barriers exist from the difficulty of installation at particular locations to lack of communication and coordination among potential partners. Many of the items in the following list were identified by both the public survey and the public agency interviews conducted during the development of this plan.

- Difficulty providing charging stations at multi-unit residences, workplaces, and other shared parking sites;
- Consumers are unaware of existing public charging stations;
- Uncertainty among public planners and private investors about the future needs and locations of demand for public charging stations;
- Lack of compatibility among charging station payment methods, communications, and fast-charging standards;

- Uncertainty about best practices for parking sites with public charging stations, including Americans with Disabilities Act (ADA) compliance; and
- Efforts to support charging station installation not fully leveraged due to lack of communication and coordination among potential partners.^{xiii}

The final barriers to EV charging station installation and utilization occur at the policy-level and will be addressed in many of the recommendations identified in this plan. Two policy-level barriers impact charging station utilization. These barriers include insufficient and non-uniform signage directing EV owners to public charging stations as well as the enforcement for charging-only use of public charging parking spaces. Enforcement of charging-only parking spaces can only occur if municipalities have parking ordinances and regulations in place. Policy barriers can also impact the installation of EVSE and public charging stations. First, many local zoning, building codes, and ordinances either do not include language about charging station siting or EVSE standards or existing zoning and codes are too vague or too strenuous for charging stations and EVSE installation. Finally, expensive, complex, and non-uniform permitting and inspection procedures for residential and workplace charging station installation can be a barrier for many potential EV owners and businesses.^{xiv}

EV Readiness Partners

Strong partnerships between a variety of stakeholders will be needed to support the region’s efforts to become EV-Ready and overcome some of the barriers identified above. Each stakeholder plays a unique role and is an essential partner to the initial efforts as well as sustaining the momentum. While the Rockford Region already has many of the long-standing regional partnerships needed, there are new partnerships that can be formed with additional stakeholders to further EV readiness efforts. Table 1-1 identifies some of the key partners and their roles in EV readiness. Definitions on the roles are provided below.

- Regulatory: Responsible for developing and enforcing laws and regulations.
- Financial: Responsible for directly funding EV programs and incentives, EVSE or charging installation costs, or

Table 1-1. EV Readiness Partners & Roles

Partner	Regulatory	Financial	Education	Coordination	Implementation
State Agencies	●	●	●	●	●
Local Governments	●	●	●	●	●
Regional Planning Council			●	●	
Utility Companies		●	●	●	●
Private Business		●	●	●	●
Developers				●	●
Property Owners & Managers					●
EV Owners & Associations			●		
Clean Cities Coalitions			●	●	

Source: Region 1 Planning Council

ongoing operating and maintenance costs.

- Education: Provide assistance with informational materials and events promoting EV adoption.
- Coordination: Maintaining open communications amongst partners.
- Implementation: Responsible for the programming of EVSE or installation of public and/or private EVSE.

Regional Context

Study Area

Located in north central Illinois, near the state border of Wisconsin, the study area for the development of this plan is the Rockford Metropolitan Planning Area (MPA). As shown in Figure 1-3, the Rockford MPA is smaller than the boundaries of Boone, Ogle, and Winnebago Counties and covers approximately 440 square miles. While focused primarily on the Rockford MPA, the concepts and practices identified within this plan can easily be transferred to other jurisdictions within Illinois.

The City of Rockford forms the primary urban core of the region and is the third-largest city in Illinois by area, encompassing approximately 64 square miles. In total, the MPA encompasses 15 municipalities. Many of the incorporated jurisdictions within the MPA are a mix of urban and suburban development patterns, however, there are some communities and unincorporated areas of the MPA that are largely agriculturally-based with strong ties to their rural heritage.

The population of the three-county region was estimated to be around 391,110 in 2018. Of those, 297,980 live within census-defined urbanized areas¹ within the MPA. The population density of the urbanized areas is 1,838 people per square mile.^{xv} The largest portion of the population resides in Winnebago County.

Knowing the current housing stock and anticipated residential development is key in understanding where residential electric vehicle supply equipment (EVSE) may be installed. Within the three-county region, there are approximately 168,497 housing units, of which 128,323 are single-unit homes (76.2 percent). Of the total number of housing units, 154,240 (91.5 percent) are occupied with approximately 68.6 percent of the occupied housing units being owner-occupied.^{xvi} Research has shown that those living in owner-occupied, single-family units are more likely to purchase an electric vehicle due to the accessibility of installing EVSE at the residence. To make residential charging more accessible to all residents in the region, key partners will need to work with multi-family property owners and managers to encourage the installation of EVSE on their premises or identify possible nearby locations for the installation of public EV charging stations.

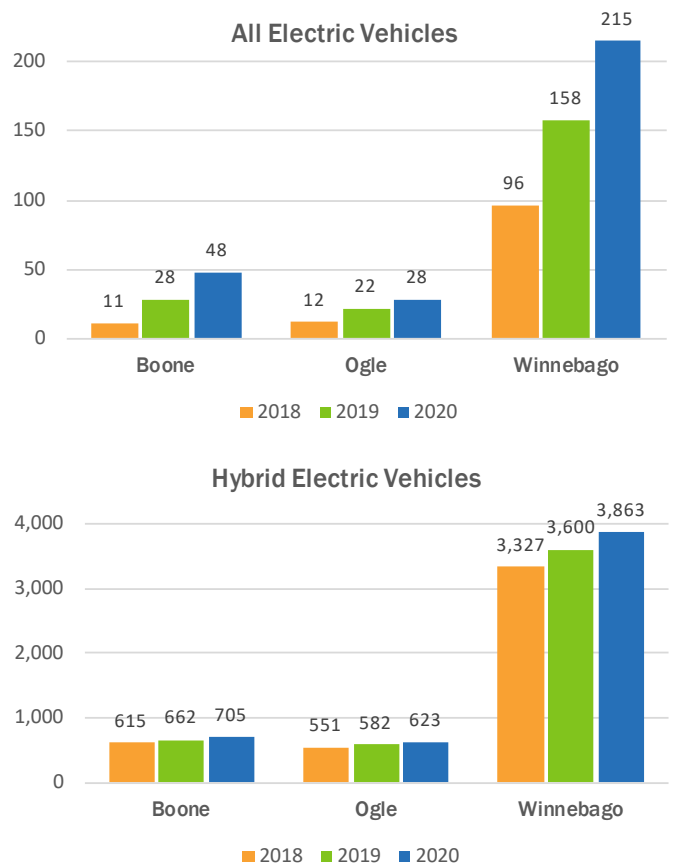
¹ The MPA consists of three census-defined urban areas – Byron, IL Urban Cluster, Davis Junction, IL Urban Cluster, and the Rockford, IL Urbanized Area.

Registered Electric Vehicles

While electric and hybrid electric vehicle registrations are not growing as fast as other regions, the Rockford Region has seen an exponential growth over the past two years. As of August 2020, according to the State of Illinois vehicle registry, there are 291 fully electric vehicles and 5,191 hybrid electric vehicles registered in the study area. The number of electric vehicles registered within the three counties has more than doubled (144.5 percent) between August 2018 and August 2020.

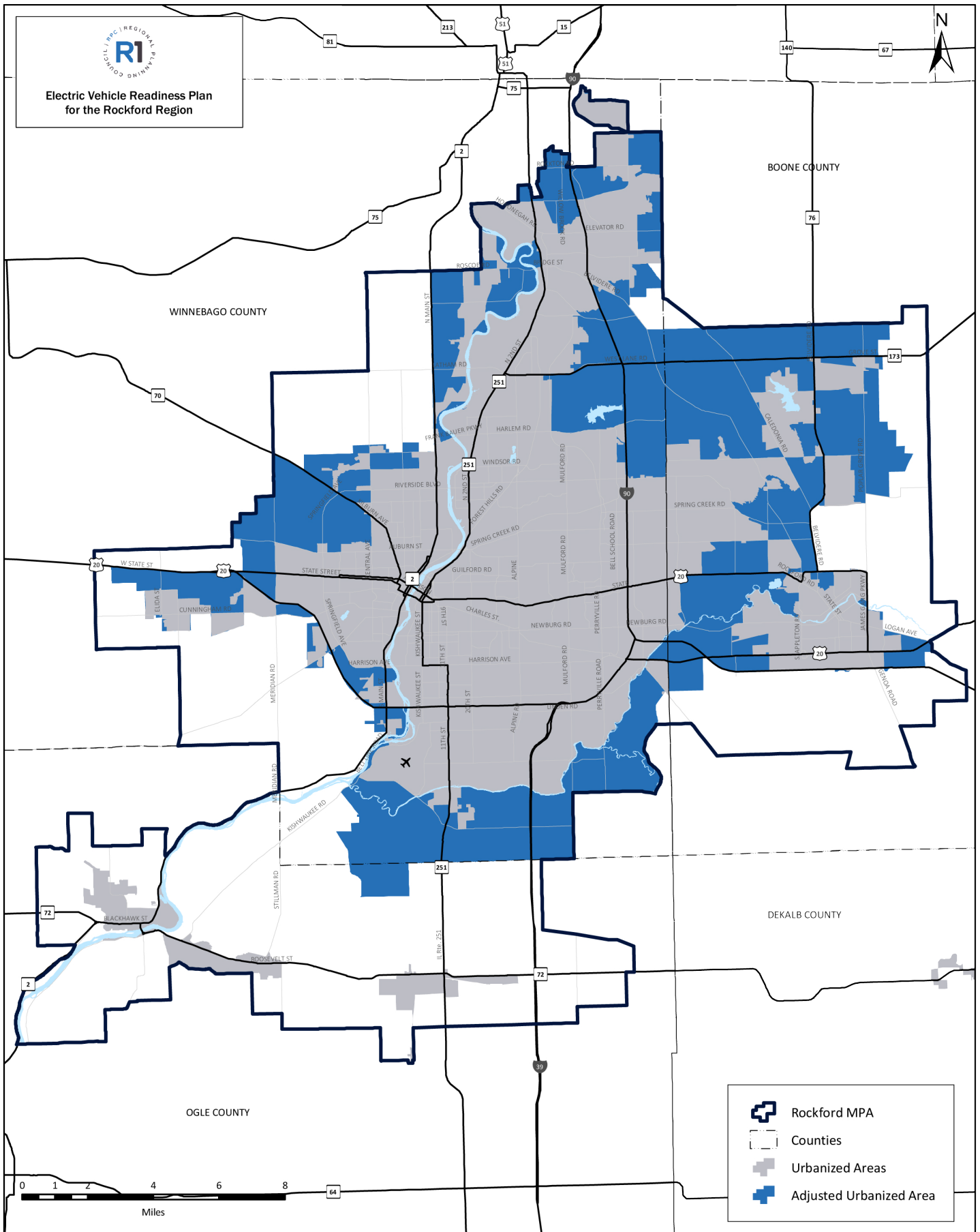
As shown in Figure 1-4, each of the three counties saw a jump in the number of electric and hybrid vehicles registered between August 2018 and August 2020. The county with the highest increase in the number of registered electric vehicles was Boone County, which increased from 11 registered in August 2018 to 48 by August 2020, an increase of 336.4 percent.^{xvii} All three counties saw a growth rate in the number electric vehicles higher than the statewide growth rate of 122.8 percent. While the growth rate in the number of hybrid vehicles registered did not see a dramatic increase, the number has steadily increased by roughly seven percent a year. The rapid increase of the number of electric and hybrid vehicles registered within the study area demonstrates the importance of planning EV charging infrastructure.

Figure 1-4. Electric Vehicle Registrations, 2018 – 2020



Source: Illinois Secretary of State.

Figure 1-3. Rockford Metropolitan Planning Area



Source: Region 1 Planning Council; U.S. Census Bureau

When looking at the Illinois incentives and laws related to electric vehicles, only two directly impact the electric vehicle owners in terms of ownership costs. Beginning January 1, 2020, Illinois began to charge electric vehicle owners an annual fee of \$100 in addition to the standard registration fee of \$151. A portion of the fees contribute to the Illinois Road Fund.^{xviii} While there is an additional registration fee for EVs, they are exempt from the state motor vehicle emissions inspections by the Illinois Environmental Protection Agency.^{xix}

Electric Vehicle Charging Stations

Within the state of Illinois there are 658 EV charging stations. However, a large portion of public EV charging stations are located in the Chicago and St. Louis metropolitan areas. In the Rockford Region, there are nine electric charging stations with a total of 35 charging outlets. There are seven Level 2 charging stations and two DC Fast Chargers (DCFC). These stations are publicly accessible but privately owned and includes stations for Tesla vehicles only.^{xx}

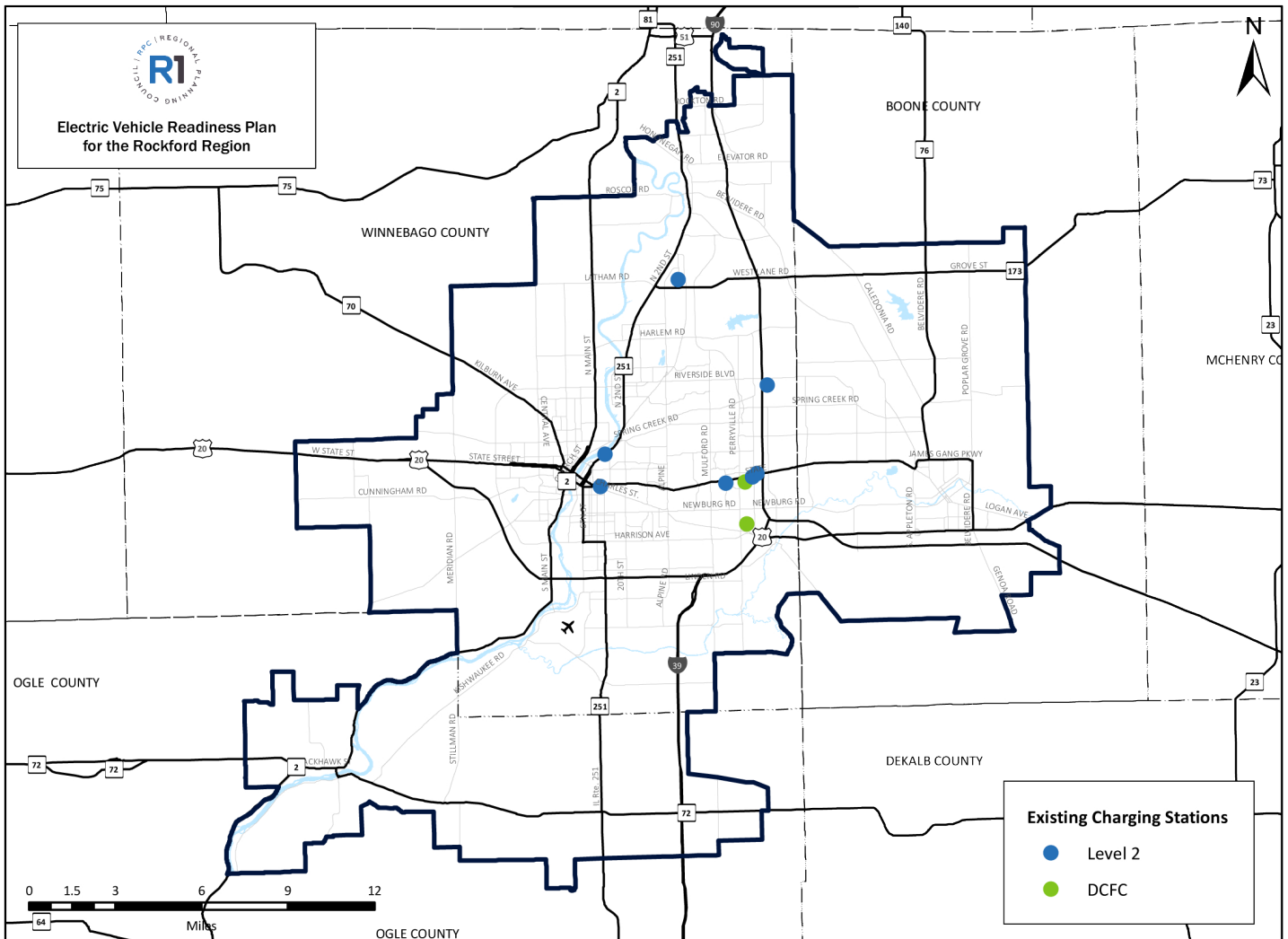
All nine charging stations are located in Winnebago County,

with seven located in the City of Rockford, one in the Village of Cherry Valley and one located in the Village of Machesney Park. A concentration of EV charging stations is located along I-90 and US Route 20. These include charging stations near the Harrison Avenue/US Route 20, I-90/East State Street, and I-90/East Riverside Boulevard interchanges. Additionally, there are two charging stations within the vicinity of downtown Rockford. Figure 1-5 shows the locations of the current public EV charging network in the Rockford Region.

Local Policies & Programs

Interviews with local agencies revealed that there were no current policies or programs in place as of August 2020. While some agencies have begun researching building codes, permitting, and inspection policies related to EVSE, none of the agencies interviewed have incorporated specific language into commercial or residential development policies, building codes, or permitting and inspection processes.

Figure 1-5. Electric Vehicle Charging Stations



Source: U.S. Department of Energy

Part 2

Goals & Strategies

Region 1 Planning Council has developed three goals to guide the region’s EV readiness planning efforts. Each goal is accompanied by a series of strategies that further define the desired outcomes for the Rockford MPA. The goals align with currently adopted planning documents, including the [2050 Metropolitan Transportation Plan](#) and Illinois Department of Transportation’s (IDOT) [Statewide Long Range Transportation Plan](#). These goals also align with the federal planning factors which must be incorporated into the transportation planning process, as required under the Fixing America’s Surface Transportation (FAST) Act, signed into law in 2015. The Federal planning factors are shown in Figure 2-1.

The goals, strategies, and targets are based upon the needs and priorities identified through the research conducted on EV readiness planning, as well as public and stakeholder engagement efforts. A complete list of the goals can be found below. The numerical listing of the goals and strategies are for reference purposes only, ordering does not suggest order of importance.

Figure 2-1. Transportation Planning Factors



Source: Federal Highway Administration

Goal #1

Establish a robust network of public charging station infrastructure within the study area.

Strategy 1.1. Identify and prioritize key locations for electric vehicle supply equipment (EVSE) installation.

Strategy 1.2. Promote and establish incentives for the installation of EVSE by businesses and in commercial developments.

Strategy 1.3. Provide wayfinding signage to help electric vehicle drivers navigate to public charging stations.

Strategy 1.4. Upgrade or install new conduit to accommodate EV charging infrastructure during roadway construction projects, where appropriate.

Goal #2

Integrate electric vehicle supply equipment (EVSE) into public policies and planning efforts.

Strategy 2.1. Update zoning ordinances to identify what types of EVSE are allowable by land use type.

Strategy 2.2. Establish building codes to specify standards that ensure EVSE installations are safe and accessible.

Strategy 2.3. Streamline the permitting process for the installation of EVSE on residential and commercial properties.

Strategy 2.4. Develop and maintain electric vehicle parking standards that address the design and location of parking spaces as well as minimum space requirements.

Strategy 2.5. Incorporate EV readiness in local and regional planning documents, including, but not limited to, comprehensive plans and corridor studies.

Strategy 2.6. Educate inspectors on the electrical capacity necessary to accommodate future EVSE.

Strategy 2.7. Connect interested property owners and managers, homeowner associations, and businesses to educational resources and contacts relating to EVSE implementation.

Goal #3

Act as a leader in coordinating efforts to make Northern Illinois EV-Ready.

Strategy 3.1. Coordinate with regional partners to leverage procurement and funding opportunities.

Strategy 3.2. Partner with utility providers and companies to leverage public-private partnerships for the installation of EV charging infrastructure.

Strategy 3.3. Assist in the development of a regional forum dedicated to leading electric vehicle initiatives.

Strategy 3.4. Advocate for state-wide policies and funding programs to support the installation of public electric vehicle infrastructure.

Strategy 3.5. Encourage the use of battery electric vehicles (BEV) or hybrid electric vehicles (HEV) in municipal fleets.

Strategy 3.6. Promote for the use of clean and/or renewable energy sources to power electric vehicle charging stations.

Part 3

Policy & Planning Tools

Purpose & Intent

Local governments play a critical role in the development of both public and private electric vehicle supply equipment (EVSE) due to their authority over zoning, parking, and signage; building codes; and permitting and inspection processes. Local ordinances and procedures can present barriers if EVSE installation is not included or is too vague. By amending local ordinances and streamlining processes, local governments can help accelerate the adoption of electric vehicles (EVs) within the region and gain the associated benefits, such as reduced greenhouse gas emissions, cleaner air, and improved public health.

To assist local governments in preparing for EV adoption, Region 1 Planning Council (RPC) has developed template language and planning guidance that can be utilized by local governments to further incorporate EVs into their current regulatory tools. The language proposed within this document is meant to serve as a base which can be amended to fit the needs of each jurisdiction. It will be up to individual jurisdictions to evaluate the objectives behind any new policies, code revisions, or other changes. However, having a singular template from which jurisdictions can build off of will lead to a consistent, accessible charging network throughout the entire Rockford Region.

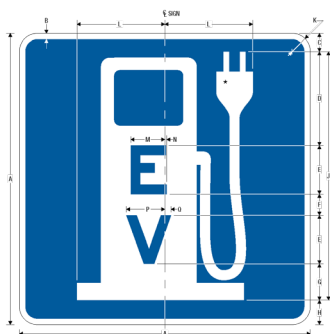
Policy & Planning Tools

As mentioned, local governments have a variety of policy and planning tools that can be utilized to integrate EVSE into the local landscape. Provided below are brief descriptions on some of those tools and their role in EV readiness.

Comprehensive Plans

A comprehensive plan is a document designed to guide future actions of a community. Sometimes referenced as master plans or land use plans, these documents serve as the policy guide to decisions about community development.ⁱ Identifying electric vehicles within a comprehensive plan as a part of a local transportation strategy is a foundational step towards EV

Figure 3-1. Alternative Electric Vehicle Charging General Service Symbol Sign



Source: Federal Highway Administration.

readiness for many communities. This foundational step provides the basis for adapting changes to zoning codes and other codes that foster the deployment of EV charging infrastructure.ⁱⁱ

Zoning

Zoning is a form of local ordinance that governs the use of property in a jurisdiction. In general, zoning ordinances regulate the use of land, setting standards for primary and secondary uses, building area and height, lot coverage and street setbacks. Zoning can also set requirements for residential density, parking spaces required, open space, signage, and the nature of a building's street frontage. As a tool for infrastructure planning, zoning ordinances are used to indicate where EVSE is allowed or prohibited.ⁱⁱⁱ Zoning can be used to allow, incentivize, or require EVSE throughout a municipality's zoning districts or in specific locations.

Appendix B contains example text of EVSE within local zoning ordinances.

Parking

Parking regulations and enforcement dictate the terms of use in publicly-accessible parking facilities, such as on-street parking spaces, lots, or garages. Local parking ordinances are a significant tool for EV readiness as EVs need to park in order to charge. To properly prepare for EVs, several considerations must be taken into account to address the terms of use for public charging stations, standardized charging station signage, and how charging station rules will be enforced. Specifically, municipalities must consider:

- EV parking space design and location;
- Minimum EV parking standards, e.g. proportion of parking spaces designated for EV parking; and
- Parking restrictions, protections, and penalties for EV-designated spaces.^{iv}

Municipalities who incorporate EV-designated spots within municipal-owned or operated parking spaces must also plan for and regulate the terms of use, such as the days and hours of operations, whether to provide free or reduced price parking for charging vehicles, how to charge fees for electricity, and whether to establish time limits.

Equally as important is signage for public charging stations. Clear, uniform signage can direct EV owners to charging stations, identify which parking is EV-designated, and convey any parking policies.^v Federal Highway Administration (FHWA) has released a memorandum for the Interim Approval for Optional Use of an Alternative Electric Vehicle Charging General Service Symbol Sign^{vi} and intends to include standard regulatory signing for EV parking sites in the next Notice of Proposed Amendment to the Manual of Uniform Traffic Control Devices (MUTCD).^{vii} The EV Charging General Service Symbol Sign and recommended signage for the use at on-street electric vehicle charging and parking sites are

included in Figure 3-1 and 3-2.

Appendix C contains example text of addressing EVs in local parking ordinances.

Codes

Building and electrical codes are sets of regulations governing the design, construction, alteration, and maintenance of structures.^{viii} Most local jurisdictions adopt model building codes developed by national or international associations, such as the National Electrical Code (NEC) and the International Building Codes (IBC). States and local jurisdictions generally have some flexibility to adopt their own building and electrical codes but typically utilize the established model codes. While existing codes have not presented major barriers to charging station installation, the establishment of consistent, minimum codes that specifically address EVSE ensure the functional adequacy and safety of proposed construction projects. Amending local codes can clarify design requirements and guidelines for each building type regarding charging infrastructure types, circuit specifications, and building electricity load management.^{ix}

Appendix D contains sample language that supplements national and international codes to enhance EV readiness.

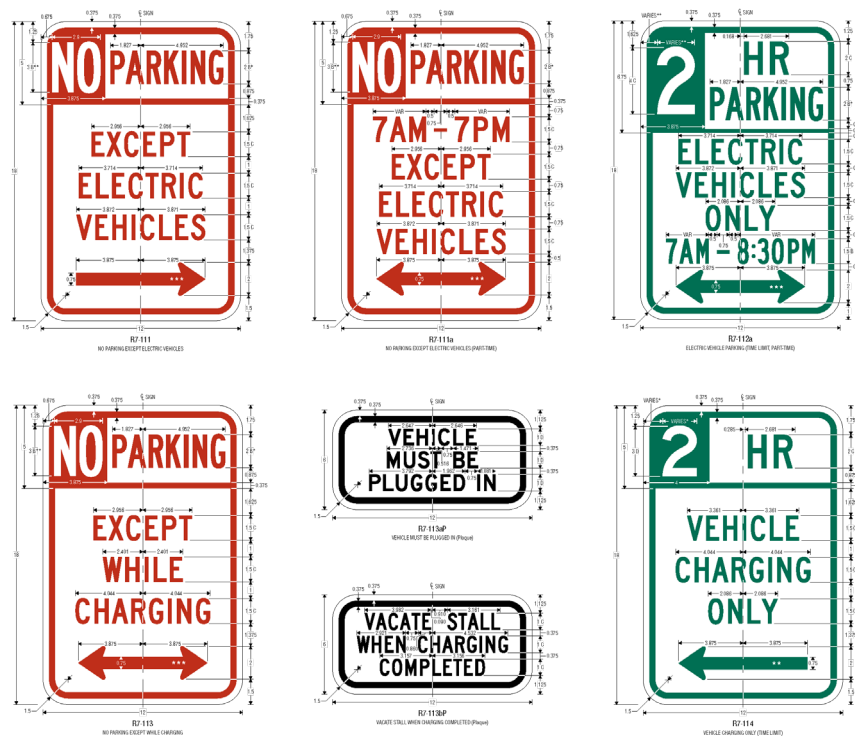
Permitting & Inspections

Permitting and inspections are the enforcement tools to ensure that building and electrical codes are compiled in new construction or remodeling. Lessons learned from around the country on EV readiness planning have found that while permitting and inspection processes do not present a significant barrier, they can cause confusion and raise the costs of EVSE installation. To reduce minor barriers, many regions have found that expediting and streamlining process are beneficial. Opportunities to expedite or streamlining the processes include:

- Adopting clear local ordinances, permits, and procedures to enable straightforward compliance and minimize administrative burdens;
- Reducing and standardizing permitting and inspection fees;
- Minimizing processing and inspection times by eliminating unnecessary steps and/or fast-tracking charging station projects;
- Implementing online permitting processes;
- Classifying some charger installation categories as minor work which is subject to less burdensome permitting processes; and
- Funding and supporting training for electricians.^x

The template language, sample process, and materials for updating local permitting processes can be found in Appendix E.

Figure 3-2. Recommended EV Charging and Parking Signage



Source: Federal Highway Administration.

Part 4

Procurement Process

Purpose & Intent

While the majority of electric vehicle (EV) charging occurs at home or at a fleet facility, a key component in a robust electric vehicle charging network is publicly-accessible charging infrastructure. Public charging stations can increase the daily useful range of EVs and ease range anxiety, which can be a significant barrier for widespread EV adoption. Due to the variety of options for electric vehicle supply equipment (EVSE), organizations who wish to install charging infrastructure will need to take a number of considerations into account. While a large number of considerations are directly related to the costs associated with the required charging needs, such as equipment, installation, and maintenance, there are several other considerations in the procurement process, such as networking, ownership models and signage.

Once local governments have made the necessary decisions about public charging equipment, a formal solicitation, such as a request for proposal (RFP) will need to be issued. To assist partner agencies in navigating the procurement process, Region 1 Planning Council (RPC) has developed a RFP template that can be utilized for the sourcing of public EVSE.

Key Considerations for Public Charging

As mentioned previously, organizations need to take several considerations into account when planning for public EVSE procurement and installation. Brief descriptions of some of the key considerations in the procurement process have been provided below.

Equipment

Equipment choice is largely based on location, charging level, and available features. Most public charging is a mix of alternating current (AC) Level 2 and direct current fast charging (DCFC) units.

Typically, single port Level 2 units cost between \$400 and \$6,500, while single port DCFC units range between \$10,000 and \$40,000 in price. EVSE with multiple ports may have higher prices than these ranges. When choosing the charging level of equipment, agencies should keep in mind the amount of time a vehicle will stay parked in the location and the amount of energy needed to replenish the battery. A DCFC unit may be the best choice close to an interstate highway, while Level 2 units may be appropriate for restaurants and shopping malls. Additional features that may be considered when choosing the most appropriate EVSE include networking capabilities, theft deterrence, output power rating, number of ports/connectors, and operation and maintenance considerations (e.g., payment and data collection capabilities).

Networking

Electric vehicle supply equipment can be networked or non-networked. Networked units are connected to the internet and send real-time usage data to the site host. Non-networked units provide basic charging functionality without advanced communications or monitoring capabilities. Networked EVSE is typically a part of a charging network, such as EVgo, ChargePoint, and Tesla. Each charging network has its own payment model and depending on the network, may allow the site host to set pricing policies. Benefits of networked EVSE include charging station visibility and availability, energy monitoring, usage analysis, automated payments, access control, and customer support. Network fees can vary between \$100 to \$900 annually, depending upon the EVSE unit and its features.

Installation

Installation costs vary on a number of factors, including the number and type of EVSE, geographic location, site location, labor costs, and electrical service and/or upgrades. Generally, public EVSE installation is more expensive than workplace sites and fleet facilities, largely due to higher permitting costs and necessary electrical service upgrades. In 2015, Level 2 units cost between \$600 and \$12,700 to install and the cost to install DCFC units ranged between \$4,000 and \$51,000.

Table 4-1. Charging Equipment Characteristics

Type	Electric Current	Charging Rate	Connector(s)	Primary Use
Level 1	Alternating Current (AC) 120 volt (V), 20 amp (a)	2-5 miles of range per hour of charging	J1772	Residential Workplace Fleet
Level 2	AC 208/240V, 30A	10-20 miles of range per hour of charging	J1772	Residential Workplace Fleet Public
DCFC	Direct Current (DC) 208/480V, 80-200A (and higher)	60-80 miles of range per 20 minutes of charging	J1772 Combo (CCS) CHAdeMO Tesla	Fleet Public

Source: U.S. Department of Energy, Alternative Fuels Data Center

Utilities

Utilities play an important role in sustaining projected future growth of EVSE and managing the strain that charging stations may have on the electrical grid. This strain on the grid can be mitigated through utility companies being able to remotely control EV charging to meet the demand on the grid, known as smart charging. During the procurement process, agencies should work closely with utilities to determine their role in the operation of the equipment.

Ownership Model

Generally, two ownership models are utilized for public EVSE, site host-owned or third party-owned. Electric vehicle supply equipment owned by the site host is purchased, installed, and maintained by the site host, which allows for full control over the station and, if applicable, received all revenue generated by the station. Third party-owned EVSE is installed and maintained by the third party, typically a charging network, which minimizes the responsibility of the host site. Revenue earned at a third party-owned station may be divided between the site host and the third party, based upon any agreements.

Visibility & Signage

Signage and visibility are important in public charging station utilization. When choosing a public site, highly visible and convenient locations ensure that the station will be well utilized. If a highly visible and convenient location will most likely increase the cost for installation due to additional trenching, boring, and electrical upgrades required, site hosts can also place the stations closer to existing electrical service and use signage to help drivers locate EVSE. In addition to wayfinding signs, on-site signs could include regulatory signage regarding parking restrictions and time limits. Local jurisdictions, working with site hosts, the Illinois Department of Transportation (IDOT), and the Illinois State Toll Highway Authority (Illinois Tollway), should provide adequate and consistent wayfinding signage along highways and in close proximity to the stations.

Future Proofing

The EV market is rapidly expanding and changing as new technology evolves. It is important to build flexibility for future changes into the procurement process and the charging stations themselves. Some jurisdictions have required applicants in their RFPs to account for future changes in the market such as new payment methods, upgrades to charging power, the number of stations installed, and installation of new utility equipment.

Procurement Checklist

The U.S. Department of Energy's Alternative Fuel Data Center has developed an infrastructure development checklist to highlight the important factors organizations need to consider when selecting and procuring charging infrastructure. The checklist is provided below.

- Determine project scope, budget, funding mechanism, and timeline.
- Determine ideal project site, based on existing infrastructure and infrastructure needs.
- Determine the number, type(s), and costs of charging equipment needed, typically public charging hosts should consider Level 2 and DC fast charging.
- Decide whether the stations will need to be networked, including if utilization data will be collected and if payment capabilities are necessary.
- Determine if a formal solicitation is needed.
- Choose a network and/or charging infrastructure manufacturer and provider.
- Identify installation needs and costs, including upgrades to electrical wiring, and find a certified electrical contractor.
- Obtain required permits.
- Determine additional site needs, including signage and security.
- Identify project partners, including electric utilities and Clean Cities coalitions.
- Assess charging infrastructure maintenance and operation needs and costs.

Source: U.S. Department of Energy



Elements of a Procurement Request for Proposal

The following elements are typically contained in an Request for Proposal for Electric Vehicle Surface Equipment and Installation. These elements should serve as guide when filling in the unique circumstances of each jurisdiction's solicitation and should be customized for each RFP. A detailed RFP template can be found in Appendix F.

Contents

- I. Background
- II. Acronyms and Definitions
- III. Instructions for Submitting Proposals
- IV. Scope of the Project/Specifications/Qualifications/SOW
- V. Selection of Vendor, Proposal Evaluation & Award Process
- VI. Subcontracting
- VII. Acknowledgement of Terms
- VIII. Checklist

I. Background

Entity Background

The entity background provides a brief background of the organization and explains the reasoning for installing charging stations. Agencies should consider including details about whether the installation is for workplace use, public use, or both.

Brief Description of Proposal Requested

This section includes a summary of the following, if known: the quantity, locations, and types of electric vehicle supply equipment desired, and other general equipment requirements. Agencies should also consider including a site map, construction drawings, photos, and an electrical diagram for the site. This section should also include any agency-specific requirements for RFP process.

II. Acronyms and Definitions

This section includes a glossary of the necessary acronyms and definitions used throughout the RFP.

III. Instructions for Submitting Proposals

A. Submission Method: Provides the means by which proposals shall be submitted.

B. Published Procurement & Award Information: Provides information regarding where the award will be announced.

C. Designated Contact, Pre-Submission Questions & Agency Response: Details agency specific information regarding communication during the submission and selection process, parameters for asking questions.

D. Pre-Submission [Conference/Teleconference]: Provides pre-submission conference information and whether attendance is required. If relevant, provide access information. May be adjusted to reflect agency-specific procurement process requirements.

E. Solicitation Process: Provides a basic timeline for the process, being as specific as possible with dates and times. It should break down each step or phase for the solicitation and award process and list the proposal due date, time, and exact address for submission.

F. Organization Required: Specifies the way in which proposals should be organized when they are submitted. Consider using a chart to add further clarity.

G. Federal Funds: Provides information on whether federal funding may be used to fund the project.

H. Award: Provides information on how an award will be determined and where the information will be published.

I. References: Explains whether the organization requires references for experience as part of the RFP Response.

J. Invoicing Address: Provides an address for proper invoicing, and the conditions expected for invoicing.

IV. Specifications, Qualifications, or Statement of Work Form

Organizations should consider providing a structure for the potential Bidder to provide their statement of work, specifications, and qualifications, and other details.

V. Selection of Vendor, Proposal Evaluation & Award Process

A. Evaluation Process: Explains how proposals will be evaluated.

B. Negotiation: Identifies whether negotiation will be an option.

C. Selection of Preferred Respondent: Details how the selection of the awardee will be made.

D. Site Visits: Describes if the organization will conduct site visits as a condition of award, and what that entails.

E. Personnel: Explains to potential bidders how personnel will be evaluated.

F. Notice of Award: Provides details about how the award will be published.

G. Requests for Preference Form: The Illinois Procurement Code provides various preferences to promote business opportunities in Illinois. This section should include information about any claims the organization has for preferences, such as veteran or minority-owned businesses.

VI. Subcontracting

This portion of the RFP provides parameters for potential bidders to consider regarding sub-contracting.

VII. Acknowledgement of Terms

The following terms can be included and adjusted as needed:

- A. Terms of This Contract;**
- B. Termination for Cause;**
- C. Late Payment;**
- D. Expenses;**
- E. Federal Funding;**
- F. Invoicing;**
- G. Assignment;**
- H. Audit/Retention of Records;**
- I. No Waiver of Rights;**
- J. Indemnification and Liability;**
- K. Insurance;**
- L. Independent Contractor;**
- M. Solicitation and Employment;**
- N. Compliance with The Law;**
- O. Background Check;**
- P. Applicable Law;**
- Q. Schedule of Work;**
- R. Warranties for Supplies and Services;**
- S. Reporting, Status and Monitoring Specifications;**
- T. Exceptions and Provisions;**

U. Public Body & Governing Law: Provides basic details to bidders about the entity’s organizational structure or status. It provides context about the treatment of bids as a result of accordance with laws governing public bodies and instructions on how to request confidential treatment in accordance with governing law for public bodies;

V. Public Records and Requests for Confidential Treatment: Provides potential bidders the parameters for invoking confidential treatment; and

W. Reservations: Informs potential bidders about the rights that the requesting organization intends to retain as a potential buyer.

Part 5

Electric Vehicle Charging Station Network

Purpose & Intent

Widespread electric vehicle (EV) adoption in the Rockford Region will require a significant increase in the amount of electric vehicle supply equipment (EVSE) available. While EV owners primarily charge their vehicles at home, there may be instances when charging is either needed or more convenient when at work or while running errands. Thus, understanding commercial and industrial areas can provide insight into where workplace charging may occur or where public charging stations could be offered.

Currently, there are nine public electric charging stations with a total of 35 charging plugs. Of these, seven are Level 2 charging stations with 21 charging plugs and two direct current fast charging (DCFC) stations with 12 charging plugs.

Surveys and research on the charging behaviors of early EV adopters indicate a general order of the types of charging. Figure 5-1 demonstrates the expected use of charging infrastructure within a pyramid. Residential charging represents the base of the pyramid with the remaining categories of charging infrastructure listed upwards in approximate descending order of likely charging locations.ⁱⁱ Based upon this pyramid, the approximate amount of time to charge and the level of charging infrastructure needed for each type can be determined.

To address the substantial number of additional EVSE the Rockford Region will need, Region 1 Planning Council (RPC) has developed priority target areas for the installation of EVSE. The RPC undertook an analysis to determine the locations best suited for future public charging infrastructure, as well as identify areas with the highest potential demand for residential and workplace charging.

Figure 5-1. EVSE Estimates for the Rockford Region



Demand Analysis

The demand analysis conducted by RPC was an analytical exercise that looked at EV ownership indicators, regional travel patterns, and points of interest to identify where there will most likely be demand for charging infrastructure within the next five to ten years. As illustrated by the charging pyramid, the demand analysis took into account the four types of EV charging: residential, workplace, intraregional opportunity, and interregional opportunity.

The following section provides a description of the methodology and data sources used for the analysis. It is important to note that the results of the demand analysis are useful in planning for infrastructure, but should not be used as the only determining factor in installing EVSE.

Vehicle and EVSE Assumptions

To estimate the number of potential charging plugs that would be needed, an analysis on the potential the number of electric and hybrid vehicles that would need to be supported must first be conducted. Two estimates were calculated for the purposes of this plan. The first estimate was calculated based on the compound annual growth rate (CAGR) of EV and plug-in hybrid electric vehicles (PHEV) registered within the region over the past several years. The second estimate was calculated based on the CAGR of national EV and PHEV sales over the past several years. The estimated number of vehicles that could need support over the next 5 to 10 years are shown in Table 5-1.

Using the U.S. Department of Energy's Electric Vehicle Infrastructure Projection Tool (EVI-Pro), the MPO was able to estimate the number of electric vehicle charging plugs that would be needed to support the number of vehicles within the Rockford Urbanized Area. The following assumptions were made: only partial support would be needed for PHEV, as drivers would still partially rely on gasoline during a typical day; 100 percent of drivers would have access to home charging; and the vehicle mix of EV and PHEV would reflect the estimated number of each vehicle type.

If the number of fully electric vehicles and hybrid electric vehicles registered within the study area aligns with the estimates calculated, the region will need between approximately 90 to 195 public Level 2 charging stations (240 to 510 charging plugs); approximately 4 to 6 DCFC stations (20 to 35 charging plugs)¹; and between 389 to 824 workplace Level 2 charging plugs in 2030,ⁱ shown in Table 5-1.

Please note that these calculations are intended for illustrative purposes only and do not take into account market trends that

¹ The number of Level 2 stations is based on an average of 2.6 charging outlets per stations currently seen in the region and the number of DCFC stations is based on an average of six charging outlets per station currently seen in the region.

Table 5-1. EVSE Estimates for the Rockford Region

Regional Compound Annual Growth Rate

Year	Vehicle Forecast		Workplace Charging Plugs Needed	Public Charging Needed	
	EV	PHEV		Level 2 Plugs	DCFC Plugs
2020*	291	5,191	222	164	3
2025	1,290	6,594	288	203	10
2030	5,722	8,375	389	239	34

National Compound Annual Growth Rate

Year	Vehicle Forecast		Workplace Charging Plugs Needed	Public Charging Needed	
	EV	PHEV		Level 2 Plugs	DCFC Plugs
2020*	291	5,191	222	164	3
2025	992	9,995	423	277	8
2030	3,382	19,244	824	508	21

Source: Region 1 Planning Council; U.S. Department of Energy, Alternative Fuels Data Center

may impact EV and PHEV production or sales over the next 5 to 10 years.

Residential Charging

As previously noted, a majority of EV charging occurs overnight at home, which will typically meet an EV owner’s daily charging needs. Most EV owners will meet their daily driving range needs with an alternating current (AC) Level 1 equipment, which is frequently installed in garages and requires little to no additional cost if a power outlet on a dedicated branch circuit is available near their parking location.

To determine where EV owners were most likely to live, an analysis to identify the most likely EV adopters was conducted. This information will not only help local governments determine where EV-related permitting and inspections will likely occur, but will also assist utility companies in identifying where increased demand on the electrical grid could occur due to residential charging. EV readiness planning efforts from around the country and research conducted has identified the following indicators for determining likely EV ownership:

- **Income:** Research indicates that households with higher incomes are more likely to own an EV due to the higher up-front purchase costs.
- **Home Ownership:** Households who own their property are more likely to own an EV than those who rent. Home ownership reduces the financial and non-financial barriers to EVSE installation at home.
- **Dwelling Type:** Dwelling type can play a large role in residential charging. Consumers with a single-family home generally have fewer barriers to EV adoptions.

RPC utilized the U.S. Census Bureau’s American Community Survey (ACS) to conduct the residential charging demand analysis. For the purposes of the analysis, the most recently available five-year estimates (2018) were used at the block group level, which provided demographic data on median household income, home ownership (tenure), and dwelling unit type. Block groups which

met the following criteria were more heavily weighed as areas most likely to have EV adopters: block groups with a median income greater than the median income for the region, block groups with home ownership rates higher than the median level of home ownership for the region, and block groups that have a greater number of single-family dwellings than the median percentage for the region.

Figure 5-2 shows the locations that will most likely experience the highest demand for residential charging.

Multi-unit Residences

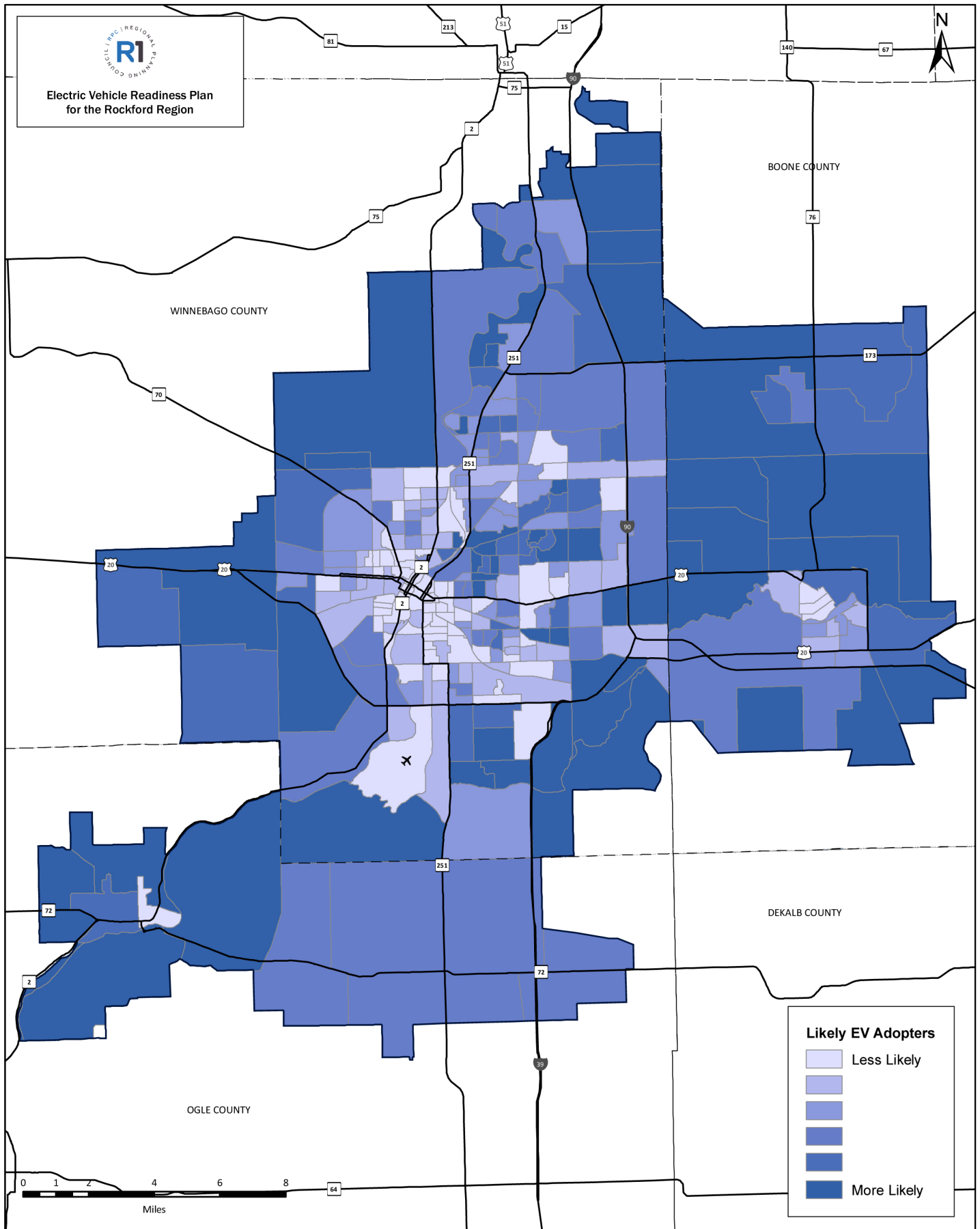
Although early EV adopters will most likely be individuals with higher household incomes and who own a single-family home, deployment of EVSE at multi-unit dwellings, such as condos or apartments, can make EV ownership more viable for a broader range of individuals. Some multi-unit dwelling property owners and managers have found that providing EV charging stations has been a unique way to help attract and retain residents and foster an environmentally sustainable community.ⁱⁱⁱ However, there are several considerations and barriers facing multi-unit dwelling beyond those facing single-family residences. Luckily, literature and guides have been created for multi-unit residential property owners who are interested in pursuing EVSE installation and are available on the U.S. Department of Energy’s Alternative Fuels Data Center website . Based upon surveys conducted, multi-unit residential property owners and residents have been faced with the following challenges:

Traffic Analysis Zone

Special areas delineated by state or local transportation officials in order to tabulate traffic-related data, especially commuting statistics and usually consists of one or more census blocks, block groups, or census tracts.

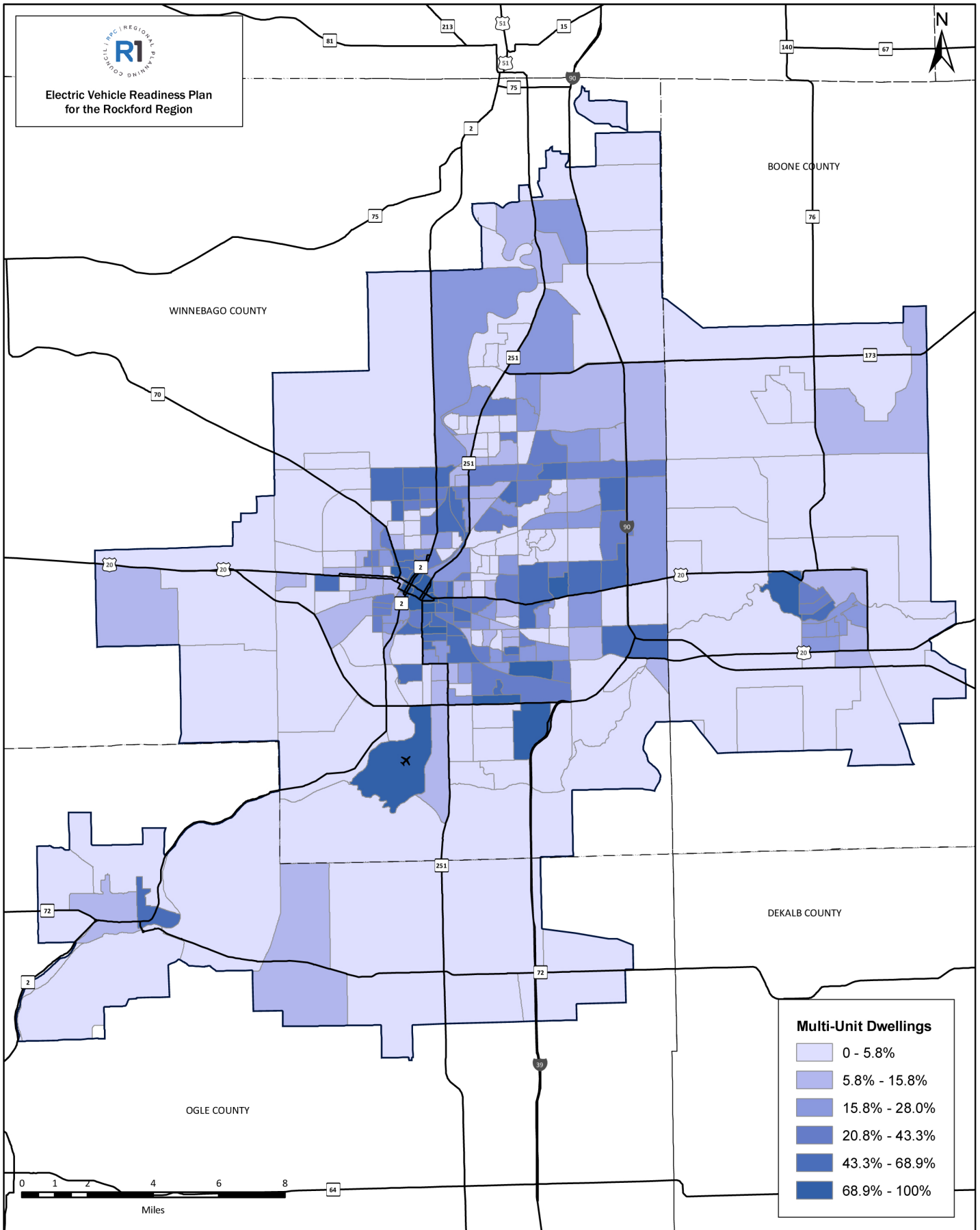
Source: U.S. Census Bureau

Figure 5-2. Areas with Highest Potential for Residential Charging: Likelihood of EV Adoption



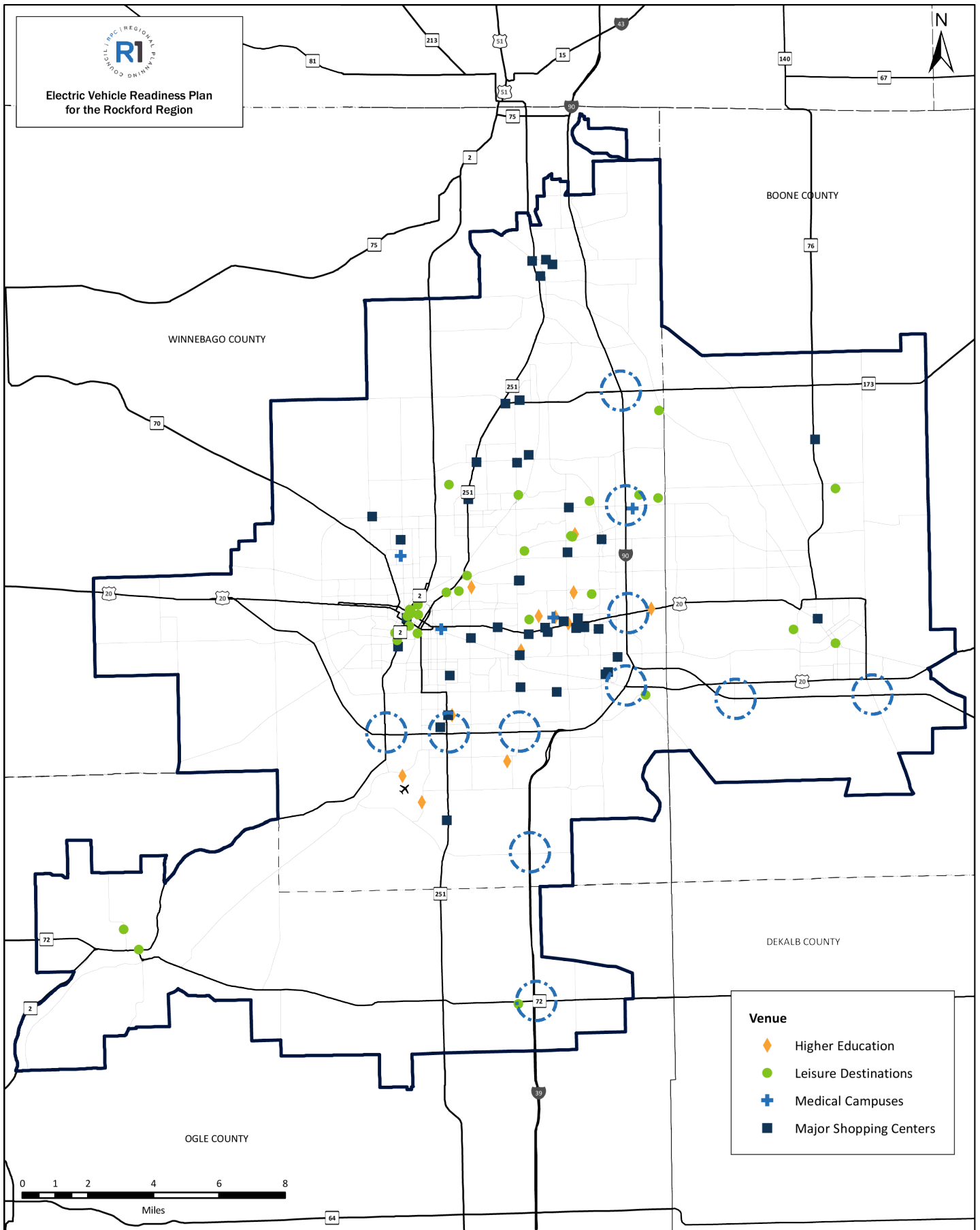
Source: Region 1 Planning Council; U.S. Census Bureau

Figure 5-3. Areas with Highest Potential for Multi-Unit Residential Charging



Source: Region 1 Planning Council; U,S, Census Bureau

Figure 5-5. Areas with Highest Potential for Public Charging



- Low early demand for charging from residents;
- Lack of familiarity with EVs and charging infrastructure among property owners;
- Difficulty reaching consensus on who should pay for equipment, installation, and operation costs;
- Balancing physical constraints and fairness around charging station site design in shared parking areas;
- Difficulty establishing a viable financially self-sufficient deployment model; and
- Etiquette around user rotation and linger time.

Using the five-year ACS data from the U.S. Census Bureau, RPC was able to determine where concentrations of existing multi-unit dwellings are located. Figure 5-3 shows the block groups with the highest concentrations of multi-unit dwellings.

Workplace Charging

The second most likely place a vehicle will spend time parked is in workplace parking areas. As such, the potential to charge at work can provide convenience and affordability to EV owners and potentially double the daily driving range. Workplace charging offers benefits to employers, employees, and building owners. Providing EV charging to employees and tenants provides the following benefits to employers and building owners: employee recruitment and retention; furthers sustainability goals, such as greenhouse gas reductions and LEED certification; improves a company’s public image through demonstrating leadership

in supporting cutting-edge, clean transportation technologies; supports employee satisfaction through the addition of workplace charging as part of an employee benefit package; and can attract and retain tenants. Additionally, workplace charging can offer employees several benefits, including alleviating range anxiety, doubling daily all-electric driving range for longer commutes and additional trips between work and home, providing flexibility in the location and timing of charging, and provides encouragement and incentives for switching from conventional vehicles to EVs.^{iv} For increased installation of EVSE at workplaces, it is important for all stakeholders to understand these benefits.

Figure 5-4 shows the locations of areas that will likely experience relatively high demand for workplace charging. These areas were determined based upon workplace locations with significant density of employees. To identify likely areas of workplace charging, RPC used employment data from Infogroup® aggregated to traffic analysis zones (TAZ).

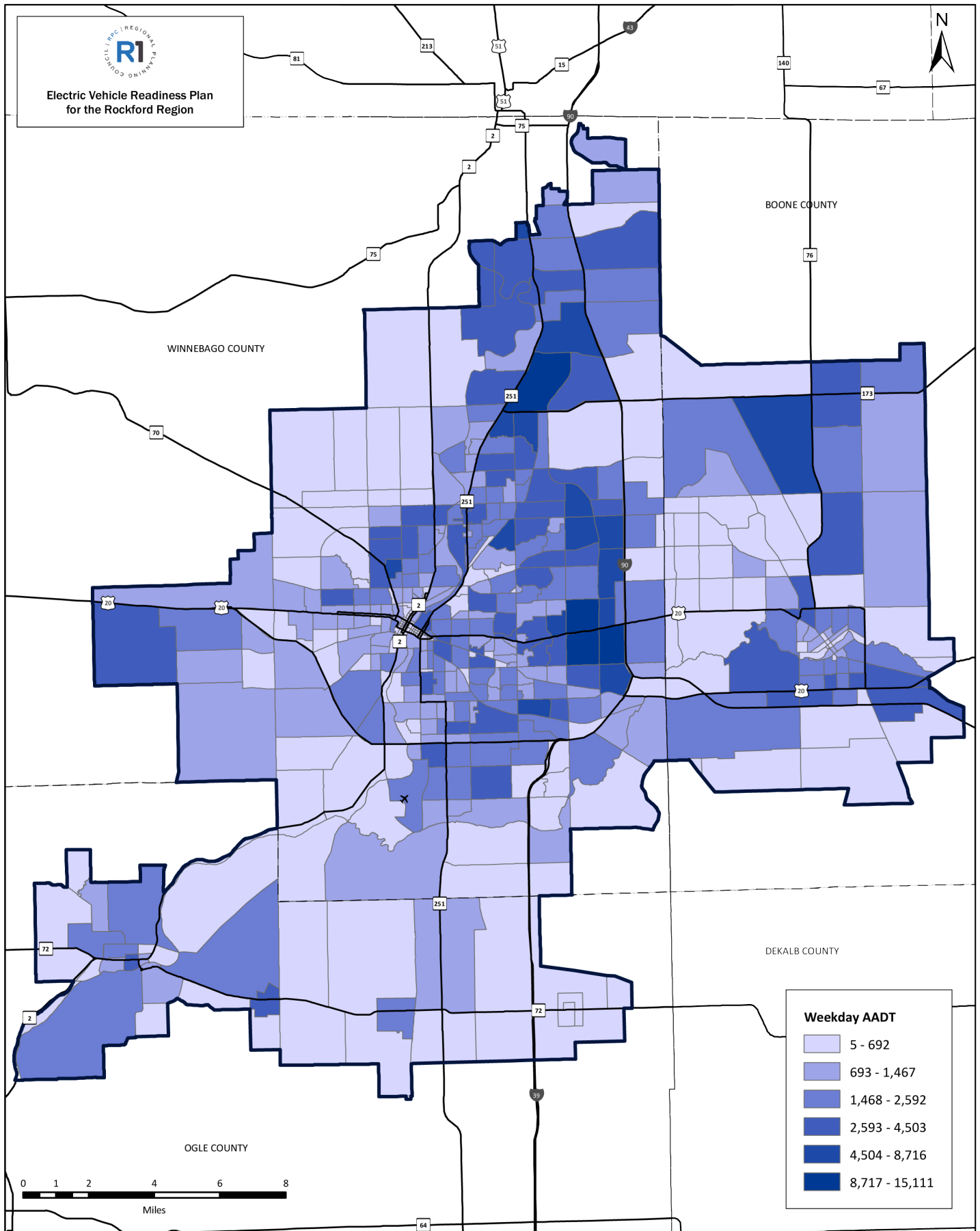
Employers and building owners interested in installing EVSE at their place of business face many of the same challenges as multi-unit residential dwellings, such as low early demand for charging from employees, and lack of familiarity with EVs and charging infrastructure. For employers or property owners interested in procuring and installation of EVSE, the U.S. Department of Energy has developed the “Plug-In Electric Vehicle Handbook for Workplace Charging Host” and provided numerous resources on their website.

Table 5-2. Available Charging Time and Recommended Charging Level by Venue Type

Venue	Example	Available Charging Time	Charging Level (Primary/Secondary)
Retail	Grocery stores, shopping centers, restaurants	0.5 - 2 hours	Level 2/DCFC
Leisure Destinations	Botanical gardens, parks, sports stadiums, cultural institutions	2 - 10 hours	Level 1/Level 2
Higher Education	Universities, community colleges, technical training centers	2 - 10 hours	Level 1/Level 2
Medical Campuses		2 - 24+ hours	Level 1/Level 2
Hotels		8 - 72+ hours	Level 1/Level 2
Airport (Short-term parking)		< 1 hour	Level 2/DCFC
Public Parking Areas	Parking garages, on-street parking	1 - 10 hours	Level 1/Level 2
Transportation Corridors	Interstates, rest areas, oases	< 0.5 hours	DCFC

Source: U.S. Department of Energy.

Figure 5-6. Areas with Highest Volume of Weekday Trips



Source: Region 1 Planning Council; StreetLight Data

Opportunity Charging

Opportunity charging covers a wide range of situations where EV drivers could potentially charge away from home or work. Opportunity charging directly correlates with priority areas for public charging station installation. Publicly-accessible stations for opportunity charging are an important component of EV readiness for the region because they can extend the electric range of EVs, increase public awareness of EVs, decrease range anxiety, and provide charging access to individuals who do not have access to home charging.^v A mix of public and private sector investment into public charging stations will be needed to meet the projected number of electric vehicles in the region.

Best practices from around the country have identified venues best suited for opportunity charging, including retail centers, leisure destinations, medical campuses, higher education campuses, public parking areas, airports, and along major transportation corridors. These locations are best suited for opportunity charging based on a number of factors, such as typical length of stay and high foot traffic. Table 5-2 breaks down each of type of venue, the typical available charging time, and recommended charging level. Figure 5-5 displays venue locations within the region.

Additionally, weekday trips can be a good indication of where individuals may travel to for day-to-day errands, while weekend trips tend to capture “leisure” activities, such as shopping and recreational destinations. Utilizing StreetLight Data, the RPC was able to identify areas within the region which had the highest number of weekday trips (Monday-Friday, 7:00 AM – 6:00PM). This analysis utilized the 2019 average daily traffic counts by TAZs. Figure 5-6 displays the concentration of weekday trips.

Priority Target Areas

Based upon the demand analysis, RPC has developed priority target areas for the deployment of public EV charging stations. The priority maps have been designed to show the areas with the highest potential utilization of public charging and can serve as a

guide for local jurisdictions. To further assist planning efforts, the RPC has classified priority areas into three zones. The zones are based upon the type of venue and suggested EVSE levels.

Fast Charging Zones

Priority areas classified as Fast Charging Zones are areas adjacent to heavily trafficked corridors, such as Interstate 90 and Interstate 39. Direct-current fast charging (DCFC) equipment is ideal for locations along heavy traffic corridors as they can provide 60 to 80 miles of range per 20 minutes of charging. In addition to heavily trafficked corridors, DCFC equipment is ideal for short-term parking areas, such as the Chicago Rockford International Airport. It is recommended by the U.S. Department of Energy’s Alternative Fuel Data Center to prioritize the installation of fast charging within a region.^{vi}

Convenience Charging Zones

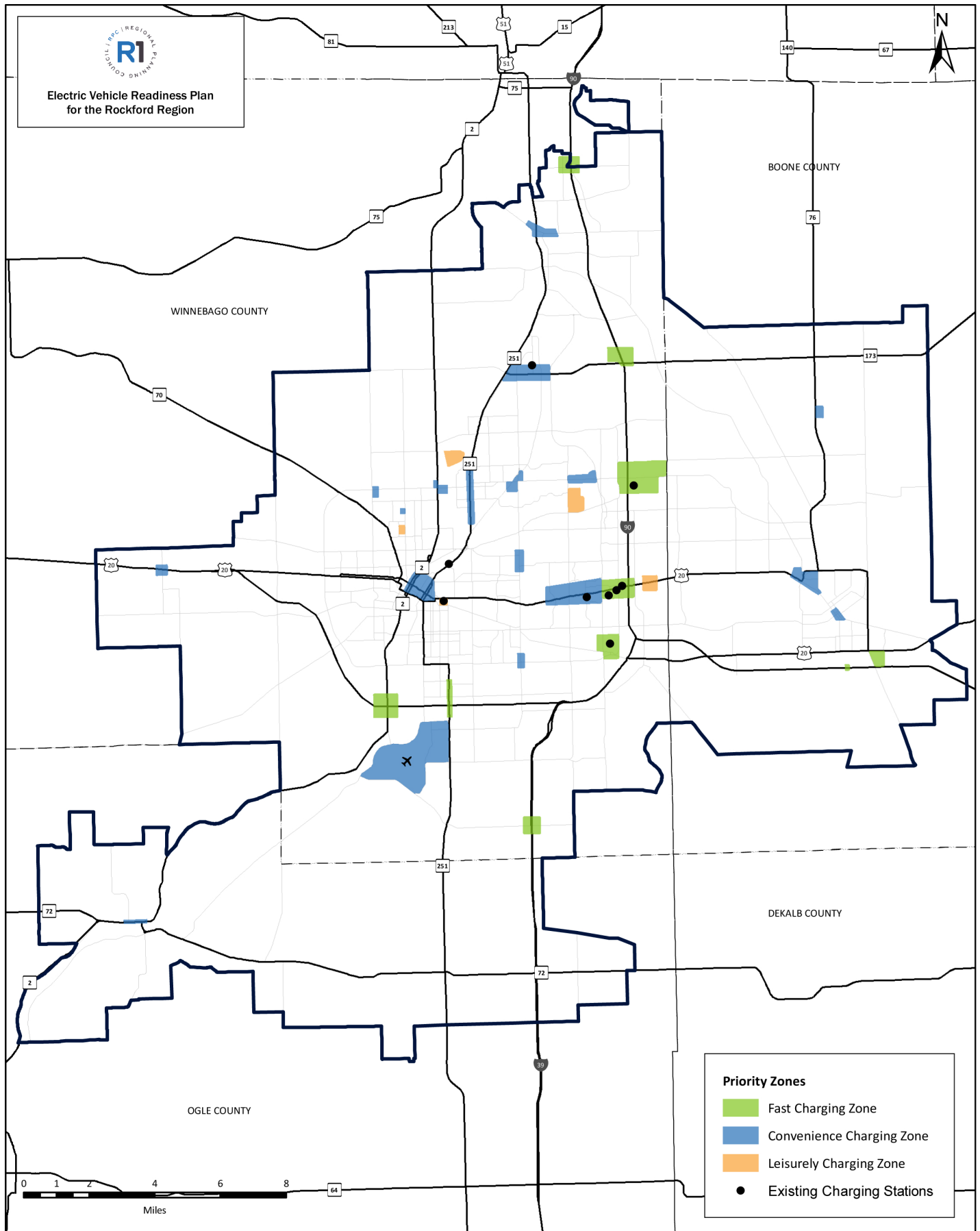
Priority areas classified with this type of zone contain retail and certain leisure destinations, such as grocery stores, restaurants, cultural institutions, and sporting venues. These areas would be best served by a mix of both DCFC and Level 2 EVSE as the dwell time at these locations can range from half an hour to four hours. Since Level 2 EVSE can typically deliver 10 to 20 miles of range per hour of charging, this type of equipment would be largely used by EV owners travelling within the region or EV owners who will be spending a good amount of time at a particular location, such as a museum or sporting event.

Leisure Charging Zones

These priority target areas are best suited for Level 1 or Level 2 EVSE, as they serve venues which have longer dwell time for potential users. Venues which fall into this zone include medical centers, municipal parking lots, and higher education institutions. With a charging rate of two to five miles of range per 1 hour of charging, Level 1 EVSE can replenish about 40 miles of electric range for a mid-size EV in 8 hours.^{vii}

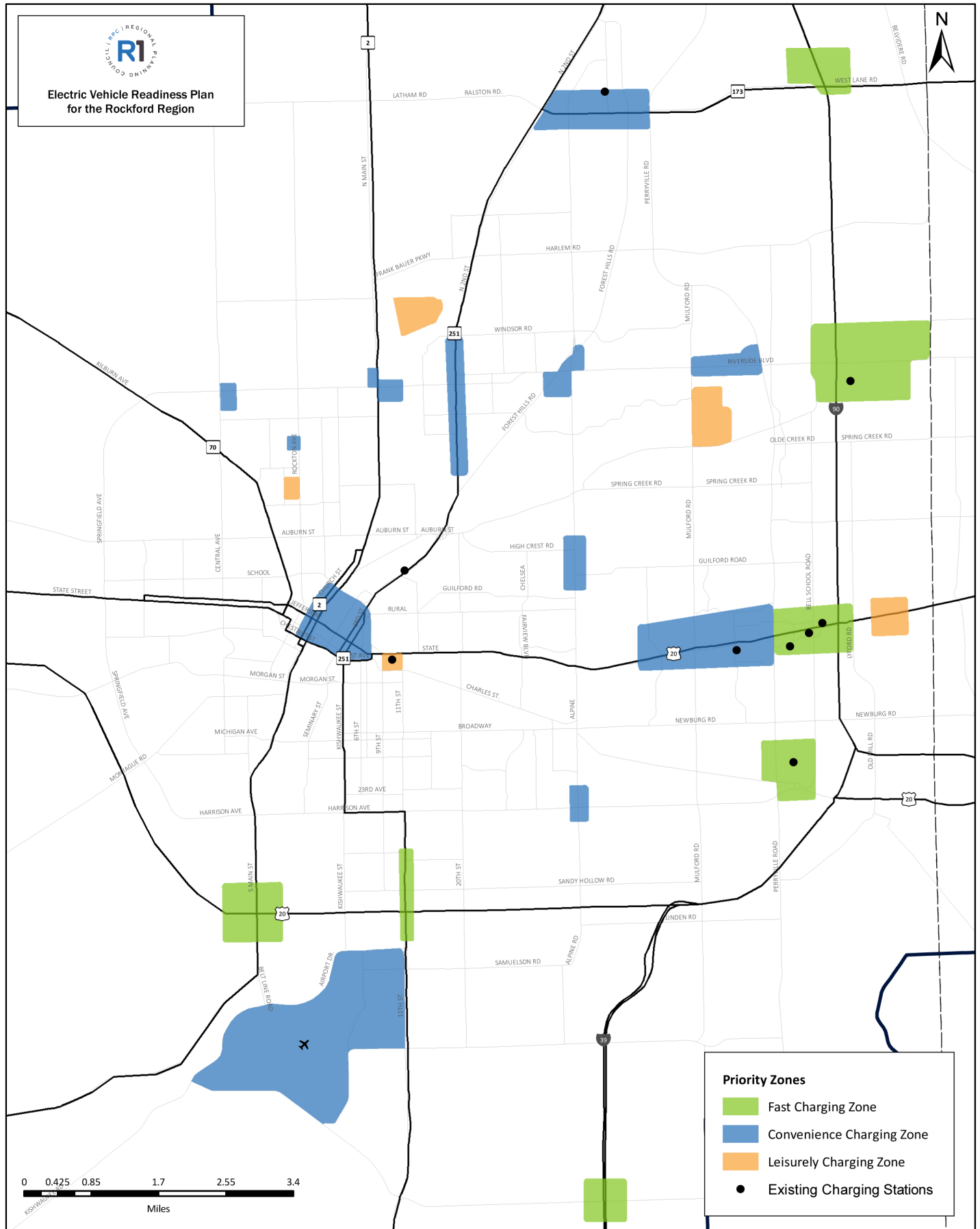


Figure 5-7. Public EV Charging Priority Areas within the Study Area



Source: Region 1 Planning Council

Figure 5-9. Public EV Charging Priority Areas within Winnebago County



Source: Region 1 Planning Council

Part 6

Funding Sources & Opportunities

As explained throughout the plan, costs associated with creating electric vehicle (EV) charging infrastructure remain a major barrier to local implementation. This portion of the plan identifies various federal, state, and local sources that can be used to encourage electric vehicle use and the building of regional charging infrastructure.

There are several federal assistance programs that provide support for both public and private entities, including programs by the U.S. Department of Energy, Department of Transportation, and the Environmental Protection Agency. Additional funding can be found at the state level, primarily through the Volkswagen Settlement Funds. Local funding for electric vehicle charging infrastructure is harder to obtain, but there are several avenues local governments and businesses can explore moving forward.

Federal

The following list indicates a few of the potential federal funding sources available for promoting electric vehicle use and charging infrastructure.

U.S. Department of Energy

The U.S. Department of Energy (DOE) offers opportunities for private businesses and public universities that support the development of energy-efficient and environmentally-friendly transportation options through the Advanced Vehicle Technologies Research Funding Opportunity.ⁱ Additionally, the Alternative Fuel Infrastructure Tax Credit provides tax credits to fueling station owners and consumers for purchasing alternative fueling equipment, of which electricity is included.ⁱⁱ

The Office of Energy Efficiency & Renewable Energy also provides research and innovation grants to small businesses or individuals for ideas on energy-saving homes, buildings, and manufacturing; sustainable transportation; and renewable electricity generation.ⁱⁱⁱ Lastly, the DOE provides several different loan programs to support the development of advanced technology vehicles and other clean energy projects.^{iv}

Federal Highway Administration

The Federal Highway Administration (FHWA) has funding available for state and local governments to reduce air pollution through its Congestion Mitigation and Air Quality Improvement Program (CMAQ).^v CMAQ funds are not distributed to all state DOTs and MPOs. Instead, only state DOTs and MPOs that contain urbanized areas which are designated as nonattainment or maintenance for ozone (O₃), carbon monoxide (CO), or particulate matter (PM₁₀ and PM_{2.5}) National Ambient Air Quality Standards (NAAQS)^{vi} receive these funds. As such, the Rockford MPO does not receive CMAQ funds.

Another source of funding is the Surface Transportation Block Grant (STBG) Program. STBG¹ is one of the primary federal funding programs for the region to implement transportation projects identified in the MTP. The STBG program promotes flexibility in state and local transportation decisions and provides funding to best address the region's transportation needs. This program funding may be used by states and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, pedestrian and bicycle infrastructure, transit capital, planning projects, and intercity passenger projects.

Federal Aviation Administration

The Federal Aviation Administration (FAA) has an Airport Zero Emissions Vehicle and Infrastructure Pilot Program that allows airport sponsors to use Airport Improvement Program funds to purchase Zero Emissions Vehicles (ZEVs) and their supporting infrastructure.^{vii} The airport must be dedicated to public use in order to be eligible, with priority given to EPA-designated nonattainment areas.

Federal Transit Administration

The Federal Transit Administration (FTA) has a Low or No Emission Vehicle Grant Program that awards state and local governments with funds to purchase or lease low to zero emission transit buses and the required supporting facilities.^{viii} They also provide financial assistance to both public and private entities for research, demonstration, and deployment projects involving low or zero emission public transportation vehicles.^{ix} Aside from these funding opportunities, the FTA allows both public and private entities a weight exemption for Plug-in Electric Vehicles of up to 2,000 pounds over the current federal limit.^c

Internal Revenue Service

The Internal Revenue Service (IRS) issues Qualified Energy Conservation Bonds to qualified state, tribal, and local governments. Eligible activities include ethanol and other non-fossil fuels, as well as advanced battery manufacturing technologies.^{xi} The IRS also provides a credit for qualified Plug-in Electric Drive Motor Vehicles, limited to \$7,500.^{xii} Additionally, they offer another credit for the purchase of a two-wheeled plug-in electric drive vehicle, at up to 10% of the cost.^{xiii}

¹ The federal funding program has been referred to by several different names over the past few decades. Prior to the 1990s, this funding source was referred to as Federal Aid Urban (FAU) funding. With the passage The Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the funding source was referred to as Surface Transportation Program-Urban (STP-U). The FAST Act, passed in 2015, now refers to the program as the Surface Transportation Block Grant (STBG).

U.S. Environmental Protection Agency

The Environmental Protection Agency (EPA) offers rebates in addition to grants for schools to retrofit or replace older diesel school buses.^{xiv} Private entities that operate school buses under a contract with those above can also apply for these rebates. Further, each state-level EPA office provides its separate funding for projects like electric vehicle adoption and infrastructure.

State

Within the State of Illinois, several electric vehicle funding sources and incentives are available through various departments. However, there is not as much funding for electric vehicle charging infrastructure as other states. An overview of the current funding sources and incentives are below.

Volkswagen Settlement Funds

The Illinois Environmental Protection Agency (Illinois EPA) has been designated as the lead agency to administer funds allocated to Illinois from the Volkswagen Environmental Mitigation Trust (Trust). The Trust was established by Appendix D of the VW Settlement (Settlement). Illinois' initial allocation of funds is approximately \$108 million to be used to fund mobile source diesel emission reduction projects. As directed by the Trust Agreement, the Illinois EPA has developed a Beneficiary Mitigation Plan (BMP) to address Illinois' planned use of the funds. The Illinois EPA held a 93-day public comment period to solicit public input on the draft Beneficiary Mitigation Plan. After consideration of public input, including written comments, survey results, and opinion expressed at the public listening sessions, the Agency finalized the State of Illinois Beneficiary Mitigation Plan: Volkswagen Environmental Mitigation Trust Agreement. The Beneficiary Mitigation Plan was submitted to Wilmington Trust on August 28, 2018.

Illinois Secretary of State

Fleets with 10 or more vehicles located in defined areas of the state must pay an annual fee of \$20 per vehicle in addition to registration fees. Electric vehicle owners are exempt from these fees.^{xv} The fees that are collected are deposited into an Alternate Fuels Fund.

Illinois Department of Education

The Illinois Department of Education will reimburse any qualifying school districts for the cost of converting gasoline buses to more fuel-efficient engines or to engines using alternative fuels.^{xvi}

Illinois Environmental Protection Agency

The Illinois Environmental Protection Agency (IEPA) allows all EVs to be exempt from state motor vehicle emissions inspections.^{xvii} In October of 2020, the EPA awarded more than \$3 million for clean diesel projects in the Midwest, most of which will be focused in Illinois. Funding will support the reducing of diesel emissions, replacing legacy diesel equipment and transit buses with zero-emission electric transit buses.^{xviii}

Local

Local funding sources for electric vehicle charging infrastructure remain scarce. However, below are a few sources that other local municipalities have used in order to incentivize EV purchase and charging infrastructure development.

Nonprofit Support

Coordination with nonprofits can open up funding streams that might not be available to local governments. Several nonprofit programs and foundations support environmental and community health initiatives, both of which are covered with increased EV adoption and infrastructure.

Public-Private Partnerships

Public-private partnership support is critical in continuing to build EV charging infrastructure and increase EV adoption. A number of successful public-private partnership examples exist, from engaging utilities in planning and deploying charging stations and offering incentives to customers, to working with developers to install charging units at parking garages, grocery stores, and workplaces. In particular, workplace charging is an important opportunity area to increase EV charging stations and reduce range anxiety.

Local Government

Rebates

Offering rebates for installing charging stations is a popular tactic that both state and local governments use to incentivize residents and businesses to install EV charging infrastructure.^{xix}

Taxes

Local governments have also either set aside portions of their taxes collected to fund EV implementation or added further taxes on more polluting motor vehicles to discourage the continued purchase of them.

Part 7

Moving Forward

Over the next five years, key stakeholders in the region will need to work individually and collectively to prepare for vehicle electrification. The Electric Vehicle Readiness Plan for the Rockford Region attempts to capture the necessary policy and actions required to meet the forecasted market demand for electric vehicles (EV) and hybrid electric vehicles. Working regionally will allow a cohesive, coordinated approach that will provide all stakeholders involved in the deployment of electric vehicle supply equipment (EVSE), from utility companies to property managers, the resources necessary to successfully accomplish the overarching goal of becoming EV-Ready.

Additionally, the region needs to stay up to date on new and emerging technologies, as the transportation sector is rapidly changing. Emerging technologies, including but not limited to: connected and autonomous vehicles, extreme fast charging, inductive charging, and battery recycling, will have an impact on the transportation system, environment, and economic development. It will be important to stay on the forefront of these technologies and act proactively to ensure the region is ready.

Measuring Success

By tracking specific metrics, the region will not only have a better understanding of the progress being made towards EV-Readiness, but will also have a way to track which strategies have been effective and why. The following table lists the readiness strategies and identifies metrics to track the progress toward successfully becoming EV-Ready.



Photo source: U.S. Department of Energy

Table 7-1. EV Readiness Strategies with Metrics

Goal 1: Establish a robust network of public charging station infrastructure within the study area.	
<u>Strategy</u>	<u>Metric</u>
Identify and prioritize key locations for electric vehicle supply equipment (EVSE) installation.	Number of stations installed in priority zones.
Promote and establish incentives for the installation of EVSE by businesses and in commercial developments.	Number of incentives utilized.
Provide wayfinding signage to help electric vehicle drivers navigate to public charging stations.	Number of wayfinding signs mounted.
Upgrade or install new conduit to accommodate EV charging infrastructure during roadway construction projects, where appropriate.	Miles of conduit installed or upgraded.
Goal 2: Integrate electric vehicle supply equipment (EVSE) into public policies and planning efforts.	
<u>Strategy</u>	<u>Metric</u>
Update zoning ordinances to identify what types of EVSE are allowable by land use type.	Number of ordinances updated.
Establish building codes to specify standards that ensure EVSE installations are safe and accessible.	Number of codes established.
Streamline the permitting process for the installation of EVSE on residential and commercial properties.	Number of permit processes updated.
Develop and maintain electric vehicle parking standards that address the design and location of parking spaces as well as minimum space requirements.	Number of standards developed.
Incorporate EV readiness in local and regional planning documents, including, but not limited to, comprehensive plans and corridor studies.	Number of planning documents that incorporate EV readiness.
Educate inspectors on the electrical capacity necessary to accommodate future EVSE.	Inspectors trained.
Connect interested property owners and managers, homeowner associations, and businesses to educational resources and contacts relating to EVSE implementation.	Number of informational units.
Goal 3: Act as a leader in coordinating efforts to make Northern Illinois EV-ready.	
<u>Strategy</u>	<u>Metric</u>
Coordinate with regional partners to leverage procurement and funding opportunities.	Amount of funding received.
Partner with utility providers and companies to leverage public-private partnerships for the installation of EV charging infrastructure.	Number of partnerships formed.
Encourage the use of battery electric vehicles (BEV) or hybrid electric vehicles (HEV) in municipal fleets.	Number of municipally owned BEV or HEVs.
Advocate for state-wide policies and funding programs to support the installation of public electric vehicle infrastructure.	Number of state grant programs and state policies adopted
Promote the use of clean and/or renewable energy sources to power electric vehicle charging stations.	Use of clean/renewable energy sources.

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Appendix A: Glossary of Terms

Acronyms & Abbreviations

A

AC	Alternating Current
ACS	American Community Survey
ADA	Americans with Disabilities Act
AFV	Alternative Fuel Vehicles

B

BEV	Battery Electric Vehicles
BMP	Beneficiary Mitigation Plan

C

CMAQ	Congestion Mitigation And Air Quality Improvement Program
CO	Carbon Monoxide

D

DCFC	Direct Current Fast Charging
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation

E

EPA	U.S. Environmental Protection Agency
EV	Electric Vehicles
EVI-Pro	Electric Vehicle Infrastructure Projection Tool
EVSE	Electric Vehicle Supply Equipment

F

FAA	U.S. Department Of Transportation, Federal Aviation Administration
FAST	Fixing America’S Surface Transportation Act
FHWA	U.S. Department Of Transportation, Federal Highway Administration
FTA	U.S. Department Of Transportation, Federal Transit Administration

H

HEV	Hybrid electric vehicle
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I

IBC	International Building Codes
ICE	Internal Combustion Engine
IDOT	Illinois Department Of Transportation’S
Illinois EPA	Illinois Environmental Protection Agency
Illinois Tollway	Illinois State Toll Highway Authority
IRS	Internal Revenue Service

K

kWh	Kilowatt hour
-----	---------------

M

MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
MUTCD	Manual Of Uniform Traffic Control Devices

N

NAAQS	National Ambient Air Quality Standards
NEC	National Electrical Code

O

O3	Ozone
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P

PHEV	Plug-In Hybrid Electric Vehicle
PM ₁₀	Particulate Matter smaller than 10 Micrometers
PM _{2.5}	Particulate Matter smaller than 2.5 Micrometers

R

RFP	Request For Proposals
RPC	Region 1 Planning Council

S

Settlement	VW Settlement
STBG	Surface Transportation Block Grant

T

TAZ	Traffic Analysis Zones
Trust	Volkswagen Environmental Mitigation Trust

Glossary of Terms

A

Autonomous Vehicle

Also known as self-driving or driverless vehicles, are vehicles in which some aspect of control is automated by the car.

Source: National Highway Traffic Safety Administration

C

Charge Port

The charge port allows the vehicle to connect to an external power supply in order to charge the traction battery pack.

Source: U.S. Department of Energy

Clean Air Act

This law defines the U.S. Environmental Protection Agency's responsibilities for protecting and improving the nation's air quality and stratospheric ozone layer.

Source: U.S. Environmental Protection Agency

Complete Streets

A transportation policy and design approach that requires streets to be planned, designed, and maintained to enable safe, convenient, and comfortable travel for all modes of travel. At the core of the complete streets philosophy is the idea that pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a street.

Source: U.S. Department of Transportation

Compressed Natural Gas

Produced by compressing natural gas to less than 1% of its volume at standard atmospheric pressure.

Source: U.S. Department of Energy

Congestion Mitigation And Air Quality Improvement Program (CMAQ)

The CMAQ program provides funds to States for transportation projects designed to reduce traffic congestion and improve air quality, particularly in areas of the country that do not attain national air quality standards.

Source: U.S. Department of Transportation

Connected Vehicle

A connected vehicle has internal devices that allow it to connect to other vehicles or with an external infrastructure system.

Source: Federal Highway Administration

D

DC Fast Charging Equipment

Direct-current (DC) fast charging equipment (typically 208/480V AC three-phase input), enables rapid charging along heavy traffic corridors at installed stations.

Source: U.S. Department of Energy

E

Electric Vehicle

Vehicles that use a battery pack to store the electrical energy that powers the motor. Also referred to as battery electric vehicles.

Source: U.S. Department of Energy

Electric Vehicle Supply Equipment

All equipment needed to deliver electrical energy from an electricity source to a plug-in electric vehicle battery.

Source: U.S. Department of Energy

Emissions

Emissions are defined as harmful, polluting gases that affect the Earth's atmosphere.

Source: U.S. Environmental Protection Agency

G

Greenhouse Gases

Gases that trap heat in the upper atmosphere are defined as greenhouse gases (e.g. Carbon Dioxide, Methane, Nitrous Oxide, and Fluorinated Gases).

Source: U.S. Environmental Protection Agency

H

Hybrid Electric Vehicle

Vehicles powered by an internal combustion engine in combination with one or more electric motors that use energy stored in batteries.

Source: U.S. Department of Energy

I

Intelligent Transportation Systems (ITS)

The application of advanced technologies to improve the efficiency and safety of transportation systems.

Source: Federal Highway Administration

Internal Combustion Engine (ICE)

A conventional vehicle motor that burns fossil fuel in a chamber in the presence of air.

Source: U.S. Department of Energy

K

Kilowatt Hours

A measure for electricity use

Source: U.S. Department of Energy

L

Land Use

Land use is a term used to describe the human use of land. It represents the economic and cultural activities (e.g. agricultural, residential, industrial, mining, and recreational) that are practiced at a given area.

Source: U.S. Environmental Protection Agency

Level 1 Charging Equipment

Alternating Current (AC) equipment that provides charging through a 120 volt (V) AC plug.

Source: U.S. Department of Energy

Level 2 Charging Equipment

Alternating Current (AC) equipment that offers charging through 240V (typical in residential applications) or 208V (typical in commercial applications) electrical service.

Source: U.S. Department of Energy

M

Metropolitan Planning Area

The geographic area in which the metropolitan transportation planning process required by 23 U.S.C. 134 and section 8 of the Federal Transit Act (49 U.S.C. app. 1607) must be carried out.

Source: Federal Highway Administration

Metropolitan Planning Organization

A regional policy body, required in urbanized areas with populations over 50,000, and designated by local officials and the governor of the state to carry out the metropolitan transportation requirements of federal highway and transit legislation.

Source: Federal Highway Administration

Miles Per Gallon Of Gasoline Equivalent

Miles per gallon of gasoline equivalent (mpge) represents the number of miles a vehicle can travel using a quantity of fuel with the same energy content as a gallon of gasoline (33 kilowatt-hours).

Source: U.S. Department of Energy

N

Natural Gas

An odorless, gaseous mixture of hydrocarbons—predominantly made up of methane (CH₄).

Source: U.S. Department of Energy

P

Plug-In Hybrid Electric Vehicle

Vehicles that use batteries to power an electric motor and use another fuel, such as gasoline or diesel, to power an internal combustion engine or other propulsion source.

Source: U.S. Department of Energy

Public Private Partnership

Contractual agreements between a public agency and a private entity that allow for greater private participation in the delivery

of projects.

Source: U.S. Department of Transportation

W

Well-To-Wheels

Analysis of energy use and emissions from the primary energy source through vehicle operation.

Source: U.S. Department of Energy

Appendix B: Zoning Ordinance Template

DEFINITIONS

AC: alternating current (electricity).

Battery: (pl. batteries) a cell or cells onboard an electric vehicle which is used for storing and furnishing electrical energy for the purpose of propelling the vehicle.

Battery Electric Vehicle: an electric vehicle with an onboard battery that operates exclusively on electrical energy from the battery, which battery is charged from an external source such as a charging station.

Charging level: the standardized indicators of electrical force, or voltage at which an electric vehicle's battery is recharged. Typical electric vehicle charging levels and specifications are:

- a) Level 1- AC slow battery charging. Voltage is 120 volts.
- b) Level 2 - AC medium battery charging. Voltage is between 120 volts and 240 volts.
- c) Level 3 – DC fast or quick battery charging. Voltage is greater than 240 volts. Sometimes referred to as “DC Fast”.

Charging Station: equipment that has as its primary purpose the transfer of electric energy by conductive or inductive means to a battery or other energy storage device located onboard an electric vehicle. Various types of charging stations include:

- a) Accessible charging station: a charging station incorporated into or immediately adjacent to a handicapped parking space as “handicapped parking space” is defined by the Illinois Vehicle Code.
- b) Level 3 charging station: (sometimes: DC Fast charging station) a charging station that provides any single-phase voltage or current rating higher than that of Level 2, or any three- phase supply voltage configuration.
- c) Private charging station: a charging station that is (1) privately owned and restricted access (e.g., single-family home, executive parking, designated employee parking, etc.) or (2) publicly owned and restricted (e.g., fleet parking with no access to the general public).
- d) Public charging station: a charging station that is (1) publicly owned and publicly available (e.g., park & ride, public parking lots, on-street parking, etc.) or (2) privately owned and publicly available (e.g., shopping center parking, non-reserved parking in multi-family parking lots, etc.).

Charging station equipment: the conductors, including ungrounded and grounded, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, charging stations or apparatus installed specifically for the purpose of delivering electrical energy from the charging station to the electric vehicle.

Charging station space: a dedicated, marked space that identifies the use thereof as exclusively for the charging of electric vehicles.

DC: direct current (electricity).

Electric scooters and/or motorcycles: a 2-wheel or 3-wheel electric vehicle that operates exclusively on electrical energy stored in the vehicle's batteries.

Electric vehicle: a vehicle that operates, either partially or exclusively, on electrical energy from a charging station or other electrical energy source that is stored in the vehicle's battery for propulsion purposes. “Electric vehicle” includes: (1) a battery electric vehicle; (2) a plug-in hybrid electric vehicle; (3) a neighborhood electric vehicle; and (4) electric scooters or motorcycles.

NEC: National Electrical Code

Neighborhood electric vehicle: an electric vehicle with four (4) wheels that conforms to federal regulations under Title 49 C.F.R. Part 571.500 which can from a stand still attain a speed of 20 miles per hour (mph) within one (1) mile but cannot exceed a speed of more than 25 mph.

Non-electric vehicle: a vehicle that does not meet the definition of “electric vehicle” as provided herein.

OSHA: Occupational Safety and Health Administration

Plug-in hybrid electric vehicle (PHEV): an electric vehicle that (1) contains an internal combustion engine and also allows power to be delivered to drive wheels by an electric motor, and; (2) charges its battery primarily by connecting to a charging station or other electrical source not on board the vehicle; (3) may additionally be able to sustain a battery charge using an on-board internal-combustion-driven generator; and (4) has the ability to be propelled through the use of electricity.

Vehicle: has the same meaning as provided in the Illinois Vehicle Code 625 ILCS et seq.

ARTICLE 1. PURPOSE

1.1. PURPOSE

The purpose of this code is to establish minimum requirements to safeguard public health, safety and general welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of electrical systems and equipment related to Electric Vehicle Infrastructure.

1.2 APPLICABLE REGULATION

The following Regulatory Instruments are applicable to the subject of EVI Zoning:

- [2015 International Building Code](#)
- [2015 International Mechanical Code - including Appendix Chapter \(A\);](#)

- *2015 International Fuel and Gas Code - including Appendix Chapters (A, B, C, D);*
- *2015 International Residential Code - including Appendix Chapters (E, F, G, J, K, M, O, P);*
- *2015 International Existing Building Code - including Appendix Chapters (A, B);*
- *2015 International Fire Code - including Appendix Chapters (A, B, C, D, F, H, I, J);*
- *2015 International Swimming Pool and Spa Code;*
- *2015 International Solar Energy Provisions;*
- *2014 National Electrical Code (NFPA 70) as adopted and amended.*

1.3 SCOPE

This Ordinance applies to the design, construction, installation, alterations, repairs, relocation, replacement, addition to, use or maintenance of electrical systems and equipment related to EVSE.

1.4 INSPECTION

1.4.01. General: The *[BUILDING OFFICIAL]* shall make inspections in accordance with requirements set forth in the most current NEC as related to this ordinance.

1.5 LIABILITY FOR DAMAGES

This Ordinance shall not be construed to affect the responsibility or liability of any party owning, designing, operating, controlling, testing per NEC or OSHA requirements, or installing any electrical equipment for damages to persons or property caused by a defect therein, nor shall the [Electrical Commission members] or the *[JURISDICTION]* or any of its employees be held as assuming any such liability by reason of inspection, re-inspection, other examination authorized or any lack of inspection thereof.

ARTICLE 2. DEVELOPMENT/ZONING REGULATIONS & GUIDE

2.1. PERMITTED LOCATIONS

2.1.01: Level-1 and Level-2 charging stations are permitted in every zoning district, when accessory to the primary permitted use of said district. Charging stations located at single-family, multiple-family, and mobile home park dwellings shall be designated as private use only. Installation of level-2 charging stations shall be subject to building permit approval.

2.1.02: Level-3 (DC Fast) charging stations are permitted in [these zoning categories] when accessory to the primary permitted use. Installation thereof shall be subject to building permit approval.

2.1.03: Retail Charging: If the primary use of a parcel is the retail charging of electric vehicle batteries, installation thereof shall be subject to permit approval.

2.2. STATION REQUIREMENTS AND DESIGN CRITERIA

2.2.01. Contractors' responsibilities: It shall be the responsibility of every contractor who enters into contracts for the installation or repair of electrical systems for which a permit is required

to comply with adopted state and local rules and regulations concerning licensing.

2.2.02 General Charging Station Requirements for Multi-Family Residential, Non-Residential Development, and Public Rights-of-Way:

A charging station space may be included in the calculation for minimum parking spaces that are required, pursuant to other County and State regulations. There is no minimum requirement for EV Charging Stations at existing multi-family residential, non-residential, or public rights-of-way facilities. A minimum of 10% of charging station spaces is required at new facilities. Where provided, spaces for charging station purposes are required to include the following:

- a) Signage: Each charging station space shall be posted with signage indicating the charging station space is only for use by electric vehicles for charging purposes. Days and hours of operations shall be included if time limits or tow away provisions are to be enforced.
- b) Maintenance: Charging station equipment shall be maintained in all respects. A phone number or other contact information shall be provided on the charging station equipment for reporting purposes when the equipment is not functioning or other equipment problems are encountered.
- c) Accessibility: Where charging station equipment is provided within a pedestrian circulation area, such as a sidewalk or other accessible route to a building entrance, the charging station equipment shall be located so as not to interfere with accessibility requirements of the Illinois Accessibility Code or other applicable accessibility standards.
- d) Lighting: Where charging station equipment is installed, adequate site lighting shall be provided in accordance with *[JURISDICTION]* ordinances and regulations.
- e) Charging Station Equipment: Charging station outlets and connector devices shall be no less than 36 inches and no higher than 48 inches from the ground or pavement surface where mounted, and shall contain a retraction device and/or a place to hang permanent cords and connectors from a sufficient and safe distance above the ground or pavement surface. Equipment mounted on pedestals, lighting posts, bollards, or other devices shall be designated and located as to not impede pedestrian travel or create trip hazards on sidewalks.
- f) Charging Station Equipment Protection: Adequate charging station equipment protection, such as concrete-filled steel bollards, shall be used. Installation of Charging Station Equipment by any means requires that stations be made safe for use in inclement weather. Non-mountable curbing may be used in lieu of bollards, if the charging station is setback a minimum of 24 inches from the face of the curb.
- g) Usage Fees: An owner of a charging station is not prohibited from collecting a fee for the use of a charging station, in accordance with applicable State and Federal regulations. Fees shall be prominently displayed on the charging station.
- h) Required Information Posting: The following

information shall be posted at all electric vehicle charging stations: 1. Voltage and amperage levels; 2. Hour of operations if time limits or towaway provisions are to be enforced by the property owner; 3. Usage fees; 4. Safety information; 5. Contact information for reporting when the equipment is not operating or other problems.

2.2.03. Those providing charging station spaces should consider the following:

- a) Notification. Information on the charging station, identifying voltage and amperage levels and time of use, fees, or safety information.
- b) Signage. Installation of directional signs at appropriate decision points to effectively guide motorists to the charging station space(s).
- c) Data Collection. To allow for maintenance and notification, the [JURISDICTION] shall require the owners of public charging stations to provide information on the charging station's geographic location, date of installation, equipment type and model, and owner contact information.

2.2.04. Guidance, Quantity, and Location

2.2.04.01. Residential: In order to proactively plan for and accommodate the anticipated growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new one-family and multiple-family homes with garages be constructed to provide a 220-240-volt/40-amp outlet on a dedicated circuit in close proximity to designated vehicle parking to accommodate the potential future hardwire installation of a Level-2 charging station.

- a) New Garage Units: Recognizing that retrofitting parking structures can be 91%+ more expensive than outfitting garages during the initial construction phase, and in order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new one-family and multiple-family homes with garages be constructed to provide a 220-240-volt / 40 amp outlet on a dedicated circuit and in close proximity to designated vehicle parking to accommodate the potential future hardwire installation of a Level-2 electric vehicle charging station.

2.04.02. Non-Residential: In order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that:

- a) Minimum EV Readiness Requirement: All new and expanded non-residential development parking areas provide the electrical capacity necessary to accommodate the future hardwire installation of Level-2 charging stations. It is recommended that a typical parking lot (e.g. 1,000 or less parking spaces) have a minimum ratio of 10% of the total parking spaces prepared for such stations.

- b) Non-Residential Land Uses: All new, expanded, and reconstructed parking areas shall provide the electrical capacity necessary to accommodate the future hardwire installation of Level 2 or DC.
- c) Time Limits: May be placed on the number of hours that an electric vehicle is allowed to charge, prohibiting indefinite charging /parking. If applicable, warnings shall be posted to alert charging station users about hours of use and possible actions affecting electric vehicle charging stations that are not being used according to posted rules.
 - i. Where charging of Electric Vehicles is allowed for limited hours, charging units may be de-energized or otherwise restricted during off hours.

2.2.01.03. Accessible Charging Stations: When installing more than [50] charging stations for non-residential use, a minimum of one (1) accessible charging station shall be provided. Accessible charging stations should be located in close proximity to the building or facility entrance and shall be connected to a barrier-free accessible route of travel to and from the building or facility. It is not necessary to designate the accessible charging station exclusively for the use of disabled persons.

2.3. SAFETY

2.3.01. Practical Safeguarding for Existing Installations: Existing electrical installations that do not comply with the provisions of this ordinance shall be permitted to continue in use unless [JURISDICTION] determines that the lack of conformity with this ordinance presents an imminent danger to occupants or users. Where changes are required for correction of hazards, a reasonable amount of time shall be given for compliance, depending on the degree of the hazard.

2.3.01.01. By further determination of [JURISDICTION], the following are hereby determined to constitute an imminent danger to occupants or users:

- a) Inadequate Service Capacity.
- b) Inadequate Service Grounding.
 - i. Grounding where location is less than 5 feet from water service entry.
 - ii. Grounding or bonding locations where non-conductive materials interrupt the required conductive path.
- c) Improper fusing.
- d) Improper wiring or installation that was not installed per the applicable code at the date of the installation.
- e) Deterioration or Damage.
- f) Corroded, Rusted Switchgear, Bussing, Branch Circuit Panelboards.
- g) Electrical wiring, of all types, not supported in an approved manner.
- h) Splices unenclosed in approved boxes other than knob and tube wiring in areas where Knob and Tube are permitted to remain.
- i) Absence of or use of unapproved connectors for splices and termination into boxes or cabinets.
- j) Wiring with insulation deterioration or other damaged conditions.

- k) Flexible cords used as a substitute for fixed wiring.
- l) Flexible cords where running through or concealed within walls, ceilings, dropped-ceilings, baseboard and floors.
- m) Boxes or conduit with excessive numbers of conductors based upon permitted installation date.
- n) Knob and Tube wiring in areas other than concealed within framing cavities or within limited access or lockable attics.
- o) Exposed fuse blocks or exposed terminal-cleat type light fixtures in areas where Knob and Tube would not be permitted to remain.
- p) Other items determined imminently dangerous by *[JURISDICTION]*.

2.3.02. Installation and Use of Equipment: Equipment shall be installed and used per the Manufacturer's written recommendations/instructions and if listed or labeled shall be installed and used in accordance with the listing or labeling.

2.3.03. Maintenance: Charging station equipment shall be maintained in all respects, including the functioning of the charging equipment. A phone number or other contact information shall be provided on the charging station equipment for reporting when the equipment is not functioning, or other problems are encountered.

Appendix C: Parking Ordinance Template

DEFINITIONS

AC: alternating current (electricity).

Battery: (pl. batteries) a cell or cells onboard an electric vehicle which is used for storing and furnishing electrical energy for the purpose of propelling the vehicle.

Battery Electric Vehicle: an electric vehicle with an onboard battery that operates exclusively on electrical energy from the battery, which battery is charged from an external source such as a charging station.

Charging level: the standardized indicators of electrical force, or voltage at which an electric vehicle's battery is recharged. Typical electric vehicle charging levels and specifications are:

- a) Level 1- AC slow battery charging. Voltage is 120 volts.
- b) Level 2- AC medium battery charging. Voltage is between 120 volts and 240 volts.
- c) Level 3 – DC fast or quick battery charging. Voltage is greater than 240 volts. Sometimes referred to as “DC Fast”.

Charging Station: equipment that has as its primary purpose the transfer of electric energy by conductive or inductive means to a battery or other energy storage device located onboard an electric vehicle. Various types of charging stations include:

- a) Accessible charging station: a charging station incorporated into or immediately adjacent to a handicapped parking space as “handicapped parking space” is defined by the Illinois Vehicle Code.
- b) Level 3 charging station: (sometimes: DC Fast charging station) a charging station that provides any single-phase voltage or current rating higher than that of Level 2, or any three- phase supply voltage configuration.
- c) Private charging station: a charging station that is (1) privately owned and restricted access (e.g., single-family home, executive parking, designated employee parking, etc.) or (2) publicly owned and restricted (e.g., fleet parking with no access to the general public).
- d) Public charging station: a charging station that is (1) publicly owned and publicly available (e.g., park & ride, public parking lots, on-street parking, etc.) or (2) privately owned and publicly available (e.g., shopping center parking, non-reserved parking in multi-family parking lots, etc.).

Charging station equipment: the conductors, including ungrounded and grounded, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, charging stations or apparatus installed specifically for the purpose of delivering electrical energy from the charging station to the electric vehicle.

Charging station space: a dedicated, marked space that identifies the use thereof as exclusively for the charging of electric vehicles.

DC: direct current (electricity).

Electric scooters and/or motorcycles: a 2-wheel or 3-wheel electric vehicle that operates exclusively on electrical energy stored in the vehicle's batteries.

Electric vehicle: a vehicle that operates, either partially or exclusively, on electrical energy from a charging station or other electrical energy source that is stored in the vehicle's battery for propulsion purposes. “Electric vehicle” includes: (1) a battery electric vehicle; (2) a plug-in hybrid electric vehicle; (3) a neighborhood electric vehicle; and (4) electric scooters or motorcycles.

NEC: National Electrical Code

Neighborhood electric vehicle: an electric vehicle with four (4) wheels that conforms to federal regulations under Title 49 C.F.R. Part 571.500 which can from a stand still attain a speed of 20 miles per hour (mph) within one (1) mile but cannot exceed a speed of more than 25 mph.

Non-electric vehicle: a vehicle that does not meet the definition of “electric vehicle” as provided herein.

OSHA: Occupational Safety and Health Administration

Plug-in hybrid electric vehicle (PHEV): an electric vehicle that (1) contains an internal combustion engine and also allows power to be delivered to drive wheels by an electric motor, and; (2) charges its battery primarily by connecting to a charging station or other electrical source not on board the vehicle; (3) may additionally be able to sustain a battery charge using an on-board internal-combustion-driven generator; and (4) has the ability to be propelled through the use of electricity.

Vehicle: has the same meaning as provided in the Illinois Vehicle Code 625 ILCS et seq.

ARTICLE 1. PURPOSE

1.1. PURPOSE

The purpose of this code is to establish minimum requirements to safeguard public health, safety and general welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of electrical systems and equipment [\[related to Electric Vehicle Infrastructure\]](#).

1.2 APPLICABLE REGULATION

The following Regulatory Instruments are applicable to the subject of EVI Zoning:

- [2015 International Building Code](#)
- [2015 International Mechanical Code - including Appendix Chapter \(A\);](#)

- *2015 International Fuel and Gas Code - including Appendix Chapters (A, B, C, D);*
- *2015 International Residential Code - including Appendix Chapters (E, F, G, J, K, M, O, P);*
- *2015 International Existing Building Code - including Appendix Chapters (A, B);*
- *2015 International Fire Code - including Appendix Chapters (A, B, C, D, F, H, I, J);*
- *2015 International Swimming Pool and Spa Code;*
- *2015 International Solar Energy Provisions;*
- *2014 National Electrical Code (NFPA 70) as adopted and amended.*

1.3 SCOPE

This Ordinance applies to the design, construction, installation, alterations, repairs, relocation, replacement, addition to, use or maintenance of electrical systems and equipment *[related to EVI]*.

1.4 INSPECTION

1.4.01. General: The *[BUILDING OFFICIAL]* shall make inspections in accordance with requirements set forth in the most current NEC as related to this ordinance.

1.5 LIABILITY FOR DAMAGES

This Ordinance shall not be construed to affect the responsibility or liability of any party owning, designing, operating, controlling, testing per NEC or OSHA requirements, or installing any electrical equipment for damages to persons or property caused by a defect therein, nor shall the *[Electrical Commission members]* or the *[JURISDICTION]* or any of its employees be held as assuming any such liability by reason of inspection, re-inspection, other examination authorized or any lack of inspection thereof.

ARTICLE II. DEVELOPMENT/ ZONING REGULATIONS & GUIDE

2.1. PERMITTED LOCATIONS

2.1.01: Level-1 and Level-2 charging stations are permitted in every zoning district, when accessory to the primary permitted use of said district. Charging stations located at single-family, multiple-family, and mobile home park dwellings shall be designated as private use only. Installation of level-2 charging stations shall be subject to building permit approval.

2.1.02: Level-3 (DC Fast) charging stations are permitted in *[these zoning categories]* when accessory to the primary permitted use. Installation thereof shall be subject to building permit approval.

2.1.03: Retail Charging: If the primary use of a parcel is the retail charging of electric vehicle batteries, installation thereof shall be subject to permit approval.

ARTICLE III. CHARGING STATION/ PARKING REGULATIONS

2.1. ELECTRIC VEHICLE CHARGING STATION REGULATIONS

2.1.01. Use: Charging stations spaces are reserved for use by electric vehicles only.

2.1.02. Restrictions: Electric vehicles may park in any parking space otherwise designated for parking, subject to the restrictions that would apply to any other vehicle generally.

2.1.03. Location (Specific to On-Street Parking): Placement of a single charging station is preferred at the beginning or end stall on a block face

2.1.04. Signage: When approved signage provides notice of a designated charging station space, no person shall park or stand a non-electric vehicle therein. Any non-electric vehicle parked or standing in a charging station space is subject to fine and/or impoundment of the offending vehicle.

2.1.04.01 Upon adoption of an ordinance by the *[JURISDICTION]*, establishing a charging station space(s), the *[JURISDICTION]* Engineer shall cause appropriate signs and markings to be placed in and around the designated charging station space(s), indicating prominently thereon the parking regulations therefor. The signs shall define time limits and hours of operation, as applicable, and shall state that the parking space is reserved for the charging of electric vehicles only.

2.1.05. Violations of any provision of this chapter shall be punishable as an ordinance violation. Punishment shall be by a fine not to exceed the fine prescribed in accordance with Article II Sections 21-11 and 21-14 of the *[JURISDICTION]* Code. Each hour such violation continues shall constitute a separate offense and shall be punishable as such.

Appendix D: Building Code Templates

Building Code - Residential

The following template has been adapted from the Southwest Energy Efficiency Project Sample EV-Ready Building Codes.

ARTICLE [XX]. – Building Codes - Residential

ELECTRIC VEHICLE READINESS – CHARGING

As published by the International Code Council, Inc., and adopted as the building code of the [JURISDICTION], in the State of Illinois, for the control of buildings and structures as herein provided, and each and all of the regulations, penalties, conditions, and terms of said International Codes are hereby referred to, and amended in part hereof as if fully set out in this article, with the additions, insertions, deletions, and changes.

Furthermore, the following State adopted and amended code standards are enforced:

- Current State of Illinois Accessibility Code.
- Current State of Illinois Plumbing Code - broad references from the ICC series codes to the IPC shall hereby be replaced with reference to the "Current State of Illinois Plumbing Code".
- Current State of Illinois Energy Conservation Code.
- Current Illinois State Safety Code for Elevators and Escalators consisting of the following American Society of Mechanical Engineers (ASME), American National Standards (ANSI), and American Society of Civil Engineers (ASCE) standards, and any additional references required by the State of Illinois.
 - Safety Code for Elevators and Escalators (ASME A17.1-), A 17.1 (a), and A17.1(s).
 - Guide for Inspection of Elevators, Escalators, and Moving Walks (ASME 17.2).
 - Safety Code for Existing Elevators and Escalators (ASME A17.3).
 - Safety Standard for Platform Lifts and Stairway Chairlifts (ASME A 18.1): and
 - Standard for the Qualification of Elevator Inspectors (ASME QEI-1).
 - Safety Requirements for Personal Hoists and Employee Elevators (ANSI A10.4).
 - Automated People Mover Standards (ASCE 21).
- Current State of Illinois Life Safety Code for existing buildings (Portions of NFPA 101 plus Annex A & B) as adopted and required by the State Fire Marshal's Office.

ELECTRIC VEHICLE CHARGING

Newly constructed one- or two-family dwellings and townhouses with a dedicated attached or detached garage shall facilitate the future installation and use of electric vehicle supply equipment.

For each dwelling unit, a 208/240-volt individual branch circuit or a listed raceway to accommodate a future individual branch circuit shall be installed. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of the electric vehicle charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel or subpanel circuit directory shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent device. Electric vehicle supply equipment shall be installed in accordance with NFPA 70.

Any new residential construction, including an addition to a residential structure of greater than 50 percent of the existing floor area, including the primary garage, and/or any demolition of greater than 50 percent of the lineal walls of a residential structure within a twelve-month period, shall require the installation of a 220-volt dedicated electrical outlet in the garage for the purposes of charging an electric vehicle.

SPECIFICATIONS

1. For one- or two-family dwellings and townhouses, provide a minimum of:
 - a. One 208/240 V 40-amp, grounded AC outlet, for each dwelling unit; or
 - b. Panel capacity and conduit for the future installation of a 208/240 V 40-amp, grounded AC outlet, for each dwelling unit. The electrical outlet or conduit termination shall be located adjacent to the parking area.
2. For other residential occupancies where there is a common parking area, provide one of the following:
 - a. A minimum number of 208/240 V 40-amp, grounded AC outlets equal to [10] percent of the total number of parking spaces. The outlets shall be located within the parking area; or
 - b. Panel capacity and conduit for future installation of electrical outlets. The panel capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, of a minimum number of 208/240 V 40-amp, grounded AC outlets, that is equal to 5 percent of the total number of parking spaces. The conduit shall terminate within the parking area; or
 - c. Additional service capacity, space for future meters, and conduit for future installation of electrical outlets. The service capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, of a minimum number of 208/240 V 40-amp, grounded AC outlets, that is equal to 5 percent of the total number of parking spaces. The conduit

shall terminate within the parking area. When the application of the 5 percent results in a fractional space, round up to the next whole number.

Exception: Additions and alterations to existing one- or two-family dwellings and townhomes constructed per the International Residential Code are exempt from this requirement.

Identification: The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future electric vehicle charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE”.

JUSTIFICATION

The interest in EVs locally and nationally is growing alongside greater EV model availability, increased vehicle range, and expanded EV charging infrastructure in the region. [JURISDICTION] anticipates a growing trend in the use of electric vehicles and the need for supporting electric vehicle infrastructure.

The implementation of this code offers consistent standards and provides a framework for regionally consistent Electric Vehicle Infrastructure

The installation of electric vehicle supply equipment (EVSE) is made cost effective when the infrastructure is installed during the initial construction phase as opposed to retrofitting existing buildings to accommodate the new electrical equipment.

[JURISDICTION] recognizes the importance of supporting the use of alternative fuel vehicles in the interest of air quality and reducing dependence on foreign oil.

Building Code - Commercial

The following template has been adapted from Southwest Energy Efficiency Project's Sample EV-Ready Building Codes and the Kane County Model Electric Vehicle Ordinance.

ARTICLE [XX]. – Building Codes - Commercial

ELECTRIC VEHICLE READINESS - CHARGING

As published by the International Code Council, Inc., and adopted as the building code of the [JURISDICTION], in the State of Illinois, for the control of buildings and structures as herein provided, and each and all of the regulations, penalties, conditions, and terms of said International Codes are hereby referred to, and amended in part hereof as if fully set out in this article, with the additions, insertions, deletions, and changes.

Furthermore, the following State adopted and amended code standards are enforced:

- Current State of Illinois Accessibility Code.
- Current State of Illinois Plumbing Code - broad references from the ICC series codes to the IPC shall hereby be replaced with reference to the "Current State of Illinois Plumbing Code".
- Current State of Illinois Energy Conservation Code.
- Current Illinois State Safety Code for Elevators and Escalators consisting of the following American Society of Mechanical Engineers (ASME), American National Standards (ANSI), and American Society of Civil Engineers (ASCE) standards, and any additional references required by the State of Illinois.
 - Safety Code for Elevators and Escalators (ASME A17.1-), A 17.1 (a), and A17.1(s).
 - Guide for Inspection of Elevators, Escalators, and Moving Walks (ASME 17.2).
 - Safety Code for Existing Elevators and Escalators (ASME A17.3).
 - Safety Standard for Platform Lifts and Stairway Chairlifts (ASME A 18.1): and
 - Standard for the Qualification of Elevator Inspectors (ASME QEI-1).
 - Safety Requirements for Personal Hoists and Employee Elevators (ANSI A10.4).
 - Automated People Mover Standards (ASCE 21).
- Current State of Illinois Life Safety Code for existing buildings (Portions of NFPA 101 plus Annex A & B) as adopted and required by the State Fire Marshal's Office.

ELECTRIC VEHICLE CHARGING

For every newly permitted multi-family dwelling and commercial structure with more than 10 parking spaces, [PERCENTAGE] of the total number of parking spaces shall be capable of supporting future electric vehicle charging stations (EVCS) and shall be identified on the construction documents. Construction

documents shall indicate the location of the proposed EVCS. At least one EVCS shall be located in common use areas and available for use by all residents.

Single EVCS required. When only one EVCS space is required, a 208/240-volt individual branch circuit or a listed raceway to accommodate a future individual branch circuit shall be installed. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of the electric vehicle charger. Construction documents shall identify the raceway termination point. The service panel or subpanel circuit directory shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent device. Electric vehicle supply equipment shall be installed in accordance with NFPA 70.

Multiple EVCS required. Construction documents shall indicate the raceway termination point and proposed location of future EVCS and electric vehicle chargers. Construction documents shall also provide information on amperage of future electric vehicle supply equipment (EVSE), raceway method(s) wiring schematics and electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all electric vehicles at all required EVCS at the full rated amperage of the EVSE. Plan design shall be based upon 40-ampere minimum branch circuit. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at time of the original construction. Electric vehicle supply equipment shall be installed in accordance with NFPA 70.

Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future electric vehicle charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE"

SPECIFICATIONS

1. One- and two-family dwellings: See "ELECTRIC VEHICLE CHARGING" SECTION OF THE RESIDENTIAL BUILDING CODE.
2. Multi-family dwellings (3+ dwellings): See "ELECTRIC VEHICLE CHARGING" SECTION OF THE RESIDENTIAL BUILDING CODE.
3. New commercial, industrial and other uses with the building or land area, capacity or numbers of employees listed herein shall provide the electrical service capacity necessary and all conduits and related equipment necessary to ultimately serve [PERCENTAGE] of the total parking spaces with EVCSs in a manner approved by the building and safety official. Of these parking spaces, 1/2 shall initially be

provided with the equipment necessary to function as online EVCSs upon completion of the project. The remainder shall be installed at such time as they are needed for use by customers, employees or other users. EVCSs shall be provided in spaces designated for disabled person parking in accordance with state and federal requirements. For each space required by this code, provide panel capacity and dedicated conduit for one 208/240V 40-amp circuit terminating within 5 feet of the midline of each parking space. New commercial development shall provide for electric vehicle charging stations in the following prescribed manner:

- a. Construction of a hospital of 500 or more beds, or expansion of a hospital of that size by 20% or more.
- b. Construction of a postsecondary school (college), public or private, for 3,000 or more students, or expansion of an existing facility having a capacity of 3,000 or more students by an addition of at least 20%.
- c. Hotels or motels with 500 or more rooms.
- d. Industrial, manufacturing or processing plants or industrial parks that employ more than 1,000 persons, occupy more than 40 acres of land or contain more than 650,000 square feet of gross floor area.
- e. Office buildings or office parks that employ more than 1,000 persons or contain more than 250,000 square feet of gross floor area.
- f. Shopping centers or trade centers that employ 1,000 or more persons or contain 500,000 square feet of gross floor area.
- g. Sports, entertainment or recreation facilities that accommodate at least 4,000 persons per performance or that contain 1,500 or more fixed seats.
- h. Transit projects (including but not limited to transit stations and park and ride lots).

JUSTIFICATION

The interest in EVs locally and nationally is growing alongside greater EV model availability, increased vehicle range, and expanded EV charging infrastructure in the region. *[JURISDICTION]* anticipates a growing trend in the use of electric vehicles and the need for supporting electric vehicle infrastructure.

The implementation of this code offers consistent standards and provides a framework for regionally consistent EVI.

The installation of electric vehicle supply equipment (EVSE) is made cost effective when the infrastructure is installed during the initial construction phase as opposed to retrofitting existing buildings to accommodate the new electrical equipment.

[JURISDICTION] recognizes the importance of supporting the use of alternative fuel vehicles in the interest of air quality and reducing dependence on foreign oil.

Appendix E: Permitting Templates

Permit for Charging Equipment Installation Electric Vehicle Supply Equipment (EVSE)

Jurisdiction: *[City, State]*

Compliance with the following permit will allow the installation and operation of electric vehicle charging equipment at a residence, a business, or a multiunit structure in the City, State jurisdiction. This permit addresses one of the following situations:

- Addition of a branch circuit to a structure (standalone residence, business, multiunit structure)
- Addition of a DC Fast Charger to a structure (standalone residence, business, multiunit structure)
- Addition of a hard-wired charging station to a structure (standalone residence, business, multiunit structure).

Requirements for wiring the charging stations are taken directly out of the 2020 edition of the National Electrical Code (NEC): NFPA 70, Article 625 Electric Vehicle Power Transfer System. This article does not provide all of the information necessary for the installation of electric vehicle charging equipment. Please refer to the current edition of the electrical code adopted by the local jurisdiction for additional installation requirements. Reference to the 2020 NEC may be made at www.nfpa.org/70.

This permit contains a general reference to the NEC or electrical code used in the jurisdiction. All work and installed equipment will comply with the requirements of the NEC or the electrical code used in the jurisdiction. The jurisdiction maintains the authority/responsibility to conduct any inspections deemed necessary to protect public safety. The charging station installer shall also be responsible for notifying or coordinating any work with the utility company where needed.

Section 1 requires basic information be submitted. Note that there is a separate portion of the form requesting information on the property owner who may not be the individual requesting the installation.

Section 2 identifies which code needs to be complied with depending on the situation as outlined above. The technical installation requirements address the following specific elements of electric vehicle charging:

- Station Safety: Listing and Labeling Requirements
- Wiring Methods
- Overcurrent Protection
- Location

Section 3 consists of a standard certification statement that could be modified as needed by the jurisdiction. By signing the certification statement, the applicant agrees to comply with the standard permit conditions and other applicable requirements. This consent would give the jurisdiction the option of allowing the applicant to proceed with installation and operation of the charging equipment.

Section 4 gives ideas and examples the jurisdiction could develop and add to their permit packets in order to track key information on the application.

Section 1: Permit Applicant Information

NOTICE: The system must be installed in compliance with NFPA 70, National Electric Code, Article 625 or applicable Electrical Code currently adopted and enforced within the jurisdiction of installation. All associated work with circuits, electrical service and meters shall be completed in compliance with NFPA 70, national electric code, or applicable electrical code currently adopted and enforced within the jurisdiction of installation.

Name:			
Installation Street Address (P.O. box not acceptable):	Contact Person:		Phone Number:
			() -
City:	County:	State:	ZIP Code:
Owner Name:	Street Address:		Phone Number:
			() -
City:	State:		ZIP Code:
Submitter's Name/Company	Street Address:		Phone Number:
			() -
City:	State:		ZIP Code:
Proposed Addition of (Circle One): Branch Circuit(s) DC Fast Charge Circuit(s) Hard Wired Charging Station(s)			
This Proposed Installation Will Serve (Circle One): Standalone Residence Business Multiunit Structure			
General description of equipment to be installed:			

Section 2: Permit Applicant Information

NEC Chapter/ Article	Description
	Station Safety: Listing and Labeling Requirements
	<p>Electric Vehicle Branch Circuit: Each outlet installed for the purpose of charging electric vehicles shall be supplied by an individual branch circuit. Each circuit shall have no other outlets.</p>
	<p>Voltages: Unless other voltages are specified, the nominal ac system voltages of 120, 120/240, 208Y/120, 240, 480Y/277, 480, 600Y/347, 600, and 1000 volts and dc system voltages of up to 1000 volts shall be used to supply equipment covered by this article.</p>
	<p>Listed: All equipment covered by the scope of this article shall be listed.</p>

NEC Chapter/ Article	Description
	Wiring Methods
	<p>Equipment Connection: EVSE and WPTE shall be connected to the premises wiring system in accordance with one of the methods in 625.44 (A) through (C).</p> <p>(A) Portable Equipment. Portable equipment shall be connected to the premises wiring system by one or more of the following methods:</p> <ol style="list-style-type: none"> a. A non-locking, 2-pole, 3-wire grounding-type receptacle outlet rated at 125 volts, single phase, 15 or 20 amperes b. A non-locking, 2-pole, 3-wire grounding-type receptacle outlet rated at 250 volts, single phase, 15 or 20 amperes c. A non-locking, 2-pole, 3-wire or 3-pole, 4-wire grounding type receptacle outlet rated at 250 volts, single phase, 30 or 50 amperes d. A non-locking, 2-pole, 3-wire grounding-type receptacle outlet rated at 60 volts dc maximum, 15 or 20 amperes <p>(B) Fastened-in-Place Equipment. Equipment that is fastened in place shall be connected to the premises wiring system by one of the following methods:</p> <ol style="list-style-type: none"> a. A non-locking, 2-pole, 3-wire grounding-type receptacle outlet rated 125 volts or 250 volts, single phase, up to 50 amperes b. A non-locking, 3-pole, 4-wire grounding-type receptacle outlet rated 250 volts, three phase, up to 50 amperes c. A non-locking, 3-pole, 4-wire grounding-type receptacle outlet rated 250 volts, single phase, 30 to 50 amperes d. A non-locking, 2-pole, 3-wire grounding-type receptacle outlet rated 60 volts dc maximum, 15 to 20 amperes <p>(C) Fixed Equipment. All other EVSE and WPTE shall be permanently wired and fixed in place to the supporting surface.</p>
	<p>Cords and Cables:</p> <p>(A) Power-Supply Cord. The cable for cord-connected equipment shall comply with all of the following:</p> <ol style="list-style-type: none"> 1) Be any of the types specified in 625.17(B)(1) or hard service cord, junior hard service cord, or portable power cable types in accordance with Table 400.0. Hard service cord junior hard service cord, or portable power cable types shall be listed, as applicable, for exposure to oil and damp and wet locations. 2) Have an ampacity as specified in Table 400.5(A)(1) or, for 8 AWG and larger, in the 60°C columns of Table 400.5(A)(2). 3) Have an overall length as specified in either of the following: <ol style="list-style-type: none"> a. When the interrupting device of the personnel protection system specified in 625.22 is located within the enclosure of the supply equipment or charging system, the power-supply cord shall be not more than the length indicated in (i) or (ii): <ol style="list-style-type: none"> i. For portable equipment in accordance with 625.44(A), the power supply cord shall be not more than 300 mm (12 in.) long. ii. For stationary equipment in accordance with 625.44(B), the power supply cord shall be not more than 1.8 m (6 ft.) long and the equipment shall be installed at the height that prevents the power supply cord from contacting the floor when it is connected to the proper receptacle. b. When the interrupting device of the personnel protection system specified in 625.22 is located at the attachment plug, or within the first 300 mm (12 in.) of the power-supply cord, the overall cord length shall be not greater than 4.6 m (15 ft.). <p>(B) Output Cable to Electric Vehicle. The output cable to the electric vehicle shall be one of the following:</p> <ol style="list-style-type: none"> 1) Listed Type EV, EVJ, EVE, EVJE, EVT, or EVJT flexible cable as specified in Table 400.4 2) An integral part of listed electric vehicle supply equipment. <p>(C) Overall Cord and Cable Length. The overall usable length shall not exceed 7.5 m (25 ft.) unless equipped with a cable management system that is part of the listed electric vehicle supply equipment.</p> <ol style="list-style-type: none"> 1) Portable Equipment. For portable EVSE, the cord-exposed usable length shall be measured from the face of the attachment plug to the face of the electric vehicle connector.

NEC Chapter/ Article	Description
	<p>(C) Overall Cord and Cable Length. The overall usable length shall not exceed 7.5 m (25 ft.) unless equipped with a cable management system that is part of the listed electric vehicle supply equipment.</p> <ol style="list-style-type: none"> 1) Portable Equipment. For portable EVSE, the cord-exposed usable length shall be measured from the face of the attachment plug to the face of the electric vehicle connector. 2) Fastened in Place. Where the electric vehicle supply equipment is fastened in place, the usable length of the output cable shall be measured from the cable exit of the electric vehicle shall be measured from the cable exit of the electric vehicle supply equipment to the face of the electric vehicle connector. <p>(D) Interconnecting Cabling Systems. Other cabling systems that are integral parts of listed EVSE and are intended to interconnect pieces of equipment within an EVSE system using approved installation methods shall be permitted.</p>
	<p>Rating: The power transfer equipment shall have sufficient rating to supply the load served. Electric vehicle charging loads shall be considered to be continuous loads for the purposes of this article. Service and feeder shall be sized in accordance with the product ratings. Where an automatic load management system is used, the maximum equipment load on a service and feeder shall be the maximum load permitted by the automatic load management system.</p> <p>Adjustable settings shall be permitted on fixed-in-place equipment only. If adjustments have an impact on the rating label, those changes shall be in accordance with manufacturer’s instruction, and the adjusted rating shall appear with sufficient durability to withstand the environment involved on the rating label. Electric Vehicle Supply Equipment with restricted access to an ampere adjusting means shall be permitted to have ampere ratings that are equal to the adjusted current setting. Sizing the service and feeder to match the adjusting means shall be permitted. Restricted access shall prevent the user from gaining access to the adjusting means. Restricted access shall be accomplished by at least one of the following:</p> <ol style="list-style-type: none"> 1. A cover or door that requires the use of a tool to open; 2. Locked doors accessible only to qualified personnel; or 3. Password protected commissioning software accessible only to qualified personnel.
Overcurrent Protection	
	<p>Overcurrent Protection: Overcurrent protection for feeders and branch circuits supplying EVSE, including bidirectional EVSE, and WPTE shall be sized for continuous duty and shall have a rating of not less than 125 percent of the maximum load of the equipment. Where non-continuous loads are supplied from the same feeder, the overcurrent device shall have a rating of not less than the sum of the non-continuous loads plus 125 percent of the continuous loads.</p>
	<p>Personnel Protection System: The equipment shall have a listed system of protection against electric shock of personnel. Where cord-and-plug-connected equipment is used, the interrupting device of a listed personnel protection system shall be provided according to 625.17(A). A personnel protection system shall not be required for supplies less than 60 volts DC.</p>
	<p>Ground-Fault Circuit-Interrupter Protection for Personnel: In addition to the requirements in 210.8, all receptacles installed for the connection of electric vehicle charging shall have ground-fault circuit-interrupter protection for personnel.</p>
	<p>Disconnecting Means: For equipment rated more than 60 amperes or more than 150 volts to ground, the disconnecting means shall be provided and installed in a readily accessible location. The disconnecting means shall be lockable open in accordance with 110.25.</p>
	<p>Loss of Primary Source: Means shall be provided such that, upon loss of voltage from the utility or other electrical system(s), energy cannot be back fed through the electric vehicle and the supply equipment to the premises wiring system unless permitted by 625.48.</p>
	<p>Interactive Systems: EVSE that incorporates a power export function and that is part of an interactive system that serves as an optional standby system, an electric power production source, or a bidirectional power feed shall be listed and marked as suitable for that purpose. When used as an optional standby system, the requirements of Article 702 shall apply; when used as an electric power production source, the requirements of Article 705 shall apply. EVPE that consists of a receptacle outlet only shall be in accordance with 625.60.</p>

NEC Chapter/ Article	Description
	Location
	<p>Location: The EVSE shall be located for direct electrical coupling of the EV connector (conductive or inductive) to the electric vehicle. Unless specifically listed and marked for the location, the coupling means of the EVSE shall be stored or located at a height of not less than 450mm (18 in.) above the floor level for indoor locations or 600 mm (24 in.) above the grade level for outdoor locations. This requirement does not apply to portable EVSE constructed in accordance with 625.44(A).</p>
	<p>Ventilation: The ventilation requirement for charging an electric vehicle in an indoor enclosed space shall be determined by 625.52(A) or (B).</p> <p>(A) Ventilation Not Required. Where electric vehicle storage batteries are used or where the equipment is listed for charging electric vehicles indoors without ventilation, mechanical ventilation shall not be required.</p> <p>(B) Ventilation Required. Where the equipment is listed for charging electric vehicles that require ventilation for indoor charging, mechanical ventilation, such as a fan, shall be provided. The ventilation shall include both supply and exhaust equipment shall be permanently installed and located to intake from, and vent directly to, the outdoors. Positive-pressure ventilation systems shall be permitted only in vehicle charging buildings or areas that have been specifically designed and approved for that application. Mechanical ventilation requirements shall be determined by one of the methods specified in 625.52(B)(1) through (B)(4).</p> <ol style="list-style-type: none"> 1) Table Values. For supply voltages and currents specified in Table 625.52(B)(1)(a) or Table 625.52(B)(1)(b), the minimum ventilation requirements shall be as specified in Table 625.52(B)(1)(a) or Table 625.52(B)(1)(b) for each of the total number of electric vehicles that can be charged at one time. 2) Other Values. For supply voltages and currents other than specified in Table 625.52(B)(1)(a) or Table 625.52(B)(1)(b), the minimum ventilation requirements shall be calculated by means of the following general formulas, as applicable: (See NPFA 70, page 534). 3) Engineered Systems. For an equipment ventilation system designed by a person qualified to perform such calculations as an integral part of a building's total ventilation system, the minimum ventilation requirements shall be permitted to be determined in accordance with calculations specified in the engineering study. 4) Supply Circuits. The supply circuit to the mechanical ventilation equipment shall be electrically interlocked with the equipment and shall remain energized during the entire electric vehicle charging cycle. Equipment receptacles rated at 125 volts, single phase, 15 and 20 amperes shall be switched and the mechanical ventilation system shall be electrically interlocked through the switch supply power to the receptacle. Equipment supplied from less than 50 volts DC shall be switched and the mechanical ventilation system shall be electrically interlocked through the switch supply power to the equipment.

Section 3: Certification Statement

I hereby certify that the electrical work described on this permit application shall be/has been installed in compliance with the conditions in this permit, NFPA 70, National Electrical Code, Article 625. Furthermore, all associated work with circuits, electrical service and meters shall be/ has been completed in compliance with NFPA 70, National Electrical Code. By agreeing to the above requirements, the licensee or owner shall be permitted to install and operate the charging station. The licensee also insures that appropriate load calculations have been done to ensure that the residence has adequate electrical capacity to support electric vehicle charging equipment.

Existing circuits provided for garages may supply other loads and may not have sufficient capacity for electric vehicle charging equipment.

In some older installations, the residential electrical service may not have sufficient capacity to supply electric vehicle charging equipment. Capacity problems are likely to be encountered on 60 ampere services or on 100 ampere services with multiple 240-volt loads. In such cases, load calculations must be performed to insure adequate capacity.

Signature of the Licensee	Date
Signature of Owner	Date

Section 4: Jurisdiction Checklist

[Each jurisdiction can add the following checklist(s) into the permit packet.]

- *Examples provided within this document:*
 - *Installation Checklist for Residential EVCS*
 - *Installation Checklist for Multi-Unit Dwelling EVCS*
 - *Installation Checklist for Non-Residential EVCS*

- *Examples not provided within this document, but can be included:*
 - *Site Plans*
 - *Electrical Load Calculation Worksheet*
 - *Parking Permit Application*
 - *Date utility should be/ will be notified of work completed*
 - *Information on installation sent to tax assessor*
 - *Modification of existing service required*

- *Other items as determined by the jurisdiction.]*

Installation Checklist For Residential Electric Vehicle Charging Station (EVCS)

Installations must be completed by a licensed electrical contractor. Plans must show conformance with the Jurisdiction Electrical Code, the Jurisdiction Building Code, and all other applicable local Jurisdiction codes.

Submittal Documents Required*

Permit Application

- a. Include job address (a unique address for the EVCS installation that is used for billing), parcel number, existing use, description of work, name, address, and contact information of the applicant and the owner.

Plan Sets [**#, size of plans**]

- a. Site/Plot Plan
 - i. Show the proposed location of the EV charging unit.
- b. Electrical Plan
 - i. Provide a complete electrical single line drawing showing the main service, sub panels and disconnecting means as applicable, and proposed EV charging unit, include; size of overcurrent protection devices (in amperes) for main service, sub panels, disconnects and EV charger circuit supply, show conduit sizes and types, and conductor sizes and types.
 - ii. If trenching is required, provide a trenching detail and call out trench work in scope of work. Trenching may result in a structural plan review if conduit trenches undermine foundations.
 - iii. Note electrical feeder requirements when trenching structure to structure. The feeder from structure to structure should be noted in the scope of work. Verify that trenching is in compliance of minimum cover requirements for wiring methods or circuits (18" for direct burial).
 - iv. Provide EVSE manufacturer's specification sheets showing Nationally Recognized Testing Laboratory (NRTL) approved listing mark for indoor or outdoor (UL 2202/UL 2200).

Electrical Load Calculation Worksheet

- a. Include existing and proposed load to estimate if existing electrical service will handle the new load from EVCS and wiring methods. Note: Unless electrical service equipment is 100% rated, the calculated load demand on the main service shall not exceed 80% of the nameplate rating of the main service over-current protection device (OCPD).

Process

Pre-Installation Work

1. Determine unit to be installed. Follow all manufacturer specifications for installation. Must be NRTL listed and suitable for the location, indoor or outdoor.
2. Conduct site assessment and submit quote to customer for approval of work, including utility upgrades or separate meter service if applicable. Assess the site for:
 - a. All electrical system elements (main service, sub-panels, disconnecting means, etc.)
 - b. Current electrical code deficiencies
 - c. Existing electrical load
 - d. Proper safe mounting for the selected EVCS
 - e. If applicable, new possible meter location
3. If applicable, contact Jurisdiction for service work order for utility upgrades/notification of new service, and file Service and Meter Request Form.
4. Ensure Jurisdiction work order is approved. Any work on the utility side of the electric service requires a work order and disconnect/re-connect.
5. Complete permit application from local jurisdiction and electrical load calculation. Prepare plans required by local jurisdiction. Construction plans indicate types of wiring and installation methods. Show compliance with requirements of the CEC.
 - a. Mandatory requirements for new construction in one- and two-family dwellings and townhouses with attached private garages to be EV Capable.
6. Following Jurisdiction approval, permit is approved, and issued.

Equipment and Scheduling

7. Schedule all necessary contract work for pulling wires from electric panel to garage/carport/driveway:
 - a. Indoor-rated EVSE can be installed in a garage
 - b. Outdoor installations require outdoor-rated EVSE
8. If trenching operation is included in project scope, coordinate with the utility for markings of existing power lines, gas lines or other infrastructure is complete and utilize "call before you dig" services (Call 811), service upgrade, new service/meter pull.

Installation

9. Remove material to run conduit and/or wiring (i.e., drywall, insulation, pavers, concrete, pavement, earth, etc.). Prepare mounting surface prior to installation.
10. Install rough electrical conduit, boxes and fittings, subpanels etc. in walls, ceilings, floors and trenches to be covered.
11. Request a rough inspection from the building inspection office prior to covering any rough electrical installations.
12. Install charging unit(s) per manufacturer instructions and permitted construction plans.
 - a. Install individual branch circuit for the EVCS and branch circuit wiring. Securely fasten wiring to the structure. Branch circuit and feeders must be sized 125% of nameplate current.

*All plans and documents listed above must be provided for residential electric vehicle charging stations at time of permit submittal prior to issuance.

- b. Identify and install properly sized equipment grounding conductor with the branch circuit. Connect at the EVCS and panel board or service.
 - c. Bring grounded conductor to the service disconnect and bond to the enclosure.
 - d. Install overcurrent protection for any newly installed service equipment and conductors.
 - e. Install disconnect in proper readily accessible location for EVCS that is rated more than 60 amperes or more than 150 Volts to ground. If additional service disconnects are installed, verify that they are grouped and do not exceed the maximum number of service disconnects.
 - f. Identify branch circuit device and disconnects.
 - g. Install properly sized supply-side bonding jumpers
13. Perform finish work to repair existing surfaces, infrastructure, and landscaping (if applicable).
14. Make electrical connection and schedule for inspection with local jurisdiction Building Inspector.

- ii. Provide a trenching detail and call out trench work in the scope of work on the plan if trenching is required. Trenching may result in a structural plan review if conduit trenches undermine foundations.
- iii. Note electrical feeder requirements when trenching structure to structure. The feeder from structure to structure should be noted in the scope of work. Verify that trenching is in compliance of minimum cover requirements for wiring methods or circuits (18" for direct burial).
- iv. Provide EVSE manufacturer's specification sheets showing Nationally Recognized Testing Laboratory (NRTL) approved listing mark for indoor or outdoor (UL 2202/UL 2200).

Installation Checklist For Multi-Unit Dwelling Electric Vehicle Charging Station (EVCS)

Installations must be completed by a licensed electrical contractor. Plans must show conformance with the Jurisdiction Electrical Code, the Jurisdiction Building Code, and all other applicable local Jurisdiction codes.

Submittal Documents Required*

Permit Application

- a. Include job address (a unique address for the EVCS installation that is used for billing), parcel number, existing use, description of work, name, address, and contact information of the applicant and the owner.

Plan Sets *[#, size of plans]*

- a. Site/Plot Plan
 - i. Show full property extent (property lines, parking areas, structures, etc.).
 - ii. List relevant property information, such as existing parking counts and ratios.
 - iii. Provide a detailed site plan showing where the charging unit is located within the parking garage or lot, and any necessary accessibility improvements
 - iv. As required by type of EVCS, installation mounting method, and Jurisdiction requirements provide necessary structural details.
- b. Electrical Plan
 - i. Provide a complete electrical single line drawing

Electrical Load Calculation Worksheet

- a. Include existing and proposed load to estimate if existing electrical service will handle the new load from EVCS and wiring methods. Note: Unless electrical service equipment is 100% rated, the calculated load demand on the main service shall not exceed 80% of the nameplate rating of the main service over-current protection device (OCPD).

*All plans and documents listed above must be provided for multi-unit dwelling electric vehicle charging stations at time of permit submittal prior to issuance.

Process

Pre-Installation Work

1. Determine units to be installed. Follow all manufacturer specifications for installation. Must be NRTL listed and suitable for the location, indoor or outdoor.
2. Conduct site assessment and submit quote to customer for approval of work and utility upgrades or new service if applicable. Assess the site for:
 - a. All electrical system elements (main service, sub-panels, disconnecting means, etc.)
 - b. Current electrical code deficiencies
 - c. Existing electrical load
 - d. Wet and dry utility locations (affecting trench paths for electrical)
 - e. Presence of corrosive conditions (e.g. salt air, etc.) affecting recommended equipment
 - f. Water drainage (to avoid locating EVCS in areas with possible standing water)
 - g. Site accessible parking, and / or accessibility of proposed EVCS
 - i. Site slope at proposed EVCS location
 - ii. Surface conditions
 - iii. Access path(s) connectivity to on-site uses
 - h. Visibility of proposed EVCS from uses on site, and/or from public rights-of-way (safety)

- i. Site lighting for use of EVCS and general safety
 - j. Placement of EVCS to serve only one versus multiple parking stalls (dependent on hosts intended use of the EVCS)
 - k. EVCS protection from vehicle damage through proper placement, and then physical protection (e.g. wheel stops, bollards)
 - l. EVCS orientation
 - i. Facilitating ease of human interface
 - ii. Minimizing sun exposure on digital screens
 - iii. Facilitating ease of cable management
 - m. Placement and/or screening of electrical support equipment (e.g. transformers, meter pedestals/cabinets, etc.) as it relates to site aesthetics
 - n. Need for signage and / or stenciling at the EVCS location(s), and / or as directional signage on large sites
3. Complete permit application from local jurisdiction and electrical load calculation for proposed stations (Include load calculations for EVCS):
 - a. Mandatory requirements for new construction in new multifamily dwellings of 17 or more units to be EV Capable. 3% of the total parking spaces, but not less than one, shall be capable for supporting future EVCS.
 4. Contact Jurisdiction for service work order for utility upgrades/notification of new service. File Service and Meter Request Form.
 - a. Ensure Jurisdiction work order is approved. Any work on the utility side of the electric service requires a work order and disconnect/reconnect.
 - b. Following Jurisdiction approval, permit is approved, issued and appropriately posted.
 5. Construction plans indicate how requirements for types of wiring and installation siting. Show compliance with requirements of NFPA 70, CEC Article 625.
 6. Construction plans show compliance with the Jurisdiction Building.
 - a. Signage for EVCS (International Symbol of Accessibility (ISA) signage for ADA accessible spots be provided).
 - b. For a facility for public and common use, minimum number of EVCS required.

power lines, gas lines or other infrastructure is completed and utilize “call before you dig” services (811), service upgrade, new service/meter pull.

Installation

9. Secure the construction area appropriately (e.g. temporary fencing, barriers and signage) for safe working conditions. Prepare mounting surface prior to installation.
10. Remove material to run conduit and/or wiring (i.e., drywall, insulation, pavers, concrete, pavement, earth, etc.).
11. Install rough electrical conduit, boxes and fittings, subpanels etc. in walls, ceilings, floors and trenches to be covered.
12. Request a rough inspection from the building inspection office prior to covering any rough electrical installations.
13. Install charging unit(s) per manufacturer instructions and permitted construction plans.
 - a. Install circuit conductors of appropriate size to comply with rating of the overcurrent protection. Securely fasten wiring to the structure.
 - b. Identify and install properly sized equipment grounding conductor with the branch circuit. Connect at the EVCS and panel board or service.
 - c. Bring grounded conductor to the service disconnect and bond to the enclosure.
 - d. Install overcurrent protection for any newly installed service equipment and conductors.
 - e. Install disconnect in proper readily accessible location for EVCS that is rated more than 60 amperes or more than 150 Volts to ground. If additional service disconnects are installed, verify that they are grouped and do not exceed the maximum number of service disconnects.
 - f. Identify branch circuit device and disconnects.
 - g. Install properly sized supply-side bonding jumpers.
14. Install wheel blocks/safety bollards as needed, and per approved plans.
15. Perform finish work to repair existing surfaces, infrastructure, and landscaping, and parking lot striping (if applicable).
16. Make electrical connection and schedule for inspection with local jurisdiction Building Inspector.

Equipment and Scheduling

7. Schedule all necessary contract work for installation of new service (if applicable), and pulling wires from electric panel(s) / meter pedestals to parking structure(s) or lot(s):
 - a. Boring, trenching, concrete and/or paving restoration if these operations are included in project scope
 - b. Indoor-rated EVCS can be installed in a garage
 - c. Outdoor installations require outdoor-rated EVCS
 - d. Coordinate with property manager, Homeowners Association, property owner(s), and/or tenants for scheduling installation
8. Coordinate with the utility for markings of existing

Installation Checklist For Non-Residential Electric Vehicle Charging Station (EVCS)

Installations must be completed by a licensed electrical contractor. Plans must show conformance with the Jurisdiction Electrical Code, the Jurisdiction Building Code, and all other applicable local Jurisdiction codes.

Submittal Documents Required* Permit Application

a. Include job address (a unique address for the EVCS installation that is used for billing), parcel number, existing use, description of work, name, address, and contact information of the applicant and the owner.

Plan Sets (#, size of plans)

a. Site/Plot Plan

i. Show full property extent (property lines, parking areas, structures, etc.).

ii. List relevant property information, such as existing parking counts and ratios.

iii. Provide a detailed site plan showing where the charging unit is located within the parking garage or lot, and any necessary accessibility improvements

iv. As required by type of EVCS, installation mounting method, and local jurisdiction requirements provide necessary structural details.

b. Electrical Plan

i. Provide a complete electrical single line drawing showing the main service, sub panels and disconnecting means as applicable, and proposed EV charging unit, include; size of overcurrent protection devices (in amperes) for main service, sub panels, disconnects and EV charger circuit supply, show conduit sizes and types, and conductor sizes and types.

ii. Provide a trenching detail and call out trench work in the scope of work on the plan if trenching is required. Trenching may result in a structural plan review if conduit trenches undermine foundations.

iii. Note electrical feeder requirements when trenching structure to structure. The feeder from structure to structure should be noted in the scope of work. Verify that trenching is in compliance of minimum cover requirements for wiring methods or circuits (18" for direct burial).

iv. Provide EVSE manufacturer's specification sheets showing Nationally Recognized Testing Laboratory (NRTL) approved listing mark for indoor or outdoor (UL 2202/UL 2200).

Electrical Load Calculation Worksheet

a. Include existing and proposed load to estimate if existing electrical service will handle the new load from EVCS and wiring

methods Note: Unless electrical service equipment is 100% rated, the calculated load demand on the main service shall not exceed 80% of the nameplate rating of the main service over-current protection device (OCPD).

*All plans and documents listed above must be provided for non-residential electric vehicle charging stations at time of permit submittal prior to issuance.

Process

Pre-Installation Work

- Determine unit to be installed. Follow all manufacturer specifications for installation. Must be NRTL listed and suitable for the location, indoor or outdoor.
- Conduct site assessment and submit quote to customer for approval of work and utility upgrades or new service if applicable. Assess the site for:
 - All electrical system elements (main service, sub-panels, disconnecting means, etc.)
 - Current electrical code deficiencies
 - Existing electrical load
 - Wet and dry utility locations (affecting trench paths for electrical)
 - Presence of corrosive conditions (e.g. salt air, etc.) affecting recommended equipment
 - Water drainage (to avoid locating EVCS in areas with possible standing water)
 - Site accessible parking, and / or accessibility of proposed EVCS
 - Site slope at proposed EVCS location
 - Surface conditions
 - Access path(s) connectivity to on-site uses
 - Visibility of proposed EVCS from uses on site, and/or from public rights-of-way (safety)
 - Site lighting for use of EVCS and general safety
 - Placement of EVCS to serve only one versus multiple parking stalls (dependent on hosts intended use of the EVCS)
 - EVCS protection from vehicle damage through proper placement, and then physical protection (e.g. wheel stops, bollards)
 - EVCS orientation
 - Facilitating ease of human interface
 - Minimizing sun exposure on digital screens
 - Facilitating ease of cable management
 - Placement and/or screening of electrical support equipment (e.g. transformers, meter pedestals/cabinets, etc.) as it relates to site aesthetics
 - Need for signage and/or stenciling at the EVCS location(s), and / or as directional signage on large sites
- Complete permit application from Jurisdiction and electrical load calculation for proposed stations:
 - Mandatory requirements for new construction to be EV Capable.
 - Comply with zoning setbacks and easements. (Local Regulations)
- Contact Jurisdiction for service work order for utility upgrades/notification of new service. File Service and Meter Request Form.
 - Ensure Jurisdiction work order is approved. Any

- work on the utility side of the electric service requires a work order and disconnect/re-connect.
- b. Following Jurisdiction approval, permit is approved, issued and appropriately posted.
- 5. Construction plans show compliance with the Jurisdiction Building Code:
 - a. Signage for EVCS (International Symbol of Accessibility (ISA) signage for accessible spots be provided)
 - b. For a facility for public and common use, minimum number of EVCS required.
- 6. Construction plans must show compliance with requirements of NFPA 70, CEC Article 625.
 - maximum number of service disconnects.
 - f. Identify branch circuit device and disconnects.
 - g. Install properly sized supply-side bonding jumpers.
- 14. Install wheel blocks/safety bollards as needed, and per approved plans.
- 15. Perform finish work to repair existing surfaces, infrastructure, and landscaping, and parking lot striping (if applicable).
- 16. Make electrical connection and schedule for inspection with local jurisdiction Building Inspector.

Equipment and Scheduling

- 7. Schedule all necessary contract work for installation of new service (if applicable), and pulling wires from electric panel/meter pedestal to parking structure or lot:
 - a. Boring, trenching, concrete and/or paving restoration
 - b. Coordinate with building managers, tenants and/or property owner(s) for scheduling installation, including site cleanup/closeout
- 8. Coordinate with the utility for markings of existing power lines, gas lines or other infrastructure is completed and utilize “call before you dig” services (811), service upgrade, new service/meter pull.

Installation

- 9. Secure the construction area appropriately (e.g. temporary fencing, barriers and signage) for safe working conditions. Prepare mounting surface prior to installation.
- 10. Remove material to run conduit and/or wiring (i.e., drywall, insulation, pavers, concrete, pavement, earth, etc.).
- 11. Install rough electrical conduit, boxes and fittings, subpanels etc. in walls, ceilings, floors and trenches to be covered.
- 12. Request a rough inspection from the building inspection office prior to covering any rough electrical installations.
- 13. Install charging unit(s) per manufacturer instructions and permitted construction plans.
 - a. Install circuit conductors and wiring of appropriate size to comply with rating of the overcurrent protection. Securely fasten wiring to the structure.
 - b. Identify and install properly sized equipment grounding conductor with the branch circuit. Connect at the EVCS and panel board or service.
 - c. Bring grounded conductor to the service disconnect and bond to the enclosure.
 - d. Install overcurrent protection for any newly installed service equipment and conductors.
 - e. Install disconnect in proper readily accessible location for EVCS that is rated more than 60 amperes or more than 150 Volts to ground. If additional service disconnects are installed, verify that they are grouped and do not exceed the

Appendix F: EVSE Procurement Request for Proposal Template

The following is a template for a Request for Proposal for Electric Vehicle Surface Equipment and Installation; it may be used to issue a singular request for Equipment, Installation, or Operation, or may be used to request separate proposals for each phase, wherein bidders may respond to more than one RFP. Use the Language in Brackets [] as a guide when detailing in the unique circumstances of your jurisdiction's solicitation; this information can and should be customized for each RFP.

Request for Proposal (RFP) Procurement, Installation, and Operation of Electric Vehicle Charging Stations

Issue Date: [MM/DD/YYYY]

Contents

- I. Background
- II. Acronyms and Definitions
- III. Instructions for Submitting Proposals
- IV. Scope of the Project/Specifications/Qualifications/SOW
- V. Selection of Vendor, Proposal Evaluation & Award Process
- VI. Subcontracting
- VII. Acknowledgement of Terms
- VIII. Required Document Checklist

I. Background

Entity Background

[Entity] (also referred to as "Agency,") requests proposals from responsible Proposer to meet its needs. [Entity] is a [governmental] organization and is seeking to add Electric Vehicle Charging Stations to [location] in order to allow members of the public to charge while in the parking lot; revenue raised from fees for service will contribute to the General Revenue Fund. A brief description of the request is set forth below for the Proposer's convenience, with detailed requirements in subsequent sections of this solicitation. If interested and able to meet these requirements, [entity] appreciates and welcomes a Proposal.

Brief Description of Proposal Requested

[Entity] is seeking a vendor for the purposes of procuring and installing [description of electric vehicle supply equipment sought] at [address]. Proposers shall be expected to provide no less than the minimum services and deliverables identified in the Scope of Work (SOW) as described herein. Vendors are invited to submit a proposal with their qualifications and project plan for consideration. The responder must have significant knowledge, expertise, and experience working on [electric utilities, Charging Equipment Installation, selecting equipment for governments, etc.].

The vendor should make recommendations to best maximize the benefits of these efforts and any corresponding local/state/federal investment. An estimated itemization of potential services, timeline and action items should be clearly identified. (See Section D for more details).

Each Proposer submitting a proposal must be qualified to participate in this RFP selection process. [Once qualified, a Proposer shall be evaluated to determine if it has the required amount of knowledge, expertise, and experience to fulfill the project requirements requested by an internal steering committee. After finalists are selected, contract negotiation will determine the final budget, scope, and deliverables.]

When an award is made, the resulting service agreement (SA) will be for a term of [time period]. Qualified Proposers must have the capability, willingness, ability, and intent to carry out the conditions of the Service Agreement and their Statement of Work.

To respond to this solicitation, proposals shall [be submitted following the requirements outlined below].

Please read the entire solicitation package and submit a proposal in accordance with the instructions. All forms and signature areas contained in the solicitation package must be completed in full and submitted along with the technical response and price proposal which

combined will constitute the Proposal. Instruction pages should be excluded from Proposals.]

Proposals that do not adhere to the form and content of the Request for Proposal requirements may not be considered.

II. Acronyms and Definitions

EVSE: Electric Vehicle Surface Equipment, or Charging Stations

SA: Service Agreement

SOW: Statement of Work

III. Instructions for Submitting Proposals

A. Submission Method

As a Government Entity, [Entity] accepts bids through [service provider]. Proposals submitted via any other format will not be considered.

B. Published Procurement & Award Information

[Entity] publishes procurement information, including solicitations, awards, and amendments, to its website <http://r1planning.org/> procurement and large purchases to DemandStar at www.demandstar.com. Proposer is responsible for monitoring the site for updated information. [Entity] will not be held responsible if Proposer fails to receive optional update notices.

C. Designated Contact, Pre-Submission Questions & Agency Response

The individual listed in the “Designated Contact:” on the posting shall be the single point of contact for this solicitation. Unless otherwise directed, Proposers should only communicate with the Designated Contact. [Entity] shall not be held responsible for information provided by or to any other person.

Suspected errors should be immediately reported to the Designated Contact. Do not discuss, directly or indirectly, the solicitation or any Proposal with any officer or employee other than the Designated Contact.

Designated Contact:

[Name]

[Address]

[Email]

All questions, other than questions raised at a Pre-Submission Conference, pertaining to this solicitation must be submitted in writing to the Designated Contact. Questions received and Agency responses may be posted as an Amendment to the original solicitation on the website; only these posted answers to questions shall be binding on [Entity]. Proposers are responsible for monitoring for posted updates.

E. Pre-Submission [Conference/Teleconference]

[Entity] has scheduled a Pre-Bid [Conference/Teleconference] for [date time location].

Attendance at the Pre-Submission Conference [is/is not] mandatory

If attendance is mandatory, Proposer (current Vendor included) will be disqualified and considered non-responsive if Proposer does not attend, is not on time, leaves early or fails to sign the attendance sheet. Proposer must allow adequate time to accommodate security screenings at the site.

[Event Date, Time (CST)]

F. Solicitation Process

The following is a general description of the solicitation process. [Entity] may adjust this process, as needed, and makes no assurance or representation regarding the timing or schedule of the process.

1. RFP Published	[Day, Month, Date] by [Time]
2. Pre-submission Teleconference (optional)	[Day, Month, Date] by [Time]
3. Pre-submission Questions Accepted	[Day, Month, Date] by [Time]
4. Questions and Answers Posted	[Day, Month, Date] by [Time]
5. Proposals Due and Opened	[Day, Month, Date] by [Time]
6. Responsiveness Determination	[Day, Month, Date] by [Time]
7. Negotiation with Responsive and Responsible Proposers	[Day, Month, Date] by [Time]
8. Selection of Preferred Proposal	[Day, Month, Date] by [Time]
9. Additional Negotiation (if necessary)	[Day, Month, Date] by [Time]
10. Notice of Award	[Day, Month, Date] by [Time]

G. Organization Required

Submit Proposal to: [Entity]
 Attn: [Procurement]
 [Address]
 Label (outside of envelopes/containers):
 ["Sealed Response – Do Not Open"]
 [Project Title: _____]
 Due Date & Time: [Date]
 Proposer Name, City, State, Zip

Proposals must be submitted in separate files as listed below. Please follow these instructions carefully. Separately seal and label each file.

1. File 1 shall contain the Proposer’s response to the Specifications, Qualifications, Statement of Work Form provided.
2. File 2 shall contain Proposer’s Pricing Form provided.
3. File 3 shall contain the Proposal and applicable forms.
4. Exceptions (if applicable) must be provided on the Acceptance of Terms form or must be in a substantially similar format. Agency discourages taking exceptions. State law shall not be circumvented by the exception process. Exceptions may result in rejection of the Proposal. Additional Proposal Provisions may be stated on this form and should not include exceptions to Agency specifications, terms and conditions, or any other part of this solicitation. This is supplemental information that supports a Proposer’s position; for example, a Proposer’s licensing agreement. The Agency may state additional terms and conditions to contracting in Supplemental Provisions.
 - File 4 shall contain a redacted copy of the Proposal (if applicable.) Proposer should provide a redacted copy of the Proposal, if applicable, that removes material considered to be a trade secret or competitively sensitive, confidential, or proprietary. See VII. Acknowledgement of Terms.

Subject Matter	# of Hard Copies	# of USB flash drives
File 1: Specifications, Qualifications, Statement of Work	1	1 (Files 1, 2, and 3 may be submitted on a single USB)
File 2: Proposal	1	
File 3: Redacted Materials (if applicable)	1	
File 4: Pricing	1	1 (must be submitted separately)

H. Federal Funds

The resulting contract may be partially or totally funded with Federal funds. Upon notice of intent to award, the percentage of goods and/or services involved that are Federally funded and the dollar amount of such Federal funds will be disclosed.

L. Award

[Entity] is not obligated to award a contract pursuant to this solicitation. If [Entity] issues an award, the award will be made to the responsive and responsible Proposer whose Proposal best meets the specified criteria unless otherwise permitted by the Illinois Procurement Code and Illinois Administrative Code. However, if [Entity] does not consider the price to be fair and reasonable and negotiations fail to meet an acceptable price, then [Entity] reserves the right to cancel the award and take appropriate action to meet the needs of [Entity]. [Entity] will determine whether the price is fair and reasonable by considering the Proposal, including the Proposer's qualifications, the Proposer's reputation, all prices submitted, other known prices, the project budget and other relevant factors. [Entity] will post a notice to the Bulletin identifying the apparent most responsive and responsible Proposer.

M. References

Proposer must provide references from established private firms or government agencies other than the procuring Agency, who can attest to Proposer's experience and ability to perform the contract that is the subject of this solicitation. Proposer must provide the name, contact information and a description of the supplies or services provided using the References form.

Type of References (Number of Each):

- Government agencies (3)
- Private firms (3)

N. Invoicing Address

The awarded Vendor shall invoice at the completion of the contract unless invoicing is tied in the contract to milestones, deliverables, or other invoicing requirements agreed to in the contract. Invoices should be sent to [address]. Vendor shall not bill for any taxes provided proof of tax exemption provided by Agency.

IV. [Specifications/Qualifications/Statement of Work Form]

Propose a Statement of Work which meets the following minimum needs:

1. Provide attractive and well-maintained EVSE.
2. Cover all costs associated with installation, maintenance, and electricity for the EVSE. The supplier may establish a service charge and method of payment collection to recoup these costs as well as any operating profit from EVSE users.
3. Provide proper EV parking signage and reconfiguration of any parking stalls for EV parking.
4. Market the project as well as provide product advertisement.
5. Offer options for EVSE when the agreement expires (e.g. charging unit removal, transfer of ownership, contract renewal options).
6. Provide the required parking spaces to accommodate the EVSE within the parking facilities at no cost to the supplier.

In addition to completing the table below as part of Provider's submission, provide a detailed budget, including all contributing factors such as labor, permitting fees, service connection, etc.

Equipment Option & Cost Factors	Cost per Unit	Unit Installation Cost	Network Membership	Unit Specifications
[DCFC Unit – "Express 250", 6]	[Cost]	[Cost]	[Network]	[Current Output: Up to 62.5kW (250 RPH) 125 Amps; Cable Length: 12 ft; Connectors: CCS1; CCS2; CHAdeMO]
[Parking Lot Re-Striping]	[Cost]	[Cost]	N/A	[1 handicap accessible EV Parking Space (Dimensions); 5 standard EV Parking Spaces (Dimensions)]
[Bi-annual and On-Demand Maintenance Servicing]	[Cost]	N/A	N/A	[Subject to Periodic Rate Revision]

V. [Selection of Vendor, Proposal Evaluation & Award Process]

A. Evaluation Process

[Entity] determines how well Proposals meet the requirements. [Entity] will rank Proposals using a point ranking system (unless otherwise specified) as an aid in conducting the evaluation. Proposers who fail to meet minimum requirements or who receive fewer than the minimum required points, if any, will not be considered for price evaluation and award.

The Agency evaluates proposals according to the following criteria:

1. [Criteria]
2. [Criteria]
3. [Criteria]

The total number of points for [element] is [#].

Element	Maximum Points
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]

The total number of points for [element] is [#].

Element	Maximum Points
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]
[Criteria]	[#]

The total number of points for [Price] is [#]. [Entity] will determine Price points using the following formula:

$$\text{Maximum Price Points} \times (\text{Lowest Price} / \text{Proposer's Price}) = \text{Total Price Points}$$

The maximum number of points is [#].

B. Negotiation

[Entity] will negotiate with all responsive Respondents. Additional negotiations, counter-offers and best and final offers may be necessary at any stage of the evaluation process.

C. Selection of Preferred Respondent

[Entity] may select to engage in additional negotiations with the Respondent whose Response is Responsive and best meets the needs of the Solicitation. Respondents must be prepared for [Entity] to accept the Response as submitted, but negotiations may be deemed necessary or desirable, at [Entity]'s sole option.

D. Site Visits

Site visits will be required prior to the execution of the contract to confirm that the potential vendor maintains the necessary personnel, space, skills, and equipment to complete the project.

E. Personnel

Provide resumes for all staff contributing to the project with [Desired Submission File].

F. Notice of Award

Notice of the Response selected for award, will be posted (as a Notice of Award) and written notice may also be issued. Receipt or posting of a Notice of Award is not equivalent to a contract with [Entity]. Protested awards are subject to resolution of the protest.

G. Requests for Preference Form

The Illinois Procurement Code provides various preferences to promote business opportunities in Illinois. If making a claim for preference, provide sufficient documentation.

VI. Subcontracting

Subcontractors *[are/ are not]* allowed. A subcontractor is a person or entity that enters into a contractual agreement with a total value of \$[amount] or more with a person or entity who has a contract subject to the Illinois Procurement Code pursuant to which the person or entity provides some or all of the goods, services, real property, remuneration, or other monetary forms of consideration that are the subject of the primary contract, including subleases from a lessee of a contract.

If the Proposal includes subcontractors, then Proposer shall complete the Subcontractor Disclosure form.

The Proposer shall notify *[Entity]* of any additional or substitute subcontractors hired during the term of the contract. If required, Proposer shall provide *[Entity]* a copy of all such subcontracts within fifteen (15) days after execution of the contract or the subcontract, whichever occurs later.

Any subcontracts entered into prior to award of the contract are done at the sole risk of the Proposer and subcontractor(s).

For purposes of this section, subcontractors are those specifically hired to perform all or part of the work covered by this contract. Vendor must receive prior written approval before use of any subcontractors in the performance of this contract. Vendor shall describe, in an attachment if not already provided, the names and addresses of all authorized subcontractors to be utilized by Vendor in the performance of this contract, together with a description of the work to be performed by the subcontractor and the anticipated amount of money that each subcontractor is expected to receive pursuant to this contract. If required, Vendor shall provide a copy of any subcontracts within fifteen (15) days after execution of this contract. All subcontracts must include the same certifications that Vendor must make as a condition of this contract. Vendor shall include in each subcontract the subcontractor certifications as shown on the Standard Certification form available from *[Entity]*. If at any time during the term of the Contract, Vendor adds or changes any subcontractors, then Vendor must promptly notify, by written amendment to the Contract, *[Entity]* Purchasing Officer or the Chief Procurement Officer of the names and addresses and the expected amount of money that each new or replaced subcontractor will receive pursuant to the Contract.

VII. Acknowledgement of Terms

A. Terms of This Contract

This contract has an initial term of [contract term length]. If a start date is not identified, then the term shall commence upon the last dated signature of the Parties. Subject to the maximum total term identified above, *[Entity]* may offer the option to renew for the following term(s): *[Length of Time]*

B. Termination for Cause

[Entity] may terminate this contract, in whole or in part, immediately upon notice to the Vendor if: (a) *[Entity]* determines that the actions or inactions of the Vendor, its agents, employees or subcontractors have caused, or reasonably could cause, jeopardy to health, safety, or property, or (b) the Vendor has notified *[Entity]* that it is unable or unwilling to perform this contract.

C. Late Payment

Payments, including late payment charges, will be paid in accordance with the State of Illinois Prompt Payment Act and rules when applicable. Payment terms contained in Vendor's invoices shall have no force or effect.

D. Expenses

Prior to the execution of this contract by the Parties, even if the effective date of this contract is prior to execution, *[Entity]* will not pay for supplies provided or services rendered, including related expenses incurred.

E. Federal Funding

This contract may be partially or totally funded with Federal funds. If Federal funds are expected to be used, then the percentage of the goods/services paid using Federal funds and the total Federal funds expected to be used will be provided to the awarded Vendor in the notice of intent to award.

F. Invoicing

By submitting an invoice, Vendor certifies that the supplies or services provided meet all requirements of this contract, and the amount billed and expenses incurred are as allowed in this contract.

Vendor shall not bill for any taxes unless accompanied by proof that the Agency is subject to the tax. If necessary, Vendor may request the applicable Agency's Illinois tax exemption number and Federal tax exemption information.

Vendor shall invoice at the completion of this contract. Exceptions to this term are allowed when, as identified in the SA, invoicing is tied to milestones, deliverables, or other invoicing requirements agreed to therein.

G. Assignment

This contract may not be assigned or transferred in whole or in part by Vendor without the prior written consent of [Entity].

H. Audit/Retention Of Records

Vendor and its subcontractors shall maintain books and records relating to the performance of this contract and any subcontract necessary to support amounts charged to [Entity] pursuant this contract or subcontract. If Federal funds are used to pay contract costs, the Vendor and its subcontractors must retain their respective records for five (5) years. Vendor and its subcontractors shall cooperate fully with any such audit and with any investigation conducted by any of these entities. The Vendor or subcontractors shall not impose a charge for audit or examination of the Vendor's or subcontractor's books and records. 30 ILCS 500/20-65.

I. No Waiver of Rights

Except as specifically waived in writing, failure by a Party to exercise or enforce a right does not waive that Party's right to exercise or enforce that or other rights in the future.

J. Indemnification and Liability

The Vendor shall indemnify and hold harmless [Entity], its departments, agencies, officers, employees, agents and volunteers from any and all costs, demands, expenses, losses, claims, damages, liabilities, settlements, and judgments, including in-house and contracted attorneys' fees and expenses, arising out of: (a) any breach or violation by Vendor of any of its certifications, representations, warranties, covenants or agreements; (b) any actual or alleged death or injury to any person, damage to any real or personal property, or any other damage or loss claimed to result in whole or in part from Vendor's negligent performance; (c) any act, activity or omission of Vendor or any of its employees, representatives, subcontractors or agents; or (d) any actual or alleged claim that the services or goods provided under this contract infringe, misappropriate, or otherwise violate any intellectual property (patent, copyright, trade secret, or trademark) rights of a third party. Neither Party shall be liable for incidental, special, consequential, or punitive damages.

K. Insurance

Vendor shall, at all times during the term of this contract and any renewals or extensions, maintain and provide a Certificate of Insurance naming [Entity] as an additional insured for all required bonds and insurance. Certificates may not be modified or canceled until at least thirty (30) days' notice has been provided to [Entity]. Vendor shall provide: (a) General Commercial Liability insurance in the amount of \$1,000,000 per occurrence (Combined Single Limit Bodily Injury and Property Damage) and \$2,000,000 Annual Aggregate; (b) Auto Liability, including Hired Auto and Non-owned Auto (Combined Single Limit Bodily Injury and Property Damage), in the amount of \$1,000,000 per occurrence; and (c) Worker's Compensation insurance in the amount required by law. Insurance shall not limit Vendor's obligation to indemnify, defend, or settle any claims.

L. Independent Contractor

Vendor shall act as an independent contractor and not an agent or employee of, or joint venturer with [Entity]. All payments by [Entity] shall be made on that basis.

M. Solicitation and Employment

Vendor shall not employ any person employed by [Entity] during the term of this contract to perform any work under this contract. Vendor shall give notice immediately to the Agency's director if Vendor solicits or intends to solicit [Entity] employees to perform any work under this contract.

N. Compliance with The Law

The Vendor, its employees, agents, and subcontractors shall comply with all applicable Federal, State, and local laws, rules, ordinances, regulations, orders, Federal circulars and all license and permit requirements in the performance of this contract. Vendor shall be in compliance with applicable tax requirements and shall be current in payment of such taxes. Vendor shall obtain at its own expense, all licenses and permissions necessary for the performance of this contract.

O. Background Check

Whenever [Entity] deems it reasonably necessary for security reasons, [Entity] may conduct, at its expense, criminal and driver history background checks of Vendor's and subcontractor's officers, employees or agents. Vendor or subcontractor shall immediately reassign any individual who, in the opinion of [Entity], does not pass the background checks.

P. Applicable Law

Prevailing Law: This contract shall be construed in accordance with and is subject to the laws and rules of [Entity].

Equal Opportunity: The Department of Human Rights' Equal Opportunity requirements are incorporated by reference. 44 ADM. CODE 750.

Q. Schedule of Work

Any work performed on State premises shall be performed during the hours designated by [Entity] and performed in a manner that does not interfere with [Entity] and its personnel.

R. Warranties for Supplies and Services

Vendor warrants that the supplies furnished under this contract will: (a) conform to the standards, specifications, drawings, samples or descriptions furnished by [Entity] or furnished by the Vendor and agreed to by [Entity], including but not limited to all specifications attached as exhibits hereto; (b) be merchantable, of good quality and workmanship, and free from defects for a period of twelve months or longer if so specified in writing, and fit and sufficient for the intended use; (c) comply with all Federal and State laws, regulations, and ordinances pertaining to the manufacturing, packing, labeling, sale, and delivery of the supplies; (d) be of good title and be free and clear of all liens and encumbrances and; (e) not infringe any patent, copyright or other intellectual property rights of any third party.

S. Reporting, Status and Monitoring Specifications

Vendor shall immediately notify [Entity] of any event that may have a material impact on Vendor's ability to perform this contract.

T. Exceptions and Provisions

The Vendor agrees with the terms and conditions set forth in [Entity] Request for Proposal, including the standard terms and conditions, Agency supplemental provisions, certifications, and disclosures, with the following exceptions.

U. Public Body & Governing Law

[Entity] was created on [date] by [statute/law/intergovernmental agreement/authority]. [Entity] is a public body under the definitions of the Illinois Procurement Code (30 ILCS 500/1-15.100), and is therefore subject to the principles of competitive bidding and economic procurement practices applicable to purchases and contracts.

Illinois law and rules govern this solicitation and any resulting contract. Proposer must bring any action relating to this solicitation or any resulting contract in the appropriate court in Illinois. This document contains statutory references designated with "ILCS". Proposer may view the full text at <http://www.ilga.gov/legislation/ilcs/ilcs.asp>. The Illinois Procurement Code (30 ILCS 500) is applicable to this solicitation and may be viewed at <http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=532&ChapterID=7>.

V. Public Records and Requests For Confidential Treatment

Proposals become the property of [Entity] and late submissions will not be returned. All Proposals will be open to the public under the Illinois Freedom of Information Act (FOIA) (5 ILCS 140) and other applicable laws and rules, unless Proposer requests in its Proposal that [Entity] treat certain information as confidential.

If Proposer requests confidential treatment, Proposer must submit additional copy/copies (see Instructions for Submission of Proposals) of the Proposal with proposed confidential information redacted.

Proposer will hold harmless and indemnify [Entity] for all costs or damages associated with [Entity] defending Proposer's request for confidential treatment. Proposer agrees that [Entity] may copy the Proposal to facilitate evaluation, or to respond to requests for public records. Proposer warrants that such copying will not violate the rights of any third party.

W. Reservations

Proposer must read and understand the solicitation and tailor the Proposal and all activities to ensure compliance. [Entity] reserves the right to amend the solicitation, reject any or all Proposals, award by item/services, group of items/services, or grand total, and waive

minor defects. This competitive process may require that Proposer provide additional information and otherwise cooperate with [Entity]. If a Proposer does not comply with requests for information and cooperate, [Entity] may reject the Proposal as non-responsive to the solicitation. [Entity] is not responsible for and will not pay any costs associated with the preparation and submission of any Proposal.

VIII. Required Documents Checklist

Solicitation and Contract Review

Proposer reviewed the Request for Proposal, including all referenced documents and instructions, completed all blanks, provided all required information, and demonstrated how it will meet the requirements.

Yes No

Pre-Submission Conference

If attendance was mandatory, Proposer attended the Pre-Submission Conference.

Yes No NA

Proposal Submission

Proposer is submitting the correct number of copies, in a properly labeled container(s), to the correct location, and by the due date and time.

Yes No

Bond

If applicable, Proposer is submitting its Bid Bond or Performance Bond.

Yes No

File 1 – Specifications/Qualifications/Statement Of Work

Yes No

Appendix G: Public Comment Period

The public comment and review period for draft Electric Vehicle Readiness Plan for the Rockford Region was from January 28, 2021 through March 1, 2021. The draft was made available for review via the MPO's website (posted January 28, 2021), as well as at the RPC offices.

Updates and Revisions

Since the release of the January 28, 2021 draft plan, technical and formatting corrections have been made to the text and maps of the document. Additionally,

- Additional language was included in the Demand Analysis (Part 5. Electric Vehicle Charging Station Network) on the assumptions and calculations used to estimate the number of electric vehicles and the associated charging infrastructure needed.
- Table 5-1 was updated to reflect the Compound Annual Growth Rates used to estimate the number of electric and plug-in hybrid electric vehicles the region could have by 2030.

Comments Received

During the length of the comment period for the Electric Vehicle Readiness Plan, seven written responses were received via email and one verbal comment was received over telephone. Copies of the written comments are included on the following pages.

Verbal Comments Received

On March 1, 2021, MPO staff received a call from Paul Arena from the Rockford Apartment Association. Mr. Arena commented that language referring to the construction of new multi-family units under the zoning ordinance template should be updated to match the language referring to the construction of new single-family units. Specifically, commenting that the language of the template should be adjusted from "required" to "highly recommended, but not required".

Sydney Turner

From: Chester Kolodziej [REDACTED]
Sent: Saturday, February 6, 2021 9:49 AM
To: Sydney Turner
Subject: EV Rediness Comment "Missing Stakeholders"

On the whole the report is refreshing and forward thinking.

1 I believe one important stakeholder, the "Auto Dealers" attitudes were not obvious in the report.

It would be pretty simple to interview the 2 Auto Groups that make up the Rockford area auto market

Anderson and Backrodt that probabaly make up 90 % of the local car dealerships.

I have found them to not be overly friendly towards to the idea of EV's, and it would seem there are some reasons for this.

I would speculate it is a major disruption of their business models and in particular the impact on their service business --- in volume, equipment, and training

To be fair it might be a good question to ask them directly--- what are their plans and what are their public needs to make this happen,

and include them in the dialog?

and ---this might include the independent repair domain.

2 Secondly what would be the vocational/educational need driven by both the Infrastructure and the dual Vehicle population.

Would possibly the labor organizations look at this as an opportunity, especially the installs of the fixed equipment requirements.

3 It is my understanding that the Utilities are looking at business models and creating tariff models and proposals to take advantage of this Electrification opportunity.

They "will"/are a key stakeholder.

Thanks

Chet Kolodziej

Winnebago County Resident

[REDACTED]

Sydney Turner

From: Isaac Guerrero
Sent: Monday, February 8, 2021 3:51 PM
To: Sydney Turner
Subject: FW: Electric Vehicle Readiness Plan

Sydney,
Ernie and Helen Redfern are quite engaged in the Rockford community and I would talk with them now and then while I was at the newspaper.
Here are public comments from Ernie on the EV plan.
Isaac

Isaac Guerrero

Policy Coordinator

Region 1 Planning Council

A 127 N Wyman St, First Floor | Rockford, Illinois 61101

D 815-319-4181

M 815-914-1171

E iguerrero@r1planning.org **W** r1planning.org

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From: Ernie Redfern [REDACTED]
Sent: Friday, February 5, 2021 11:29 PM
To: Isaac Guerrero <IGuerrero@r1planning.org>
Subject: Electric Vehicle Readiness Plan

Hello my friend. Helen and I send our best wishes and hope you and your family are safe and well.

I have waited patiently for the R1 Planning Council EV Readiness Plan. I got the draft and read it.

Overall, I think it has some great parts. The Policy and Planning Tool, Zoning Ordinance Template, and Building Code Template were excellent.

This is a good start.

But the beginning was lacking in context. It deals more with the here and now than with the future. For example, not once is the direction of the automobile industry mentioned. That's not trivial info; it should have been front and center in this plan. I understand that it was only last week that GM announced its discontinuation of ICE production come 2035. Yet every single manufacturer has told the world that they're going to EV.

When I read this report, though, it's as if all of this is "optional" and "maybe." Here are facts that I would have liked to have seen included: It is not optional. It is going to happen. We, as a nation, are completely unprepared. And in Rockford, we are even farther behind. We need a call to action and a timeline for action. Neither is in this report.

Want to know how far behind we are? <https://www.iea.org/data-and-statistics/charts/publicly-accessible-electric-vehicle-fast-chargers-by-country-2019>

The beginning of the report talks about guacamole and never mentioned the avocado. Should we care if someone likes EVs or not? Let's just make it clear that, no matter your preference, in the not-so-distant future, if you want to buy a new car, your only choices will be EV models. Lack of any mention of the automobile industry's published timeline is a serious flaw in this report.

The EVSE "estimates" for the Rockford region in Table 5-1 also concern me. Why give an exact number vs. a low-high range? Does Region 1 Planning Council have a super-sharp crystal ball? While no one knows how many EVs will be in Rockford in 2025, I do think these numbers are light. Yes, I have great faith in the marketing muscle of the major automobile manufacturers, which you will be seeing this weekend.

If GM is announcing that they are phasing out all ICE production by 2035, you'd better believe they are ramping up marketing now. I'm betting on marketers – people who got tens of millions of Americans to buy a pet rock because you just had to have one. That machine starts on Super Bowl Sunday. I know Tesla owners. They're like Apple devotees – everything else sucks. I have two adult children that are deferring new vehicle purchases because they're waiting on the EV. Nowhere in this report does it mention that one of the biggest stumbling blocks to EV today is the lack of supply of EVs. That is all changing.

These new U.S. all-EV manufacturers are coming online – Lucid Motors (Los Angeles), Bollinger Motors (Hobart, New York), Faraday Future (Newark, California), Fisker Inc. (Los Angeles), Rivian (Plymouth, Michigan), SF Motors (Santa Clara, California), Lordstown Motors (Lordstown, Ohio). There are probably more. Don't discount them; they have secured startup capital to get product to market. There are some big names investing in these companies.

Up and down the West Coast, Chinese EV manufacturers are setting up sales offices. Some have announced plans on U.S. production. The Chinese couldn't crack our ICE auto market but they know they can dominate the EV auto market. Not once is China mentioned. Yet, it is the dominant force behind electrification of vehicles.

Another example of how this report deals just with the here and now without looking at the future is the Barriers to EV Purchase section. "A substantial barrier for many individuals and municipalities is the higher initial purchase cost of an EV compared to conventional vehicles." (Helen would advocate that it's compared with.) Yes, many reliable sources are telling us that the parity in pricing hits in the 2024 model year. But that's never mentioned. Also, if you listened to our new Transportation Secretary this week, Buttigieg made it pretty clear that we are going to see EVs cheaper than conventional vehicles in the next five years. Such projections needs to be in this planning tool.

Items Lacking in the Report

1. What about areas that have a high degree of on-street parking? A lot of stuff about new building, etc. but are there any recommendations for places like Signal Hill, where it is hard to find a parking space in some areas? Not including this is yet another example of the socioeconomic disparity that we seem never to really address. I could charge my EV at my house. Renters wouldn't have that option. So, I would be more able to capitalize on the cost savings you highlighted in your report because I have the convenience of a power supply. Meanwhile, those who could most benefit from the positive disposal income impact will just have to tough it out.
2. There is no mention of the impact that electrification would have on the services (gas stations, oil change and tune-up shops) that surround conventional automobiles. We should learn from the online shopping world and the impact that had on brick-and-mortar retailers. This report does not touch on any of this, yet municipalities are going to have some toxic sites dropped in their laps. Ignoring the potential casualties isn't a good idea.

3. There is a tap dancing in this report on whether municipalities can make money in this transformation. I believe they can and should explore all avenues to do that. The City of Rockford is becoming addicted to the newly increased motor fuel tax. I do not think that a \$100 extra registration fee for EVs is going to make up for the loss in motor fuel tax for the year compared with a conventional vehicle. The report never really talks about charging stations on Main Street. It never mentions how fast chargers can move people to downtown areas where people will go to get their car charged and enjoy a meal at a restaurant or shop.
4. I keep asking everyone, has anyone actually asked ComEd if we were to increase our electrical consumption by 30% in the next 15 years, would they be able to supply it? All I hear from them is about their aging infrastructure. That was not mentioned.

Don't think I am being overly negative. I like this as a starting point. It addresses the nuts and bolts. But it doesn't plan. Let's not debate the merits of moving forward. That ship has sailed. Let's get specific about how to move forward.

If I can be any help, let me know.

Sincerely,
Ernie Redfern

Sydney Turner

From: Michael Stubbe [REDACTED]
Sent: Thursday, February 18, 2021 11:54 AM
To: Michael Dunn; Sydney Turner
Subject: FW: Recommended Video: Electric Vehicle Charging Problem / RPC EV Readiness Plan

Staff did a nice job on the plan - looks good. One item I raised during stakeholder interviews was factoring in the issue of resiliency of the electrical grid and charging infrastructure system. As we look at examples of what's happening with energy supply in Texas and other states, it's certainly something to consider in the planning process. As I told staff at the time, as other plans are reviewed to inform this plan, it would be useful to see how and if other regions are addressing the subject of resiliency in anyway.

Michael Stubbe
Executive Director
Rockford Mass Transit District
Office: 815-961-[REDACTED]
Cell: 815-222-[REDACTED]
[REDACTED]



Sydney Turner

From: Neeley Erickson [REDACTED]
Sent: Wednesday, February 24, 2021 5:00 PM
To: Sydney Turner
Cc: [REDACTED]
Subject: Re: REALTOR® Comments_Electric Vehicle Readiness Plan
Attachments: (21) REALTORS® Comments_R1PC Electric Vehicle Readiness Plan.pdf

Hi Sydney,

I hope this email finds you well.

Please find attached Rockford Area REALTORS® comments for MPO Policy Committee Members regarding the draft Electric Vehicle Readiness Plan for the Rockford Region.

If you need anything further, please let me know.

Best regards,

Neeley Erickson

Government Affairs Director

Illinois REALTORS® - "The Voice for Real Estate in Illinois"



Representing:

Rockford Area REALTORS®, Heartland REALTOR® Organization (Greater McHenry County), HomeTown Association of REALTORS®, REALTOR® Association of Northwestern Illinois, & Belvidere Board of REALTORS®
815.543.7147 (c)
[REDACTED]





6776 East State Street
Rockford, IL 61108

 815.395.6776
 815.395.6770

February 24, 2021

Re: Electric Vehicle Readiness Plan for the Rockford Region
SENT VIA EMAIL: sturner@r1planning.org

Dear MPO Policy Committee Members,

On behalf of more than 900 Rockford Area REALTOR® members, we appreciate the opportunity to provide comments on the draft Electric Vehicle Readiness Plan. We support a market-driven education campaign to encourage the installation of electric charging capabilities but oppose additional unfunded mandates.

As we look forward to implementing this future public infrastructure need, it is incumbent on local governments to provide incentives that are tangible to address the cost burden. The policies mandated in this proposal should be tied to local public incentives to address financial burdens to increase adoption rates. Mere suggestions of state and federal grant opportunities do not tackle the burden private property owners will financially encounter. Guaranteed incentives such as property tax rebates and permit reductions will assist in creating a cost neutral environment and generate more interest in installing electric vehicle supply equipment.

Furthermore, mandates on new construction unnecessarily increase housing costs, especially for housing developments that have completed their approved conceptual designs or final plots. Also, non-for-profits such as Habitat for Humanity and YouthBuild, that focus on affordable housing endeavors, are affected by these mandates. We are in a housing affordability plight. It is paramount that we do not increase the cost of any housing developments which can affect the number of new construction and rehab starts.

We encourage the MPO and local units of government to remain flexible as technology quickly changes and old regulations become obsolete. As the demand for electric vehicles increases, we believe new technologies will appear on the market to tackle charging challenges. For the Rockford Region to move ahead towards its goal, the MPO must first sort out the unfunded mandates that private property owners will confront.

Again, REALTORS® offer their full support and cooperation in engaging with private and public sectors of various industries to cultivate an educational campaign that increases awareness to better address reasonable development of electric vehicle capabilities. We stress outreach to key stakeholders, not just in local government but also in housing and building sectors, to discuss incentives, mandate concerns, and alternative options.

Sincerely,



Neeley Erickson
Illinois REALTORS®
Government Affairs Director

www.rockfordarearealtors.org

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Sydney Turner

From: Jeremy Carter [REDACTED]
Sent: Thursday, February 25, 2021 6:20 PM
To: Sydney Turner
Cc: Timothy Hinkens; Kyle Saunders
Subject: EV Readiness Draft Report Comments

Sydney-

We have read and reviewed the draft report and it is a very interesting read. Great Job, you should be proud. We do not have any major comment but a couple of little comments which are below.

1. Is there any language that can be added somewhere about possibly dealing the reduction in Motor Fuel Tax that the region will have to deal with as more EV come online and how this may affect roadway maintenance. Possible need for communities to support a per mile tax for vehicles. I know this continues to be discussed at a national level.
2. The two biggest things discussed in transportation today, are EV and autonomous vehicles. Yet everything I read only discusses one or the other. It would be nice to have a small discussion of how the two interact. One shows an extreme future where everyone gets dropped off for work and then has their car go be an Uber. The other future is everyone parking their car at work and charging it. I am sure there is happy median there somewhere. Just a thought.

Once again great job on the report. Please let me know if you have any questions or need anything.

Jeremy A. Carter, P.E.

City Traffic Engineer
City of Rockford, Illinois
Department of Public Works

[REDACTED]
(779) 348- [REDACTED] Direct
(815) 967- [REDACTED] Fax

Sydney Turner

From: Pam Fettes [REDACTED]
Sent: Thursday, March 4, 2021 7:54 AM
To: Sydney Turner
Subject: EV Readiness

I apologize for my delay. I have the following comments:

Image 5.5 The medical campus and higher ed campus in Boone County is not identified. For major shopping, you may want to include the section from Walmart on US Rt. 20 through Appleton Rd.

Image 5.8 I would include DC at Irene Rd, especially if there are plans to remove the oasis.

Areas of consideration:

There are a number of executives that drive to Belvidere and may need a fast DC Station at a place of business.

Can these stations accommodate future changes in batteries?

With a large automotive employer in the region that currently does not make EV, individuals may not be willing to accept the EV due to fears of losing jobs and/or threaten the economy.

Thank you,
Pam

Pamela Lopez-Fettes
Executive Director | Growth Dimensions



401 Whitney Blvd., Belvidere, Illinois 61008

☎ 815.547 [REDACTED] | 📠 866-353 [REDACTED] | 📞 815.355 [REDACTED]
✉ [REDACTED] www.growthdimensions.org



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Additional Resources

Region 1 Planning Council Website

<http://r1planning.org/>

2050 Metropolitan Transportation Plan Webpage

<http://r1planning.org/mtp>

2050 Metropolitan Transportation Plan for the Rockford Region

<http://r1planning.org/mtp>



COLLABORATIVE PLANNING FOR NORTHERN ILLINOIS

127 N Wyman St, Suite 100, Rockford, Illinois 61101 | 815-319-4180 | info@r1planning.org

www.r1planning.org