



Prepared for Southern Illinois Metropolitan Planning Organization (SIMPO)

Electric Vehicle Charging Station Needs Study

July 31, 2023 – FINAL



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01 Discovery and Current Conditions

01 Discovery and Current Conditions

1.1 Project Introduction

The Southern Illinois Metropolitan Planning Organization (SIMPO) engaged Walker Consultants (Walker) to develop an Electric Vehicle (EV) Charging Station Needs Study for the greater Marion/Carbondale urbanized area in southern Illinois. The study was commissioned to assist in locating potential charging station locations, identify interested public and private partners in potential charging sites, and assist in discovering possible funding and grant opportunities. Electric vehicle adoption rates are increasing across the country, particularly since 2021, and the need for public charging opportunities has increased with it. SIMPO wants to place the Marion/Carbondale area in the best possible position for future public charging infrastructure to allow for charging opportunities for residents of the region and visitors to the region, particularly those that do not have the opportunity to charge their vehicle at home.

To best understand and opine on current and future EV charging needs in the SIMPO region, Walker reviewed and documented best practices and policies related to EVs, researched existing EV ownership rates and related infrastructure, and held meetings with area stakeholders, local electric utility providers, and SIMPO staff. Understanding existing EV infrastructure in the region, as well as the needs and opinions of those living in the region, is critical to planning for future EV infrastructure expansion.

Acknowledgements

SIMPO staff, local organizations, and electric utility companies in the area were all very helpful in answering questions, providing policy documentation and regulations, and informing Walker of current and future EV challenges and opportunities in Southern Illinois. Walker would like to especially acknowledge and thank SIMPO staff for their assistance with this study and report. SIMPO staff's knowledge of the area and contextual background was invaluable in approaching this study and guiding EV infrastructure recommendations for the region's future. Walker commends SIMPO for taking the lead in the planning effort for this critically important topic; this is particularly praiseworthy for a smaller metropolitan area in a largely rural region.

Transportation is the leading contributor to greenhouse gas emissions in the United States, and internal combustion engines in personal vehicles, particularly single-occupant personal vehicles, makes up a large portion of this emissions sector. **By pursuing EV planning, funding sources, and infrastructure, SIMPO is assisting in the region's climate resiliency for the future, while helping the clean the air and create a more pleasant and livable southern Illinois for residents, businesses, and visitors alike, for years to come.**

1.2 Background and Context

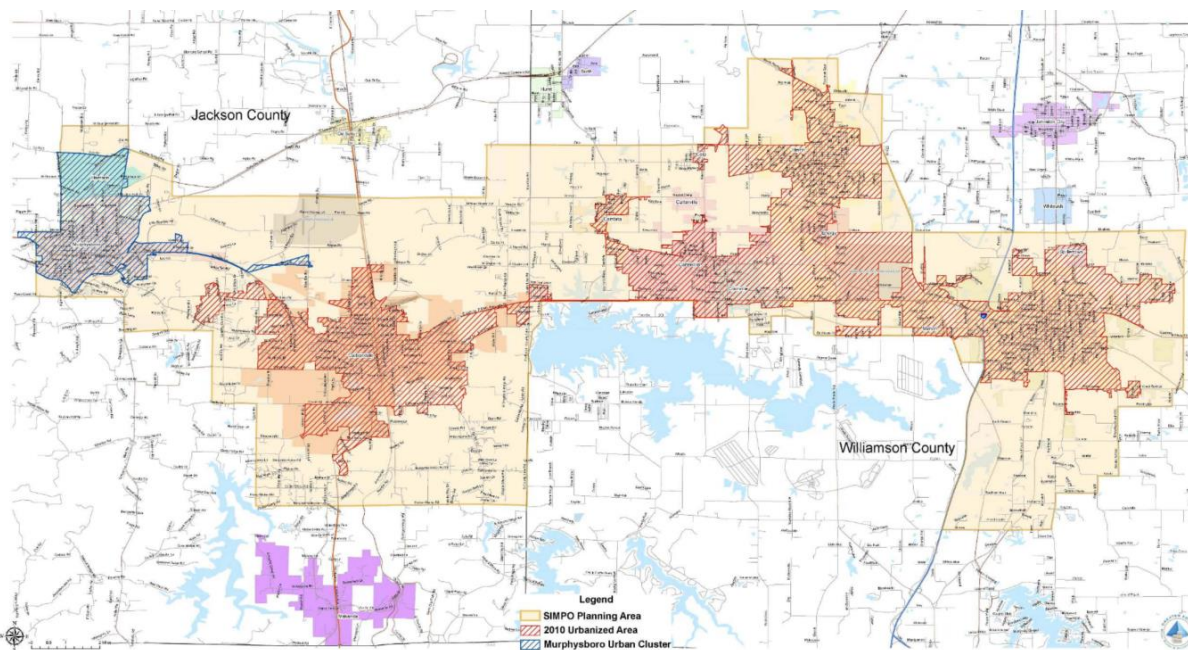
Study Area

The SIMPO region is made up of the urbanized area around the communities of Marion, Carbondale, Herrin, and Murphysboro, Illinois. The region is located within Jackson and Williamson Counties. The SIMPO region falls entirely within the Greater Egypt Regional Planning and Development Commission’s five county area (Franklin, Jefferson, Perry, Jackson, and Williamson Counties) in central southern Illinois. SIMPO and Greater Egypt are included in the “Little Egypt” region of Illinois, which is referred to generally as the southernmost third of the state. SIMPO falls under Greater Egypt’s jurisdiction and is the transportation planning arm of the organization.

In November 2022, Walker staff made a site visit to the SIMPO region to meet with Greater Egypt staff and local engineers, attend a project kick-off meeting, and tour the region. Walker visited all major municipalities within the region, toured Southern Illinois University Carbondale’s campus, toured public amenities and access points, and performed site observations at some of the potential EV charging station locations.

The yellow shaded area in **Figure 1** highlights the extent of the SIMPO planning area and the general boundaries of the project study area. The dark blue- and red-hatched areas represent the U.S. Census-designated Marion-Carbondale urbanized area.

Figure 1. – SIMPO Region and Project Study Area



Source: SIMPO, 2023

Area Context

Approximately 137,000 people live within the SIMPO region as of the 2020 U.S. Census count, with Carbondale being the largest municipality in terms of population (approximately 21,700 residents), followed by Marion (approximately 16,700 residents). Marion is the commercial and economic center of the region due to its proximity to the intersection of IL State Route 13 and Interstate 57 and the fact that several large employers are located in and around the city. As the home of Southern Illinois University, Carbondale is the educational center of the region. Murphysboro, Carterville, and Herrin are other population centers in the region with each offering a downtown commercial district with surrounding residential areas and supporting/ancillary commercial activity.

Downtown Marion is approximately 1.5 miles east of I-57, while Carbondale is approximately 15 miles west of Marion along Illinois Route 13. Marion is 320 miles south of Chicago on I-57, 120 miles southeast of St. Louis, 60 miles north of Paducah, Kentucky, and 190 miles northwest of Nashville, Tennessee. Marion is 10 miles north of the I-57/I-24 interchange, allowing drivers to continue south on I-57 toward southeastern Missouri, Arkansas, and Memphis, or turn onto I-24 and head southeast toward Kentucky, Nashville, and central Tennessee.

Shawnee National Forest, Trail of Tears State Forest, Giant City State Park, and the Garden of the Gods Recreational Area are all proximate to the area, with visitors to these outdoor recreational areas often stopping in Marion/Carbondale for amenities, food, shopping, and lodging. The Marion/Carbondale area is centrally located within the United States, is well positioned close to four states, and situated between several major population centers, allowing it to act as a node of vehicular travel for the Midwest and South. Further, Marion/Carbondale is becoming a hub of motorsports activity with showrooms, racetracks, and wide-open spaces offering numerous opportunities for motorsport enthusiasts.

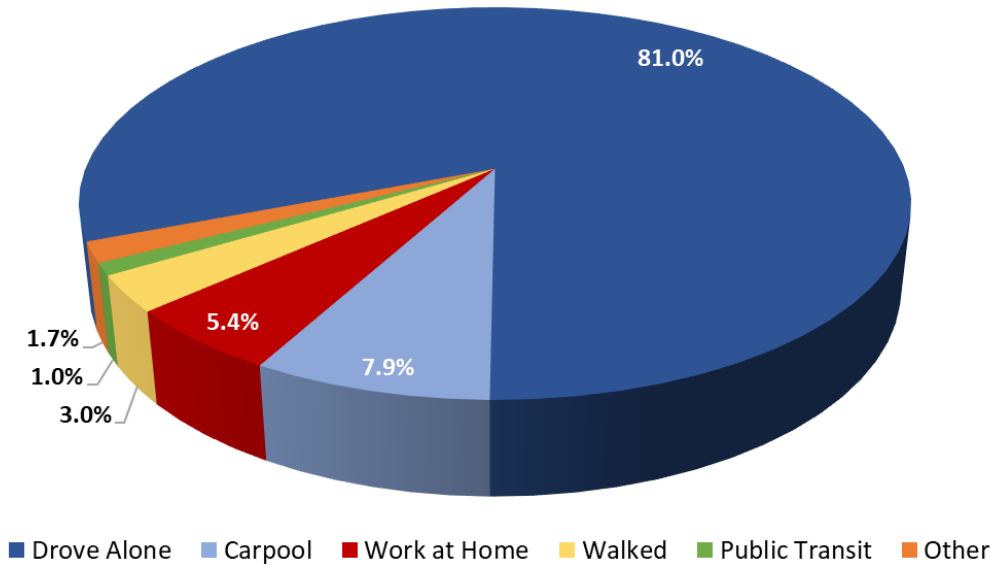
Demographics

As of the 2020 Census, **approximately 81 percent of commuters in the greater Marion/Carbondale area drove alone to and from work, while eight percent carpooled.** Three percent of respondents walked to work, and one percent utilized public transportation. Approximately five percent of workers responded that they work from home, however this percentage has likely risen slightly due to the increase in work-from-home/hybrid scenarios and the effects of the COVID-19 pandemic. The remaining two percent of respondents used other means to travel to work including via bicycle and motorcycle.

Due to its somewhat rural nature, the SIMPO region, like much of the geographical area of the United States, is particularly tied to a personal vehicle as it is the only consistently reliable mode of transportation to move around the region and travel to points further afield¹. Any impacts to the ability to use a personal vehicle (in this case the ability to charge an electric personal vehicle) is critically important to the mobility and prosperity of the region. Personal vehicle use and ownership have increased in the last two years due to impacts of the COVID-19 pandemic, and with the increased adoption rates of electric vehicles, sustainable, efficient, and resilient planning for these uses has never been more important. **Figure 2** on the following page provides a breakdown of transportation mode split in the SIMPO urbanized area.

¹ Contour Airlines announced commercial air service from Marion's Veterans Airport to Chicago's O'Hare International Airport beginning in August 2023, with 12 flights offered per week.

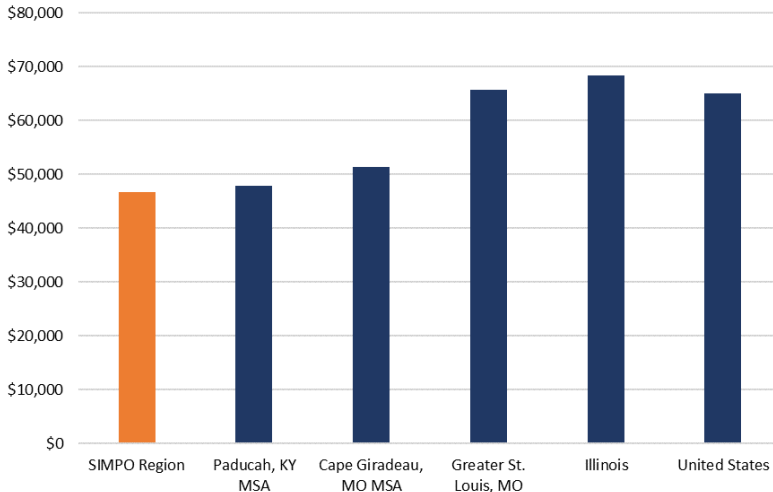
Figure 2. – SIMPO Region Transportation Mode Split



Source: U.S. Census – American Community Survey, 2020

The average commute time to work in the area is 22 minutes (shorter than the U.S. average of 28 minutes) and the average number of cars per household is two. Twenty-one percent of households have three cars, and twelve percent have four or more cars, which roughly aligns with the national average. Historically, travel by personal vehicle has been far and away the primary mode of transportation in Marion/Carbondale, and the car-centric nature of the community will likely continue well into the future. Choosing to use a mode other than personal vehicle can be difficult, inconvenient, or both.

As of 2020, the median household income in the area was approximately \$46,600, which is below the national median of approximately \$65,000. At the end of 2022, according to Kelley Blue Book, the average price of a new electric vehicle was \$61,500. However, the cost of new and used EVs has been slowly declining, coinciding with an increase in the numbers of used models available and continued government incentives. Prices are inching closer to those of internal combustion engine (ICE) vehicles. While the current cost of EVs remain a hurdle for the average American household, as prices continue to decline and the number of new and used models continues to increase, these vehicles will become more attainable. Future price points should allow for more residents of the Greater Egypt area to afford an EV and could lead to an increase in EV adoption rates in the region.

Figure 3. – Median Household Income Comparison


Source: U.S. Census – American Community Survey, 2020

The ratio of single family versus multi-family housing is an advantage for at-home charging in the region and could lead to a comparatively lower need for public charging points. Nationwide, approximately 80 percent of vehicle charging occurs at home, with much of this occurring in single family garages and driveways. Currently, owners of single-family homes have an advantage when it comes to the ease of charging. However, more manufacturers of EV charging equipment are implementing solutions for multi-family resident charging, in addition to the opportunities offered by public charging points. The future projected need for public charging stations, as well as the potential to capture transiting/visiting EV drivers (of all income levels), will be discussed more in the next section.

Electric Vehicle Terminology

The following is a list of commonly used terms related to EVs and EV charging that will be utilized throughout the report.

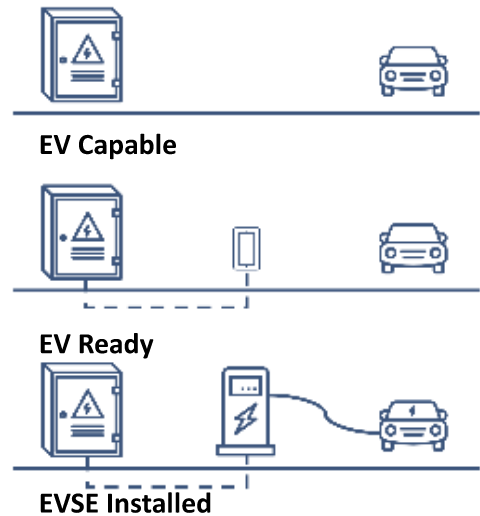
- **EVCS: Electric Vehicle Charging Station.** Self-contained unit that combines all required equipment for charging electric vehicle batteries, including the cords and couplers, with additional safety features beyond simply a cord and wall outlet. Some units provide a means of payment for recharging.
- **EVSE: Electric Vehicle Supply Equipment.** The system as a whole, including the EVCS equipment and conductors (ungrounded, grounded), attachment plugs, and all other fittings, devices, power outlets or apparatus installed for transferring energy between premises wiring and EV.

- **ALMS: Automatic Load Management Systems.** A control system which allows multiple chargers to share a circuit or panel and automatically alternate or adjust power at each charger head, providing the opportunity to reduce electrical infrastructure costs and provide demand-responsive capability.
- **PEV:** Plug-in EV (includes BEV, EREV and PHEV)
- **BEV:** Battery Electric Vehicle
- **PHEV:** Plug-in Hybrid Electric Vehicle. Supplements ICE with EV with latter recharged by plug-in.
- **HEV:** Hybrid Electric Vehicle. Supplements ICE with EV with latter powered by in-car systems. (Not a plug-in vehicle e.g., Toyota Prius.)
- **EREV:** Extended Range Electric Vehicle
- **BEV, EREV, PHEV, and HEV** are all *Electric Vehicles*, but not all *Electric Vehicles* are *PEVs*.
- **ICE:** Internal Combustion Engine



EV Charging Terminology

- **EV – Capable:** Installed electrical service and electrical room large enough for expected total EVs.
 - Alt: provide empty conduits to future EV stall areas which avoids unsightly surface conduits.
- **EV – Ready:** Installed electrical panel capacity and raceways with conductors to terminate in junction boxes at future EV parking stalls.
 - Alt: provide a 240v outlet in lieu of junction box (typical clothing dryer outlet.) Some jurisdictions call this EV-Capable.
- **EV – Installed:** Installed EVCS, with new stations added as appropriate over time as demand grows. Can be AC Level 1, AC Level 2 or DC Fast Chargers.



Types of EV Charging Stations

Figure 4. – Current EV Charging Stations

Level	Maximum Power Output	Typical Use	Typical Circuit Type	Typical Charging Rate	Typical Time for Full Charge
AC Level 1	Up to 1.92 kW	Residential (plugs into standard 120 V outlet)	120 V, 15 A	2-5 miles per hour of charge	±20 hours
AC Level 2	Up to 19.2 kW	Residential/ Commercial	240 V, 40 A	10-20 miles per hour of charge	±7 hours
DC Fast Charging	Up to 400 kW	Commercial/ Highway/Fleet	480 V AC input, DC output	>100 miles per hour of charge	<1 hour

Note: DC Fast Charging is sometimes incorrectly referred to as “Level 3” charging. No official charging standard uses the term “Level 3”, which is reserved for up to 400 kW.

Source: Walker Consultants, 2023

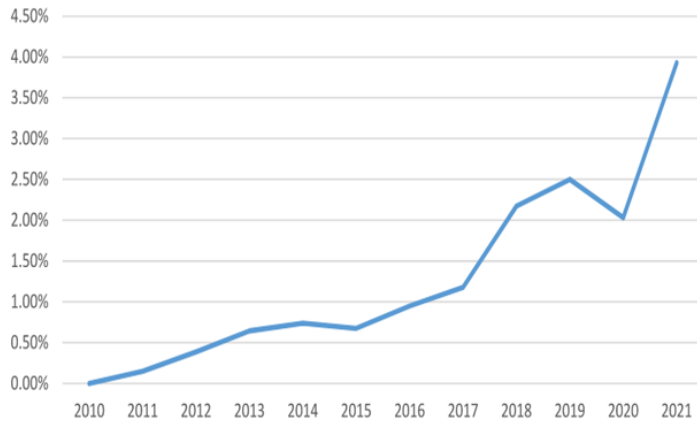


Electric Vehicle Context

In the United States

Electric vehicles are becoming more common throughout the United States and have been slowly gaining in popularity since the first mass market BEV models were released around 2010. The volume of new EVs on the road began to increase steadily in 2018 and 2019, before slowing somewhat because of the pandemic. Since early 2022 however, the conversion to EVs has accelerated again. The figure on the following page shows PEV sales as a percentage of total vehicle sales in the United States from 2010 through 2021.

Figure 5. – PEV Sales as a Percentage of Total Vehicle Sales in U.S.



Source: Walker Consultants, 2023

As of Fall 2022, PEVs accounted for six percent of all cars sold in the U.S, which roughly equals the percentage increase between 2020 and 2021. Early 2023 figures indicate this metric could be approaching seven percent; 100,000 more BEVs were sold in the first quarter of 2023 than the first quarter of 2022.

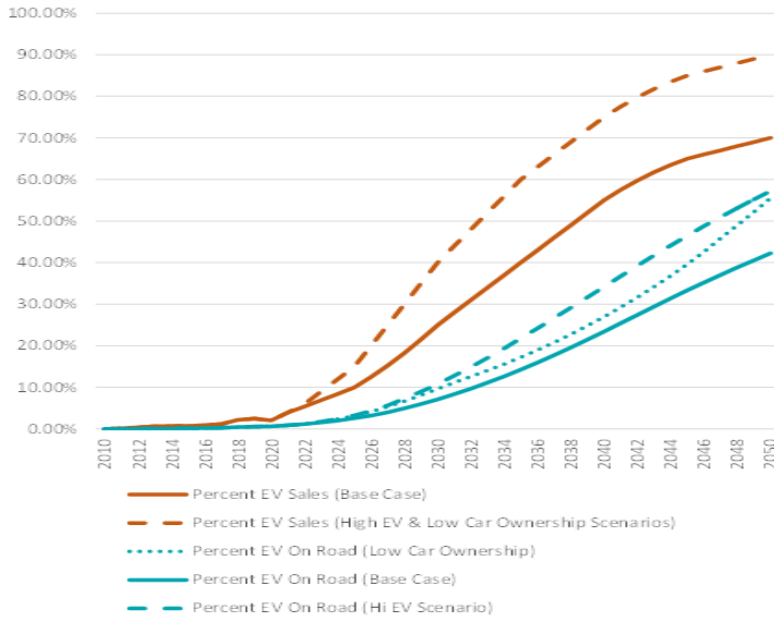
Most major car manufacturers worldwide currently produce electric vehicles, with Tesla manufacturing the most EVs globally in 2021, followed by Toyota and BYD. General Motors was the fourth largest producer of EVs in 2021 followed by Volkswagen Group and SAIC-GM-Wuling Motors, with BMW, Nissan, Hyundai, and Ford rounding out the top ten.

In the U.S., as of early 2023, Tesla remained the largest manufacturer, with 65 percent of total EV sales. Ford has made a big manufacturing push in recent years and was the second largest manufacture of EVs in the U.S. in 2022, while GM claimed they had the best-selling “mainstream” EV with the Chevy Bolt. (As of April 2023, however, GM indicated they will cease production of the Chevy Bolt and transition its assembly plant to producing an electric pickup truck.) Hyundai and Kia both set EV sales records in the U.S. in 2022, as well. The Tesla Model Y, Tesla Model 3, and Ford Mustang Mach-E have been the three most-sold EVs for the last two years. The Chevy Bolt, Volkswagen ID.4, Nissan Leaf, Audi-etron, and Tesla Model S have been other popular EV models in recent years. Rivian, an American auto manufacturer that like Tesla, only makes battery electric vehicles (and in Rivian’s case, only electric pickup trucks and SUV’s), has a large assembly plant in Normal, Illinois, approximately 220 miles north of Marion-Carbondale.

In addition to sales figures, Walker has also analyzed the percentage of PEVs currently on the road. As of late 2022, it is estimated that approximately one percent of all passenger vehicles on the road are a PEV. Walker’s projection of EV sales and vehicles on the road include the impact of all EV sales, as well as ride-hailing impacts on

personal vehicle travel, plus vehicle scrappage rates, and are based on numerous industry studies. **Figure 6** below provides a projection for various EV adoption rate scenarios in the U.S.

Figure 6. – Percent PEV Sales and Vehicles on Road in U.S.



Source: Walker Consultants, 2023

The following percentages are Walker’s 2022 base case projection for EV sales and EVs on the road in the U.S., corresponding to the graph in **Figure 6**. It is important to note that adoption rates have and will continue to vary substantially by state and region due to rebate programs, existing charging infrastructure, and local regulations.

Figure 7. – Percent PEV Sales and Vehicles on Road in U.S.

	EV Sales	EVs on the Road
2025	10%	2.5%
2030	25%	7.0%
2035	40%	14%
2040	55%	23%
2045	65%	32%
2050	70%	42%

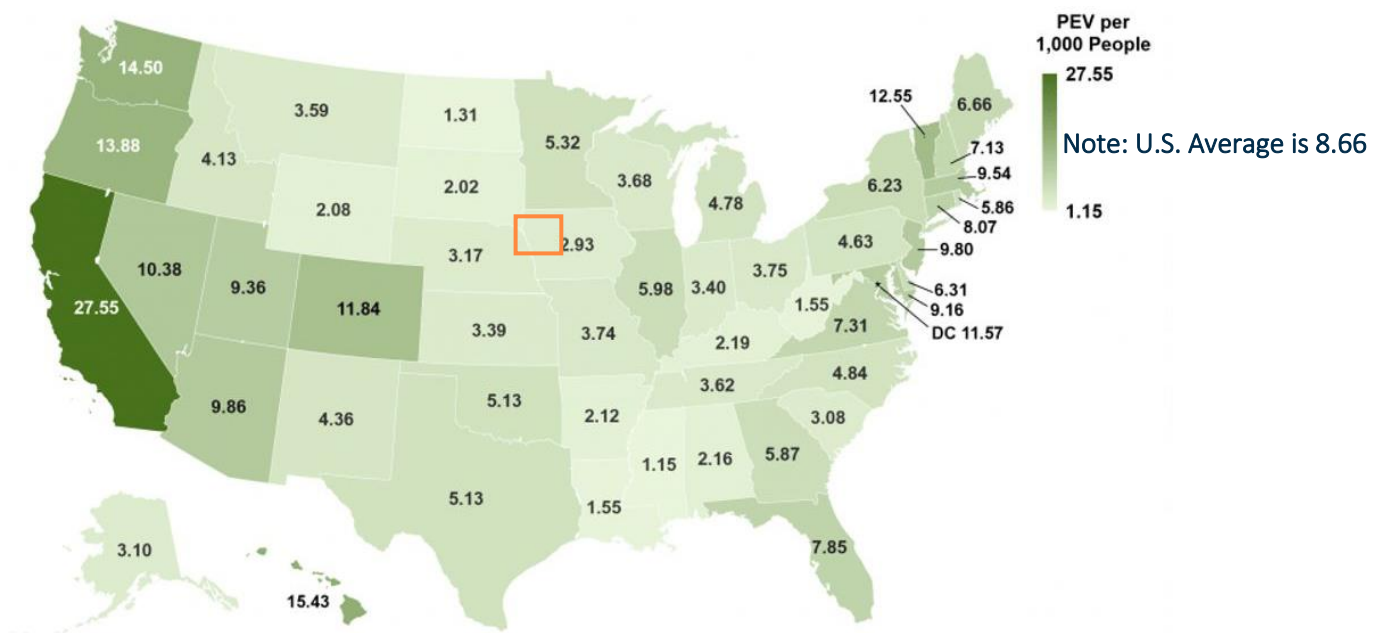


Source: Walker Consultants, 2023

Currently, there are over three million passenger EVs on the road in the U.S., including hybrid vehicles. This compares to over eight million diesel passenger vehicles, and approximately 275 million passenger vehicles total (including electric, hybrid, and diesel vehicles), according to the Federal Highway Administration. As of summer 2022, California had approximately 40 percent of EV registrations nationwide, with some saying the state is as much as seven years in front of all others when it comes to EV adoption rates and supporting infrastructure. California is also far and away the leader in PEV registrations per person, with 27.6 per thousand people in 2022, followed by the state of Washington with 14.5 PEVs per 1,000 people. Hawaii, Oregon, Nevada, Arizona, Utah, Colorado, Maryland, New Jersey, Vermont, and Massachusetts are other early leaders in EV adoption. Mississippi has the fewest registrations per thousand, with 1.2, with North Dakota and Louisiana having the next fewest.

The following map shows PEVs registrations per 1,000 people by state, according to Argonne National Laboratory research.

Figure 8. – PEV Registrations Per Capita

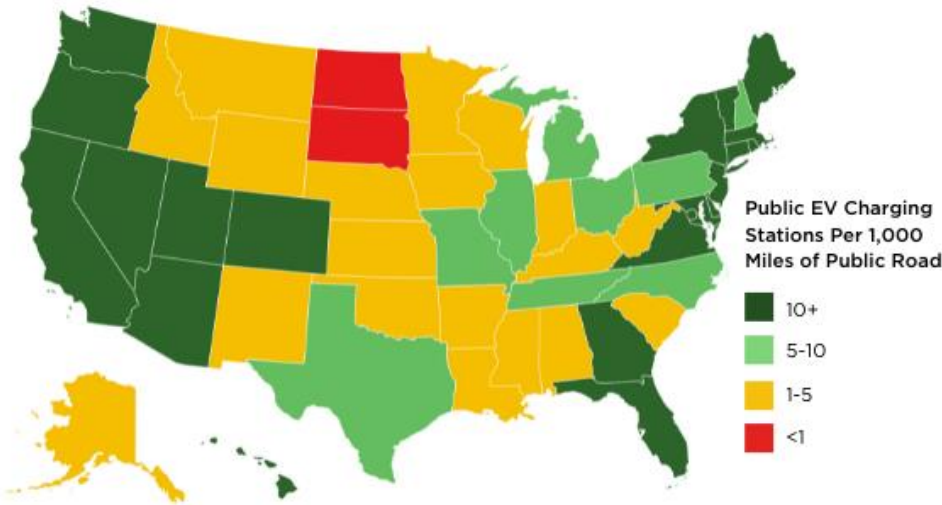


Source: US Census Bureau, Experian Automotive Data, Argonne National Laboratory, 2022

In terms of charging infrastructure, like EV registrations, the highest concentration of charging stations is in coastal areas, the Sun Belt, and parts of the Mountain West, which largely follows the areas with the highest number of registrations. California leads the nation with 41,200 public charging stations, followed by New York (7,600 public chargers), and Florida (6,700 public chargers).

Figure 9 on the following page highlights public EV charging stations per 1,000 miles of public road by state, according to the Environmental and Energy Study Institute.

Figure 9. – Public EV Charging Stations by State



Source: Environmental and Energy Study Institute (charging station data as of 2021, public road mileage as of 2019)

States in the Great Plains, Upper Midwest, and South are trailing much of the country in public charging infrastructure. However, public charging points have largely followed EV adoption patterns. In the Midwest, the highest concentration of EV owners and charging infrastructure is concentrated in the urban areas, particularly Chicago and Minneapolis/St. Paul. Other large- and mid-size cities continue to lead rural areas by a substantial margin, as well.

Consumer Behavior

As mentioned earlier in this section, up to 80 percent of EV owners primarily charge their vehicle at home. The U.S. Department of Energy notes that home charging accounts for 50 to 80 percent of all charging events. Typically, this charging occurs at a single-family home, usually in a garage. Charging at multi-family residential properties is possible but is considerably more complex, and is not nearly as common, especially in areas away from the West Coast. Inroads are slowly being made in multi-family charging, with some companies and vendors specializing in this, but adoption is slow, particularly since much of the country’s multi-family housing is existing (and often quite old) and retro-fitting on-site garages and surface lots can be costly and time-intensive. As apartment construction activity has largely resumed (and, in some markets, strongly resumes), many of these developers are exploring the need for resident charging stations, and in many cases are constructing them.

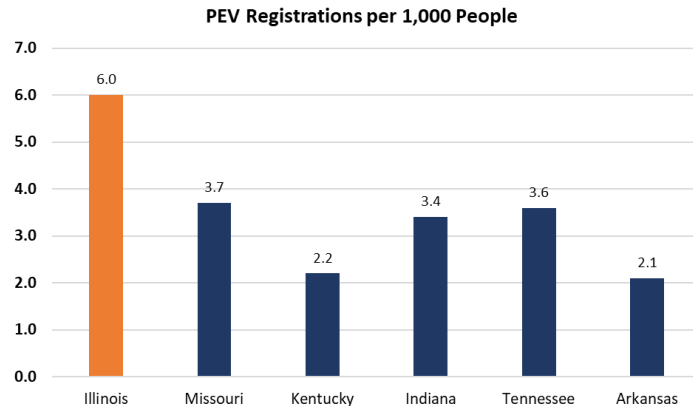
The second most common charging location is at workplaces. Fifteen to twenty-five percent of charging for BEV commuters occurs at the workplace, and slightly less for PHEV commuters. These percentages have likely slightly increased since 2020.

Less than ten percent of all charging events occur at other locations. This is likely due to the still relatively small number of public charging stations, and the time needed to charge at Level 1 and Level 2 chargers, which remain the primary public charging options for non-Tesla EV owners. EV chargers are often found at large mixed-use retail and lifestyle centers/malls, and occasionally at smaller stand-alone retailers, especially if they own or operate an adjacent surface parking lot. A relatively high number of charging stations have been installed at hotels, resorts, and other vacation destinations as EV owners require a place to charge after driving the sometimes-long distances to reach these locations. DC fast charging stations are most often found along long-distance travel corridors and other highly visited destinations.

In Illinois

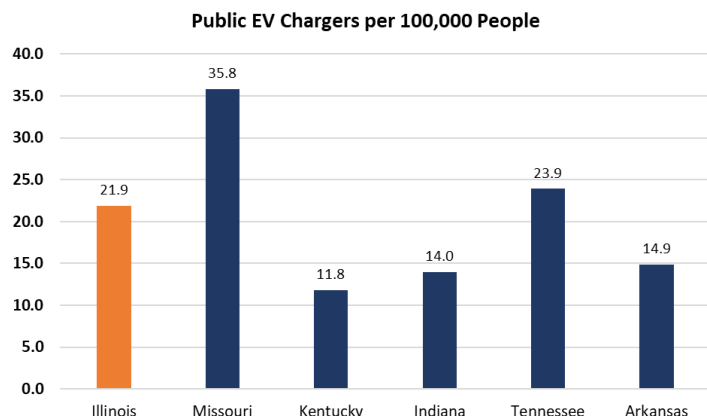
As of June 2022, there were approximately 36,500 EV registrations in Illinois. This is by far the most in the Midwest, with Ohio having the next highest total of 21,000 registrations, followed by Michigan and Minnesota. Of the 4.65 million passenger vehicles in Illinois, this represents a 0.5 percent adoption rate. Illinois is also the leader in the region on a per capita basis, with six PEV registrations per thousand people. Minnesota and Michigan follow with 5.3 and 4.8 registrations per thousand people, respectively. Closer to the SIMPO region, here are the 2022 PEV registrations per thousand people, by state:

- **Illinois – 6.0**
- Missouri – 3.7
- Kentucky – 2.2
- Indiana – 3.4
- Tennessee – 3.6
- Arkansas – 2.1



In terms of charging infrastructure, while Illinois has by far the most total public charging stations in the Midwest (2,800 public charging stations), per capita it trails Minnesota, Missouri, and Kansas. As of late 2022, Illinois had 21.9 public chargers per 100,000 people, versus 35.8 in Missouri, 34.9 in Kansas, and 24.6 in Minnesota. Here is where other nearby states compare in terms of public chargers per one hundred thousand people:

- **Illinois – 21.9**
- Missouri – 35.8
- Kentucky – 11.8



- Indiana – 14.0
- Tennessee – 23.9
- Arkansas – 14.9

While Illinois' per capita metric is likely skewed by the large population in Chicagoland (and the high number of multi-family residents there), it is clear that Illinois trails peer states both regionally and nationally in the number of built public EV charging stations and supporting infrastructure.

2023 National EV Charging Summit and Expo

Walker staff attended the 2023 National EV Charging Summit and Expo in late March 2023. This was the first in-person event of its type after two virtual summits were held previously. Officials indicated they had planned for approximately 2,000 attendees, when almost 3,000 attended, and there are plans to triple the size of the expo floor and session spaces in 2024. The energy and excitement in the room was very evident as the expo floor was sold out and sessions were often over-capacity. The Summit was geared toward charging station vendors and technology companies, with some representation from electric utility companies and supporting services (charging station advertising, retail at charging stations, multi-family charging solutions, and consulting).

It is evident that there is still a lot of coordination needed between the various parties in the industry, and most attendees acknowledged that the industry in its infancy and much work is needed to bring the country up to speed in terms of public charging options, and EV adoption overall. It is also clear the utilities are a key part of the infrastructure puzzle and they emphasized to all in attendance, but particularly to developers, builders, and owners, to communicate with them early and often. In some markets (mainly in California and other western states) there are continued significant backlogs in parts and materials, and in utility construction lead time. In these areas, it is clear that the earlier the communication starts between the developer/owner and the electric utility, the better. This is a good best practice to be followed everywhere, regardless of installation size.

Another significant talking point at the event was regarding the need for technological upgrades to allow the various software components to “talk” to each other, or network, to create an easier and more streamlined customer experience. Outside of Tesla, the significant number of charging station owners/vendors, apps, and vehicle manufacturers can lead to difficulties in the software connecting or “networking” between all parties. It is likely that some of these companies and apps will close or consolidate and the user experience for charging will get easier as time goes on, as there are fewer (and likely better) charging options in the future.

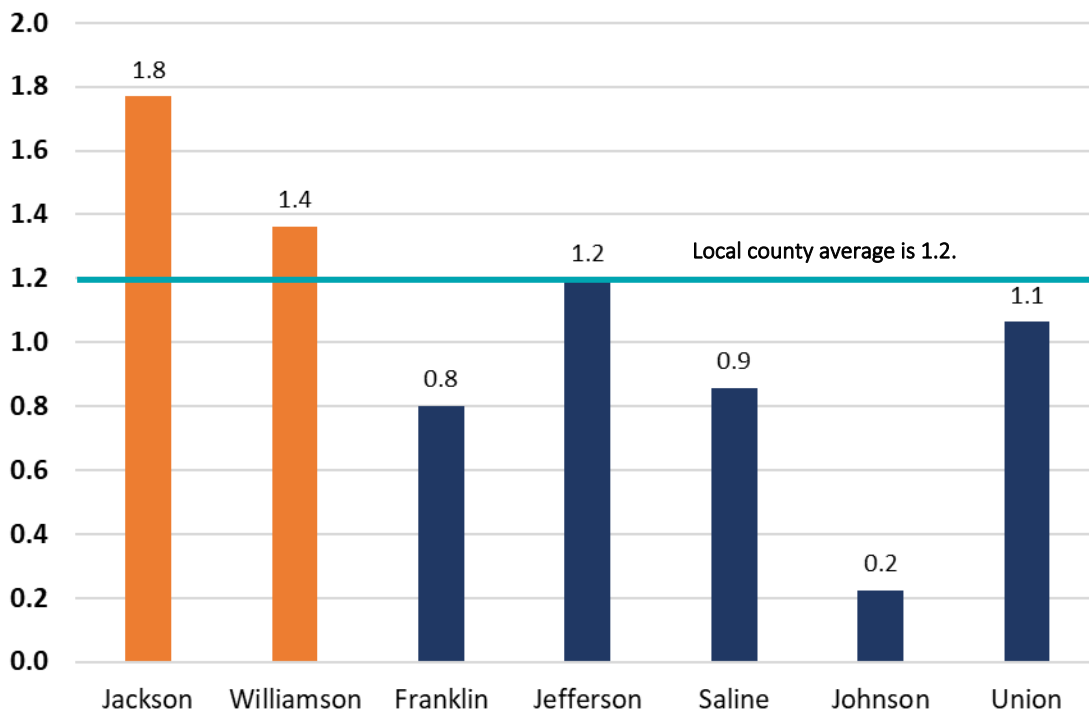
1.3 Current Conditions

Current EV Registrations

In order to gauge the need for future EV charging infrastructure in the SIMPO region, Walker examined existing EV usage and charging infrastructure in the area. According to the Illinois Secretary of State’s office, as of April 2023, there were 93 EV registrations in Jackson County and 91 registrations in Williamson County. In nearby Franklin County (north) there were 30 registrations, with an additional 20 registrations in Saline County (west), 3 registrations in Johnson County (south), and 18 registrations in Union County (southwest). For comparison, in Jefferson County, where Mt. Vernon is located at the I-57/I-64 intersection, there were 44 EV registrations. Both Jackson and Williamson Counties have more EV registrations per capita than the nearby comparable Franklin and Jefferson Counties. In Walker’s discussion with the Egyptian Electric Cooperative utility provider, they stated that at last count they had 188 EVs within their southwestern Illinois service area, which roughly matches the state registration counts (assuming not all EV owners use Egyptian Electric for their utility provider).

Figure 10 provides a visual comparison of EV registrations per capita, by county.

Figure 10. – EV Registrations per 1,000 People by County



Source: IL Secretary of State, US Census, Walker Consultants, 2023

Current Charging Installations

Walker examined current public EV charging installations in the region as part of this analysis. Utilizing a mix of discussions with SIMPO staff, local stakeholders, and online EV charging locator sites PlugShare, ChargeHub, and ChargeFinder, Walker attempted to identify all existing public charging points in the region.

DC Fast Charging Location – Tesla Supercharger

There is currently one DC Fast Charging Station in the region – the Tesla Supercharger at the Phillips 66 gas station/Mach 1 convenience store on “the Hill” commercial/retail district near the I-57/Illinois Route 13 intersection. The Supercharger is half a mile from the I-57/Route 13 interchange, and a quarter mile from The Hill Avenue’s interchange with I-57. There are **eight plugs** (or charge “points”) located here, which means eight different vehicles could charge at once at this station. Payment is required at this charging station; however, the parking is free. The chargers are available 24/7, and the Mach 1 convenience store is adjacent to the chargers. Historically, Tesla Superchargers could only charge Tesla vehicles. However, this will soon change, as Tesla is developing plug adapters that will be able to be used by most other EVs.

A major intersection with an interstate highway, particularly near a large retail/commercial district, is a typical location for a DC fast charging station. The central location allows area EV owners easy access to the chargers, while also providing convenient access for EV owners that are driving north or south on I-57 and need a place to charge; the presence of other amenities (rest stop, food, drink, bathrooms) only enhances the appeal of this charging location. The charger is also in close proximity to the many hotels near this interchange, which allows for a charge while staying overnight.

Auffenberg of Carbondale car dealership reportedly also has a DC Fast charging station (one plug) on-site. However, it is likely that this station is reserved for use by the dealership and its clients; Walker could find no evidence that this charging station is available for public use.

Level 2 Charging Locations

John A. Logan College, located approximately eight miles west of I-57 on Illinois 13 near the towns of Carterville and Crainville, offers three public Level 2 charging stations with approximately two plugs each (**six plugs total**). Two of the chargers are located near the front of the campus closest to Route 13, while the third charger is located in the back of the campus near the intersection of Vicksburg Drive and Logan College Road. While these charging stations are likely prioritized for students, faculty, and staff of the College, they appear to be available for public use and offer a convenient location on Route 13 roughly halfway between Marion and Carbondale and near Crab Orchard Lake recreational access points.

The Home2Suites by Hilton hotel in downtown Carbondale offers one Level 2 Tesla charging station (**two plugs**), that is intended to be used by hotel guests but appears to be used by other Tesla owners as well. Parking and charging are free, and the charger is within walking distance of Carbondale City Hall, the train station, restaurants, and other points of interest downtown.

As of April 2023, it appears that Big Muddy Brewing, about two miles north of downtown Murphysboro on North 7th Street, just west of Route 13, has one Level 2 public charging station (**two plugs**). Again, this charger is likely intended for use by patrons of Big Muddy Brewing but is accessible to other EV owners as well. **In total, there are currently approximately ten Level 2 public charge points and eight public DC Fast Charging points in the SIMPO region, equaling eighteen total public charging points across six stations.** The currently-under construction Walker’s Bluff Casino is working with the Egyptian Electric Cooperative to install 11 dual head Level 2 charging stations (22 total charge ports) approximately five miles north of Route 13 between Carbondale and Carterville.

Additional Level 2 Charging Locations

It appears that Ward Chrysler of Carbondale, Vic Koenig Chevrolet, Vogler Ford Lincoln, and Nissan of Marion car dealerships (all of which are located along Route 13 between Marion and Carbondale) offer Level 2 charging stations for their patrons. Some of these chargers are only available for patrons during business hours and are located in interior service areas.

Other nearby Level 2 public charging stations are located at the Makanda Inn and Cottages near Giant City State Park in Makanda, IL, Alto Vineyards in Alto Pass, IL, campgrounds near Rend Lake and Ferne Clyffe State Park, and other car dealerships in the area.

Figure 11. – Current Public EV Charging Stations in the SIMPO Region



Source: Google Earth, US Dept. of Energy, PlugShare, Walker Consultants



02 Future Charging Station Needs

02 Future Charging Station Needs

After gaining an understanding of the physical setting and context of the SIMPO region and exploring current EV ownership rates and charging infrastructure, Walker explored considerations for future EV charging needs in the area.

2.1 Coordination with Local Electric Utilities

Communicating early and often with local electric utility companies is incredibly important when it comes to planning for future EV charging installations. In order to gain an understanding of the local electrical capacity and infrastructure in the SIMPO region, Walker met with the major electric utility provider in the region (Ameren IL) and one of the smaller local electric cooperatives (Egypt Electric Cooperative Association). Although Walker was unable to meet with the other electric cooperative in the area (Southeastern Illinois Electric Cooperative), this utility provider did respond to an emailed list of questions sent by Walker.

The following section provides a summary of these discussions and responses received from the local electric utility providers.

Ameren Illinois



Walker staff held a conference call with Ameren Illinois Efficient Electrification and Product Development leadership to discuss the future of EVs in downstate Illinois. Ameren Illinois serves the majority of Illinois south of Interstate 80 including the entirety of the SIMPO region with power delivery only, they do not generate their own power.

Ameren has developed an EV charging rate program with benefits and credits for EV charging geared toward residential customers. This program involves a preferred charging period and non-preferred charging period, with credits received during the preferred charging period, which occurs at night, for non-demand-based customers. For demand-based customers, off-peak versus peak pricing is offered. Multi-family residential buildings are eligible as well – Ameren offers supplemental line extensions, bill credits per month, and line credit. Ameren’s normal line extension policy allows for either revenue test or minimum line extension allowance, depending on size and capacity requirement of the line. Transit facilities and educational facilities are eligible too, as long as they generate less than 150kw demand. Peak/off-peak usage is not measured for these customers, however. As of February 2023, to Ameren staff’s knowledge, there have been no public EV charger installations in southern Illinois that have taken advantage of this program.

Like Comed in Chicagoland and northern Illinois, Ameren was required to file a Beneficial Electrification (BE) plan. The Illinois Commerce Commission (ICC) requires plans that “solicit input on the design of beneficial electrification programs that consider barriers, incentives, enabling rate structures, and other opportunities for bill reductions and environmental benefits”. If Ameren’s BE plan gets approved, two new programs are planned to be

implemented in the next one to two years: a community engagement program and a consulting plan. Fleet assessments are built into the plan, as are equity considerations. This plan has been constantly evolving and Ameren officials indicated changes are already being considered for the summer of 2024. If the BE plan is approved and the Ameren implements the community engagement program, Walker recommends that Greater Egypt and SIMPO coordinate with Ameren as a key community planning partner in the region. SIMPO should coordinate with the City of Carbondale, the Carbondale Park District, and other interested parties in rolling out EV infrastructure in conjunction with the community engagement efforts from Ameren.

Ameren Illinois currently has approximately 1,500 to 1,600 residential EV customers in southern Illinois, out of approximately 5,000 to 7,000 EV owners throughout their service territory in Illinois. Ameren officials believe most residential and commercial locations have the existing electrical capacity capable of serving Level 2 charging. Ameren can also serve DC Fast charging in most locations, but this would be considerably more costly to service when compared to Level 2 charging installations. To-date, Ameren has not experienced any power connection issues with EV chargers, to the team’s knowledge. However, the Ameren team has continued to hear of supply chain issues with the charging station hardware itself. Ameren staff has also not heard of any harmonics (a “distortion of the normal electrical current waveform” due to issues with the power supply or equipment operating within the system) issues to-date. However, it is possible that four Level 2 chargers on the same circuit within close proximity could lead to harmonics concerns.

Egyptian Electric Cooperative Association



Walker met with representatives of the Egyptian Electric Cooperative Association in December 2022. Egyptian Electric is one of two electrical cooperative utilities in the region, and largely serves customers not serviced by Ameren – particularly in Jackson County and immediately adjacent areas. Egyptian Electric’s highest density service area is between Murphysboro and Carbondale, but they serve parts of 11 counties, or approximately half of the Little Egypt area. They currently serve about 11,000 members over 15,000 electrical meters. As of late 2022, Egyptian Electric officials indicated they had approximately 190 EVs registered within the zip codes they serve. No customer rebate program has been developed yet but they have explored implementing one. Egyptian Electric has also expressed interest in owning and operating charging infrastructure when the time is right.

Egyptian Electric is currently installing 11 dual-head (two charging ports) Level 2 chargers at the new Walker’s Bluff casino site. ChargePoint is the vendor, and all chargers will be leased through them; Egyptian Electric leadership has been happy with this operating model so far. Due to the number and proximity of the chargers, Egyptian Electric indicated these may have to be timed to off-peak usages (utilizing an ALMS) and ensure that all the chargers are not operating at once. The operating requirements are still to be determined, but Egyptian Electric is confident that other potential charging locations have sufficient capacity for a small number of Level 2 chargers, similar to Ameren officials’ view on capacity in the region.

The team at Egyptian Electric has only investigated use of Level 2 chargers due to lack of public use of Level 1 chargers and the potential for their obsolescence in the near future. Staff also indicated that they are planning to

install a charger at the Egyptian Electric headquarters facility, which would serve the two Ford F-150 Lightnings that are currently on order. They hope to eventually transition their entire fleet to electric vehicles.

Egyptian Electric has identified some potential locations for future EV charging infrastructure in the near- to mid-term future, in addition to the chargers already being constructed at the casino site and at their headquarters. The following sites were listed as potential public charging locations:

- Southern Illinois Airport
- Veterans Airport
- John A. Logan College (additional charging infrastructure)
- Crab Orchard Campground
- SIUC campus

Both Southern Illinois Airport and SIUC have indicated to Egyptian Electric officials that they would like to eventually electrify their fleet vehicles, as well.

Some of these potential public charging locations align with sites identified by SIMPO staff. Potential locations of future EV charging infrastructure will be explored in greater detail later in this section of the report.

Southeastern Illinois Electric Cooperative, Inc.



Walker emailed the following list of questions to the Southeastern Illinois Electric Cooperative (SIEC); their responses follow each question.

Walker Question: Has SIEC been involved in any charging installations to date? If so, where?

SIEC Answer: We have not but have been anticipating and welcome this conversation.

Walker Question: Can current transmission lines generally meet the capacity for a small group of Level 2 or DC Fast charging stations in the region?

SIEC Answer: I believe so, but of course this depends on loading size and location. I will be happy to complete modeling studies for this.

Walker Question: Are there concerns with transformers and connections with land/building owners if/when chargers are installed? Have you encountered any difficulties with any installations to date?

SIEC Answer: Not that I'm aware of, but this is the first request we have received.

Walker Question: What are your thoughts on EV adoption in Southern Illinois? Short- to mid-term charging would likely be a small number of Level 2 chargers in a few locations around the region (exception are Level 3 chargers at I-57 and Route 13 and I-57 and I-24 intersections); does this align with the current and near-term plans for the power grid?

SIEC Answer: I believe EV adoption will be more prevalent in Williamson County and surrounding urban areas. The more rural areas will likely be slow to adopt. Our service territory interlaces with a couple other electric utilities, so this will come into play when discussing the plans for the power grid.

Walker Question: Would you envision varying charging rates based on time of day or season?

SIEC Answer: We currently do not have a time of use (TOU) rate structure in place, but it is likely in our future.

2.2 Interest of Local Organizations in EVs

In addition to the utilities, Walker staff also spoke with local organizations and entities that could potentially be interested in constructing and/or operating new charging equipment. SIMPO staff introduced Walker to several organizations in the area that had previously expressed interest in EVs and EV charging infrastructure or, at a minimum, were hoping to be involved in any future planning efforts. Throughout the course of the project, Walker staff spoke with the various entities, all of whom were optimistic about increasing EV adoption rates in the region, and were supportive of new ancillary infrastructure, including public charging stations. All parties Walker spoke with had ideas related to public charging infrastructure including potential locations. Walker assembled a list of these locations and examined each site later in this section of the report.

City of Carbondale

Walker met with City of Carbondale sustainability staff to discuss public charging infrastructure both in the city itself and in the greater SIMPO region. The City's sustainability commission passed the Sustainability Action Plan in 2022, which commits the City to carbon neutrality by 2050, and a 45 percent reduction in emissions by 2030. As one third of emissions in the Carbondale area are from transportation, converting to EVs will greatly contribute to achieving these goals. The City is also considering electrifying its fleet. The City Manager contracted with an engineering firm to assess potential fleet vehicle charging station locations in the City, including at City Hall and at the Police Department. The Police Department is currently utilizing a Ford Mustang Mach E and an associated Level 2 charger on-site at the police station. The City also ordered a fleet of Ford F-150 Lightnings to assist City inspectors in performing routine rounds, up to 30 miles per day.

In July 2022, the City rolled out a sustainable micro-mobility program through Veo, providing 350 standing and seated electric scooters. Through the end of 2022, approximately 7,800 unique riders took over 152,000 rides. In



total, the scooters were ridden for 250,000 miles, equaling an average ride length of 1.6 miles. Each scooter averaged three trips a day and were primarily used on SIUC’s campus, in downtown Carbondale, and in immediately adjacent areas. This program was renewed for 2023 and Veo has planned for more scooters to be available due to 2022’s impressive ridership numbers.

A Veo survey indicated that 35 percent of students said that if the e-scooters were not available, they would have used a personal (likely ICE) vehicle for the trip, while 7 percent indicated they would not have taken the trip at all. To ride the e-scooters a user must download the free Veo app, pay an unlocking fee of \$1.00, after which the cost to ride is 31 cents per minute. There is also a discounted rate program for eligible Carbondale residents and SIUC students with low incomes. Carbondale and SIUC’s Veo e-scooter program provides an attractive micro-mobility alternative to driving a personal vehicle (similar to a bike share or electric (e)-bike share program), and, like EVs, reduces the volume of harmful emissions put into the atmosphere.

New electric vehicle charging stations, in addition to an emissions-free micro-mobility program, will go a long way towards the City’s goal to decarbonize their transportation infrastructure.

Carbondale Park District

Walker met with representatives of the Carbondale Park District and Sustainability Task Force. The Park District shared that most visitors to the Carbondale area come from within 150 to 250 miles, with St. Louis and Chicago being the primary origins of local vacationers. A goal of the Park District is to assist the City of Carbondale in being a “home away from home” for SIUC students, their parents, and tourists. Park District staff also indicated that the Memorial Hospital of Carbondale brings patrons from across southern Illinois as well. The Park District emphasized that SIUC football games and other campus events are big drivers of visitor traffic in the region, as well as outdoor recreational activities and the various recreational outlets that are available in the region. These outdoor recreation destinations have likely only gotten busier and more popular since 2020. The fact that there are so many recreational points of interest and tourist destinations in the area makes the region a prime candidate for public destination-end charging. The Park District has taken an entrepreneurial approach to operating in recent years as they operate on a limited budget and levying additional taxes on residents is not palatable. Offering public charging (free or for cost) could act as an amenity to attract additional visitors to the Carbondale area as a “destination charging location” and contribute to this entrepreneurial approach.

The Park District also expressed interest in transitioning its fleet to electric vehicles and stated it may be easiest and most cost effective to start with some of the smaller equipment they utilize (chain saws, lawn mowers, etc.).

Southern Illinois University – Carbondale



Designated staff at SIUC serve as part of the Illinois Department of Commerce and Economic Opportunity (IDCEO) Illinois Innovation Network, which assists the Department on EV research, funding opportunities, and proposal request writing. The Innovation Network also occasionally helps with federal programs including proposal writing and notice of funding opportunities. Federal “flow through” dollars are also occasionally governed by the IDCEO –

funding that comes directly from the federal government and is then appropriated throughout the state. At the time of this report, SIUC staff was not actively assisting the IDCEO with EV research.

SIUC is considered a local leader in sustainable energy and energy efficiency. The University’s Advanced Energy Institute (AEI) Mission is as follows: “AEI is responsible for coordinating and facilitating energy related research and scholarship across all aspects of the SIU Carbondale campus, including promoting externally funded energy related research, development, and deployment (RD&D) and assisting in development of energy related academic programs.” The AEI allows all university faculty, staff, and students to “have access to energy-related subjects and the largest association for energy professionals in the world”. The AEI also allows access to a number of energy-related research grants, the Energy Boost Undergraduate Scholars program, and the Energy Boost Concept Fund (EBCF). Having an active EV fleet in the area of the University, and/or public charging locations, would nicely complement the sustainability work of the AEI and other campus energy and research initiatives.

2.3 Road Network and Traffic Patterns

In order to plan for the most ideal and efficient public charging locations, Walker reviewed the local roadway network and current traffic levels in the region. While traffic counts and patterns are not the only metric that inform location, type, and quantity of charging stations, it is necessary to study this information to inform placement and potential future usage of the chargers.

Roadway Network



I-57 and Interstate Highway System

The SIMPO region is primarily served by north-south Interstate 57. Coming from the north, I-57 starts in Chicago, travels south through Illinois into Little Egypt and the SIMPO region, and continues south and west into Missouri before terminating in Sikeston. I-57 carries a considerable amount of north-south traffic through Illinois and connects the SIMPO region with the nearby cities of Benton and Mt. Vernon, Illinois, Sikeston, and neighboring states. I-57 connects with east-west I-64 approximately 40 miles north of Marion, which provides the most direct route to St. Louis and Louisville. Ten miles south of Marion, I-24 branches off I-57 in a southeastern direction and provides access to Paducah, Kentucky, Nashville, and other points south and east. I-55 travels somewhat close to the SIMPO region and is another major cross-country, north-south thoroughfare, connecting St. Louis with Cape Girardeau, Missouri, Sikeston, Missouri, Arkansas, Memphis, and Mississippi before terminating near New Orleans. I-57 merges with I-55 about 70 miles south of Marion, while the nearest interchange to travel north is near St. Mary, Missouri, approximately 70 miles west of Marion. I-57, however, is the more direct route between the Gulf Coast/southern states and Chicago, as it bypasses St. Louis and cities in west-central Illinois.

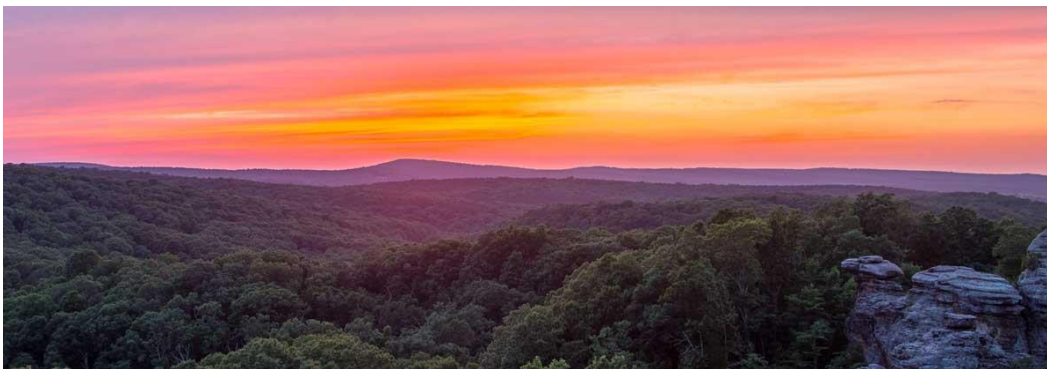
The SIMPO region’s central location within the national interstate network carries numerous visitors to the region and allows for many transient vehicles (vacationers, leisure travelers, freight trucks, service trucks, and business travelers) to pass through.



U.S. and State Routes

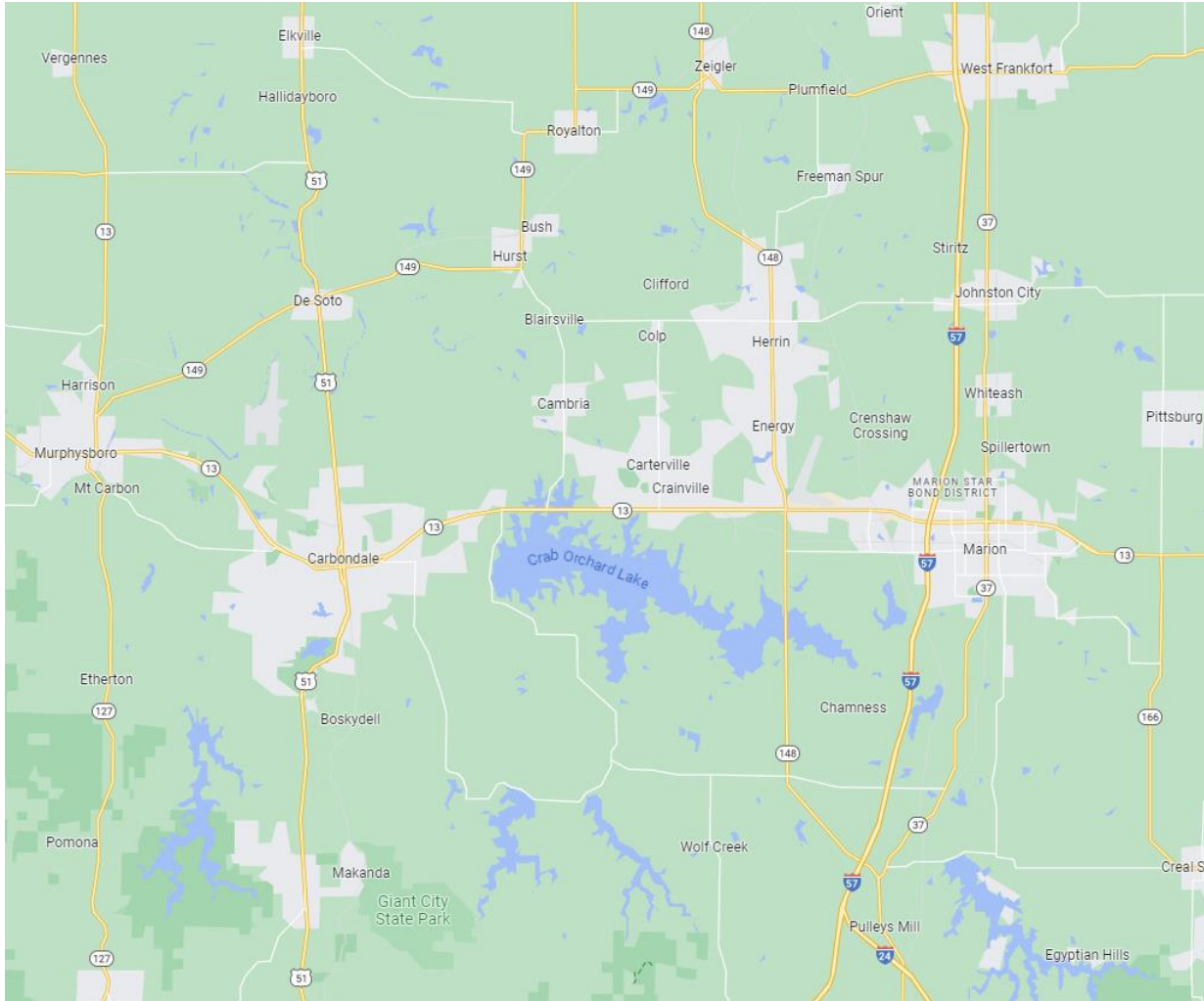
Illinois Route 13 is the primary east-west route in the SIMPO region – and traveling east to west – connects Marion, Carterville, Carbondale, and Murphysboro. Illinois 13 starts at the Ohio River and border with Kentucky, travels west and north through the SIMPO region and southern Illinois, and ends in the Metro East area, just east of St. Louis. Illinois 13 allows travelers connections to points throughout southern Illinois including the Pyramid State Recreation Area, the Garden of the Gods Recreational Area (and other nearby outdoor visitor attractions), and routes to Evansville, Indiana, and Owensboro, Kentucky. Marion is approximately 20 miles west of the turn off for the Garden of the Gods, and is approximately 100 miles southeast of Belleville, Illinois and Metro East. The majority of transient/pass-through traffic occurs on I-57, followed by Illinois 13. Occasional transient traffic occurs on the other U.S. and state routes in the region, but they are largely used as arterials for local traffic.

U.S. Route 51 travels north-south through Carbondale, connecting through central and southern Illinois, before merging with I-57 about 30 miles south of Marion, and is another well-traveled north-south route in the region. Illinois Route 148 also travels north-south through the region, connecting Herrin and Energy with Illinois 13, while Illinois 37 parallels I-57 and connects nearby West Frankfort and Johnson City with downtown Marion. Illinois Routes 149 (northeast-southwest) and 127 (north-south), offering additional arterial routes through the region, intersect just east of downtown Murphysboro, where they also connect with Illinois 13. **Figure 12** on the next page highlights the local Interstate, U.S., and Illinois state highways.



**Garden of the Gods
within the Shawnee
National Forest.**

Image sources, clockwise from upper left: Shawnee National Forest, USDA Forest Service, Shawnee National Forest

Figure 12. – SIMPO Region Highway Network


Source: Google Maps, 2023

Traffic Volumes

Walker studied traffic volumes in the region to determine the most well-traveled arterial and collector routes where public EV charging would be the most feasible, in addition to downtowns and public access points and interest areas. Walker utilized traffic counts provided by the Illinois Department of Transportation’s annual average daily traffic (AADT) GIS webpage. This statistic equates to the total number of vehicles on a section of road for a year, divided by 365 days, and is commonly used in traffic engineering and transportation planning. **Figure 13** on the following page provides a selection of key roadways in the region, including the busiest road segments. Please note that the highest (peak) AADT was listed for each segment of roadway.

Figure 13. – SIMPO Region Annual Average Daily Traffic

Route	Section of Road	Peak Annual Average Daily Traffic (AADT)
Interstate Highway		
I-57	North of IL 13 and "The Hill" interchange	40,400
I-57	Between IL 13 and Main St. interchanges	33,100
I-57	South of Main St. interchange before I-24 split	36,500
I-57	South of I-24 split	16,900
I-24	South of I-57 split	21,500
Average: Interstate Highway		29,680
Max: I-57 north of IL 13 and "The Hill" interchange		40,400
U.S. Highway (Arterial)		
U.S. 51	North of Carbondale (north of Airport Rd.)	6,700
U.S. 51	Between Illinois 13 and SIUC	13,900
U.S. 51	South of SIUC	5,950
Average: U.S. Highway		8,850
Max: U.S. 51 between Illinois 13 and SIUC		13,900
Illinois State Route (Arterial)		
IL 13	East of Marion (east of Pittsburg Rd.)	11,300
IL 13	Between I-57 and Court St.	24,600
IL 13	Between I-57 and Williamson County Pkwy.	28,200
IL 13	Between Williamson County Pkwy. and IL 148	23,600
IL 13	Between IL 148 and John A. Logan College	23,400
IL 13	Between John A. Logan College and Carbondale	23,400
IL 13	Between Carbondale and Murphysboro	13,900
IL 13	North of Murphysboro (north of Ava Rd.)	4,550
Average: Illinois Route 13		19,119
Max: IL 13 between I-57 and Williamson County Pkwy.		28,200
IL 37	North of Marion (north of Longstreet Rd.)	8,600
IL 37	Between IL 13 and Main St.	10,000
IL 37	Between Main St. and Hendrickson St./Boyton St.	8,750
IL 37	South of Marion (south of Wildcat Dr.)	5,250
IL 127	Between Walnut St. and Old Highway 13	5,700
IL 127	South of Old Highway 13	2,300
IL 148	North of Herrin St.	8,600
IL 148	Between Herrin St. and College St./Crenshaw Rd.	16,400
IL 148	Between College St./Crenshaw Rd. and IL 13	14,500
IL 148	South of IL 13	7,650
IL 149	East of IL 13/IL 127	2,600
IL 149	Between IL 13 and IL 127	12,000
IL 149	Between IL 127 and 22nd St.	10,900
IL 149	West of 22nd St.	3,250
Average: Other Illinois State Routes		8,321
Max: Between Herrin St. and College St./Crenshaw Rd.		16,400
Collector Road		
Old Hwy 13	Between IL 127 and IL 13	6,600
20th St.	South of IL 149/Walnut St.	2,200
Pleasant Hill Rd.	Between McLafferty Rd. and US 51	4,700
Pleasant Hill Rd.	Between US 51 and Giant City Rd.	7,600
Grand Ave. (Carbondale)	Between US 51 and Giant City Rd.	9,600
Giant City Rd.	Between Pleasant Hill Rd. and Grand Ave.	6,800
Giant City Rd.	Between Grand Ave. and IL 13	11,400
Spillway Rd.	South of IL 13	3,100
Cambria Rd.	North of IL 13	4,500
Division St.	Between IL 13 and Grand Ave.	7,700
Grand Rd. (Cartersville)	Between Division St. and IL 148	3,450
Herrin St.	West of IL 148	7,000
Herrin St.	East of IL 148	6,200
Halfway Rd.	Between IL 13 and Main St.	7,500
Main St.	Between Halfway Rd. and Market St.	11,800
Main St.	Between Market St. and IL 13	5,800
Old Creal Springs Rd.	Between Main St. and Golf Course Rd.	2,500
Carbon St.	Between IL 13 and Main St.	9,500
The Hill Ave.	Between Williamson County Pkwy. and I-57	8,300
The Hill Ave.	Between I-57 and Russe II St.	7,200
Average: Collector Road		6,673
Max: Main St. between Halfway Rd. and Market St.		11,800

Source: IL Dept. of Transportation – Average Annual Daily Traffic Online Portal, 2023

As shown in **Figure 13**, the two primary roadways of Interstate 57 and Illinois Route 13 carry the vast majority of pass-through and arterial traffic in the region. The busiest segment of roadway in the SIMPO region is I-57 north of the “The Hill” and I-57 diamond interchanges, with AADT of 40,400. The second busiest segment of roadway is I-57 south of the Main Street interchange, with an AADT of 36,500, while the third busiest segment is I-57 between the Main Street and “The Hill” interchanges, at 33,100. Peak AADT on Illinois 13 is just west of I-57, between the highway and Williamson County Parkway, with an AADT of 28,200. This is followed closely by the segment just east of I-57, between the highway and Court Street, at 24,600. Illinois 13 between Williamson County Parkway and downtown Carbondale has the next busiest segments, with an AADT of approximately 23,500. The average AADT of Illinois 13 across all segments within the SIMPO region is approximately 19,100. Locating public charging stations along and off these two roadways – Interstate 57 and Illinois Route 13 – makes the most sense in terms of allowing the most convenient and proximate access to charging infrastructure for EV drivers.

Illinois 148 is well traveled between Herrin and Illinois 13, although with an AADT of approximately 15,400 this segment is significantly less traveled than both I-57 and Illinois 13. Illinois 37 between IL 13 and downtown Marion has an AADT over 10,000, as does the western portion of IL 13 between Carbondale and Murphysboro, and IL 149 in downtown Murphysboro. The only other arterial roadway segment with an AADT above 10,000 is U.S. Route 51 between IL 13 and SUIC’s campus near downtown Carbondale. Smaller collector roads with an AADT over 10,000 include Giant City Road between Grand Avenue and IL 13 outside of Carbondale, and Main Street between Halfway Road and Market Street in and near downtown Marion. Average peak AADT on U.S. 51 in the region is approximately 8,900, while on Illinois state routes other than IL 13 it is approximately 8,300. Average peak AADT on select busy collector roads in the region is approximately 6,700.

Please note that to recommend public charging locations, Walker only analyzed the busiest collector roadway segments in the region. All the typically busiest road segments are included in **Figure 13**, however there may occasionally be other busier segments due to a closing/detour, construction, or special event. Additional public charging stations near key intersections and/or public access points and cultural facilities along a selection of these state and collector routes would also be logical and accessible locations. Walker will highlight a few of these locations later in this section.

2.4 Recommended Public EV Charging Sites

Using typical motorist patterns in the region, as well as information gained from discussions with SIMPO staff, area stakeholders, and electric utility companies, Walker has identified sites throughout the region that we believe are best suited for Level 2 and DC Fast public charging stations.

Transient Travelers and Recreational Visitors

Tesla and other upper market EV manufacturers include software that identifies public charging locations on dynamic map displays built into the vehicle dashboard. Other EV owners use apps and webpages to locate public charging locations, station condition, nearby amenities, and availability. As I-57 (and to a much lesser extent, U.S. Route 51) are important north-south travel routes in the central U.S., it is critically important for the SIMPO region to be “on the map” for transient, cross-region/cross-country motorists, as well as for the many leisure travelers that come to southern Illinois. Having public charging stations identified electronically on mobile in-car systems, apps, and websites will attract visitors and travelers to the SIMPO region and will lead to these EV drivers patronizing area businesses, particularly those close to I-57, contributing to economic growth in the region.

DC Fast charging, in particular, would most effectively serve this motorist-type. DC Fast charging stations allow for a full charge in under an hour, and as fast as 15-20 minutes for the most powerful chargers (Tesla Supercharger DC Fast charging stations provide approximately 200 miles of charge in 15 minutes). The Tesla Supercharger located at the Mach 1 convenience store on The Hill Avenue near its intersection with I-57 is currently the only Tesla Supercharger in the region, with the next closest located outside of Mt. Vernon. There are two other Superchargers in Sikeston and Cape Girardeau, Missouri. Currently, the Supercharger only serves Tesla vehicles and their owners.

While Tesla is working to make its charging stations available to all EV models, an additional DC Fast charger near the I-57 and IL 13 interchange would provide new fast charging access to all current and future EV owners. This fast-charging station would also serve as a supplement to the current Tesla Supercharger at Mach 1, plus the other nearby Superchargers providing a convenient charging stop (or safety net, in some cases) for transient and recreational EV motorists in the region. A new DC Fast charging station would also provide fast charging capability and additional charging availability for SIMPO region residents, particularly those that may be about to embark on a long-distance drive north or south on I-57 or those returning home from a long trip.

Recommended DC Fast Charging Location – “The Hill”

Walker recommends one DC Fast charging station (two to four charge points) be located near the I-57 / Illinois 13 intersection in “The Hill” section of Marion. Ideally, a highly-visible location near the intersection of The Hill Avenue and Halfway Road, or further east or west along The Hill Avenue, would best serve visiting and local EV motorists alike. If land is at a premium in this highly desirable retail/entertainment location, the parking lots of either Marion Stadium or Menards, just north of the Hill Avenue, would provide ample space for two to four DC Fast charging spaces.

All of these locations are within a quarter mile of either The Hill Avenue or IL 13 interchange with I-57. This provides immediate access from I-57 and IL 13 and positions the charger at the “nexus” of vehicular travel in the SIMPO region. Motorists driving through the region on I-57 or exiting at IL 13 to head east toward Garden of the Gods or head west toward Carbondale and SIUC will be able to conveniently utilize this charger. This is also the commercial and entertainment center of the SIMPO region. By locating a DC Fast charger here, local motorists

that are already dining, shopping or attending a baseball game at Marion Stadium or visiting Black Diamond Harley Davidson or the other motor sport attractions in the area, will be able to quickly charge while in the area.

As DC Fast charging stations are meant primarily to serve long-distance travelers, Walker recommends this station be paired with rest station-type amenities including food, drink, bathrooms, and a picnic area to walk around or take a break. Similar to how the current Tesla Supercharger is located in the Mach 1 convenience store parking lot, a new DC fast charging station should be complemented by a convenience store/rest station combination.

It is important that the party responsible for installing the DC Fast charging station coordinate with Ameren or one of the local electrical co-ops to ensure there is sufficient electrical capacity in this area. Several cars obtaining a fast charge simultaneously at the same charging station remains a bit of an unknown for utility companies. In southern Illinois, at the present time, this should not be an issue, but close coordination with the local utilities is highly recommended, so all chargers can be operable at once without putting a burden on the grid. If it is determined that a second DC fast charging station in the area of the I-57 / IL 13 interchange is too cumbersome for the grid, and assuming Tesla opens their Superchargers up to all EV types, the Supercharger site at Mach 1 may need to serve the fast-charging needs of the region for the time being. Further, utilization surveys could track usage of the Tesla Supercharger station. If this station goes underutilized (less than 50 percent usage on Thursday, Friday, and Sunday afternoons), officials may consider postponing development of a second fast charging station in the SIMPO region. If, in the coming years, the Supercharger is consistently above 50-70 percent utilization during the peak demand times of late week and weekend afternoons, the second fast charging station, with two to four charge points, should be considered. If paid charging is eventually implemented in the SIMPO region, Walker recommends that any DC fast charging locations be a higher, premium price point due to the increased strain on electrical resources, and the higher customer level of service (significantly shorter charge time), then when compared to Level 1 and 2 charging. Level 2 charging stations elsewhere would be available as a cheaper charging alternative, and private charging stations at residences (Level 1 and 2) would still be available for residents, too, where the only cost is the initial installation of the charger and the metered electric usage.

Proposed New Mega Development near “The Hill”

Planning and development officials in the SIMPO region have discussed the possibility of a comparatively large “mega” mixed-use/entertainment/recreational development near “The Hill”. A majority of this development is planned to occur within the boundaries of Williamson County Parkway, Skyline Drive, and IL 13, largely re-using and redeveloping the land that houses the former regional mall and surrounding surface lots. If even a portion of this development comes to fruition (regardless of size and scale), officials should monitor how this impacts EV visitation to the region. If this large development drives a significant increase in out-of-town visitation, and the Tesla Supercharger is consistently fully or near fully utilized, the second DC Fast charging station (two to four new charging points) should be constructed. In the next 20–30 years, if the development is fully constructed and leased out and is a significant draw for visitors and locals alike, a third DC Fast charging station (with an additional two to four charging points) should be considered. By placing it at the mega development, this station would remain within proximity to I-57 (roughly one mile) and would serve this “destination” development, as well as the entire SIMPO region, well into the future.

National Electric Vehicle Infrastructure (NEVI) Program

In November 2021, the federal government signed the Infrastructure Investment and Jobs Act (IIJA, or “Infrastructure Bill”) into law. As a portion of the Act, \$7.5 billion dollars were allocated for electric vehicle charging infrastructure around the country. Five billion dollars (\$5 billion) of this was designated for the National Electric Vehicle Infrastructure (NEVI) funding program. The State of Illinois is due to receive \$148 million of this money for DC fast charging stations along highways throughout the state. The program directs states to build out the DC fast charging stations along previously designated “alternative fuel corridors”, which are generally interstate highways or, occasionally, US highways. The NEVI-funded DC Fast chargers must be within one mile of one of the designated corridors and must be placed within 50 miles of each other. The stations must also have a minimum of four charging ports each.

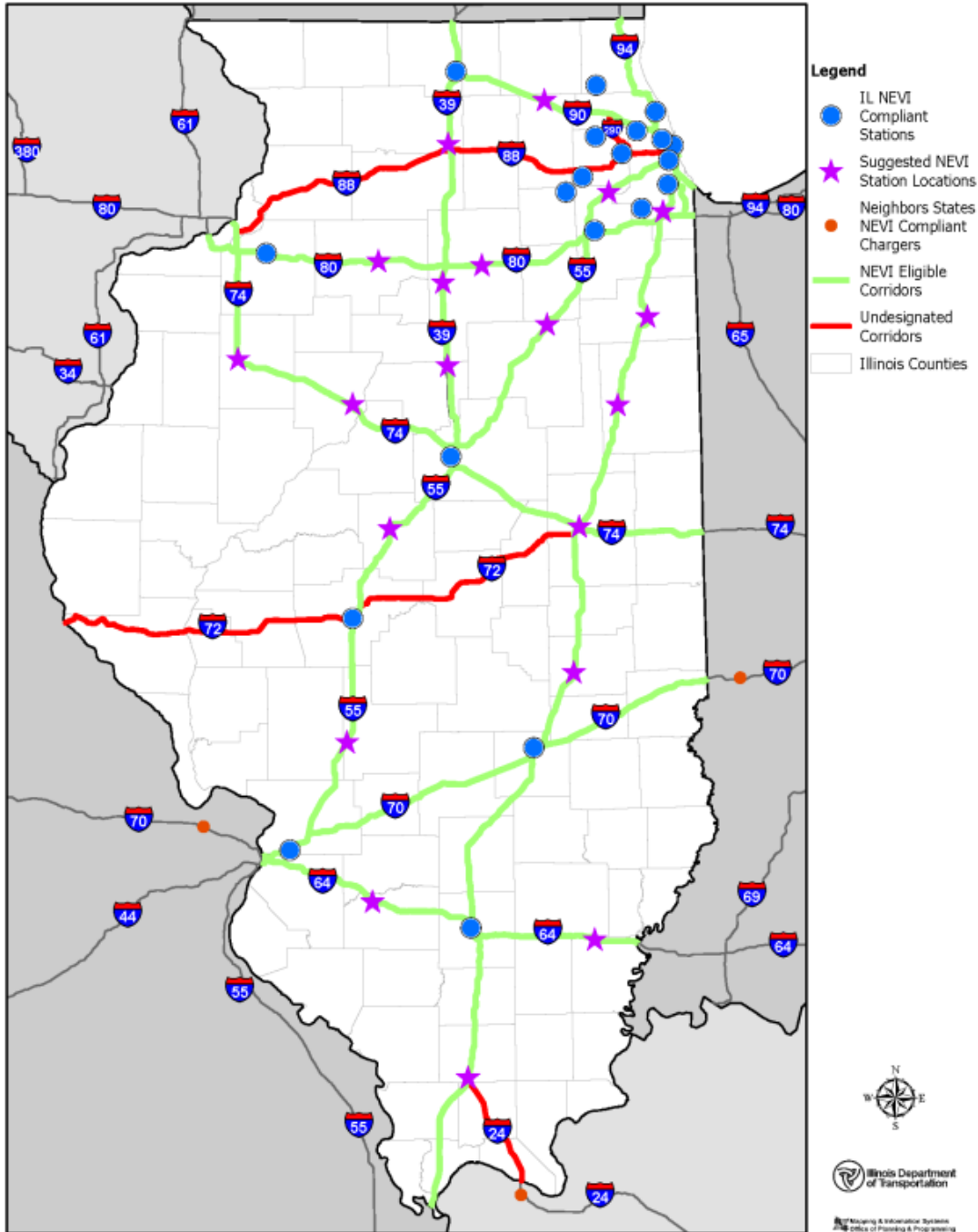
Figure 14 on the following page highlights the NEVI eligible corridors in green, as well as state-suggested NEVI station locations via the purple stars. Undesignated interstate highway corridors are highlighted in red, and existing NEVI-compliant charging stations are shown via the blue dots. Note this funding opportunity is included under NEVI’s Corridor program, while community/downtown-based public charger funding is incorporated under the Community program for local public access charging away from major highways.



“The Hill” and adjacent diverging diamond interchange, looking south toward I-57 / IL 13 interchange.

Image Sources: TheHillMarion.com

Figure 14. – Existing and Potential Fast Charging Station Locations to Meet NEVI Requirements



Source: IDOT Electric Vehicle Deployment Plan, 2023

The NEVI plan calls for a DC Fast charging station at the Road Ranger truck stop near the intersection of I-57 and I-24, approximately 10 miles south of the IL 13 interchange and “The Hill”. While this is the intersection of two interstate highways, the location off IL 13 would better serve transients who need to stop to utilize services in Marion. Further, a charging station in this location would service long distance travelers heading east or west on IL 13 and, as mentioned earlier, travelers who are exiting I-57 here to head to the Garden of the Gods or another outdoor recreation area. The Road Ranger location is in a rural area with no adjacent population center or commercial activity (other than the truck stop itself), and no east-west roadway of significance.

Egyptian Electric utility officials also indicated concerns with providing sufficient power in this location, due to the NEVI plan calling for more than two to four charging points. If more than two to four vehicles are charging at once, there is concern that there will not be sufficient capacity to simultaneously serve this many fast-charging vehicles. For these reasons, Walker highly recommends that a new DC fast charging station in the SIMPO region be located closer to Marion/Carbondale, particularly near “The Hill” and IL 13. NEVI stations will likely be uniform across the country and follow federal or state rules and policies, however if local entities have a seat at the table in planning and operating this large fast charging site, Walker recommends a 30-minute to one-hour time limit be enforced here.

Resident and Other Long-Term Charging Opportunities

In consultation with SIMPO staff and in discussion with stakeholders in the area, Walker identified a number of other potential public charging locations that would best suit residents and other EV owners that are looking for longer-term, and potentially cheaper, charging options. Walker recommends these locations be Level 2 charging stations, and assuming a paid charging plan is eventually implemented, would be a cheaper option than the DC Fast charging alternative at “The Hill”. These Level 2 charging sites would be situated at government entities, other public access points, and businesses, that allow for the driver to shop or recreate while the vehicle is charging. The recommended charging sites are presented from east to west within the SIMPO region. Walker does not recommend Level 1 public charging at this time due to the slow pace of charge and the fact that many in the EV industry believe public Level 1 charging technology will soon be obsolete, leaving Level 2 and DC fast charging as options.

Recommended Level 2 Charging Location – The Hub Recreation Center

Walker recommends the HUB Recreation Center in downtown Marion as a potential Level 2 charging site. This facility is owned and operated by the City of Marion and would potentially allow for an easier build-out of EV charging infrastructure, while providing a central location at a popular point of interest near downtown Marion. The HUB is located just west of the busy intersection of IL 37 and Main Street and is popular gym and recreation center for Marion and SIMPO region residents. The HUB acts as a community and entertainment center with a large pool and splash pad/waterslides, conference and party rooms, café/lounge, and youth center. This facility is already a popular draw in the region and would be well served to offer a public charging opportunity. Average

length of stays at the Hub are likely one to three hours, allowing for additional charging time than a DC fast charging station while still providing for charging vehicle turnover. Walker recommends a two-to-four-hour charging time limit here.

The chargers should be located in the main (north) section of the parking lot to allow for greatest visibility to Main Street, and since this a public charging amenity, provide the easiest access for the public. Locations along the edges of parking lots often provide for the easiest access to the electric utility, and keep the charging equipment (cords, chargers themselves) out of the way of heavy pedestrian and vehicular traffic points. The eastern portion of the SIMPO area is currently underserved by public charging ports, and with downtown Marion and “The Hill” being two of the densest and largest commercial districts in the area, a public charging location here between the two would help fill out the public charging “grid” and provide a convenient and easily accessible charging station. A new Level 2 public charging opportunity here would round out the HUB as an ideal community center and point of interest on the east end of the SIMPO region in a central location in Marion.

Recommended Level 2 Charging Location – “The Hill”

In addition to the DC fast charging stations located near “The Hill” and the adjacent proposed mega development, Walker also recommends Level 2 charging stations be located here to complement the DC fast charging stations. This would provide a slower charging alternative for business patrons, visitors, and employees in this busy area. Offering both charging types provides EV owners with multiple options in this core area of the SIMPO region, while also providing proximity to I-57 and IL 13. Chargers should be located in a highly visible area with easy access to IL 13, preferably along IL 13 or on the south and east sides of the proposed mega development, closest to the I-57 interchange. The large Wal Mart parking could be a potential charging location that is close to IL 13 and roughly between “The Hill” and the proposed mega development site. The developers of this site could also choose to include Level 2 public charging stations as an amenity, particularly as this site gets fully built out and gains in regional and national popularity, creating a destination for locals and visitors alike.

Any charging locations at this site should require a two-to-four-hour time limit. If several Level 2 charging locations are built, in addition to the nearby DC fast charging site, a location or two could feature a six-to-eight-hour time limits as a longer-term charging option, potentially for employees in the area. This longer-term charging location should be located in a more peripheral area, and if paid charging is implemented, should offer a lower price point due to the outlying nature of its location.

Greater Egypt/SIMPO Office

Another potential charging location in this area is the Greater Egypt and SIMPO office, located immediately northwest of Target and the former mall on Civic Circle Boulevard. This central location within the region provides good access for public charging and could help satisfy demand around “The Hill” and large proposed development. Several companies offer physical advertising (either static or dynamic displays) on EV charging stations to assist in offsetting the cost of building and operating the infrastructure, which should be explored as a funding option if/when an EV charging station is installed at the office.

Recommended Level 2 Charging Location – Veterans Airport

Another central charging location within the SIMPO region that lies along IL Route 13 is the Veterans Airport of Southern Illinois. This location would complement the charging locations at John A. Logan College and provide a good mid-point for charging on this corridor between the college and “The Hill” and points further east. This location would also provide a proximate option for Herrin, Crainville, and Carterville residents and employees, as well as visitors to Crab Orchard Lake, National Wildlife Refuge, and associated campgrounds. Further, it was recently announced that commercial air service will operate out of Veterans Airport, providing direct flights to Chicago’s O’Hare International Airport. The airport was already a commercial and employment center in the region, and with the new commercial air service, will now be seeing increased vehicular traffic, some of which will likely be electric in the future.

Airports around the country are currently exploring how best to implement EV charging in their parking areas. Many are beginning to install chargers in central locations of long-term parking areas, nearest to the terminal building. This keeps shorter term parking available for these customers but provides a longer-term charging option for EV owners. Many of these locations do not have a time limit, the vehicle simply charges until power is restored and the owner returns after the flight. This operation will likely change as EV charging becomes more in-demand and vehicle turnover needs to be greater than customers flight itineraries. Valet or robotic EV charging stations could eventually be a technological solution for airport charging; however, it will likely be a long-term solution due to the technological advancements required to operate such an installation. This could also be a potential location for DC fast charging in the long term. At Veterans Airport, Walker recommends any potential charging stations be located in a visible location in the long-term parking area, providing a clear and protected pedestrian path to the terminal building. Having EV charging stations at the airport would be a prime “environmental billboard” and show to visitors that the region is committed to assisting in lowering transportation emissions output and creating a more sustainable future for all.

Recommended Level 2 Charging Locations – Carbondale

The City of Carbondale provides several good opportunities for Level 2 charging sites and allows for a western regional bookend to current and future public charging sites in Marion and points east. The City has shown a commitment to lowering emissions, particularly those related to transportation, through the passage of its Sustainability Action Plan in 2022 and a stated goal for carbon neutrality by 2050, and a 45 percent reduction in emissions by 2030. As approximately one third of emissions in Carbondale are from the transportation sector, a commitment to electric vehicles and electric vehicle charging would be one of the most, if not the most, single largest contributor to lowering these emission types.

Public access locations that would be good candidates for long-term EV charging include Carbondale City Hall/Civic Center, the Carbondale train station, the Carbondale Public Library, the Super Splash Park east of downtown, the Carbondale Park District west of downtown on IL 13, and Southern Illinois University – Carbondale. The following list highlights each potential charging location and attributes for each location:

Carbondale City Hall and Civic Center

- Publicly owned and accessible land
- Central location in downtown Carbondale business district
- Shows the City’s commitment to EV charging and sustainable infrastructure
- Proximity to IL 13 and US 51 intersection and the heart of downtown
- Proximity to SIU – Carbondale and Carbondale residents
- Potential for police and other City fleet vehicle charging
- Appropriate electrical infrastructure already installed
- Has expressed significant interest in and commitment to public EV charging

Carbondale Train Station

- Similar to Veterans Airport, provides a “gateway” charging location for area visitors and residents
- Central location in downtown Carbondale near major intersections
- A highly visible location highlighting the City and the region’s commitment to clean energy infrastructure alternatives
- Proximity to residents and SIU – Carbondale
- Large surface parking area

Carbondale Public Library

- City owned land and popular public point of interest
- Visible location near downtown
- Across the street from the region’s largest medical center at Memorial Hospital of Carbondale
- Access to east-west IL route 13
- Ideal vehicle lengths of stay

Super Splash Park

- Popular public point of interest and regional draw for residents and visitors
- Appropriate electrical infrastructure already built
- Ideal vehicle lengths of stay
- Charging opportunity on east side of Carbondale with easy access for many residents and area collector roads
- Large public access area with significant surface parking
- Close to University Mall and the big box retailers just north along IL 13

Carbondale Park District


- Has expressed interest in public EV charging infrastructure
- Ideal vehicle lengths of stay

- Good location on IL 13 west of Carbondale, serving residents and businesses in this portion of the SIMPO region and areas to the west
- Potential for small vehicle and fleet charging
- “Home away from home” for local residents, visitors, and SIUC students and their families
- Proximity to numerous outdoor recreation opportunities in southern Illinois
- Opportunity for “destination-end” charging, further contributing to the Park District’s goal of being a go-to recreational destination in the region
- Existing collaboration with the Carbondale Sustainability Task Force

Southern Illinois University – Carbondale

- Large research and economic hub/generator for the region
- Proximity to downtown Carbondale and many of the area’s residents
- Existing research and work in sustainable infrastructure and clean energy, including at the state and federal level
- Institutional interest in electric vehicles and electric vehicle charging
- Significant land and surface parking opportunities
- Adjacent to US route 51 with easy access to points south
- Likely-existing capable electrical infrastructure
- Highlights the region’s commitment to sustainable energy and transportation

Walker would recommend these locations utilize Level 2 charging stations with time limited charging requirements in place at the onset, and the potential for paid charging in the future, depending on operating methodology, owner/operator, and demand characteristics (occupancy of charge ports is consistently over 80 percent during peak demand times of day). Potential owning and operating methodologies, funding opportunities, and grants are explored in the next section of this report.



03 Grant and Funding Assessment

03 Grant and Funding Assessment

Walker reviewed potential federal, state, and local funding opportunities for electric vehicle charging infrastructure. This section identifies potential funding opportunities and cost models for EV charging infrastructure in the SIMPO region and greater southern Illinois.

3.1 Potential Funding Opportunities

This section discusses potential funding opportunities that SIMPO consider pursuing or partnering with local businesses, transit agencies, or municipalities to pursue. These funding opportunities fund electric vehicles and/or electric vehicle charging equipment. A matrix summarizing these funding opportunities is provided at the end of this section (**Figure 15**).

State of Illinois Funding Opportunities

The State of Illinois has set a goal of having one million registered EVs in the state by 2030. Between 2019 and 2021, the State passed several pieces of legislation that accelerate the adoption of EVs, including Rebuild Illinois and the Climate and Equitable Jobs Act. The Illinois Environmental Protection Agency (IEPA) is administering most of the funding opportunities for EVs and EV charging equipment. Some of these programs have been authorized by the State General Assembly but have yet to be implemented. The Department of Commerce and Economic Opportunity (DCEO) is administering programs focused on manufacturing EVs and the associated parts and equipment. The Illinois Department of Transportation (IDOT) is working on EV Infrastructure planning efforts, including implementing the NEVI program (introduced in the previous section of this report) to establish an interconnected public EV charging network.

Driving a Cleaner Illinois (Illinois Environmental Protection Agency)

Driving a Cleaner Illinois is the Illinois Environmental Protection Agency's (IEPA) grant program developed to distribute funding for various types of diesel emission reduction projects. The Driving a Cleaner Illinois Program includes grants from the following funding sources:

- *The Volkswagen (VW) Mitigation Trust Fund*, which was established by the VW Settlement reached as a result of the company's Clean Air Act violations. Illinois' initial allocation of funds was approximately \$108 million. The funds are to be used for projects that reduce emissions of nitrogen oxides (NO_x) in Illinois.
- *Congestion Mitigation and Air Quality Improvement (CMAQ) Funds*. CMAQ is a Federal Highway Administration funding source that provides funds to state and local governments for transportation programs or projects that reduce congestion and improve air quality in areas that do not meet or need to maintain compliance with federal air quality standards.

- *Diesel Emission Reduction Act (DERA) Funds*, which is a U.S. Environmental Protection Agency funding source to enable participating states to support grant, rebate, and loan programs to achieve significant reductions in diesel emissions. This funding is provided on a federal fiscal year basis.

Recently funded projects from the Driving a Cleaner Illinois program have included the purchase of new electric buses and EV charging units. The most recent funding opportunity (closed in December 2022) was for the purchase and installation of light-duty electric vehicle charging stations at publicly accessible locations through the VW Fund. As of May 30, 2023, there is one open Notice of Funding Opportunity (NOFOs) for the VW program to fund electric school buses. However, it is likely that additional NOFOs will be released in the future for these programs.

It is important to note that the SIMPO MPA is not within any of the three Illinois VW Priority Areas:

- Priority Area 1: Cook, DuPage, Kane, Lake, McHenry, and Will counties, Oswego Township in Kendall County and Aux Sable and Goose Lake townships in Grundy County.
- Priority Area 2: Madison, Monroe, and St. Clair counties.
- Priority Area 3: Champaign, DeKalb, LaSalle, McLean, Peoria, Sangamon, and Winnebago counties.

Therefore, it is likely projects in the SIMPO area would not qualify for VW funds. Therefore, it is likely SIMPO could only apply for Driving a Cleaner Illinois programs funded by CMAQ or DERA funds.

Illinois Electric Vehicle Charging Station Rebate (Illinois Environmental Protection Agency)

As part of the Climate and Equitable Jobs Act, the Illinois Environmental Protection Agency will provide funding to public and private organizations and companies to install and maintain Level 2 or Level 3 charging stations. Up to 80 percent of the cost of the installation of charging stations may be funded. Additional rebates will be available for EV charging stations deployed in underserved and environmental justice communities. Applications will be submitted on a rolling basis as long as funds are available.

While the legislation states that rebates were to become available July 1, 2022, funding details are not yet available for this program (as of May 30, 2023). This rebate program was authorized via the Climate and Equitable Jobs Act (Public Act 102-0662). The charging infrastructure grant rule (35III. Adm. Code 285) has been published by the Illinois Register.

Illinois Transportation Electrification Infrastructure Projects (Illinois Environmental Protection Agency)

According to the Alternative Fuels Data Center, Illinois Environmental Protection Agency (IEPA) will provide transportation electrification grants of \$70 million for, but not limited to, electric vehicle charging infrastructure. The IEPA will prioritize investments in medium- and heavy-duty vehicle charging, and electrification of public transit, fleets, and school buses. This \$70 million was allocated from the Building Illinois Bond fund to IEPA

through State of Illinois Public Act 101-0029. Currently (as of May 30, 2023), funding details are not yet available for this program.

Illinois Electric Vehicle Infrastructure Deployment Plan (Illinois Department of Transportation)

The Bipartisan Infrastructure Law included new programs to address climate change by reducing carbon emissions, including the National Electric Vehicle Infrastructure (NEVI) Formula Program. NEVI will provide funding to states to strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network. The State of Illinois is expected to receive \$148,621,459 in NEVI funds for FY 2022-2026. The State of Illinois Electric Vehicle Infrastructure Deployment Plan (dated August 1, 2022) “the Plan”, developed by the Illinois Department of Transportation (IDOT) details the state’s approach to deploying public charging infrastructure.

According to the Plan, “IDOT is exploring procurement options to identify EVSE providers and potential site hosts to install, operate and maintain EV charging infrastructure. IDOT aims to create a process that will encourage innovation and participation from communities, small businesses, and others as potential site hosts and ensure efficient use of federal funding under NEVI. IDOT will develop a framework for evaluating proposals submitted through competitive processes. This framework will be developed in coordination with stakeholder and community engagement for potential site identification and selection.” The NEVI formula funds may provide a funding opportunity for electric vehicle charging infrastructure in the future.

Federal Funding Opportunities

In addition to State funding opportunities, there are also federal funding opportunities that SIMPO could consider. Discretionary federal grants tend to be competitive given the number of jurisdictions that the funding must cover, and programs are often oversubscribed. Recent legislation has increased federal investment in EVs and EV charging infrastructure including the Bipartisan Infrastructure Law and Inflation Reduction Act. Several of the federal funding opportunities included in this section are geared toward EV infrastructure that would support medium or heavy-duty charging, such as transit or fleet vehicles. Other opportunities are geared toward larger multi-modal improvement projects or transportation technology projects, of which EV charging could be a component.

30C Alternative Fuel Infrastructure Tax Credit (Internal Revenue Service)

The Alternative Fuel Infrastructure Tax Credit was renewed for 2023 through the Inflation Reduction Act (IRA) of 2022. The tax credit is available for the cost of installing alternative fueling equipment in commercial and residential environments.

Commercial EV charging stations are eligible for a federal tax credit of 30 percent of the cost (or 6 percent in the case of property subject to depreciation), not to exceed \$100,000. Permitting and inspection fees are not included in covered expenses.

Qualified fueling equipment must be installed within census tracts that meet at least one of the following requirements:

- The census tract is not an urban area;
- A population census tract where the poverty rate is at least 20%; or
- Metropolitan and non-metropolitan area census tract where the median family income is less than 80% of the state medium family income level.

Eligible projects must also meet apprenticeships and prevailing wage requirements. Equipment must be installed between January 1, 2023 and December 31, 2032. SIMPO could consider partnering with commercial businesses to spread awareness about the availability of this tax credit.

Charging and Fueling Infrastructure Discretionary Grant Program (Federal Highway Administration)

Established under the Bipartisan Infrastructure Law, this federal program (\$2.5 billion) will fund the installation of electric vehicle charging and alternative fuel in location on public roads, schools, parks, designated alternative fuel corridors, and in publicly accessible parking facilities. These discretionary grants will be prioritized for rural areas, low-and moderate-income neighborhoods, and communities with low ratios of private parking, or high ratios of multiunit dwellings. The grant will fund the acquisition, installation, and operating assistance (for the first five years) of the equipment.

The grant will fund 80 percent of the cost. Metropolitan Planning Organizations will be eligible for the grant funding. The grants will be available each year for a four-year period.

A NOFO was released for this grant opportunity with a closing date of June 13, 2023. The minimum award amount for the Community Program Grants is \$500,000. Walker reviewed this funding opportunity with SIMPO, and jointly agreed that a charging plan within the size and magnitude required of the grant opportunity could not be established prior to the grant application deadline. However, the funding for this program is authorized through FY26, indicating there will be future opportunities to apply for funding.

Grants for Buses and Bus Facilities (Federal Transit Administration)

This federal funding program is a discretionary grant program that makes funding available to assist in the financing of buses and bus facilities capital projects, including replacing, rehabilitating, purchasing or leasing buses or related equipment, and rehabilitating, purchasing, constructing or leasing bus-related facilities. For Fiscal Year 2023, \$496.4 million in funding is available under the Grants for Buses and Bus Facilities Program.

The grant will fund up to 90 percent of the cost of leasing of acquiring low- or no-emission bus-related equipment and facilities. The maximum award amount is \$46,944,542. Eligible applicants for the Bus and Bus Facilities Program include designated recipients that allocate funds to fixed-route bus operators, States, or local governments entities that operate fixed-route bus service, and Indian tribes. SIMPO could consider partnering with RIDES Mass Transit District, Jackson County Mass Transit District, or Saluki Express, if those agencies are planning pursuing fleet electrification efforts. In order to apply for Bus and Bus Facilities grants, the agency must have completed a Zero-Emission Fleet Transition Plan.

There was an active NOFO for the Bus and Bus Facilities Discretionary Grant program with an application deadline of April 13, 2023.

Low or No Emission Vehicle Program (Federal Transit Administration)

This federal funding program is a discretionary grant program for the purchase or lease of low or no emission transit buses and related equipment, or to lease, construct, or rehabilitate facilities to support low or no emission transit buses. The program provides funding to support the wider deployment of advanced propulsion technologies within the nation’s transit fleet. For Fiscal Year 2023, there will be nearly \$1.7 billion in funding for the Low or No Emission grant program.

Eligible applicants include direct or designated recipients of FTA grants; States; local governmental authorities; and Indian Tribes. SIMPO could consider partnering with RIDES Mass Transit District, Jackson County Mass Transit District, or Saluki Express, if those agencies are pursuing fleet electrification efforts. In order to apply for Low or No Emissions grants, the agency must have completed a Zero-Emission Fleet Transition Plan.

There was an active NOFO for the Low or No Emission Vehicle Grant program with an application deadline of April 13, 2023.

Diesel Emissions Reduction Act (DERA) National Grants (Environmental Protection Agency)

This federal funding program is a discretionary grant program for projects that achieve significant reductions in diesel emissions. Eligible diesel vehicles, marine engines, locomotive and nonroad engines, equipment of vehicles such as those used in construction, handling of cargo, agriculture, mining or energy production. Eligible diesel emission reduction solutions include verified retrofit technologies such as exhaust after-treatment technologies, engine upgrades, and cleaner fuels and additives, verified idle reduction technologies, verified aerodynamic technologies, verified low rolling resistance tires, certified engine replacements and conversions, and certified vehicle or equipment replacement. An eligible project would be to replace a diesel vehicle with an electric vehicle.

For the last funding cycle in 2021, there was approximately \$46 million in DERA funds available. EPA Region 5 (includes Illinois) was allocated \$6.4 million in funding and the maximum funding per application request was \$3 million. The required local match varies based on type of equipment. Eligible applicants include regional, states,

local or tribal agencies/consortia of port authorities with jurisdiction over transportation or air quality. SIMPO could consider partnering with local fleet owners interested in electrifying their vehicle fleet.

As of May 30, 2023, there are currently no active NOFOs for DERA National Grants. However, the DERA website indicates the 2022-2023 NOFO will be opening in early 2023.

Rebuilding America Infrastructure with Sustainability and Equity (Department of Transportation)

The Rebuilding America Infrastructure with Sustainability and Equity (RAISE) program is a federal funding program that provides discretionary grants for road, rail, transit, and port projects that have a significant local or regional impact and improve transportation infrastructure. Both planning and capital projects are eligible through RAISE. Previous names for this grant program are Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER). RAISE allows project sponsors at the State and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional Department of Transportation programs. Metropolitan Planning Organizations (MPOs) are eligible project applicants.

RAISE is a highly competitive grant program that typically funds large-scale multi-modal projects. RAISE grants have been offered every year since 2010. Since program inception, the US DOT has received more than 11,336 applications requesting more than \$198 billion for transportation projects across the county, while only \$12.1 billion in funds have been dedicated.

There is currently between \$2.275 billion-\$2.299 billion available for the FY 2023 RAISE grant program. Half of funded projects will be in rural areas and half will be in urban areas. At least \$15 million in funding is guaranteed to go toward projects located in Areas of Persistent Poverty (APP) or Historically Disadvantaged Communities (HDC). A portion of the SIMPO MPA is located in an APP and/or an HDC. The program requires a minimum 20 percent local match, but if the project is located in an APP or HDC, this requirement does not apply.

In past funding cycles, electric vehicle charging stations or electric vehicles have been a component of a larger multi-modal project. For example, electric vehicle charging has been a component of a multimodal transit center, of a corridor improvement project, of expanded transit service, or of a transit fleet electrification effort. If SIMPO were to apply for a RAISE grant in future funding cycles, Walker recommends that electric vehicle charging should be one component of a large multi-modal initiative.

There was an active NOFO for the RAISE program with an application deadline of February 28, 2023.

Advanced Transportation Technologies and Innovation (ATTAIN)

The ATTAIN program (also known as the Advanced Transportation Technologies and Innovative Mobility Deployment Program) is a federal funding program that provides competitive grants to deploy, install, and operate advanced transportation technologies to improve safety, mobility, efficiency, system performance,

intermodal connectivity, and infrastructure return on investment. Demonstration projects could include EV charging infrastructure integrated with intelligent transportation systems with the Smart Grid or other energy distribution and charging systems or associated with advanced mobility and access technologies such as dynamic ridesharing.

MPOs are eligible grant recipients of ATTAIN funds. At least 20 percent of the funding amount for this program is received for projects serving rural areas. Up to 80 percent of the project cost is eligible for grant funding. For Fiscal Year 2022, up to \$60 million was made available for the ATTAIN program, but the NOFO for the ATTAIN program has closed. In the last funding cycle, a single grant recipient could not receive more than \$12 million in one fiscal year.

As of May 30, 2023, there are currently no active funding opportunities for the ATTAIN program.

3.2 Alternative Cost Models

In lieu of applying for grant funding, which is competitive and not guaranteed, SIMPO could consider reaching out to potential EV charging station site hosts, such as shopping centers, retail establishments, office buildings, government facilities or other establishments in order to explore potential partnerships with electric vehicle network providers. The site hosts (such as a retail establishment or shopping center owner) would enter into an agreement with a charging network company, such as Electrify America, EVgo, Blink, or ChargePoint. Most of the charging network companies have a section of their website where interested parties can request to be site hosts. This section describes potential cost models between a site host and charging network company. Some of these cost models assume that customers would have to pay to use the EV charging stations. While this is not a requirement of a public or private EV charging operation, more and more entities are beginning to require paid charging, mainly to gain back operating costs, the majority of which are electricity. Some entities are beginning to charge enough to cover capital costs as well, and in very limited instances, charge enough to make a small profit.

Network-Owned and Operated – Paid Charging

In a network-owned and operated cost model, charging network companies would incur all the costs related to installing, operating and maintaining the EV charging stations. The charging network company would own the EV chargers installed on the site hosts' property, set the user fee rates, and incur the revenue generated from the user fees. This model is common for businesses hosting DC fast charging stations since it eliminates the high costs associated with DC fast charging businesses would need to incur. Site hosts benefit from attracting customers to businesses.

In this model, charging network companies incur all costs; therefore, they are selective in choosing host sites as they want to ensure the locations will be economically viable.

Site Host-Owned and Operated – Free Charging

In this model, the site host owns and operates the chargers and offers free charging to attract customers. This model is often appropriate for Level 2 charging, which cost less to own and operate than DC fast chargers. Due to the longer charging time required for Level 2 chargers, this model would be appropriate to serve uses such as hotels and office buildings.

Site Host-Owned and Operated – Cost Recovery

In this model, the site host owns and operates the charging stations and offers low prices to attract customers. This model is often used for DC fast charging stations in places where customers spend 20 minutes to an hour (e.g., food and retail businesses). For the site host, the revenue generated helps to recovery the electricity and utility fees associated with DC fast charging stations. This model gives site hosts control over the rates charged, and offers locally competitive, dynamic prices.

Site Host-Owned – Profit-Making

In this model, site hosts purchase and manage the EV charging stations in order to earn a profit. The site hosts would incur all the costs related to installing, operating and maintaining EV charging stations. The site hosts would set the price of the user fees and keep the revenue generated from the user fees. Profit-making models are typically most appropriate for DC fast charging at locations where customers have limited alternative charging options, such as along highways. Site hosts need to ensure prices are set competitively and not so high that they would deter customers.

Shared Ownership – Cost Recovery

In this model, site hosts and charging network companies share costs and revenues with a low pricing structure designed to attract customers to the business, recover the costs of the EV charging stations, generate indirect profit revenue from increased customer spending, and generate profit for the charging network company. The revenue share can be based on location, installation costs, term, and contract agreement.

Another type of shared cost recovery is a subscription-based “as a service model.” The charging network company installs and owns the EV charging stations (minimizing upfront costs for site hosts) while the site host operates and collects revenue from the charging stations. In return, the site owner pays the network company an annual subscription fee which can be taken out of the revenue it collects. This is a popular and common operating model, especially in emerging EV markets and areas that are somewhat new to EV charging. This operating model is being implemented through ChargePoint at the 11 new Level 2 charging stations at the currently under-construction Walker’s Bluff Casino.

Shared Ownership – Profit-Making

The shared profit-making model is similar to the shared cost recovery model, but with the site host’s added expectation of generating profit from the EV charging stations.

Whichever operating model is chosen at the various charging sites, the EV charging strategy should tie in with greater economic development initiatives, plans, and strategies in the region. For instance, free charging may be offered as an amenity as new charging infrastructure is ramped up in the coming years. As more electric vehicle owners come to Illinois, and southern Illinois particularly, EV charging could initially be considered an amenity of the region and be offered free of charge, as has been popular throughout much of the country in recent years. As charging demand increases, and/or as operating and capital costs dictate, a nominal fee could be charged to recoup electrical and other operating costs, before eventually charging enough to cover at least some capital costs. EV charging alone can assist in bringing in new potential customers and residents to the area if the SIMPO region is “on the map” for EV owners when looking for a public charging location.



Sunset over the Greater Egypt region.

Image Source: Expedia.com

Figure 15. – Potential EV Charging Funding Opportunities

Funding Opportunity Name	Administering Agency	Type of Funding	Funding Applies to Electric Vehicles or EV Chargers	Maximum Funding Amount	Application Deadline	Considerations	Website
Driving a Cleaner Illinois	Illinois Environmental Protection Agency	Discretionary Grants	-Electric Vehicles and EV Chargers	Not available	Only active funding opportunity at this time is to fund electric school buses (deadline 5-Sept-23)	SIMPO Metropolitan Planning area not a VV Priority Area	https://www2.illinois.gov/epa/topics/air-quality/driving-a-cleaner-illinois/Pages/default.aspx
Illinois Electric Vehicle Charging Station Rebate	Illinois Environmental Protection Agency	Rebate	-EV Chargers	Not available, will fund 80% of the cost of EV Charger installation	Funding is new has not yet been announced		https://www2.illinois.gov/epa/topics/ceja/Pages/default.aspx
Illinois Transportation Electrification Infrastructure Projects	Illinois Environmental Protection Agency	Discretionary grant	-Electric Vehicles and EV Chargers	Not available	Funding is new has not yet been announced		https://www.ilga.gov/legislation/publicacts/101/PDF/101-0029.pdf
30C Alternative Fuel Infrastructure Tax Credit	US Internal Revenue Service	Tax Credit	-EV Chargers	30% tax credit (6% in the case of property subject to depreciation), not to exceed \$100,000	Equipment must be installed between January 1, 2023 and December 31, 2032	Census tracts must meet income requirements	https://afdc.energy.gov/laws/10513
Charging and Fueling Infrastructure Grants	US Department of Transportation Federal Highway Administration	Discretionary Grant	-EV Chargers	80% Federal, 20% Non-Federal, maximum funding request not available	13-Jun-23	Minimum grant award \$500,000	https://www.fhwa.dot.gov/environment/cfi/
Grants for Bus and Bus Facilities	US Department of Transportation Federal Transit Administration	Discretionary Grant	-EV buses with supporting EV charging equipment	90% Federal, 10% Non-Federal, \$46,944,542 award maximum	13-Apr-23	Requires a completed zero emission fleet transition plan	https://www.transit.dot.gov/notices-funding/low-or-no-emission-and-grants-buses-and-bus-facilities-competitive-programs-fy2023
Low or No Emission Vehicle Program	US Department of Transportation Federal Transit Administration	Discretionary Grant	-EV buses with supporting EV charging equipment	90% Federal, 10% Non-Federal, now award maximum	13-Apr-23	Requires a completed zero emission fleet transition plan	https://www.transit.dot.gov/notices-funding/low-or-no-emission-and-grants-buses-and-bus-facilities-competitive-programs-fy2023
National Diesel Emissions Reduction Act (DERA)	US Environmental Protection Agency	Discretionary Grant	-Electric Vehicles (to replace diesel vehicles)	Past funding cycle: Up to \$3 million, local match requirement varies based on technology type	No active funding opportunities at this time, according to website, NOFO will come early 2023		https://www.epa.gov/dera/national
Rebuilding America Infrastructure with Sustainability and Equity (RAISE)	US Department of Transportation	Discretionary Grant	-EV Chargers and Vehicles (should be integrated with larger multi-modal initiative)	80% Federal, 10% Non-Federal, Minimum award \$5 million and maximum \$45 million	28-Feb-23	Grants are highly competitive	https://www.transportation.gov/RAISE-grants
Advanced Transportation Technologies and Innovation (ATTAIN)	US Department of Transportation Federal Highway Administration	Discretionary Grant	- EV charging infrastructure integrated with intelligent transportation systems with the Smart Grid and other energy distribution and charging systems or associated with advanced mobility and access technologies such as dynamic ridesharing	80% Federal, 10% Non-Federal, Past funding cycle: Up to \$12 million	No active funding opportunities at this time	Must be integrated with advanced transportation technologies	https://www.fhwa.dot.gov/bipartisan-infrastructure-law/attain.cfm

Source: Walker Consultants, 2023

