City of Milwaukee | ECO ENVIRONMENTAL COLLABORATION OFFICE

City of Milwaukee Environmental Collaboration Office

PRELIMINARY ELECTRIC VEHICLE READINESS PLAN

JUNE 16, 2023

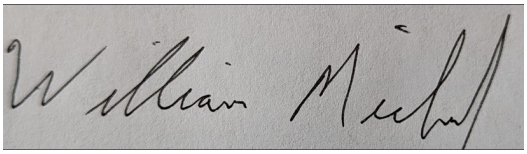
wsp

CITY OF MILWAUKEE PRELIMINARY ELECTRIC VEHICLE READINESS PLAN

June 16, 2023

CITY OF MILWAUKEE ENVIRONMENTAL COLLABORATION OFFICE

SIGNATURES



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1 INTRODUCTION & BACKGROUND

PURPOSE AND GOALS

PURPOSE

The City of Milwaukee recently adopted the Milwaukee *Climate and Equity Plan*. The *Climate and Equity Plan*[1] states,

> "All Milwaukeeans will be affected by climate change, and low-income communities face environmental hazards at a higher rate. In the face of these threats, **Milwaukee will support a new clean energy economy that provides opportunities for people of color** to more fully and equitably participate in the economic life of the city."

"Electrify Transportation" is one of the 10 Big Ideas in the City's *Climate and Equity Plan* and can reduce greenhouse gas emissions and local air pollutants. The "Electrify Transportation" chapter of the *Climate and Equity Plan* calls for "Building Out of an EV Charging Network." This document, the *Preliminary EV Readiness Plan*, is an outgrowth of that chapter. This plan completes a more in-depth analysis of actions necessary to facilitate the shift from fossil fuels to alternative fuel sources. More specifically, the plan will outline strategies to help achieve the goals below through the equitable electrification of transportation in the City of Milwaukee.

The City of Milwaukee is requesting $14.96 million in federal funding from the FY2022-2023 Charging and Fueling Infrastructure (CFI) Program for its "Vehicle Recharging Options Of Milwaukee (VROOM!)" Project. If selected for CFI Program funding, the City will install publicly accessible electric vehicle supply equipment (EVSE), commonly referred to as electric vehicle (EV) chargers, at 53 sites across the City of Milwaukee and neighboring communities through a public-private partnership. The Project will equitably expand access to EV charging by siting 60% of the chargers in Justice40 Communities across Milwaukee, contribute to the decarbonization of the largest and most diverse city in Wisconsin, and create good jobs that fight climate change.

This document lays the groundwork for next steps including coordination with the Wisconsin Department of Transportation (WisDOT) and the State National Electric Vehicle Infrastructure (NEVI) Plan and completes proactive planning necessary to move quickly on the completion of a comprehensive EV Readiness Plan in the future.[2] This plan has been completed in parallel with the City of Milwaukee's application to the Federal Charging and Fueling Infrastructure (CFI) Discretionary Grant Program. Completion of this plan outlines the next steps for Electric Vehicle (EV) readiness in the City and makes the City's CFI grant application more competitive.

GOALS

As a component of the work completed through the City-County Task Force on Climate and Economic Equity, the City of Milwaukee adopted two primary goals related to climate and equity:

1. Reduce community greenhouse gas emissions: 45% by 2030 and achieve net zero emissions by 2050.
2. Improve racial and economic equity by creating green jobs that pay at least $40,000 and are focused on recruiting local people of color.

To achieve these goals, the Climate and Equity Plan outlines 10 Big Ideas[3] to reduce greenhouse gases, increase racial equity, and make Milwaukee a prosperous city for the future. This plan focuses on Big Idea #6: **Electrify Transportation – Implement a transition to electrified transportation and supporting infrastructure that lowers Greenhouse Gas**

[1] https://city.milwaukee.gove/climate/Climate-Plan
[2] https://wisconsindot.gov/Documents/projects/WEVI-plan-final-22-0914.pdf
[3] https://storymaps.arcgis.com/stories/f5ab8a270f714c0f8dd8c9d65f207307

emissions while strengthening broad access to affordable transportation. Electrification of transportation in Milwaukee will reduce GHG's by facilitating the transition from gasoline-powered cars to EVs and necessary supporting infrastructure. This plan, and the efforts by the City mentioned above, are preparing Milwaukee for the equitable transition to EVs which is well underway in parts of the United State and globally.

The City of Milwaukee is leading by example by initiating the process of transitioning its municipal fleet from traditional internal combustion engine vehicles to those powered by alternative fuels, EVs, or hybrids. The Milwaukee Police Department, with the help of ECO, purchased ten (10) hybrid Police Interceptors to pilot in 2020. The vehicles have increased miles per gallon over 50% and reduced emissions per mile by 35%. MPD has ordered 30 more hybrids to use as primary vehicles moving forward.

ECO has also completed an analysis of vehicles use per department. Next steps are to select vehicles that match user needs and plan for charging infrastructure. DPW-Parking is leading the way with the adoption of EVs for parking enforcement vehicles. DPW-Parking purchased four (4) EVs to pilot and was recently awarded a $1.7 million federal grant from the Congestion Mitigation and Air Quality Improvement Program to expand EVs in the fleet and build-out charging infrastructure. Moreover, DPW-Parking is looking for ways to make its EV chargers accessible to City employees and member of the public through a smart phone application. In 2022, the City began to develop, communicate, and implement a clear policy specifying considerations for vehicle and fleet purchase, lease, and other acquisitions. Adopted in 2023, the policy puts the City on a path to convert its municipal fleet to fully electric, hybrid, and other low-emissions vehicles.

In addition, the Milwaukee County Transit System, a transit system that operates throughout the City of Milwaukee, will also add ten battery electric buses (BEVs) to its fleet. BEVs will be used on the upcoming East-West Bus Rapid Transit Route, which runs along Wisconsin Avenue and will connect downtown Milwaukee to the Milwaukee Regional Medical Center in Wauwatosa.

ALIGNMENT WITH OTHER PLANNING INITIATIVES

The City of Milwaukee Complete Streets Policy was signed into law in October 2018. Complete Streets help to integrate people and place by making the city safe, enjoyable, and convenient to walk, bike, take transit, or simply experience our streets and public spaces—no matter one's age or ability. The City aims to reduce local air pollution and greenhouse gas emissions from cars and trucks as outlined in the Milwaukee Climate and Equity Plan.

In addition to the development this plan, the CFI Grant application and subsequent VROOM! Project, pending an award, the City is leading a federal Climate Pollution Reduction Grant (CPRG) for the Metropolitan Statistical Area surrounding Milwaukee to align with the recommendations set forth in the Climate and Equity Plan. Surrounding counties and cities that would like a share of current planning funding and future funds to implement climate pollution, or GHG, reduction projects are being requested to pursue the policy recommendations outlined in the City of Milwaukee's *Climate and Equity Plan*, including those related to electrifying transportation. Thanks to the CPRG, there is now a planning process and funding in place to broaden the scope of the public EV charging plan to include more communities in the broader four county Milwaukee area region including Milwaukee, Waukesha, Washington, and Ozaukee counties. There has been promising participation from cities in all four counties, and leadership at the counties themselves, such that the City of Milwaukee anticipates being able to develop a broader regional EV charging plan within the next few years. The City of Milwaukee is on the brink of expanding its public EV charging network, both citywide and region-wide, by implementing the City's vision of an equitable, electrified transportation system that provides good-paying jobs for Milwaukeeans in the growing clean energy economy.

EXISTING CONDITIONS

The City of Milwaukee Environmental Collaboration Office (ECO) reports that the 2018 Community Greenhouse Gas Emissions Inventory[4] shows transportation made up 21% of emissions in the City of Milwaukee. Countywide, transportation made up 33% of greenhouse gas (GHG) emissions, the second largest category of emissions. Transportation makes up 30% of GHG emissions in the State of Wisconsin and now accounts for the most emissions in the U.S. at 39%. In addition to strengthening infrastructure for and increasing mode share of transit, cycling, and pedestrian options, transitioning to EVs is critical to reducing GHG's attributable to the transportation.

On April 12, 2023, Cox Automotive reported that in Quarter 1 of 2023, electric vehicle sales surpassed 250,000 and EV market share in the U.S. jumped to 7.2% of total sales.[5] In the same article, Cox Automotive reported that the number of electric vehicle models offered by car manufacturers increased to 42 from 34 models during the same time period one year ago. As model and price point options expand, it is expected that the adoption of EVs will as well, which will drive additional demand for EV charging infrastructure. According to analysis by Bloomberg News, in the U.S., EVs could account for 25% of all new car sales by 2025.[6] The recently adopted *Wisconsin Electric Vehicle Infrastructure Plan* states that the Wisconsin Department of Transportation (WisDOT) forecasts there will be 334,000 EVs on Wisconsin's roadways by 2030.

EV ADOPTION IN WISCONSIN AND MILWAUKEE

STATE LEVEL ADOPTION

A readily available public charging network is a crucial step in increasing EV adoption rates to increase the availability of charging infrastructure and reduce range anxiety. The percentage of all passenger and commercial vehicles registered in the State of Wisconsin is less than 1% of the total private fleet.[7] Table 1 below includes EV adoption data for the State of Wisconsin as of May 26, 2022.

Table 1 - Wisconsin EV Adoption, 2022 (Source: Stacker.com)

Wisconsin EV Adoption Data	
% of Registered vehicles that are electric	0.11%
Total registered electric vehicles	6,310
Number of statewide charging stations	474
Number of charging ports per 100 EVs	15

The number of EVs in Wisconsin is increasing. Registered electric passenger and commercial vehicles in the state increased from 9,039 in 2021 to 13,893 in 2022, a year-over-year increase of 54%.[8] Table 2, which was included in the *Wisconsin Electric Vehicle Infrastructure Plan,* projects significant growth in the adoption of EVs in coming decades.[9]

[4] https://county.milwaukee.gov/files/county/administrative-services/Facilities1/Images/REVISED2018CommunityInventory.pdf
[5] https://www.coxautoinc.com/market-insights/q1-2023-ev-sales/
[6] US Electric Car Sales Reach Key Milestone - Bloomberg
[7] https://stacker.com/wisconsin/see-how-many-electric-vehicles-are-registered-wisconsin
[8] Report 25 Calendar 2022 (wisconsindot.gov)
[9] Wisconsin Electric Vehicle Infrastructure Plan - Wisconsin Electric Vehicle Infrastructure Plan (wisconsindot.gov)

Table 2 - Projected Wisconsin Electric Vehicle Registrations

Year	Projected Wisconsin EV Registrations	Percent of Total Fleet
2022	9,039	0.1%
2027	217,048	4.1%
2030	334,097	6.1%
2035	553,686	9.9%
2040	843,623	14.7%
2050	1,863,585	31.0%

Sources: *DMV Registration reports: vehicle type by fuel type and plate types by vehicle weight; Woods & Poole Economics: Wisconsin population forecast by age group; IHS Markit National unit sales data for light vehicles, light trucks, and heavy & medium trucks; U.S. Energy Information Administration*

COUNTY AND CITY OF MILWAUKEE ADOPTION

Adoption of EV vehicles by residents of Milwaukee County and the City of Milwaukee are steadily trending upwards as demonstrated in Table 3 below showing data published by WisDOT.[10]

Table 3 – Registered EVs in the City & County of Milwaukee by Year

Total Electric Vehicle Registrations by County and City				
Jurisdiction	**2019**	**2020**	**2021**	**2022**
Milwaukee County	668	879	1,320	1,921
City of Milwaukee	239	313	484	709

Source: WisDOT

PUBLIC CHARGING STATIONS

Based on analysis of a data set from the U.S. Department of Energy's Alternative Fuels Data Center (AFDC)[11], there are currently 44 public charging stations in Milwaukee, 29 within the City limits and 15 more in Milwaukee County, with a large portion being concentrated in and around the central business district. Likewise, several of the charging stations are located near the interstate system, and the Milwaukee Mitchell International Airport. Existing public charging stations are geared towards attractions and destinations where people are likely to spend a significant portion of the day.

Per an analysis from Slipstream, also using the AFDC tools, the City of Milwaukee needs 818 Workplace Level-2 chargers, 500 Level-2 Public Chargers, and 87 Public Level-3 Fast Charging Plugs installed to support 50% of light-duty vehicle sales in the City of Milwaukee being EVs by 2030.

EV readiness planning is important for the future of economic development and tourism in the City of Milwaukee. An article published in the Milwaukee Journal Sentinel on May 25, 2023 stated that," Milwaukee was recently named one of the nation's 10 worst cities when it comes to the availability of public EV charging stations, according to FINN, a subscription vehicle company."[12] The addition of more EV charging stations will ameliorate range anxiety of residents and visitors, speeding up local adoption of EVs and contributing to maintaining the tourism industry in Milwaukee. Currently, the city has only one public charging station per 100,000 visitors. Many of these sites are located along the interstate system and in downtown Milwaukee, away from residential communities.

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[10] Report 25 Calendar 2022 (wisconsindot.gov)
[11] EERE: Alternative Fuels Data Center Home Page (energy.gov)
[12] Milwaukee one of nation's worst cities for availability of EV charging (jsonline.com)

Both public and private investment in EV infrastructure in high-density residential neighborhoods has been especially lacking thus far. Milwaukee seeks to change this designation by acting upon recent policy recommendations, including those outlined in the *Climate and Equity Plan*.

The City of Milwaukee first installed EVSE in 2012 using American Recovery and Reinvestment Act funding and passed two ordinances to support the expansion of EV chargers in the City: Ordinance 101-27.8 prohibits non-electric vehicles from parking at dedicated EV charging parking spots and Ordinance 309-22 pertains to the sale of Electric Vehicle Recharging Services to the Public and establishes that the Department of Public Works may sell EV charging services to the public. Later, in 2021, the City of Milwaukee amended the Zoning Code to clarify that EVSE is permitted in any legally established parking space. In March 2023, the City of Milwaukee passed an ordinance to lead by example and require that new vehicles purchased for the City fleet be low- and zero-emission vehicles. The City is currently working to build out municipal EV charging to support this fleet transition.

Figure 1 shows the existing EV charging station locations by station type. It is important to note that the map shows the locations of charging stations and not the total number of charging ports at the locations. As demonstrated by this data, momentum for EV adoption is building year over year. Despite this projected growth, the City will not achieve its goals for EV adoption by 2030 without significant policy and program intervention.

Electric vehicle charging infrastructure is one key factor to the widespread adoption of electric vehicles. The time it takes to charge an EV varies depending upon the type of charger at each specific station. There are three types of charging station: DC Fast, Level 2, and Level 1.

A description of each charging station classification and its charging speed is listed below as provided by the US Department of Energy.[13] Each icon below corresponds to the locations of each category of charging station in the map in Figure 5.

DC Fast Charger – provides charging through direct-current fast charging equipment. This charging port will provide approximately 100 to 200+ miles of range per 30 minutes of charging (Charging power varies by vehicle and battery state of charge).

Level 2 Charger – provides charging through a 240-volt or 208-volt electrical service. This charging port will provide approximately 25 miles of range per 1 hour of charging (assumes 6.6 kW charging power).

Level 1 Charger - provide charging through a 120-volt AC plug. This charging port will provide approximately 5 miles of range per 1 hour of charging (assumes 1.9 kW charging power).

Tesla Charger – are similar to DC fast chargers, however, are specifically geared toward Tesla vehicles which have a specific charging connector. This charging port will provide approximately 200 miles of range per 15 minutes of charging.

[13] Alternative Fuels Data Center: Developing Infrastructure to Charge Electric Vehicles (energy.gov)

Figure 1 - Tesla Fast Charging Station

Source: www.freightwaves.com

Figure 2 - Level 2 Public Charging Station

Source: www.siouxvalleyenergy.com

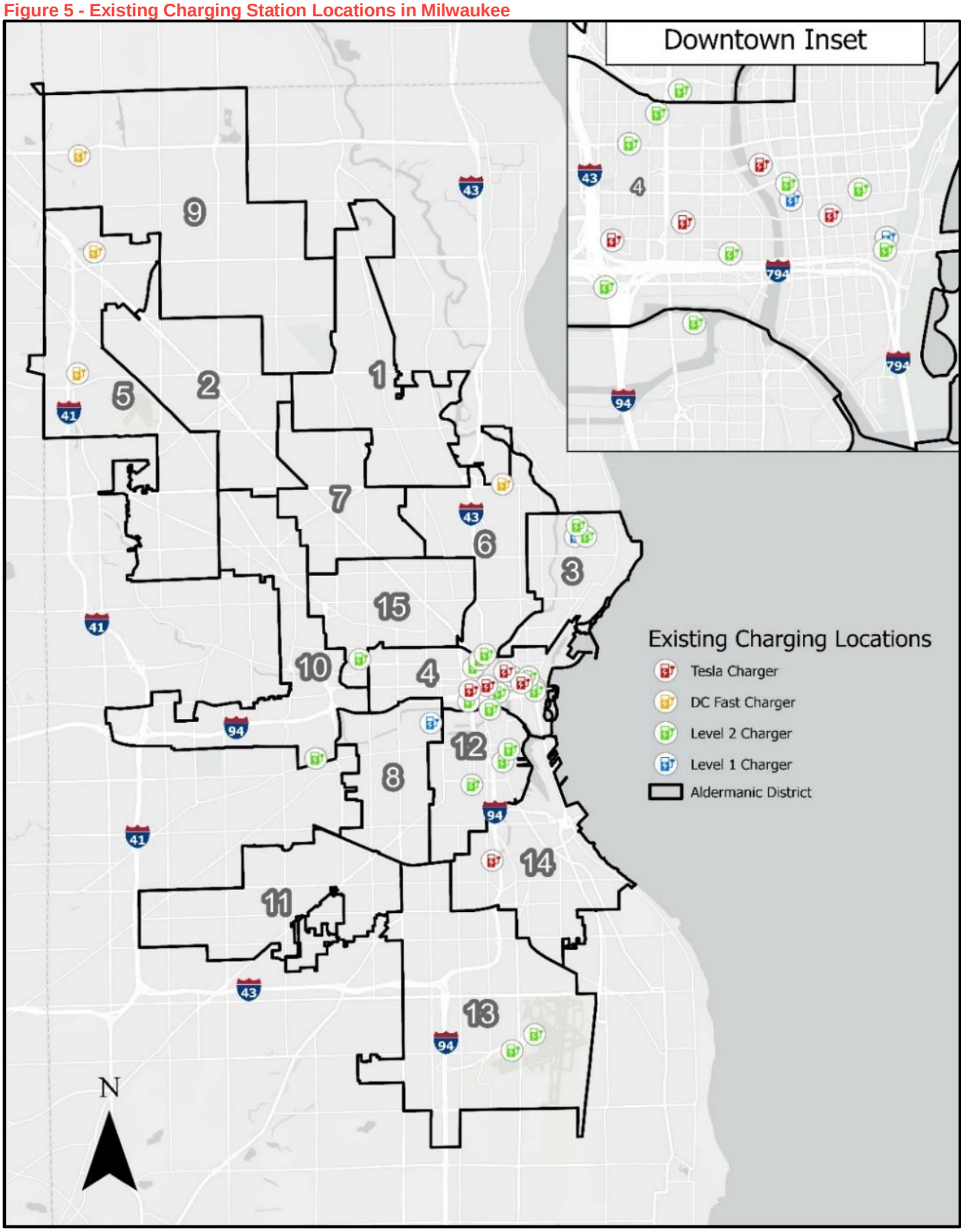
Figure 3 - Level 1 Charging Station

Source: www.amazon.com

Figure 4 - DC Fast Charging Station

Source: www.electrifyamerica.com

Figure 5 - Existing Charging Station Locations in Milwaukee



2 POLICY FRAMEWORK

SAFETY

In 2022, the City set a Vision Zero goal to achieve zero traffic-related deaths or serious injuries by 2037. Safety is a key priority to the City and will be emphasized over the duration of the transition to EV's, in the contract with the selected P3 vendor, and future EV readiness initiatives. This section of the plan outlines the policy framework which guides the selection, deployment, and overall transition to EVs in Milwaukee. The policy framework will be further explored in the forthcoming comprehensive EV Readiness Plan.

POSITIVE SAFETY BENEFITS FOR USERS

During the procurement process to select a vendor to install the EVSE, the City will ensure that the resulting contract includes provisions to account for safety, including those set forth in the NEVI Standards and Requirements. Some considerations may include:

- All of the EVSE funded as part of the Project will be installed by qualified electricians, with the Electric Vehicle Infrastructure Training Program (EVITP) certification, as set forth in the National Electric Vehicle Infrastructure Standards and Requirements. This will ensure that all electrical infrastructure is properly installed to ensure that all equipment is safe and ready for public use.
- EVSE will be certified by an Occupational Safety and Health Administration Nationally Recognized Testing Laboratory and certified to the appropriate Underwriters Laboratories (UL) standards for EV charging system equipment.

NO NEGATIVE IMPACTS TO SAFETY FOR USERS

During the planning process, the City exclusively selected sites that have designated off-street parking. Site hosts will be required to commit to dedicating at least four parking spaces, including one ADA space, within a designated off-street lot so that drivers seeking to use the EVSE can safely park their vehicle and utilize the EVSE. On-street EVSE poses a greater safety risk to both drivers and other roadway users, and the City will avoid this risk by installing EVSE in parking lots.

PROMOTES SAFETY THROUGH DESIGN

The individual design of each EVSE installation and selection of EVSE hardware will be unique based on its location and the site characteristics. During the site design and development process, various factors will be considered, including:

- Lighting
- Signage
- Driver Accessibility
- Equipment Protection
- Driver & Vehicle Safety
- Tampering Prevention
- Prevention of Illegal Surveillance

During the planning process, the City conducted site visits to the following sites:

- Zablocki Library
- Bay View Library
- Villard Library
- Center Street Library

- Washington Park Library

The design team utilized a site visit checklist during the site visits, which was standardized to examine the existing conditions (i.e., site access, lighting conditions, ADA accommodations, etc.) of the facilities and allow the team to evaluate the site against the site criteria to determine an approximate safety score. Any items that were not compliant with current local, federal, or industry standards were noted and flagged to be addressed in the detailed design process. The City's design team created general design documents as guidance for the parking lot layout and the electrical connection for the new chargers. An example of safety incorporated into the design is that bollards are required for the new charger installations to prevent any vehicle crashes or tampering. The site visits and the checklist were used to create concept layouts for each of the five library sites, which are attached as Attachment C – Library Site Concept Layouts.

While the selected P3 vendor will be responsible for final site design, the City's contract with them will include safety suggestions and considerations, including that the site designs avoid difficult driveways and areas with contaminated soil. If a site has contaminated soil, then the construction team will ensure the contaminated soil stays onsite and not leave the area after excavation. The design team that conducted the site visits and prepared the site designs also recommends that the P3 vendor consider and account for the following site safety considerations during the final site design:

- One-way streets
- Restricted turns in/out of the site
- Hard left turns
- Proximity of signals to site access points
- Access points designed to reduce conflicts with people walking, biking, and in vehicles

CLIMATE CHANGE, RESILIENCE, AND SUSTAINABILITY

In 2023, the City published its Climate and Equity Plan, which was developed over nearly four years of planning and public engagement through the City-County Task Force on Climate and Economic Equity.

GREENHOUSE GAS EMISSION REDUCTION

According to a wedge analysis by ICLEI – Local Governments for Sustainability[14], which was requested by Milwaukee's City-County Task Force on Climate and Economic Equity during preparation of the Climate and Equity Plan, Milwaukee can achieve 45% GHG emissions reductions by 2030 with 5% of emissions reductions from the electrification of transportation. To achieve the goal, 50% of new vehicles registered in Milwaukee will need to be EVs by 2030 and 30% of new, heavy-duty vehicles will need to be EVs. Achieving this goal would reduce GHG emissions Looking forward to Milwaukee's 2050 goal of net-zero GHG emissions, 14% of those GHG emissions reductions would come from vehicle electrification and 100% of new car sales in Milwaukee would need to be EVs.

In the Wisconsin Electric Vehicle Infrastructure Plan[15], approved by FHWA, the Wisconsin Department of Transportation (WisDOT) forecasts there will be over 334,000 EVs on Wisconsin roads by 2030. Although sales are accelerating in Wisconsin, in 2021, EVs accounted for less than 1% of total cars and other light-duty vehicles. EVs are also less than 1% of all registered vehicles in the City of Milwaukee and Milwaukee County. In 2021, WisDOT reported just 1,320 electric light-duty vehicles like cars, SUVs, and pick-up trucks registered in Milwaukee County, with 484 of those registered in the City of Milwaukee. However, the City will not achieve its goals for EV adoption by 2030 without significant increases in

[14] Milwaukee Wedge Analysis - ICLEI
[15] Wisconsin Electric Vehicle Infrastructure Plan (wisconsindot.gov)

publicly available EVSE, particularly in underserved communities and neighborhoods with high ratios of multi-unit to single unit dwellings that likely do not have the capacity to charge at home.

Based on the number of EVSE proposed, deployment of EV charging infrastructure is expected to generate a reduction in 235 GHG short tons, 3,237 lbs. of CO2, and 90 lbs. of NOx per the AFLEET CFI Emissions Tool provided by FHWA and Argonne National Laboratory. These estimates were generated using the standard assumptions in the tool and assumed the default moderate utilization.

Table 4 - AFLEET CFI Emissions Estimates

AFV Fueling Infrastructure	GHGs (short tons)	CO (lb)	NOx (lb)	PM10 (lb)	$PM_{2.5}$ (lb)	VOC (lb)	SOx (lb)	Fuel Dispensed (fuel unit)
Level 2 EVSE (51 sites)	198.6	2,736.1	75.8	6.6	5.8	238.8	1.0	306,000
DCFC EVSE (2 sites)	36.3	500.7	13.9	1.2	1.1	43.7	0.2	56,000
EVSE Total	**234.9**	**3,236.8**	**89.7**	**7.8**	**6.8**	**282.6**	**1.2**	**362,000**

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While more affluent households with garages and dedicated parking will be able to transition to EVs more easily, an equitable public EV charging network will be necessary in Milwaukee to provide charging for residents without garages or dedicated parking, and to ensure electrified transportation is available to all Milwaukeeans. Funding from the CFI Program will be critical in helping the City of Milwaukee deploy this equitable EV charging network to meet its emissions reduction goals for the transportation sector. Moreover, investment in the City of Milwaukee's public EV charging network helps lay the groundwork for a broader, regional EV charging network across the Milwaukee metropolitan area through the Environmental Protection Agency's Climate Pollution Reduction Grant program and achieve even greater GHG emissions reductions in the broader four county region.

CLIMATE RESILIENCE MEASURES AND FLOOD RISK MITIGATION

The City will implement climate resiliency measures to ensure the EV charging stations functionality and operation in various and adverse climate conditions for the State of Wisconsin. For example, to protect against flooding, the city will suggest that the P3 partner consider elevated foundations for certain locations that are prone to floods as well as rigorous drainage systems. The EVSE will be built with weather-resistant materials and designed to withstand high winds, heavy rain, snow and ice. In addition, back-up power supplies may be considered at critical high-utilization locations to ensure the stations are operational in case of a power outage due to extreme weather events.

The City will align the Project with the climate and resilience measures set forth in WisDOT's Wisconsin Electric Vehicle Infrastructure Plan.[16] Milwaukee experiences colder than average temperatures and significant snow in the winter. During the site visits conducted the planning process, the City included elements in the site assessment checklist related to 1) if snow/ice and water can accumulate on a structure built in the locations under consideration and 2) if there is a snow storage location onsite. The City will incorporate all snow removal and seasonal needs requirements into the agreements with the vendor that will own, operate, and maintain the sites. The City's selected vendor will be responsible for all aspects of snow removal and seasonal maintenance for the area surrounding the EVSE to ensure that it remains accessible regardless of weather conditions.

[16] Wisconsin Electric Vehicle Infrastructure Plan (wisconsindot.gov)

CLIMATE RESILIENCE AND ENVIRONMENTAL JUSTICE

Widescale EV deployment will also help reduce local air pollution, which disproportionately impacts communities of color and underserved communities. Milwaukee experiences wide racial disparities in life expectancy[17] and in exposure to pollutants. A 2021 study entitled "PM2.5 polluters disproportionately and systematically affect people of color in the United States"[18] showed that people of color in Wisconsin experience some of the largest disparities in exposure to particulate matter 2.5 (PM 2.5) nationwide, with only New York and Pennsylvania having worse disparities. The main source of PM 2.5 pollution is from transportation and industrial sources. Moreover, Milwaukee has one of the largest disparities in PM 2.5 air pollution exposure for people of color versus white populations across all urban areas nationwide, the disparities in Milwaukee are so severe that they skew the results for the entire state of Wisconsin. In addition to the critical importance of electrified transportation reducing GHG emissions in

EQUITY ANALYSIS

Milwaukee is Wisconsin's most racially diverse community. The City's diversity is a source of strength and drives community, creativity, and action. Yet, Milwaukee has unacceptable racial disparities in every economic category including employment, income, home ownership, and energy burden. The City and County of Milwaukee established a joint task force on Climate and Economic Equity in 2019 to create a plan that would tackle climate change while also reducing racial and economic inequity. Task force members and nine different work groups with five to thirty members each examined best policies and practices to not only reduce GHG emissions, but also to address historic racial disparities as a co-equal goal of the *Climate and Equity Plan*. Electrifying Transportation is one the key recommendations to surface from this planning effort, underscoring the importance of electrifying transportation to achieve GHG emissions reductions goals.

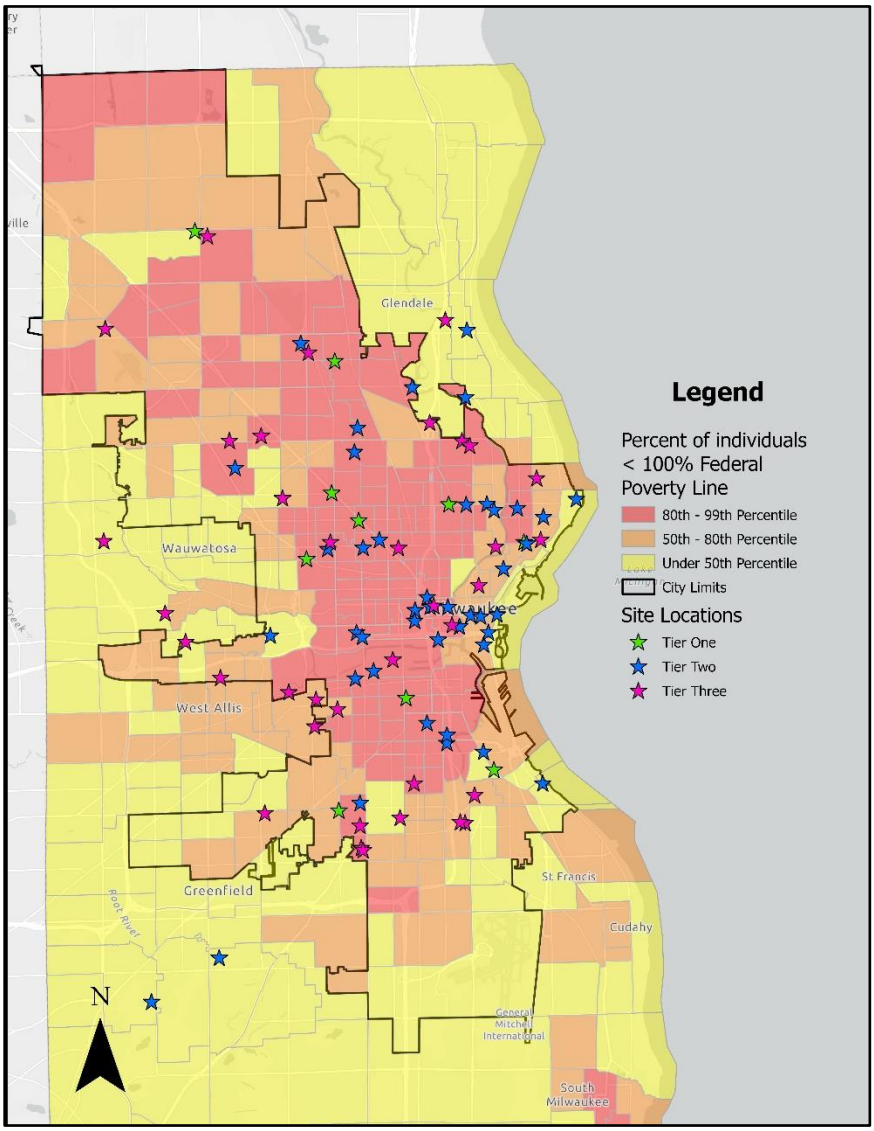
EVs have the potential to support a clean energy economy that improves opportunities for people of color and other historically disadvantaged communities to participate in the economic life of the city more fully and equitably. A minimum of 40% of the EV charging facilities installed as a part of the public-private partnership described in this document will conform to Justice 40 standards created by the Biden administration. Figure 5 below provides a brief summary of the geographic locations of prioritized sites in relation to Justice 40 communities in Milwaukee.

EXPANDED ACCESS IN LOW-INCOME COMMUNITIES

As EVs become more affordable and a used vehicle market arises, their price will not be as large of a hurdle as historically they have been. However, the installation of charging infrastructure can still be a substantial cost. During the site selection process, the City conducted a geospatial analysis to assess the site criteria and selection priorities. The City is prioritizing installing EVSEs in low-income communities and utilized a variety of datasets to determine these locations. The analysis utilized data that is broken down by census tract and filtered by percentile of individuals living < 100% federal poverty line. During the scoring process, sites received three points if between the 100th-80th percentile, two points if between the 80th-50th percentile, and one point if under the 50th percentile for the metric. Figure 13 shows the geospatial analysis of the poverty line analysis, and the rankings of the sites according to the tiered analysis that was done to rank the sites.

[17] Health Compass Milwaukee :: Indicators :: Life Expectancy :: County : Milwaukee
[18] PM2.5 polluters disproportionately and systemically affect people of color in the United States | Science Advances

Figure 6 – Poverty Analysis Map



The City also analyzed potential EV charger locations in relation to Historically Disadvantaged Communities and Areas of Persistent Poverty in the City of Milwaukee, and intentionally selected both public and private sites within those areas of the City. The result is that majority of the project sites are in these parts of the city that historically been underinvested in. Specifically, 32 out of 53 of the project sites, or 60% of the project sites, are located Justice40 Census tracts. The full equity analysis is provided in Appendix B – Equity Analysis. Milwaukee seeks to deliberately prioritize communities that have been historically underserved and disadvantaged in terms of access to transportation infrastructure, while also mitigating harmful impacts from prior transportation and planning implications.

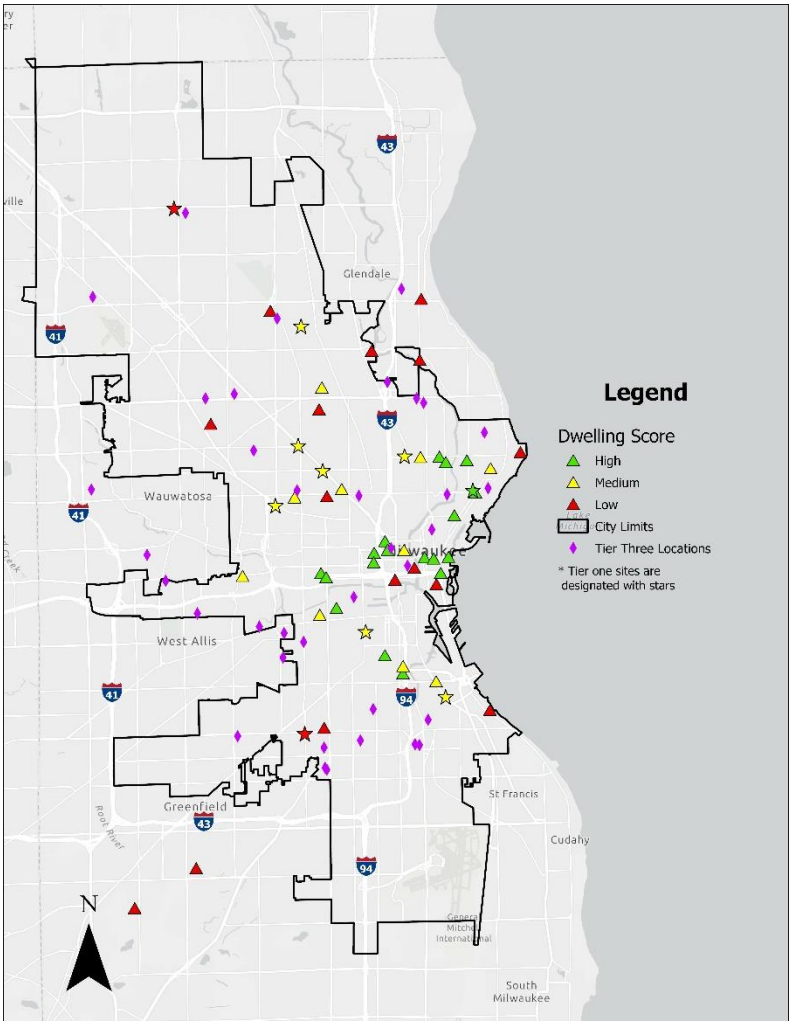
EXPANDED ACCESS FOR HIGHER DENSITY HOUSING

The ability to install a charging station in a multi-unit dwelling is more difficult as compared to a single-family home. Additionally multi-unit dwelling buildings are less likely to have dedicated parking when compared to single-family homes who more often have a garage. These difficulties often prevent residents of multi-unit dwellings from purchasing EVs.

The City's site selection process also included GIS analysis to assess for housing density around the site locations. Housing density was calculated by determining the ratio of multiunit dwellings to single family homes within half a mile of the site location. The ratio of dwelling units was calculated using the Milwaukee County parcel data. A ½ mile buffer was placed at the site and then the underlying parcel data was collected. Utilizing parcel data, a ratio of multi-family to single family units was generated and filtered for site prioritization. Sites with higher ratios of multi-family to single family-units were scored higher during the site selection ranking. Figure 8 reflects the rankings of the project sites in regard to the dwelling unit ratios.

Appendix C – Multi-Family Housing Unit Analysis includes a full site-by-site breakdown of the number of multi-family units within a ½ mile walking distance of each of the 53 project sites. In total, there are approximately 10,9031 multi-family residential units within a half-mile walk from all the project sites.

Figure 7 - City of Milwaukee - Federal Poverty Line Analysis



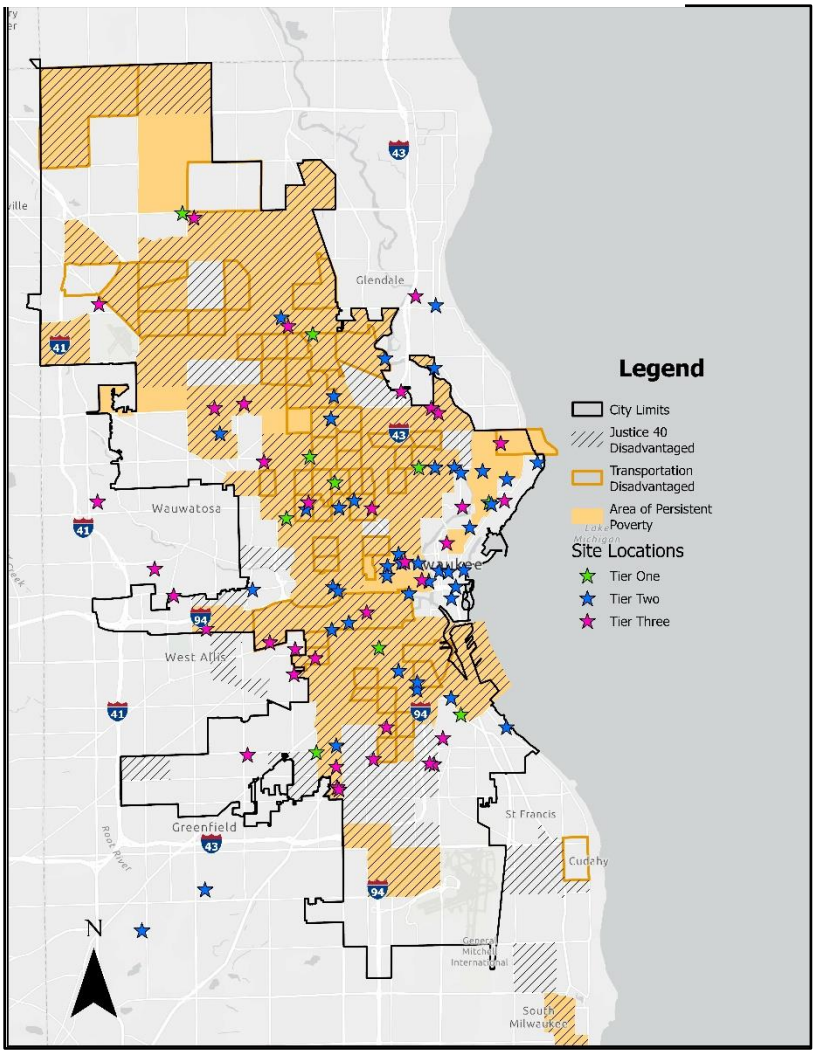
As described in Criteria 5: CFI Program Vision - Community Program section, four of the sites have affordable multi-family housing directly onsite and were prioritized as part of the initial set of locations because of this. Providing Milwaukeeans with charging infrastructure near their homes will spur EV adoption in urban areas, which is a crucial step to helping the City meet its climate and GHG reduction goals.

GEOGRAPHIC DIVERSITY AND MARKET DEMAND

The project is comprised of 53 charging sites (51 Level 2 sites and 2 DCFC sites), which will include 228 total plugs. The majority of the locations are in high-density residential areas and support community charging with Level 2 chargers. The City will also include DCFCs at two of the Interstate Parking sites, Couture and the Avenue. These sites were identified through conversations with the site host, and the City has confirmed that they will be able to support the electrical capacity needed for faster charging. Both sites have 480-volt power available to support the chargers, and the City expects high utilization of these sites due to their downtown location near a variety of amenities and high-traffic corridors.

Part of the racial and income disparity identified in EV adoption rates is attributed to limited access to reliable charging infrastructure among residents of multi-family buildings, many of whom in Milwaukee are African American. Renters in multi-family units often do not have access to charging units on-site and cannot reliably charge overnight. As new incentives from legislation such as the Inflation Reduction Act (IRA) help make EVs more affordable for middle and lower middle-class consumers and subsequent demand for EVs will grow, installing widely accessible EV charging infrastructure throughout the City will be a critical step in ensuring widespread EV adoption. As part of the planning and stakeholder engagement process for this project, the City of Milwaukee ECO will partner with organizations such as Wisconsin Clean Cities and Drive Electric Wisconsin to assist with education on the multiple benefits of EVs, arrange opportunities to test drive EV's, and provide current information on federal tax incentives available for particular models of EVs.
This plan will advance USDOT's strategic goals to reduce inequities in the US transportation system by eliminating barriers to access EV charging infrastructure and by reducing vulnerable populations' overall exposure to CO_2 and other greenhouse gas emissions that would otherwise continue without improving options for the public to charge electric vehicles. Figure 7 shows the geographic spread of the project sites within Milwaukee's Justice40 Communities, Communities Areas of Persistent Poverty, and Transportation Disadvantaged Communities.

Figure 8 - Disadvantaged Communities in Milwaukee



A full equity analysis of the 53 project sites is included at the end of this narrative as Appendix B – Equity Analysis. A brief summary of the equity analysis is provided below as Table 7. 32 out of the total 53 sites selected for this project, or approximately 60% of the sites, are located in Justice40 communities. The Project is strongly aligned with the Biden-Harris Administration's Justice40 Goal that at least 40% of federal investments flow to disadvantaged communities.

However, without sustained, intentional efforts to ensure equitable participation in EV benefits, EVs also carry the potential to perpetuate disinvestments in communities of color. To facilitate the equitable deployment and proliferation for charging and alternative fueling infrastructure, this report outlines multiple considerations below:

Define equity communities for the project area. Milwaukee is expansive and diverse, yet the local nuances are not considered in existing tools used to identify equity priority areas. Although these existing tools mean well (i.e., Justice 40 Tool, USDOT Historically Disadvantaged Communities Tool, etc.), they do not account for Milwaukee-specific issues that disproportionately impact one area over another. As such, this report recommends starting with the Justice 40 criteria and then defining equity for this project in conjunction with the community. Creating a common understanding of what equity means in the project helps the team coalesce towards a common goal and prioritize project areas and initiatives throughout the project.

Table 5 – Equity Analysis Summary Table

	Area of Persistent Poverty	Justice40 Community	Transportation Disadvantaged Community
Number of Project Sites	37	32	11
Percentage of Project Sites	70%	60%	20%

Furthermore, defining equity with community input ensures community voices, priorities, and needs are reflected in the deployment of the EV network. Some approaches to defining equity include:

(1) Use existing quantitative data supplemented by qualitative data to identify priority areas.

(a) Engage the community to define equity and priority areas

(b) Develop a Needs Assessment that includes qualitative items to ensure community voices are prioritized over quantitative data

(c) Use non-traditional outreach methods including door-to-door visits, etc.

(d) Establish consistent language and formatting for all EV-related items so that the community knows what equity means related to EVs.

(2) Plan for people over properties and places. Most EV-related endeavors tend to focus on planning for places over people. For instance, federal funding programs insist on placing chargers on highway corridors may be valuable location, but may not be near the community or areas EV drivers frequently visit. Similarly, proposed EV charging sites may prioritize transient users passing through corridors over the community and its needs. To ensure planning for people is prioritized over places and spaces, it is recommended to develop strategies that impact the most people, including:

(a) Incentivize off-peaking charging for lower-rates

(b) Offer e-bike purchases to support infrastructure

(c) Focus on supporting multi-unit housing complexes that incentivize shared-use electric vehicles

(d) Prioritize carpooling services to support transit-dependent populations

(e) Locate chargers in areas with streetlights, local attractions, and more

(f) Amend building codes to require most or all new developments to include EV-ready infrastructure and dedicate at least 2% of parking to EVs

(3) Establish process to evaluate benefits to communities. Literature has shown that low-income communities, on average, have less access per capita to public chargers than their middle-and high-income counterparts. Residents in rural communities also have less access to EV chargers. To ensure equity communities continuously benefit from EV's, the team should create a methodology to assess any direct and indirect benefits and impacts to equity communities. The City can leverage the NEVI benefit assessment to quantify potential benefits and impacts to people, not places, including the assessment of air quality, access, and connectivity to avoid duplicating efforts. Some potential items to consider include:

(a) Exceed 1.00 charging station per capita

(b) Have access to charging station within 5 miles of residence or workplace

(c) Target key audiences including housing, retail, schools, and others

(d) Site chargers near community-identified locations

(4) Streamline approaches to purchase, charge, operate, and utilize EVs for people. EVs, their benefits, and involved processes have yet to be widely accepted. To help disseminate information across the region, the City of Milwaukee has developed an EV readiness landing page that includes information about EVs for users, operators, and more. The landing page includes or will include:

(a) EV actions for constituents

(b) Access to incentive programs

(c) Streamlined permitting procedures

(d) Information about dynamic pricing and more

(5) Develop critical relationships throughout the region. EV use and adoption may be facilitated by supply of chargers; however, effective EV networks are the result of relational insights that include land use regulators, transportation experts, business zones, utility providers, and economic opportunities. New chargers have the potential to boost the local economy, increase housing demand in regions, and generate a new workforce to participate in wealth creation. Anti-displacement and gentrification efforts must also be developed to protect vulnerable populations who may not reap from these benefits. In addition to the strategies included in the Electrification Chapter of the *Climate and Equity Plan*, some items to consider include:

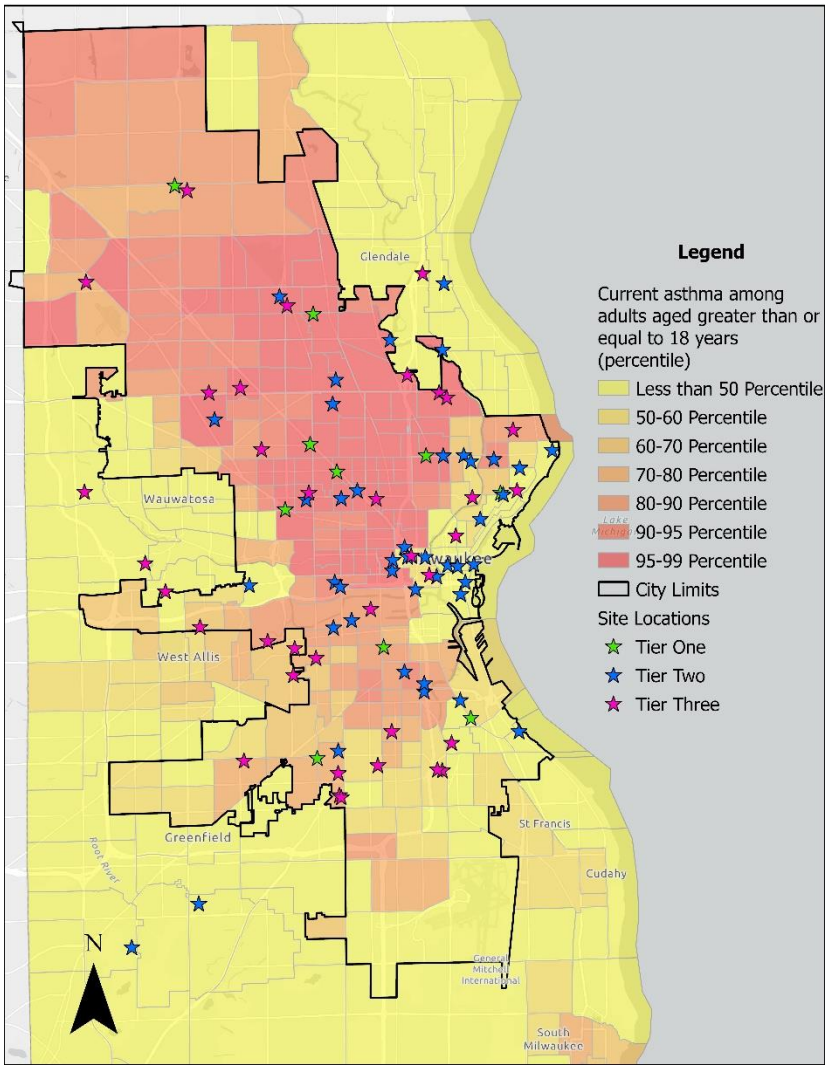
(a) Develop anti-displacement and/or gentrification-proofing strategies for specific charging regions

(b) Continue to support workforce development partnerships to help develop and retain new talent

CLIMATE RESILIENCE AND ENVIRONMENTAL JUSTICE

Widescale EV deployment will also help reduce local air pollution, which disproportionately impacts communities of color and underserved communities. Milwaukee experiences wide racial disparities in life expectancy and in exposure to pollutants. A 2021 study entitled “PM 2.5 Polluters Disproportionately and Systematically Affect People of Color in the United States” showed that people of color in Wisconsin experience some of the largest disparities in exposure to particulate matter 2.5 (PM 2.5) nationwide, with only New York and Pennsylvania having worse disparities. The main source of PM 2.5 pollution is from transportation and industrial sources.

Figure 9 - Milwaukee Asthma Rate Data



Moreover, Milwaukee has one of the largest disparities in PM 2.5 air pollution exposure for people of color versus white populations across all urban areas nationwide, the disparities in Milwaukee are so severe that they skew the results for the entire state of Wisconsin. In addition to the critical importance of electrified transportation reducing GHG emissions in Milwaukee, this transition will also have a critically important role in reducing harmful air pollution in the City of Milwaukee, particularly for residents of color in underserved neighborhoods, many of which are located adjacent to interstate highways and main thoroughfares in the City.

This excess exposure to PM 2.5 pollution combines with other air pollutants including ozone (Milwaukee County remains in non-attainment for ozone according to the NAAQS), to create poor air quality citywide. This is why it is not surprising that in 2021, Milwaukee ranked fourth out of the country’s top 10 “Asthma Capitals”. According to the 2021 report by the Asthma and Allergy Foundation of America, asthma prevalence was the highest in Milwaukee among all the metropolitan areas in the Midwest.

These rates were based on asthma prevalence, asthma-related ER visits and deaths. The report also stated that Milwaukee ranked second among the cities with the highest asthma related emergency hospital visits. Furthermore, Milwaukee was also listed among the top 10 cities with the most use of quick-relief medicines. As per the Asthma and Allergy Foundation of America, frequent use of a quick-relief medicine is an indication there is a high number of asthma episodes and lack of asthma control. Figure 8 shows current asthma rates within the City of Milwaukee. Asthma is particularly detrimental to children whose rates of asthma-related ER visits are far higher than adults. In Milwaukee, the rates of asthma-related ER visits by Black children are nearly double that of the rates of Hispanic, Asian, and white children combined. For low-income and Black, Indigenous, People of Color (BIPOC) children who are more likely to live in neighborhoods with poor air quality, the transition to EVs will help reduce these outdoor sources of air pollution. As the map

shows, many of the Project sites are within communities with high asthma rates. The installation of EVSE across the city will benefit all Milwaukeeans, even those who do not own EVs, as the replacement of internal combustion vehicles with EVs will reduce transportation-related emissions and improve air quality, which will greatly benefit those with asthma and allergies.

AVOIDS ADVERSE ENVIRONMENTAL IMPACTS

The Project will enable Milwaukee's transition to an electrified transportation system. By deploying charging infrastructure across Milwaukee, particularly in underserved, overburdened, and disadvantaged communities, the Project incentivizes EV adoption which helps reduce local air pollution that disproportionately impacts communities of color and underserved communities.

The location of the chargers is optimized to support long-term durability and reduce environmental impacts. The City's design team has prepared the following recommendations that will be provided to the City's selected P3 vendor to define how chargers should be installed in locations away from:

- Overhead roofs with a slope that can dump snow or water onto the chargers
- Any snow storage areas, usually landscaping or bioswale green space.
- Overhangs where water or ice can accumulate and drip onto charger
- Low areas, near standing water, or in ditches.
- Open areas where wind or other environmental factors can damage the charger
- Difficult to access parking areas near traffic movement conflicts.

Finally, to protect the chargers against wind damage, temporary protective covers can be installed prior to high wind events and have the chargers rated for 80 mile per hour winds. Chargers will also be sited near buildings whenever possible, to block the wind and in well-graded parking locations with positive drainage.

WORKFORCE DEVELOPMENT, JOB QUALITY, AND WEALTH CREATION

Milwaukee sees a growing opportunity for workers to facilitate the transition to electric vehicles and clean transportation with good paying jobs. Milwaukee currently has unacceptable racial disparities in employment, household income, and other economic factors, and as the community transitions to a clean energy economy, the City is taking steps to more intentionally include people of color and those from underserved communities in employment recruitment efforts. The City's Racial Equity Action Plan[19] motivates and complements the City's *Climate and Equity Plan*, forming the basis of the city's goals in this area.

CREATES GOOD PAYING JOBS

Milwaukee's *Climate and Equity Plan* establishes a goal of creating green jobs that pay at least $40,000 per year at the entry level. In addition, the plan aims for 40% of green jobs to be held by people of color, parallel to the White House's Justice40 standard. To address persistent disparities in household income, Milwaukee established a 'Green Jobs Accelerator' to work with existing workforce institutions and employers to recruit, train, and employ Milwaukee workers with family-supporting wages in green job sectors. The City has further committed to codify public benefits agreements when projects are subsidized by government funds to ensure contracts meet these standards.

[19] CityofMilwaukee_RacialEquityPlan_Aug20_8.5x11.pdf

HIGH QUALITY WORKFORCE

The construction of electric vehicle charging infrastructure creates opportunities for family-supporting jobs, particularly for electricians and related trades. Consistent with the City's *Climate and Equity Plan* and federal Justice40 initiative, this opportunity will be extended to Milwaukee residents and include people of color for apprentices and advancement opportunities. The proposed P3 will include a Community Benefits Agreement (CBA) to ensure that construction work is done in a quality manner by skilled trades people who earn family-supporting wages, specifically Davis Bacon wages monitored through certified payroll. The CBA will include local hiring requirements such as the City's Residents Preference Program (RPP)[20] and contracting opportunities for disadvantaged businesses. The private firm selected as part of the P3 model, and their installation subcontractors would be required to adhere to the CBA in the installation of publicly-funded EV charging stations. The CBA will also require that installation work be done by qualified technicians. This includes technicians who are certified to the Electric Vehicle Infrastructure Training Program (EVITP) standard and graduation or a continuing education certificate from a registered apprenticeship program for electricians that includes charger-specific training and is developed as a part of a national guideline standard approved by the Department of Labor in consultation with the Department of Transportation.

The Milwaukee Building & Construction Trades Council, AFL-CIO (MBCTC), IBEW 494 their signatory contractors are well-positioned to meet the requirements of the CBA. MBCTC maintains a database of eligible workers, allowing them to match appropriate jobseekers to contractor needs. This centralized database makes it easier for contractors to meet targeted hiring goals in agreements such CBAs. The Wisconsin Regional Training Partnership (WRTP/Big Step) works with MBCTC, IBEW 494, and others to provide pre-apprentice training, RPP certification, and outreach to potential workers to make implementation of the CBA a success.

MBCTC partners with the Wisconsin Regional Training Partnership – Building Industry Group Skilled Trades Employment (WRTP | BIG STEP)[21] to help train and identify local workers that can satisfy the requirements of the CBA. When contractors fail to meet their targeted hiring commitments—sometimes saying they cannot find the right people with the right skills—WRTP | BIG STEP both identify workers and connects them to any needed training. This lessens the cost for contractors to comply with the CBA, helping keep project costs down. MBCTC has forged a high degree of quality, trust, and commitment in connecting the community and organized labor in the City of Milwaukee. IBEW 494, MBCTC, and WRTP | BIG STEP have all provided letters of support for the project, included as Attachment A.

ENTRY AND RETENTION OF UNDERREPRESENTED POPULATIONS

The details of the CBA will be developed and formalized between the City, MBCTC, and the selected P3 vendor. The following are examples of the types of provisions that the CBA might include to ensure commitment to a high-quality workforce:

- Participating contractors must agree to meet all requirements set forth in the NEVI Standards and Requirements
- 40% of contractors employed by the Project will be Milwaukee residents per the Residents Preference Program
- A determined percentage of contractors of contractors employed by the Project must be through Milwaukee's Small Business Development (SBD) Program[22]. The SBD Program is run through the City's Office of Equity & Inclusion and supports women-owned and minority-owned businesses.
- Workers living in high impact areas will provide a 50% bonus for contract hours.

[20] RPP (milwaukee.gov)
[21] Welcome to WRTP | BIG STEP
[22] Small Business Development (milwaukee.gov)

The City will create a list of contractors that agree to meet the requirements of the CBA, which will be provided to the P3 private partner for them to establish contracts with to construct the Project. MBCTC will serve as a resource for the selected vendor staff the contracts to meet the requirements of the CBA.
The City's RPP helps underemployed and unemployed residents gain access to employment opportunities. The RPP certification is designed to promote the use of city residents as part of a contractor's or developer's workforce on certain city-funded construction and private development projects. Contractors bidding on public works projects and development projects financed with public tax dollars must hire a percentage of RPP-certified City of Milwaukee residents to work on those projects. To qualify for the RPP, interested individuals must be a City of Milwaukee resident plus meet at least one of the following requirements:

- Has not worked in preceding 15 days AND/OR
- Worked less than 1,200 hours in the preceding 12 months AND/OR
- Meet certain federal poverty guidelines

LOCAL, INCLUSIVE ECONOMIC DEVELOPMENT AND ENTREPRENEURSHIP

To ensure that DBE firms are afforded a level playing field in participating on all City of Milwaukee procurement contracts, the Office of Economic Inclusion develops goals, monitors contract payments and enforces City and County of Milwaukee ordinances. The Office of Economic Inclusion reviews contracts and monitors all payments to its prime contractors through all subcontracting tiers on all City and County of Milwaukee contracts using Milwaukee's Diversity and Compliance Management portal.[23]

Community Benefits Agreements.

The construction of EV charging infrastructure creates opportunities for family-supporting jobs, particularly for electricians and related trades. Consistent with the *Climate and Equity Plan*, this opportunity should be extended to Milwaukee residents and include people of color in for apprentices and advancement opportunities. A public-private partnership to install and operate EV Charging infrastructure will include a Community Benefits Agreement to ensure that construction work is done in a quality manner by skilled trades people who earn family-supporting wages, included Davis Bacon wages as required on many federal infrastructure projects. A Community Benefits agreement can include local hiring requirements such as the contracting opportunities for disadvantaged businesses Residents' Preference Program (RPP). The private firm selected as part of the P3 Model and their installation subcontractors would be required to adhere to the CBA in the installation of publicly-funded EV charging stations.

- Milwaukee Building & Construction Trades Council, AFL-CIO (MBCTC), IBEW 494 their signatory contractors are well-position to meet the requirements of the Community Benefits Agreement (CBA). MBCTC maintains a database of eligible workers, allowing them to match appropriate jobseekers to contractor needs. This centralized database makes it easier for contractors to meet targeted hiring goals in agreements such CBAs.
- MBCTC partners with WRTP/BIG STEP to help train and identify local workers that can satisfy the requirements of the CBA. When contractors fail to meet their targeted hiring commitments—sometimes saying they cannot find the right people with the right skills—WRTP/BIG STEP both identify workers and connects them to any needed training. This lessens the cost for contractors to comply with the CBA, helping keep project costs down.

Create good paying jobs by focusing on retention over attraction.

Milwaukee sees a growing opportunity for workers to facilitate the transition to electric vehicles and clean transportation with good paying jobs. Milwaukee currently has stark racial disparities in employment, household income, and other economic factors, and as the community transitions to a clean energy economy, the City is taking steps now to include people of color.

[23] Diversity Management and Compliance System for Milwaukee County (diversitycompliance.com)

Some of the most likely growth categories for green jobs include electricians, HVAC technicians, weatherization workers, and arborists. Electricians and associated positions are particularly important in supporting solar energy projects, electric vehicle charging infrastructure, energy-efficient lighting replacements, and other beneficial electrification work. Milwaukee's Climate and Equity Plan establishes a goal of creating green jobs that pay at least $40,000 per year at the entry level.

In addition, the plan aims for 40% of green jobs to be held by people of color, parallel to the White house's Justice40 Standard. To address persistent disparities in household, Milwaukee established a 'Green Jobs Accelerator' to work with existing workforce institutions and employers to recruit, train, and employ Milwaukee workers with family-supporting wages in green job sectors. The City has further committed to codify public benefits agreements when projects are subsidized by government funds to ensure contracts meet these standards.

LOCAL LEGISLATION

ZONING POLICY – PARKING

Looking forward to recommendations in the *Climate and Equity Plan*, the most impactful policy change will be to require a percentage of parking spots in new and substantially expanded parking facilities in the City of Milwaukee be equipped with EVSE, EV-ready or EV-capable. As the City of Madison, Wisconsin passed a similar ordinance in 2021, the City of Milwaukee is confident in its ability to legally require these provisions based on the results in Madison. The City of Milwaukee will look to increase the percentage of spots that are required to be equipped with EVSE or be EV-ready or EV-capable to keep pace and encourage with increased EV sales in the Milwaukee area.

CLIMATE AND EQUITY PLAN

The City has adopted or is exploring adopting several policies that were included in the Climate and Equity Plan. These include:

- Municipal Fleet EV Purchasing Policy (File 222725 Adopted). There is more to be done for City Fleet EV Charging Infrastructure.
- Explore a City ordinance that requires EV charging infrastructure at parking lots, multi-family residential buildings, mixed-use developments and other commercial properties.

STATE LEGISLATION

CURRENT LEGISLATION

Federal requirements of the NEVI Program require that EV charging stations must charge customers by kilowatt-hour. Currently, in Wisconsin, only regulated utilities are allowed to charge per kilowatt-hour precluding EV charging stations from doing so. The existing stations in the state currently charge by the minute as to work around the law. In the same article cited above, Valcq states, "Customers don't know how much electricity they're going to get because you're being charged on time." "If you think about going to a gas station, you're not paying by the minute when you go to the pump. You're paying by how many gallons or fraction of gallons." In other words, any entity other than regulated utilities, offering publicly available EV charging stations charging stations charging by the kilowatt-hour would be required to operate as a public utility. As a result of the barriers of entry to becoming and operating as a public utility, the current legislation creates a significant roadblock to the implementation of this plan and the use of the $78.5 million dollars allocated to the State of Wisconsin through the NEVI program for distribution of EV charging stations along Alternative Fuel Corridors as defined by the NEVI program.

[24] https://www.wpr.org/wisconsin-law-could-prevent-78m-federal-funds-electric-vehicle-charging-stations

NEEDED LEGISLATION

To be competitive for federal discretionary grant funding for EV charging infrastructure, Wisconsin needs to pass legislation exempting EV charging facilities from the requirement to operate as a public utility to offer EV charging by the kilowatt hour is required to increase business model transparency for the customer at the charging station similar to the purchase of gasoline by the gallon. Given the observed and projected increase in the number of EVs on the road the City of Milwaukee and the State of Wisconsin, lowering barriers for deployment of EV charging is imperative. WisDOT Secretary Craig Thompson was quoted in the Wisconsin Public Radio article stating, “While electric vehicles are a small percentage of the amount of cars on the road right now, we know that’s going to grow exponentially.” “We want people that are driving electric vehicles to feel comfortable that they can come visit Wisconsin, come see the packers, come golfing and not worry about that. I think any state that falls behind is going to be at a competitive disadvantage.” Efforts are underway to advocate for this State law change in 2023 in time to position Milwaukee for federal grant funds.

3 ELECTRIC VEHICLE READINESS STRATEGIES & ACTIONS

EV CHARGING LOCATION PLAN

An increase in the deployment of EV charging locations is critical for the continued adoption of EVs within Milwaukee, the metropolitan region, and Wisconsin as a whole. Many of the early adopters of EVs have access to private charging at their residence. However, this is not a privilege all residents currently have or will be expected to have in the future. In addition, publicly available charging stations for visitors are imperative to the tourism industry in the City of Milwaukee as EV adoption increases in the Midwest and throughout the country.

As EVs become more affordable and widespread, the public charging infrastructure will need to increase to ensure that all residents of Milwaukee can realize the benefits EVs provide. The EV charging location plan highlights specific locations within the city and region which are positioned to safely and equitably provide public charging. Widescale EV adoption and deployment of EV charging infrastructure will help reduce local air pollution, which disproportionately impacts communities of color and underserved communities. Replacing gasoline-powered cars with EVs saves energy and reduces GHG emissions, regardless of the energy-source used to charge the EV.

SITE SELECTION

The need for community/public EV charging infrastructure is important to ensure EVs are a practical and reliable source of personal transportation to all community members. The City of Milwaukee owns many properties throughout the city limits in which it can install public charging facilities. Additionally, there are many privately owned and publicly accessible locations such as grocery stores which are potential locations for public charging through offerings by private companies or through public-private partnerships. This section outlines the criteria developed to examine potential future sites for publicly available EV charging locations.

As of May 2023, there were only 44 publicly available EV charging sites in Milwaukee. As shown in Figure 5, the majority of the sites are concentrated in and near the central business district, near the interstate system, and at Milwaukee Mitchell International Airport, rather than within neighborhoods and residential communities.

The City seeks to ensure to ensure that EV chargers are installed in underserved areas of Milwaukee where private investment in EVSE infrastructure is less likely to occur in the near-term. As part of the site selection process, the City completed a geospatial analysis to develop the project and assess site suitability and alignment with the broader equity goals of the City of Milwaukee *Climate and Equity Plan*. Existing charging locations were geolocated and datasets related to demographics, population, economic status, housing, transportation, equity, and environmental risk were overlaid with the potential EV charging locations. The City also sought to equitably distribute potential new EV charging locations across neighborhoods and Common Council districts and prioritize areas of high visibility, given that a major goal of expanding the public EV charging network is for Milwaukee residents across a variety of diverse backgrounds see that EV charging is available to them, close to where they live, work, shop, and visit.

SITE SELECTION CRITERIA

As part of the site selection process, the City completed an assessment of factors including equity considerations, public accessibility, facility type and access to amenities, site readiness and willingness of landowners to host charging infrastructure, and proximity to existing EVSE infrastructure. Below are descriptions of each site selection criteria.

Public Accessibility

What: The proposed site must be accessible to the public. Publicly accessible means the equipment is available to the public without restriction in conformance with business hours of operation and parking fees (i.e. parking ramps). A station that is not maintained or restricts access only to customers, tenants, employees, or other consumers is not considered publicly accessible.

Why: Access to charging infrastructure can be a barrier to entry for individuals who wish to obtain an EV. By requiring charging infrastructure be publicly accessible, the barrier to entry is lowered for potential EV drivers. Likewise, additional publicly available charging stations will also benefit those who are passing through the communities and require a charge.

Data: Online review of the site, in-person examination of the site, review of aerial photography, and discussions with site owner.

Analysis: Review of the site to ensure that it is publicly accessible without restrictions.

Community Building

What: Is the proposed site located in a low- or moderate-income neighborhood?

Why: As EVs become more affordable and a used vehicle market arises, the price of an EV will decrease. However, the installation of charging infrastructure can still be a substantial cost.

Data: Executive Office of the President of the United States, Council on Environmental Quality, Climate and Economic Justice Screening Tool, Percent of individuals <100% Federal Poverty Line (percentile)

Analysis: The Climate and Economic Justice Screening Tool data was downloaded and analyzed in ArcGIS. The data were filtered by percentile of individuals <100% federal poverty line. A site received three points if it was between the 100th-80th percentile, two points if it was between the 80th-50th percentile, and one point if it was under the 50th percentile for the metric.

Urban Area Charging Solutions

What: The proposed site provides convenient, affordable access to charging infrastructure in applications such as multi-unit dwellings and homes without driveways or garages.

Why: It is more difficult for an individual to install charging infrastructure for an EV if they live in a multi-unit dwelling (such as a large apartment building) or do not own a garage. Having charging stations accessible to individuals who live in these types of residences can help meet existing demand and encourage EV adoption.

Data: Geographic location of proposed sites, zoning districts and policy, number of multi-family dwelling units, and site-specific development character.

Analysis: The analysis included a review of the geographic area in which each specific site is located to determine if charging stations serve either, or preferably both, inner-ring suburban and urban needs. Zoning districts were referenced to determine density standards near each location and the possibility of future new greenfield or in-fill multi-family housing development near site locations. A review of each site location's development character was also completed using aerial photographer to confirm proximity of multi-family housing developments exist near the proposed site locations and existence of publicly accessible parking lots and/or parking lots for multi-family dwelling units in close proximity to the proposed sites.

Ratio Multi-unit Dwellings to Single Family Homes

What: Is there a comparatively high ratio of multi-unit dwellings within a half-mile of the proposed site?

Why: The ability to install a charging station in a multi-unit dwelling is more difficult as compared to a single-family home. Individuals who live in multi-unit dwellings are either renters or owners who are subject to approval of their home-owners association for charging infrastructure. Likewise, multi-unit buildings are less likely to have dedicated parking as compared to single-family homes who more often have a garage.

Data: Milwaukee County Parcel Data

Analysis: The ratio of dwelling units was calculated using the Milwaukee County parcel data in ArcGIS. A ½ mile buffer was placed at the proposed site and then the underlying parcel data is collected. The parcel data has a field for number of dwellings per parcel. Utilizing this information, the sum of multi-unit dwellings was divided by the sum of single unit dwellings. The ratios were filtered from largest to smallest for all the sites examined. A site received three points if it was within the top third of ranked sites, two points if it was in the middle third of ranked sites, and one point if it was in the bottom third of ranked sites.

Existing Charging Locations

What: Are there existing publicly available charging stations within a half-mile of the proposed site?

Why: The aim of this plan is to help provide publicly accessible EV charging infrastructure to as many residents of Milwaukee as possible. By examining existing publicly available charging locations within a half-mile radius of each proposed site the criteria will ensure that charging infrastructure is evenly spread out and not concentrated in one location.

Data: U.S. Department of Energy Alternative Fueling Station Data

Analysis: The charging data was analyzed using ArcGIS software to determine how many existing charging stations were within a ½ mile buffer from a proposed new site. The site received a score based on the number of charging stations within a ½ mile: three points for no charging stations, two points for one charging station, and one point for two or more stations within a ½ mile radius of the potential location.

Power Service Upgrades

What: Does the site have appropriate grid infrastructure necessary to serve the proposed site?

Why: Depending on the charging station level, different types of grid infrastructure are required to power the site. If the proposed site has the adequate infrastructure in place, it could make installing the charging station more cost effective as compared to a site with minimal to no grid infrastructure which may require line or service extension.

Data: In-person examination of the proposed site and discussions with the site owner.

Analysis: Electrical engineers examined the site to determine the type of power service currently at the proposed site. Three points were given to the site if it is ready or limited work is needed to address power needs, two points to sites where low to moderate work is needed to address power needs, and one point to sites in which significant work is needed to address power needs.

Adequate Lighting

What: Does the site have adequate lighting?

Why: To encourage use of a proposed site, safety will be an important aspect at each proposed location. Lighting is one means to enhance safety at the site.

Data: Online review and/or in-person examination of each proposed site.

Analysis: Examination of each proposed site either in-person or online to determine if there was enough existing lighting infrastructure and what level of effort would be required to install additional lighting. Three points were provided if existing adequate lighting was present, two points if low to moderate work is needed to address lighting concerns, and one point if significant work is needed to address lighting concerns.

Space Availability Charging

What: Does the proposed site have space for charging infrastructure?

Why: While some sites may meet high scores for other criteria it will be important that they have the available space for charging infrastructure. Charging locations will need to be designated for EVs only, the sites will need to have adequate room to accommodate the designated charging spot as well as supporting infrastructure.

Data: Online review of the site and/or in-person examination of the proposed site.

Analysis: An examination of the proposed site either in-person or online to determine if there are sufficient parking spaces to convert them from non-EV charging spots to EV charging spots. Three points are provided if the site is able to accommodate more than six plugs, two points if the spaces can accommodate six plugs, and one point if there is little or no space for chargers.

Nearby Areas of Interest

What: Are there areas of interest within a 3-minute walk of the proposed location?

Why: Charging a vehicle to provide maximum range can take longer than the time required to fuel a traditional internal combustion engine. Having areas of interest for activities such as parks, restaurants, coffee shops, or stores nearby can provide an individual an activity to do while waiting for their vehicle to charge. Additionally, charging stations near these areas of interest can spur economic activity in underserved areas.

Data: Online review using aerial photography.

Analysis: An online review of the site was conducted to examine the number and type of areas of interest within a 3-minute walk of the location. Three points were given to the site if there are many long-term activity locations nearby, two points for short term activity locations nearby, and one point for little to no activity locations nearby.

Compliance with Americans with Disability Act (ADA) of 1990

What: Compliance with the ADA of 1990.

Why: According to law the sites must be compliant with the ADA of 1990.

Data: Online review of the site, in-person examination of the site.

Analysis: Examination of the site either in-person or online to ensure that the location is ADA compliant. The site was given three points if it is ready or limited work to address ADA parking already on site, two points for low to moderate work to address ADA concerns, and one point if significant work is needed to make the proposed site ADA compliant.

Maintenance Crew Accessibility

What: Is the site accessible for maintenance crews?

Why: Reliability of charging infrastructure is key to the continued adoption of EVs. The charging stations require routine maintenance to ensure they are operational. Maintenance crews should have access to the site with little to no obstructions to perform maintenance and repairs.

Data: Online review of the site, in-person examination of the site, discussions with site owner.

Analysis: A review of the location examines if maintenance crews have access to the charging station and supporting grid infrastructure. Three points were provided if the site is easily maintainable with no prior site visit coordination, two points if there are some obstructions for maintenance, and one point if there is no space for maintenance or there is restrictive entry to the charging station infrastructure.

Site Scalability

What: Can the proposed site accommodate, and is the owner willing to host, additional charging plugs at the location in the future?

Why: It is projected that EV adoption rates will grow in the future which will result in greater demand for charging stations. The ability for a site to have additional charging plugs added will be important to help meet the future demand. Likewise, installing additional ports at a site with existing charging infrastructure will be more cost effective than a completely new site.

Data: Online review of each proposed location and/or in-person examination of the location, discussions with site owner.

Analysis: Review of the location either in-person or online to examine if additional charging plugs can be added. Likewise, discussions with the site owner will inform if the owner is willing to add additional plugs in the future. Three points were given to a site if the owner has and can install a multi-year phasing plan of more charging plugs, two points if the owner will and can install a second phase of plugs, and one point if the owner only plans to install a maximum of six plugs at the site.

Anticipated Cost

What: What is the anticipated cost of installing the charging infrastructure at the proposed site?

Why: Each site is unique and provides different challenges for the installation of charging infrastructure. In order to maximize the number of sites which can be developed cost effectiveness is examined.

Data: N/A

Analysis: Primary engineering designs and concept layouts were developed to provide estimates for the anticipated costs associated with the instillation of the infrastructure. Three points were provided if the site has limited costs, two points if there are moderate costs, and one point if there are significant anticipated costs or many unknowns.

Site Owner Commitment

What: Is the site owned by the City of Milwaukee and is a private property owner willing and able to provide a 20 percent match for infrastructure installation?

Why: The complexities and costs associated with the instillation of charging station infrastructure requires commitment from the site owner. Installation of infrastructure at city-owned properties is less complex than partnering with third-party private owners.

Data: Milwaukee County parcel with property information data.

Analysis: Proposed sites are referenced with whom the owner is, either public or private. If the site is privately owned, the owner was contacted to see if they are willing and able to provide a 20 percent match for the installation. Three points were provided if the site is within the city ROW and/or a confirmed partner, two points were provided if the site is likely within the City ROW and/or a partner is identified but not confirmed, and one point was provided if the site is not within the City ROW and no partner was identified.

PRIORITY SITES

The 53 priority site locations that comprise the City's EV Charging Location Plan and the City's request for 2023 CFI Community Program funding include a combination of publicly owned and privately owned, but publicly accessible, locations across the city including public libraries, county parks, city-owned parking lots, and privately-owned parking lots. The selected sites would more than double the number of publicly available chargers for Milwaukee residents. In addition, the geographic spread and diversity of location type would create a more comprehensive charging network that fills in the gaps in infrastructure, especially in areas where Milwaukeeans work and live. The EV Charging Location Plan will be expanded in the forthcoming comprehensive EV Readiness Plan.

The Milwaukee priority site list, broken into two tiers (see Table 4), capitalizes upon site readiness, prioritizes sites that best fit the site selection criteria, the CFI program merit criteria, and seeks to fill in gaps in existing EVSE infrastructure across Milwaukee. During the planning process, the public library sites were identified as the top priority, due to a variety

of factors, including their level of site readiness and geographic location in communities. Installing EVSE at city-owned sites maximizes the City's ability to ensure project readiness, given that these library parking lots were proactively made EV ready, and begin the preliminary design process. Because the libraries are city-owned, the planning team was able to conduct site visits to collect data to generate the conceptual site designs, which are provided below in Figure 7 – Sample Charging Station Layout.

Table 6 – 2023 CFI Request Project Sites Summary Table

Project Tier	Number of Sites	EVSE Type	Site Ownership	Number of Ports per Site
Tier 1	10	Level 2	Public	4
Tier 2	43	Level 2 and DCFC	Public & Private	4 or 8

Figure 6 – Map of Project Location & Charging Sites shows the potential charging locations across the City of Milwaukee and surrounding communities. The full list of sites that comprise the potential site list are included at the end of this document as Appendix A – Project Site List. In total, the initial list of prioritized sites includes 228 ports at 53 sites.

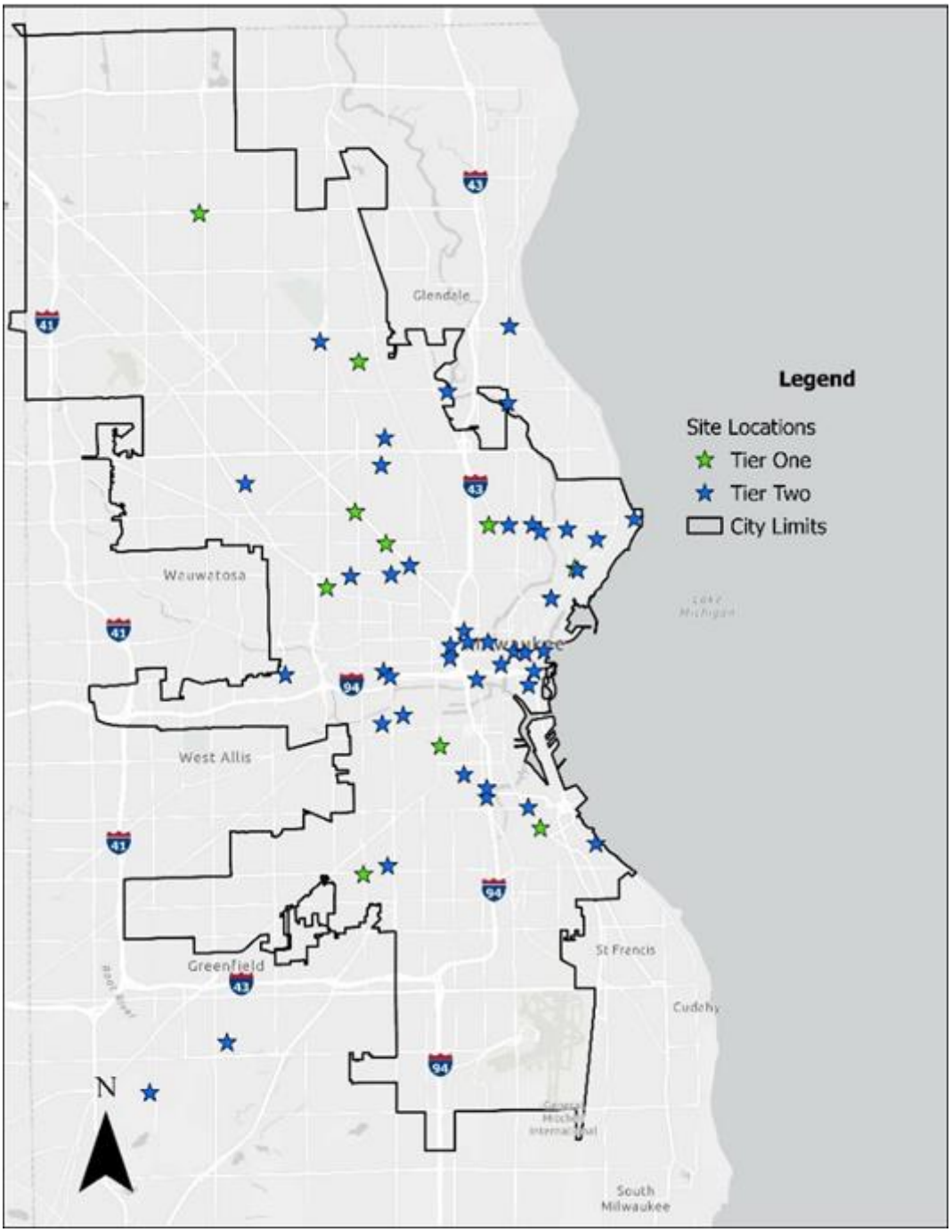
The City's approach includes three tiers of project sites:

1. **Tier 1:** Tier 1 sites, shown in green in Figure 6 and highlighted in green in Appendix A, scored the highest during the project ranking process based on the site selection criteria described above. All Tier 1 sites will include Level 2 Chargers with four ports.
2. **Tier 2:** The project scope also includes 43 additional Tier 2 sites, comprised of a combination of four and eight port Level 2 sites, as well as two Level 3 DCFC sites. These sites are shown in blue in Figure 6. The Tier 2 sites were fully analyzed during the planning process to assess their suitability based on the site selection criteria and were determined to be suited to meeting the equity and site requirements of the grant.
3. **Tier 3:** Tier 3 sites were identified during the planning process but are not included in the project scope or the funding request for this Project. They are included for discussion in this application as they relate to the City's long-term vision for expansion of its EV charging network. While these sites are not included in this funding request, the City will prioritize Tier 3 sites should future funding become available from other sources. Tier 3 sites are not included in any of the tables or site lists within this document but are included in some maps in order to visually demonstrate the City's vision and potential future EV charging network.

CONSTRUCTION FEASIBILITY ANALYSIS

After shortlisting potential locations based on the site selection criteria, the sites will be further evaluated for construction readiness. If a site has construction or maintenance-accessibility issues, the initial development and continual operational cost can be quite high. Additionally, the more EV-ready and developed a site is, the quicker it would be to have the community chargers operational. This section details the analysis framework used to assess sites for installation activities.

Figure 10 – Map of Priority Project Location & Charging Stations



ENERGY SOURCES

What: Does the site have existing power capacity to support a minimum of four ports of new Level 2 chargers? Does the site have EV-ready conduits already installed? Can a new utility service be added with minimal disruption or site impact? Is there sufficient space, existing distribution lines, similar service drops?

How: The existing electrical capacity will be determined by site visits and a review of utility bills; existing EV ready conduits will be identified by record drawings and site visits. If there is no existing electrical capacity, there should be coordination between the site's electrical team and We Energies to determine if there are identifiable nearby distribution lines with existing service drops or pole mounted transformers that can provide power for a new service or increase the existing service easily, within a year.

Why: Service upgrades can cause disruption to daily operations, incur high capital costs, and take months to years of design and construction. Ideally, utility upgrades should be avoided for Level 2 charger installations to minimize costs and facilitate deployment.

ADA REQUIREMENTS

What: Does the entire existing facility comply with ADA accessibility requirements? Is there room for additional ADA compliant EV charger space(s)? Does the proposed ADA space have a clear floor or ground space at the same level as the vehicle charging and a clear/unobstructed pathway into the building?

How: The existing number of parking spaces will be considered because a new ADA parking space for an EV charger will most likely replace two existing non-ADA parking spaces. The charger installation would need to ensure the new Level 2 charger has accessible operable parts (including the charger and connector), not obstruct any existing or new ADA pathways, and follow the guidelines listed in the latest version of the US Access Board's "Design Recommendations for Accessible Electric Vehicle Charging Stations".[25] The ADA vehicle charging space should be at least 11 feet wide and 20 feet long as well have an adjoining access aisle at least 5 feet wide.

Why: Public EV chargers must be accessible to everyone, including those with disabilities, especially as EV adoption increases. Preference will be given for proposed locations where the identified potential charging spaces can be connected to existing accessible pathways which may be extended to meet ADA accessibility charging requirements. Other locations which do not currently meet ADA requirements would require significant capital costs to bring them into compliance and should only be considered where the site host commits to making the required upgrades.

MAINTENANCE/CONSTRUCTION CREW ACCESSIBILITY

What: Is there sufficient space near the proposed charging spaces for a standard work truck to reach the charging equipment and supporting infrastructure without obstructing ADA parking spaces or regular operations? Does the facility have site access control systems? Do the access roads, alleyways, and driveways have any restrictions/obstructions preventing access by a standard work truck?

How: When identifying the proposed charging spaces and during the site walks, there should be a record of the nearby road & traffic conditions, widths, and clearances of any obstacles between the main access point to the charging area. During the design, converting existing greenspace or undeveloped area to vehicle accessible pathways should be considered if there is not enough space for a maintenance truck.

Why: Level 2 chargers tend to last 15 years and do not break down often, however, there are many reasons for the continual repair and maintenance of the chargers and associated equipment, including vandalism, vehicle impact, and equipment replacement. Thus, it is important for a maintenance crew to be able to easily enter the site, repair any necessary items, and leave everything in good working order within 1-2 trips instead of several attempts that lead to failure due to inaccessibility to the charger locations.

LAND USE AND PERMITTING

There are a number of items related to zoning and other entitlements that need to be considered when preparing to deploy EV charging infrastructure in the City of Milwaukee.

ZONING

Charging stations must conform with two primary areas of the zoning code including parking and land use permitting. EV charging stations are listed as "Electric Vehicle Charging Facility" in the table of uses under the Motor Vehicle Uses subheading. A conversation with city staff in the Permit & Development Center is recommended prior to initiating design for a specific location to ensure conformance with permitting requirements and to avoid the need to engage in site redesign to conform with code requirements. With that said, the zoning standards for public EV charging stations were drafted with the intent of making the zoning regulations as permissible as possible.

[25] Design Recommendations for Accessible Electric Vehicle Charging Stations (access-board.gov)

Parking

Subchapter 4, General Provisions, of the zoning code outlines the number of required parking spaces for each permitted land use classification. Although there are not specific requirements for parking spaces related to the installation of Electric Vehicle Charging Facilities, the deployment of charging stations may require the creation of additional parking spaces to meet minimum parking standards in specific circumstances. For example, if the addition of an ADA-compliant EV charging-enabled parking space will replace two standard parking spaces, a conversation the Zoning Administrator may need to take place to ensure that these spaces continue to count towards the minimum required number of parking spaces the specific land use classification. Generally speaking, the conversion of standard parking spaces to EV-restricted spaces will not require the addition of spaces to meet minimum parking standards.

Land Use Standards and Zoning Permits

A zoning review and associated permit will be required prior to the installation of an EV Charging Facility. EV Charing Facilities are permitted primarily as a secondary or accessory use permitted by right. In other words, if an EV Charging Facility is being added to an existing parking lot, the station can be added by right pending review of parking minimum standards. As a primary land use, EV charging stations are permitted primarily as a Special Use and are also permitted as a Limited Use or as an outright Permitted Use by right. Each permit type has specific associated requirements for review and approval and EV Charging Facilities are not listed specifically in Overlay Zones which should be discussed with the Zoning Administrator prior to the start of work. Table 7 below summarizes the permitting process for Electric Vehicle Charging Facilities in each zoning district.

BUILDING CODE

Conformance with the Building Code, through electrical and structural permitting and inspections, must be completed and obtained for the deployment of EV Charging Facilities. Required permits include, but may not be limited to, construction and electrical permits and inspections.

Table 7 - Zoning District Conformance

Electric Vehicle Charging Facility Permit Type by Zoning District Classification									
Zoning District Classification	**Residential Zoning Districts**								
Residential	RS1-RS5	RS6	RT1-RT2	RT3	RT4	RM1-RM2	RM3-RM7	R01	R02
Permit Type	S	S	S	S	S	S	S	S	S
Zoning District Classification	**Commercial Zoning Districts**								
Commercial	NS1	NS2	LB1	LB2	LB3	RB1	RB2	CS	
Permit Type	L	L	S	LB2	LB3	Y	L	L	
Zoning District Classification	**Downtown Zoning Districts**								
Downtown	C9A	C9B	C9C	C9D	C9E	C9F	C9G	C9h	
Permit Type	S	S	S	S	S	S	S	S	
Zoning District Classification	**Industrial Zoning Districts**								
Industrial	I01/I02	IL1/IL2	IC	IM	IH				
Permit Type	Y	Y	S	L	Y				
Zoning District Classification	**Special Districts**								
Special	PK	TL							
Permit Type	S	s							
Y = Permitted Use; L = Limited Use; S = Special Use; N = Prohibited Use									

DESIGN GUIDELINES & SPECIFICATIONS

ENERGY SOURCE

We Energies provides electricity and natural gas in the Milwaukee metro area. As part of their climate strategy, We Energies have dramatically reduced their reliance on coal-fueled generation since 2005. They have built cost-effective, state-of-the-art natural gas-fueled generation and zero-carbon generation. Since 2018, they have retired more than 1,800 MW of nameplate coal capacity. We Energies' dependence on coal has reduced to 36% in 2020 from 73% in 2005, with natural gas, nuclear, and renewables increasing to 36%, 22%, and 6% in 2020 from 7%, 17% and 3% in 2005. We Energies expects to further reduce coal dependency to 8% by 2030 with a goal of being net carbon neutral by 2050, as described in their 2021 Climate Report. ECO will encourage and support We Energies' development of residential, commercial, business, and other programs to rebate or otherwise reduce the cost of installing electric vehicle chargers.

SITE DESIGN

The City's design team created general design standards to provide guidance for the Level 2 site designs and to ensure that local and federal regulations are followed, which the City will provide to the selected P3 vendor.

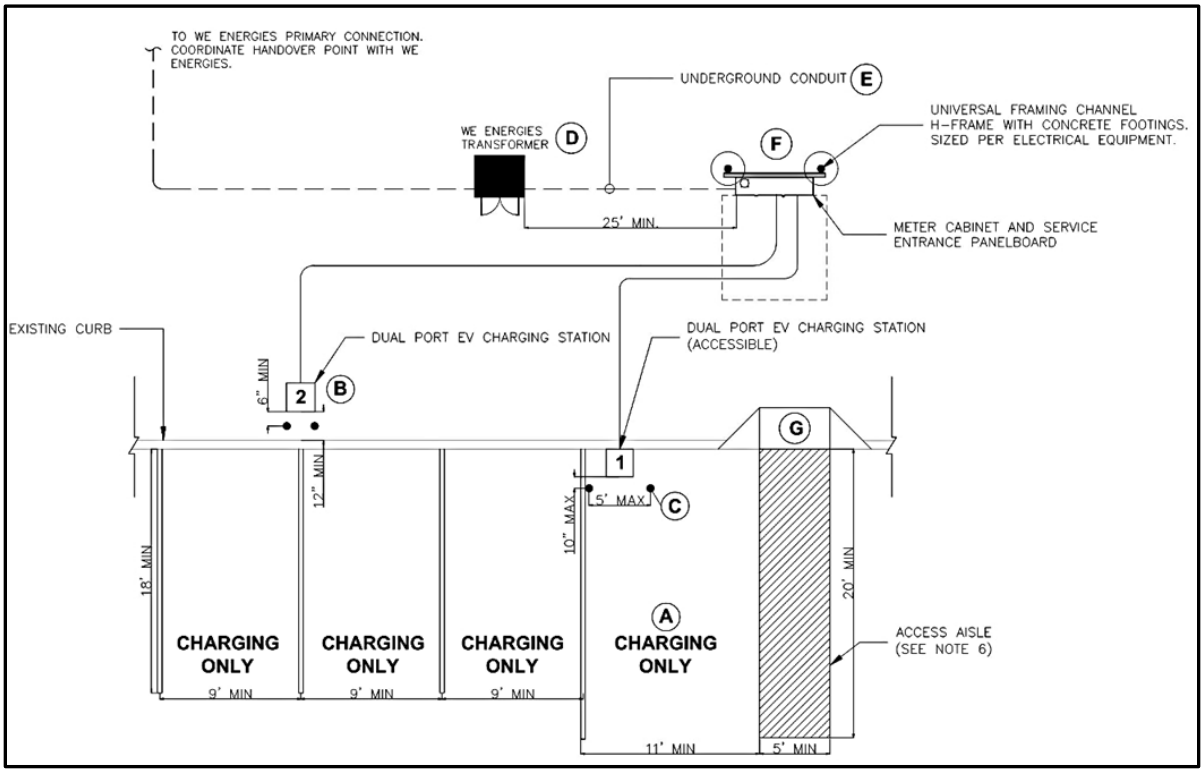
The general design standard is to provide four total charging spaces including one accessible charging space and three standard charging spaces. For a typical site, it is expected that a new electrical service will be requested to support the charging equipment and for billing purposes related to incentive programs offered by We Energies. Coordination with We Energies will be required to meet site specific requirements. Electrical service equipment to support the charging stations is expected to take the form of a utility meter socket and service entrance panelboard. Both of these items will be weatherproof and outdoor-rated and may be mounted to an existing wall or to a free-standing universal framing channel structure with concrete foundations. Service from We Energies is expected to be delivered through a pad mounted or pole mounted transformer and the specific requirements of site development will follow the utility's standards.

For four port, Level 2 sites, the electrical service will feed two dual-port Level 2 EV charging stations that will charge two EVs at parking spaces located on either side of the charger. Each standard charging space should be nine feet wide and 18 feet long at the minimum. The accessible charging space needs to be at least 11 feet wide and 20 feet long at minimum and include an adjacent five foot wide access aisle at the minimum. The access aisle adjacent to the accessible space must be connected to an accessible route to the associated facility, thus a ramp may be installed on the curb from the access aisle of the ADA charging spot to allow for mobility from ground level to a sidewalk as shown in Figure 7 – Sample Charging Location Layout.

The charger serving standard charging spaces can be installed at least 12 inches behind the curb as long as the protecting bollards are at least six inches away from the front of the charger. The accessible charger needs to be installed at the same grade level as the ADA charging spaces to allow mobility impaired access to the charger and the front should face the access aisle to allow easy access to the operable portions of the charger. The bollards for the ADA charger should be at most ten (10) inches away from the charger and have a maximum separation of five feet between each of a minimum of two bollards.

This configuration, as described, is for a generalized site and will require specific design interpretation for each location that chargers are expected to be installed. Topics such as using existing facility electrical capacity to power the charging stations and alternative parking configurations may be assessed on a site-by-site basis and shall consider impacts to accessibility, utility rate programs, and future expansion. A sample charging location layout is included in Figure 7 below. A larger version is also included in Attachment B: Design Documents.

Figure 11 - Sample Charging Location Layout



CONCEPTUAL LAYOUTS

The City will follow FHWA's recommendation that sites be designed and constructed according to the technical assistance provided in the U.S. Access Board's Design Recommendations for Accessible Electric Vehicle Charging Stations to demonstrate compliance and optimize usability for persons with disabilities. To comply with federal ADA, ABA, and Section 508 requirements, the City will include these design recommendations in its contract with the selected private vendor. Attachment B, Generic Site Design Specifications, demonstrates potential designs that the City can provide to its selected P3 vendor to support their site design process.

In the conceptual design layouts prepared during the planning process, EV charging spaces were chosen to be closer to existing ADA spaces to allow for them to be tied into the existing accessible pathways and reduce the distance between the new ADA EV charging location to the building. In following, the recommendations by the US Access Board, the new ADA EV charging space and access route would replace roughly two existing parking spaces as shown in the conceptual layouts. The remaining Level 2 charging, non-ADA spaces should fill the existing parking spaces 1:1. Figures 8 – 12 below show example concept layouts for five (5) Library locations that incorporate these accessibility design elements.

Figure 12: Central Street Milwaukee Public Library

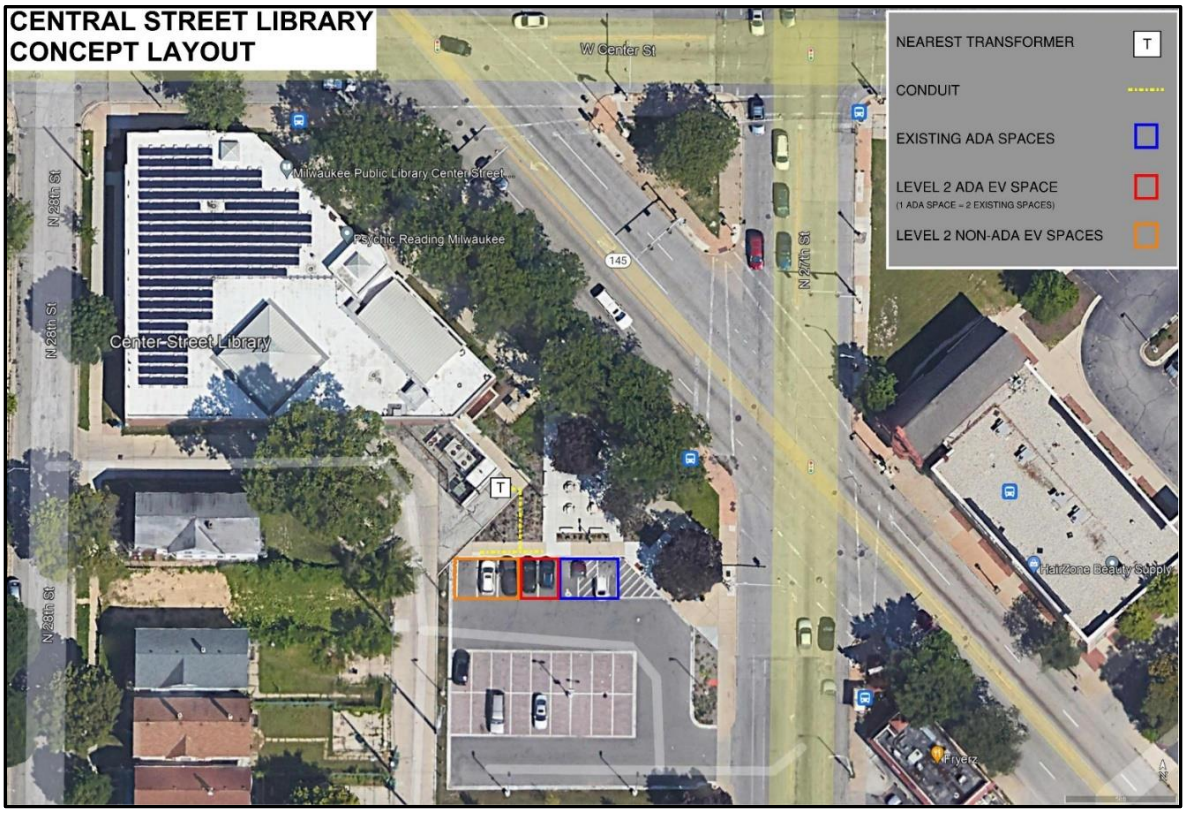


Figure 13: Bay View Milwaukee Public Library

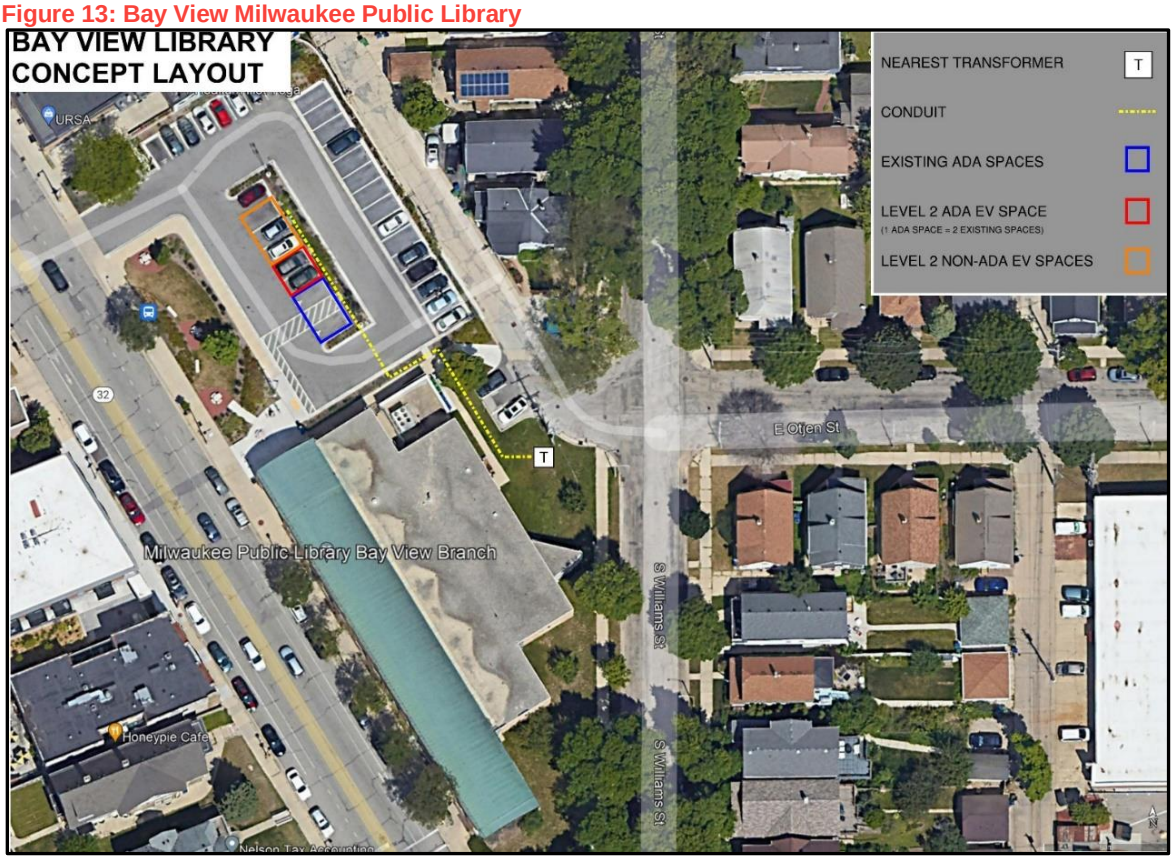


Figure 14: Zablocki Milwaukee Public Library

Figure 15: Washington Milwaukee Public Library

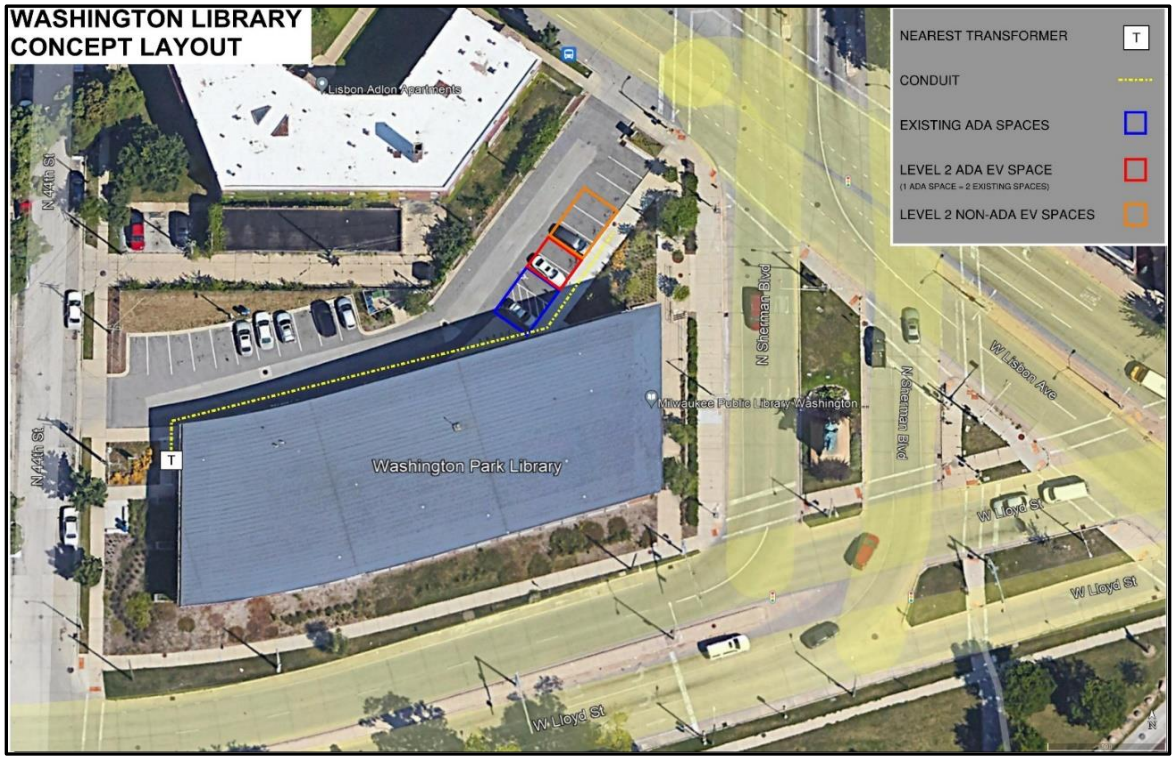
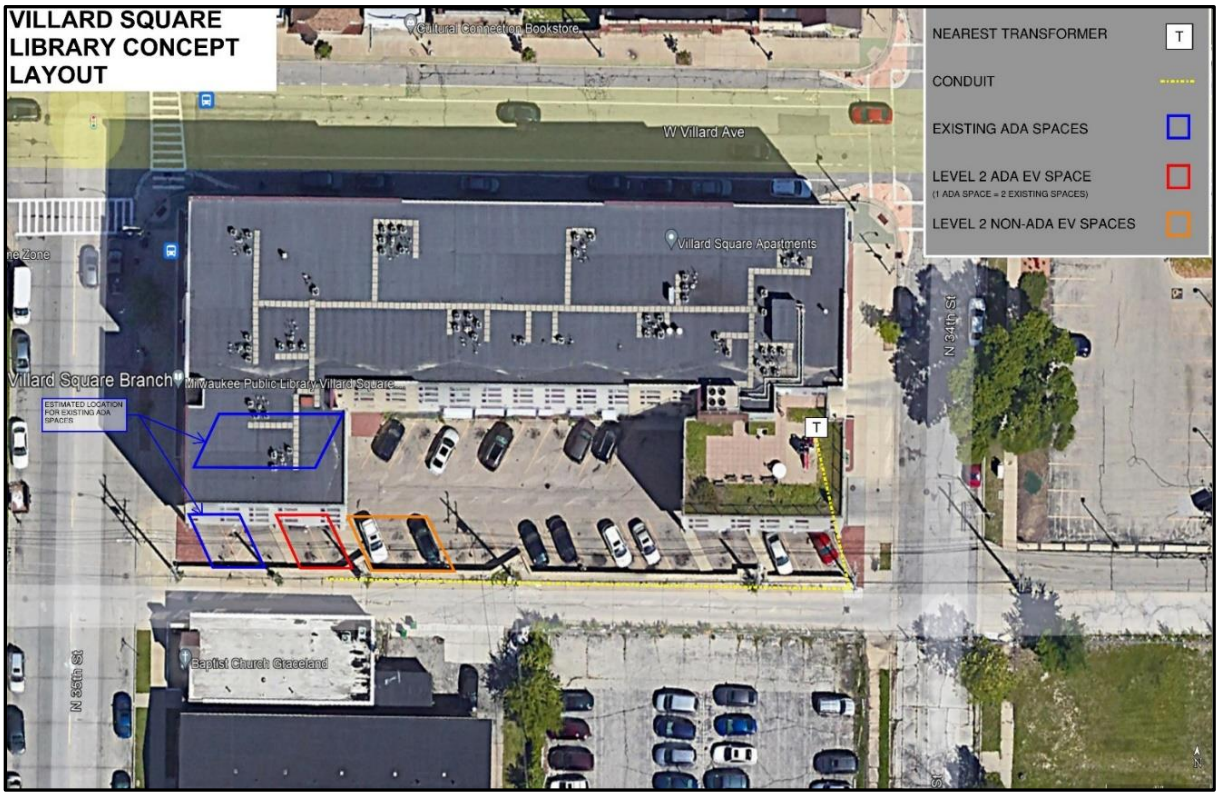


Figure 16: Villard Square Milwaukee Public Library



COST ESTIMATES

Costs associated with design, purchase, installation, and operation of an EV charging station are largely dependent on the location of the site, specifically site conditions, utility improvements, type of charger, vendor warranty and maintenance terms, and operational characteristics including consideration of charge management solutions, payment and reservation systems, utility and usage rates, ongoing maintenance of the chargers, and the cost of decommissioning and replacement when the charger reaches the end of the useful life or is significantly damaged or non-operational.

Vendor costs including additional margins on provided services and market risks including cost escalation of parts and materials and labor should also be considered within the timing of deployment and anticipated operational life of the charger. Depending on the business model, vendors will typically offer incentives and discounts for higher volume purchases of charging equipment and packaging of charging equipment with ongoing charge management, and account management and revenue collection systems.

Incentives can help reduce both initial capital expenditures as well as ongoing operations. Incentive programs include direct federal funding through discretionary grant programs, federal and state incentive programs to offset expenditures, and agreements with utility providers to reduce the cost of initial utility upgrades and ongoing rates applied to chargers.

The cost of charger installation and ongoing operations and maintenance can vary significantly based on the type of charger, site specific conditions and utility improvements, and use of the charger which can impact both maintenance and fees (such as credit card processing), and utility costs to supply power to the site. As shown in the Tables below, a full cost of charger installation and one year of operations can range from $216,211 for a Level 2 charger with 4 plugs to over $2,155,725 for a DCFC charger.

Table 8 - Charger Cost Assumptions for Level 2 (4 plugs)

	Item	Cost	Quantity	
Construction	Charger Construction and Equipment			
	Level 2 Charger	$ 5,000.00	4	$ 20,000.00
	Level 2 Installation Costs	$ 7,500.00	4	$ 30,000.00
	Bollards	$ 1,850.00	8	$ 14,800.00
	Signage	$ 209.00	4	$ 836.00
	Parking space paint	$ 19.00	4	$ 76.00
	Utility Construction	$ 50,000.00	1	$ 50,000.00
	Design	10% construction		$ 11,571.20
Program Management	Program Management	25% construction		$ 28,928.00
O&M	O&M	$ 5,000.00	4	$ 20,000.00
	Network Fee	$ 10,000.00	4	$ 40,000.00
	Total per Site			$ 216,211.20

Table 9 - Charger Cost Assumptions for Level 2 (8 plugs)

	Item			
	Charger Construction and Equipment			
	Level 2 Charger	$ 5,000.00	8	$ 40,000.00
	Level 2 Installation Costs	$ 7,500.00	8	$ 60,000.00
	Bollards	$ 1,850.00	16	$ 29,600.00
	Signage	$ 209.00	8	$ 1,672.00
	Parking space paint	$ 19.00	8	$ 152.00
	Utility Construction	$75,000	1	$ 75,000.00
	Design	10% construction		$ 20,642.40
Program Management	Program Management	25% construction		$ 51,606.00
O&M	O&M	$ 5,000.00	8	$ 40,000.00
	Network Fee	$ 10,000.00	8	$ 80,000.00
	Total per Site			$ 398,672.40

Table 10 - Charger Cost Assumptions for Level 3 (4 plugs)

	Item	Cost	Quantity	
Construction	Charger Construction and Equipment			
	Level 3 Charger	$ 140,000.00	4	$ 560,000.00
	Level 2 Installation Costs	$ 210,000.00	4	$ 840,000.00
	Bollards	$ 1,850.00	8	$ 14,800.00
	Signage	$ 209.00	20	$ 4,180.00
	Parking space paint	$ 19.00	4	$ 76.00
	Utility Construction	$ -	1	$ -
	Design	10% construction		$ 141,905.60
Program Management	Program Management	25% construction		$ 354,764.00
O&M	O&M	$ 50,000.00	4	$ 200,000.00
	Network Fee	$ 10,000.00	4	$ 40,000.00
	Total per Site			$ 2,155,725.60

PUBLIC-PRIVATE PARTNERSHIP

BUSINESS MODEL

The City has released an informal RFI to contract with a private entity that will be responsible for the full lifecycle of work associated with the EVSE. As described in the funding section below, the City is pursuing federal grant funding for the

planning and deployment of EV charging infrastructure through application to the Federal Charging and Fueling Infrastructure Discretionary Grant Program Grant Program (CFI). This business model and public-private partnership will be leveraged to procure the required 20% funding match for the CFI Grant funding. If awarded federal funding, the City would issue a formal Request for Proposals (RFP) to select a partner for a public-private partnership. This RFP would structure a Public Private Partnership to include public benefits (outlined in section 2.1.7 below) and policy goals with the private-sector's ability to raise capital and accept risk, and efficiently deliver a revenue-generating service. Upon selection of a private EV charging partner, this private partnership will utilize a Design, Build, Finance, Operate, and Maintain (DBFOM) model, and the selected vendor will be responsible for each of the following activities as a part of the contract with the City:

- **Design:** During the planning process, the City developed Generic Site Design Specifications and Conceptual Site Designs to begin the planning process. The City will provide these documents to the selected P3 vendor, who may build upon them. The P3 vendor will be responsible for the planning and final design specifications for EVSE at each of the sites.
- **Build:** The vendor will be responsible for site preparation, electrical work, and installation of EVSE. The City's contract with the vendor will require that the EVSE's and installation process (including labor) meet NEVI standards and other federal requirements.
- **Finance:** The selected P3 vendor will be responsible for providing the 20% match for the activities in this task to meet the CFI Program requirements. This requirement will be included in the City's contract with the selected P3 vendor, and up to 80% of the vendors costs will be reimbursable through the vendor's contract agreement with the City, via the City's grant agreement with FHWA.
- **Operate:** The selected vendor will own, operate, and collect revenue from the EVSE. Usage data will be reported to the City. The City may negotiate required "up time" during which the station is operable and possible penalties for not meeting requirements.
- **Maintain:** CFI grant funding will be used to maintain the EVSE over the course of the five-year award. The City's contract with the vendor will ensure that maintenance is performed by qualified electricians and that chargers maintain the required uptimes to meet NEVI standards.

In addition, at the time of the completion of this report, the City has released an RFP requesting responses from interested private landowners interested in hosting an EV charging facility. Proposed sites will be analyzed using the Site Selection Criteria Matrix to ensure compliance with CFI Grant Program requirements and selected based on these criteria.

FUNDING

Costs to plan, construct, deploy, and operate EV charging infrastructure remain a barrier for widespread deployment. With goals to expand EV charging infrastructure construction and installation throughout the region, steady and innovative streams of funding are necessary to move towards a goal of zero-emission mobility. This section identifies two key federal funding sources that can be used to build a charging network in Wisconsin.

FEDERAL FUNDING - NEVI

The NEVI Formula Program[26] provides states funding to strategically deploy EV charging stations and establish an interconnected network of infrastructure to facilitate data collection, access, connectivity, and reliability. Established by the U.S. Department of Transportation's (DOT) Federal Highway Administration (FHWA) as part of the Infrastructure Investment and Jobs ACT (IIJA)[27], NEVI offers funding for up to 80% of eligible project costs including acquisition,

[26] NEVI - Environment - FHWA (dot.gov)
[27] Text - H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act | Congress.gov | Library of Congress

installation, and network connection of EV charging stations. NEVI funding will provide EV users with the confidence that they can travel long distances and expect reliable access to EV charging stations when needed.

Each state must submit a State EV Infrastructure Deployment Plan (Plan)[28] outlining how they will use their apportioned NEVI formula funds. At least ten percent of NEVI funding must be set aside each year to provide discretionary grants to help address gaps in the national network. Initial NEVI funding must be dedicated to each state's designated FHWA Alternative Fuel Corridors (AFCs)[29] to build out the network. Once the national network is fully built, funding may be used for any public road or publicly accessible locations. Between FY 2022 and 2026, Wisconsin is expected to receive approximately $78.7 million[30] dollars for the NEVI Formula Program.

Each State's DOT is responsible for issuing a Notice of Funding for its respective NEVI program. Wisconsin's DOT has yet to announce its first allotment of funding. More information of about NEVI can be found on the USDOTS FHWA NEVI Program webpage[31].

FEDERAL FUNDING - CFI

The CFI Program[32] is a new competitive grant program that provides funding to deploy publicly accessible electric vehicle (EV) charging and alternative fueling infrastructure along designated Alternative Fuel Corridors (AFCs) or in other public accessibly locations. Also established by the IIJA and operated by the USDOT's FHWA, the CFI program helps local and tribal governments complement state NEVI efforts by extending where charging infrastructure can be deployed to fill gaps in the network, including in urban and rural communities in publicly accessible locations, downtown areas and local neighborhoods, particularly in underserved and disadvantaged communities. Approximately $700M total is available for CFI Program in FY 22 and 23 nationwide.

CFI features two grant funding categories:
(1) Community Charging and Fueling Grants (Community Program) - Community Program grants funds projects that expand and fill gaps in access to charging or alternative fuel infrastructure. Projects must be located on public roads or publicly accessible locations including parking facilities in public buildings, public schools, parks, and other public locations. Funding may be used to plan, construct, operate, and maintain infrastructure and must include educational and community engagement activities to support the use of zero-emission vehicles and associated infrastructure (not to exceed five percent of grant award).

(2) Alternative Fuel Corridor Grants (Corridor Program) - Corridor Program grants fund projects that support the buildout of charging or alternative fueling infrastructure along designated AFCs. Charging projects must be located as close as possible to AFCs and no greater than a mile from Interstate exits or highway intersections along designated corridors. Alternative fuel projects must also be located as close as possible to AFCs and no greater than five miles from interstate exits or highway interactions along designated corridors. Furthermore, Native American tribes must be consulted if they are affected by infrastructure installation. Corridor Program funds must be used to contract with a private entity and funding may be used for acquisition, installation, or operations of eligible infrastructure projects. Both the Community

[28] EV Deployment Plans - NEVI - Environment - FHWA (dot.gov)
[29] Alternative Fuels Data Center: National Alternative Fuels Corridors (energy.gov)
[30] Bipartisan Infrastructure Law - 5-year National Electric Vehicle Infrastructure Funding by State | Federal Highway Administration (dot.gov)
[31] EV Deployment Plans - NEVI - Environment - FHWA (dot.gov)
[32] CFI - Environment - FHWA (dot.gov)

Program and Corridor Program are receiving approximately $350M for FY 22/23. The FHWA is administering the CFI Program and more information is available on the CFI Grant Program Funding website.[33]

UTILITY PROGRAMS & INCENTIVES

In addition to federal funding sources, We Energies has launched a Business EV Charging Pilot Program.[34] The City has engaged We Energies (the primary local electrical utility provider) and determined that private businesses that are willing and able to host a charging station may take advantage of this pilot program. The program provides financial assistance to offeset the upfront costs associated with installing EV charging stations for fleet, employee, or customer and public use at a privately-owned business. The program offers credits to help pay for customer costs of utility upgrades as well as possible rebates for customer facility electrical work necessary to support the EV charging facility.

The pilot program includes two parts:

1. **Offset upfront costs:** The program offers credits to help pay for customer costs.

2. **Charging equipment (optional):** Customers may purchase, install and maintain their own chargers to participate in the program. Alternatively, customers may choose to have We Energies provide, install, and maintain the charging facility by paying for equipment and installation costs up front or through a monthly fee on the customer's energy bill.

Eligibility requirements include:

- The customer must apply for the pilot program and start working with the We Energies EV team prior to equipment installation.
- The customer must commit to installing a minimum number of four ports or 50kW of new Level 2 or DC fast chargers. An additional electric meter to measure charging electrical use is required.
- The customer must be on one of the following rates:
    - Cg1, Cg2, Cg3, Cg3S, Cg3C, Cg6, Cp1, Cp FN, Cp3, Cp3S, CP4
- The business must be located in Wisconsin and receive service from We Energies.
- The customer must be in good standing (i.e. cannot have any delinquent electrical bills or disconnections in the past twelve months.

[33] View Opportunity | GRANTS.GOV
[34] Business EV Charger Pilot Program | We Energies (we-energies.com)

4 IMPLEMENTATION & NEXT STEPS

4.1 IMPLEMENTATION

A number of action items included in this plan are currently in progress. The City's CFI Grant Program application was submitted to the US DOT in June of 2023. As discussed in the Public-Private Partnership section of this report, the City released an RFI to contract with a private entity that will be responsible for the full lifecycle of work associated with the EVSE. An RFP will be released dependent upon a CFI Grant Program award.

During the planning process for this plan, the City released an RFI to invite responses from private commercial property owners interested in hosting an EV charging station. The City will apply the Site Selection Criteria to the proposed locations to ensure they meet the minimum requirements and then work with the selected private partner to deploy as many stations as possible. The number of charging stations deployed will be dependent on the success and amount of the CFI grant application and the final cost to install chargers at selected locations.

Dependent on a successful CFI grant application, the size of the award, and willing site hosts, the City will work with the selected private EV charging partner to install as many charging locations as possible. Installation will begin a high priority site identified in this plan and additional locations will be informed by the planning process described below.

COMPREHENSIVE EV READINESS PLAN

The final implementation step from the items included in this plan will be to begin the planning process for the completion of the *Comprehensive EV Readiness Plan* for the City of Milwaukee. The initiation of the planning process for the final plan may be dependent upon the success of the planning component of the CFI Program application. If the City receives a CFI award and includes a planning component, the planning process will start in close proximity to the execution of a cooperative grant agreement. The *Comprehensive EV Readiness Plan* will benefit from the additional information collected from the EV charging station public-private partnership with an EV charging company, the additional interest and potential site location collected from private commercial property owners interested in hosting charging facilities, and if awarded, the planning component of the CFI grant.

The planning process for the *Comprehensive EV Readiness Plan* will include a significant public outreach component to gather input from the general public, individuals who currently own an electric vehicle, individuals who are interested in owning an electric vehicle, and other key stakeholders, including underserved communities and populations that do not currently have high rates of EV ownership, to identify challenges and opportunities in the deployment of EV charging and EV readiness.

To facilitate expeditious yet meaningful public engagement, the P3 will build on the platform of community organizations and partners from the City-County Task Force on Climate and Economic Equity as well as community organizations and advocates convened by DPW for the Complete Streets Handbook. The City will collaborate with these leaders to liaise with community members, particularly those who are underserved and traditionally underrepresented in City processes. Engagement strategies may include facilitated virtual input sessions and online survey-based activities. Ultimately, EV chargers will be sited based on a combination of the criteria established in section 2.1.1, public input, and the willingness of property owners to host EV charging stations on their property.

The *Comprehensive EV Readiness Plan* will also include EV charging demand projections. This analysis will estimate future EV charging demand based on recent trends, the number of existing EV charging stations, the number of estimated chargers to meet future demand, and the gap between existing EV charging stations and the number necessary to meet future demand. This will allow the City to track the number of EV charging stations necessary to meet current and future demand.

PUBLIC ENGAGEMENT

The *Climate and Equity Plan* provides the vision and foundation for climate action in Milwaukee. The Plan will help accelerate existing climate action in Milwaukee and inform development of new initiatives, all with racial and economic equity in mind. To continue the work of promoting the *Climate and Equity Plan,* and to amplify the voices of Milwaukee residents and others who support its adoption, the Education and Outreach Work Group has launched the Our Future Milwaukee Coalition. This coalition of community organizations and individuals will carry on the work of keeping the public informed about the progress of the *Climate and Equity Plan* while also advocating for its full and equitable implementation. To achieve effective collaboration at a larger scale, the City will connect with other Milwaukee County municipalities to encourage their engagement in climate action planning and to coordinate planning and implementation. These activities will form the basis of the community outreach activities that will take place during the Project, in collaboration between the City, the P3 partner, and the project partners and supporters.

The Task Force and Work Group members recognize that while climate change affects all, it does not do so equally. Underserved communities bear the brunt of most impacts of climate change, like urban heat islands and flooding. The Task Force worked to include communities of color on working groups and public conversations about the plan. ECO also hired a FUSE Executive Fellow to support robust community engagement on the plan. The City of Milwaukee is committed to examining and improving its community engagement and neighborhood planning practices, with an explicit focus on reducing barriers that may hinder participation from under-represented groups, to advance racial and social equity.

In addition to the project planning for the CFI Program, the City will be developing a comprehensive EV Readiness Plan for Milwaukee. The comprehensive EV Readiness Plan will benefit from the additional information collected from the EV charging station public-private partnership with the P3 vendor, the additional interest and potential site location collected from private commercial property owners interested in hosting charging facilities, and if awarded, the planning component of the CFI grant.

The planning process for the *Comprehensive* EV Readiness Plan will include a significant public outreach component to gather input from the general public, individuals who currently own an electric vehicle, individuals who are interested in owning an electric vehicle, and other key stakeholders to identify challenges and opportunities in the deployment of EV charging and EV readiness. To facilitate expeditious public engagement, City staff will build on the platform of community organizations and partners from the City-County Task Force on Climate and Economic Equity as well as community organizations and advocates convened by DPW for the Complete Streets Handbook. The City will collaborate with these leaders to liaise with community members, particularly those who are underserved and traditionally underrepresented in City processes. Engagement strategies may include facilitated virtual input sessions and online survey-based activities.

The comprehensive EV Readiness Plan will also include EV charging demand projections. This analysis will estimate future EV charging demand based on recent trends, the number of existing EV charging stations, the number of estimated chargers to meet future demand, and the gap between existing EV charging stations and the number necessary to meet

future demand. This will allow the City to track the number of EV charging stations necessary to meet current and future demand.

CFI PROJECT IMPLEMENTATION

The City of Milwaukee is poised and ready to begin work upon notice of selection for funding from FHWA. The site analysis and outreach, including the RFI, conducted during the CFI Program planning have prepared the City to be able to release an RFP shortly after an award made, so that the planning and design stages can begin. The City seeks to deploy EV charging infrastructure as soon as possible in order to maximize the project climate, equity, and workforce benefits for Milwaukee.

Table 11 – CFI Project Implementation Timeline

Phase	Activity	Date	Responsible Party
Pre-Grant Application	Private Partner Site Host Initial Outreach	March - June 2023	City of Milwaukee
	RFI for P3 Partner		
	Milwaukee Preliminary Electric Vehicle Infrastructure Charging Plan		
	Project Planning and Grant Application		
CFI Grant Application – Due June 2023			
CFI Grant Awards Announced – End of 2023 (Estimated)			
Post-Grant Award	RFP for P3 Partner	2024	City of Milwaukee
	P3 Partner Selected	2024	City of Milwaukee
	Planning & Design	2024	P3 Partner
	Construction	2025	P3 Partner
	Operations and Maintenance	2025-2029	P3 Partner

APPENDICES

APPENDIX A – PROJECT SITE LIST

Site Category	Site Name	Address		Level 2 Stations (4 ports)	Level 2 Stations (8 ports)	Level 3 DCFC Stations
Library	Washington Park Library	2121 N. Sherman Blvd, Milwaukee, WI 53208		X		
Interstate Lot	Italian Community Center	631 E. Chicago St, Milwaukee, WI 53202		X		
Library	Zablocki Library	3501 W. Oklahoma Ave, Milwaukee, WI 53215		X		
Library	Villard Library	5190 N. 35th St, Milwaukee, WI 53209		X		
Library	MLK Library	310 .W Locust St, Milwaukee, WI 53212		X		
Library	Bayview Library	2566 S Kinnickinnic Ave, Milwaukee, WI 53207		X		
Library	East Library	2320 N. Cramer St, Milwaukee, WI 53211		X		
Library	Good Hope Library	7715 Good Hope Rd, Milwaukee, WI 53223		X		
County Park	Mitchell Park Domes	524 S. Layton Blvd, Milwaukee, WI 53215			X	
Parking Lot	City Parking	3500 W. Burleigh St., Milwaukee WI		X		
Parking Lot	City Parking	2230 W. Fond Du Lac Ave, Milwaukee, WI 53206		X		
Parking Lot	City Parking	2254 S. Allis St, Milwaukee, WI 53207		X		
Parking Lot	City Parking	2924 W. Pierce St, Milwaukee, WI 53215		X		
Parking Lot	City Parking	507 W. Rogers St, Milwaukee, WI 53204		X		
Parking Lot	City Parking	2239 N. 26th St, Milwaukee, WI 53205		X		
Parking Lot	City Parking	2233 N. 37th St, Milwaukee, WI 53208		X		
Parking Lot	City Parking	3814 N. 29th St, Milwaukee, WI 53216		X		
Parking Lot	City Parking	5404 W. Bluemound Rd, Milwaukee, WI 53208		X		
Parking Lot	City Parking	2231 N. Doctor M.L.K. Jr Dr, Milwaukee, WI 53212		X		
Parking Lot	City Parking	900E E. Locust St, Milwaukee, WI 53212		X		
Parking Lot	City Parking	2530 E. Park Pl, Milwaukee, WI 53211		X		
Parking Lot	City Parking	1720 N. Arlington Pl, Milwaukee, WI 53202		X		
Parking Lot	City Parking	2128 S. 5th Pl, Milwaukee, WI 53207		X		

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Parking Lot	City Parking	527 N. 28th St, Milwaukee, WI 53208		X		
Parking Lot	City Parking	1002 W. Maple St, Milwaukee, WI 53204		X		
Parking Lot	Parking Lot	401 E. Beaumont Ave, Whitefish Bay, Wisconsin 453217		X		
Parking Lot	City Parking Lot	1223 S. 15th Pl, Milwaukee, WI 53204		X		
Public Park	Lincoln Park	1301 W. Hampton Ave, Glendale, WI 53209		X		
Public Park	South Shore Park	2900 S. Shore Dr, Milwaukee, WI 53207			X	
Public Park	Boerner Botanical Gardens	9400 Boerner Dr, Hales Corners, WI 53130		X		
Public Park	Estabrook Park	4600 Estabrook Pkwy, Milwaukee, WI 53211			X	
Public Park	McGovern Park	4500 W. Custer Ave, Milwaukee, WI 53218		X		
Public Park	Dineen Park - by the Disc Golf Course	6600 W. Keefe Ave, Milwaukee, WI 53216		X		
Public Park	Gordon Park	2828 N. Humboldt Blvd, Milwaukee, WI 53212		X		
Public Park	Riverside Park	1500 E. Riverside Pl, Milwaukee, WI 53211		X		
Public Park	Lake Park	2975 N. Lake Park Rd, Milwaukee, WI 53211		X		
Interstate Lot	MATC Lot 1143	800-820 W. State St Milwaukee, WI		X		
Interstate Lot	The Avenue	615 N. Plankinton Milwaukee, WI				X
Interstate Lot	MAC (Milwaukee Athletic Club) Structure	777 N. Milwaukee St. Milwaukee, WI		X		
Interstate Lot	7Seventy7	777 N. Van Buren St. Milwaukee, WI		X		
Library	Center Street Library	2727 W. Fond Du Lac Ave, Milwaukee, WI 53210		X		
Interstate Lot	Milwaukee Intermodal Station	433 W. St Paul Ave, Milwaukee, WI 53203		X		
Interstate Lot	The Couture	909 E. Michigan St, Milwaukee, WI 53202				X
Interstate Lot	Wisconsin Convention Center & Hyatt Hotel	332 W. State St. Milwaukee, WI 53203		X		
Interstate Lot	Safe Lot	431 N. Milwaukee St., Milwaukee, WI 53202		X		
Interstate Lot	U.S. Bank Parking Lot	North Avenue & Farwell Street, Milwaukee, WI 53203		X		
Event Center	War Memorial Center	750 N. Lincoln Memorial Dr., Milwaukee, WI 53202		X		
University	Marquette	1250 W. Wisconsin Ave Milwaukee, WI 53233		X		

Century City Tower	Century City Tower	4201 N. 27th St Milwaukee, WI 53216		X		
The Brewery Structure	The Brewery Structure	1213 N. 9th St, Milwaukee, WI		X		
Hospital	Aurora Health Care - Sinai Medical Center	945 N. 12th St, Milwaukee, WI 53233		X		
Hospital	St. Luke's	2900 W. Oklahoma Ave, Milwaukee, WI 53215			X	
Mall	South Ridge Mall	5300 S. 76th St, Greendale, WI 53129		X		
			Total Sites	**47**	**4**	**2**
			Total Ports	**188**	**32**	**8**
				Grand Total – EVSE Charging Ports – Milwaukee CFI Project: 228		

APPENDIX B - EQUITY ANALYSIS

Site Name	Site Type	Address	Area of Persistent Poverty	Justice40 Community	Transportation Disadvantaged Community
City Parking	Library	1223 S. 15th Pl, Milwaukee, WI 53204	Yes	Yes	No
Washington Park Library	Library	2121 N. Sherman Blvd Milwaukee, WI 53208	Yes	Yes	No
East Library	Library	2320 N. Cramer St, Milwaukee, WI 53211	Yes	No	No
Bayview Library	Library	2566 S. Kinnickinnic Ave Milwaukee, WI 53207	Yes	Yes	No
Center Street Library	Library	2727 W. Fond Du Lac Ave Milwaukee, WI 53210	Yes	Yes	Yes
MLK Library	Parking Lot	310 W. Locust St, Milwaukee, WI 53212	Yes	Yes	No
City Parking	Library	3500 W. Burleigh St, Milwaukee, WI 53216	Yes	Yes	No
Zablocki Library	Library	3501 W. Oklahoma Ave Milwaukee, WI 53215	No	Yes	No
Villard Library	Library	5190 N. 35th St, Milwaukee, WI 53209	Yes	Yes	Yes
Good Hope Library	Parking Lot	7715 Good Hope Rd, Milwaukee, WI 53223	No	No	No
City Parking	The Brewery Structure	1002 W. Maple St, Milwaukee, WI 53204	Yes	Yes	No
The Brewery Structure	University	1213 N. 9th St, Milwaukee, WI	Yes	Yes	No
Marquette	Public Park	1250 W. Wisconsin Ave Milwaukee, WI 53233	Yes	Yes	No
Lincoln Park	Public Park	1301 W. Hampton Ave, Glendale, WI 53209	Yes	Yes	Yes
Riverside Park	Parking Lot	1500 E. Riverside Pl, Milwaukee, WI 53211	Yes	No	No
City Parking	Parking Lot	1720 N. Arlington Pl, Milwaukee, WI 53202	No	No	No

City Parking	Parking Lot	2128 S. 5th Pl, Milwaukee, WI 53207	Yes	Yes	No
City Parking	Parking Lot	2230 W. Fond Du Lac Ave, Milwaukee, WI 53206	Yes	Yes	Yes
City Parking	Parking Lot	2231 N. Doctor M.L.K. Jr Dr, Milwaukee, WI 53212	Yes	Yes	No
City Parking	Parking Lot	2233 N. 37th St, Milwaukee, WI 53208	Yes	Yes	Yes
City Parking	Parking Lot	2239 N. 26th St, Milwaukee, WI 53205	Yes	Yes	No
City Parking	Parking Lot	2254S S. Allis St, Milwaukee, WI 53207	Yes	Yes	No
City Parking	Public Park	2530 E. Park Pl, Milwaukee, WI 53211	Yes	No	No
Gordon Park	Public Park	2828 N. Humboldt Blvd, Milwaukee, WI 53212	No	No	No
South Shore Park	Hospital	2900 S. Shore Dr, Milwaukee, WI 53207	No	No	No
St. Luke's	Parking Lot	2900 W. Oklahoma Ave Milwaukee, WI 53215	Yes	Yes	No
City Parking	Public Park	2924 W. Pierce St, Milwaukee, WI 53215	Yes	Yes	Yes
Lake Park	Interstate Lot	2975 N. Lake Park Rd, Milwaukee, WI 53211	No	No	No
Wisconsin Convention Center & Hyatt Hotel	Parking Lot	332 W. State St, Milwaukee, WI 53203	Yes	No	No
City Parking	Parking Lot	3814 N. 29th St, Milwaukee, WI 53216	Yes	Yes	Yes
Parking Lot	Century City Tower	401 East Beaumont Ave, Whitefish Bay, WI 453217	No	No	No
Century City Tower	Interstate Lot	4201 N. 27th St, Milwaukee, WI 53216	Yes	Yes	Yes
Safe Lot		431 N. Milwaukee St, Milwaukee, WI 53202	Yes	Yes	No
Milwaukee Intermodal Station	Public Park	433 W. St Paul Ave Milwaukee, WI 53203	Yes	Yes	Yes
McGovern Park	Public Park	4500 W. Custer Ave, Milwaukee, WI 53218	Yes	Yes	No
Estabrook Park	Parking Lot	4600 Estabrook Pkwy, Milwaukee, WI 53211	Yes	Yes	No
City Parking	Public Park	507 W. Rogers St, Milwaukee, WI 53204	Yes	Yes	Yes
Mitchell Park Domes	Parking Lot	524 S. Layton Blvd, Milwaukee, WI 53215	Yes	Yes	Yes

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City Parking	Mall	527 N. 28th St, Milwaukee, WI 53208	Yes	Yes	No
South Ridge Mall	Parking Lot	5300 S. 76th St, Greendale, WI 53129	No	No	No
City Parking	Interstate Lot	5404 W. Bluemound Rd, Milwaukee, WI 53208	No	No	No
The Avenue	Interstate Lot	615 N. Plankinton Ave, Milwaukee, WI 53203	Yes	No	No
Italian Community Center	Public Park	631 E. Chicago St, Milwaukee, WI 53202	No	No	No
Dineen Park - by the Disc Golf Course	Event Center	6600 W. Keefe Ave, Milwaukee, WI 53216	Yes	Yes	No
War Memorial Center	Interstate Lot	750 N. Lincoln Memorial Dr, Milwaukee, WI 53202	No	No	No
MAC (Milwaukee Athletic Club) Structure	Interstate Lot	777 N. Milwaukee St, Milwaukee, WI 53202	No	No	No
7Seventy7	Interstate Lot	777 N. Van Buren St, Milwaukee, WI 53202	No	No	No
MATC Lot 1143	Parking Lot	800-820 W. State St Milwaukee, WI 53233	Yes	No	No
City Parking	Interstate Lot	900E E. Locust St, Milwaukee, WI 53212	Yes	Yes	No
The Couture	Public Park	909 E. Michigan St, Milwaukee, WI 53202	No	No	No
Boerner Botanical Gardens	Hospital	9400 Boerner Dr, Hales Corners, WI 53130	No	No	No
Aurora Health Care - Sinai Medical Center	Interstate Lot	945 N. 12th St, Milwaukee, WI 53233	Yes	Yes	No
U.S. Bank Parking Lot		North Avenue and Farwell Street	No	No	No
Totals			**37**	**32**	**11**

APPENDIX C - MULTI-FAMILY HOUSING UNIT ANALYSIS

Site Name	Site Type	Address	Number Multi-Family Units Within 1/2 Mile
City Parking	Parking Lot	1002W W Maple St, Milwaukee, WI 53204	3405
The Brewery Structure	The Brewery Structure	1213 N. 9th St, Milwaukee, WI	1367
City Parking	Parking Lot	1223 S 15th Pl, Milwaukee, WI 53204	3159
Marquette	University	1250 W Wisconsin Ave MKE, WI 53233	2109
Lincoln Park	Public Park	1301 W Hampton Ave, Glendale, WI 53209	368
Riverside Park	Public Park	1500 E Riverside Pl, Milwaukee, WI 53211	4220
City Parking	Parking Lot	1720 N Arlington Pl, Milwaukee, WI 53202	6621
Washington Park Library	Library	2121 N Sherman Blvd Milwaukee, WI 53208	1871
City Parking	Parking Lot	2128 S 5th Pl, Milwaukee, WI 53207	2313
City Parking	Parking Lot	2230 W Fond Du Lac Ave, Milwaukee, WI 53206	1602
City Parking	Parking Lot	2231 N Doctor M.L.K. Jr Dr, Milwaukee, WI 53212	3237
City Parking	Parking Lot	2233 N 37th St, Milwaukee, WI 53208	2126
City Parking	Parking Lot	2239 N 26th St, Milwaukee, WI 53205	1117
City Parking	Parking Lot	2254S S Allis St, Milwaukee, WI 53207	1400
East Library	Library	2320 N Cramer St, Milwaukee, WI 53211	5647
City Parking	Parking Lot	2530E E Park Pl, Milwaukee, WI 53211	3958
Bayview Library	Library	2566 S Kinnickinnic Ave MKE, WI 53207	2362
Center Street Library	Library	2727 W Fond Du Lac Ave Milwaukee, WI 53210	1696

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Gordon Park	Public Park	2828 N Humboldt Blvd, Milwaukee, WI 53212	3055
South Shore Park	Public Park	2900 S Shore Dr, Milwaukee, WI 53207	1156
St. Luke's	Hospital	2900 W Oklahoma Ave MKE, WI 53215	567
City Parking	Parking Lot	2924 W Pierce St, Milwaukee, WI 53215	2235
Lake Park	Public Park	2975 N Lake Park Rd, Milwaukee, WI 53211	109
MLK Library	Library	310 W Locust St, Milwaukee, WI 53212	2360
Wisconsin Convention Center & Hyatt Hotel	Interstate Lot	332 W. State St. Milwaukee Wi	374
City Parking	Parking Lot	3500 W Burleigh St. Milwaukee WI	1676
Zablocki Library	Library	3501 W Oklahoma Ave Milwaukee, WI 53215	799
City Parking	Parking Lot	3814 N 29th St, Milwaukee, WI 53216	1215
Parking Lot	Parking Lot	401 East Beaumont Avenue, Whitefish Bay, Wisconsin 453217	Data Unavailable
Century City Tower	Century City Tower	4201 N 27th Street MKE, WI 53216	1388
Safe Lot	Interstate Lot	431 N. Milwaukee St. MKE WI	3760
Milwaukee Intermodal Station		433 W St Paul Ave MKE, WI 53203	Data Unavailable
McGovern Park	Public Park	4500 W Custer Ave, Milwaukee, WI 53218	896
Estabrook Park	Public Park	4600 Estabrook Pkwy, Milwaukee, WI 53211	N/A
City Parking	Parking Lot	507 W Rogers St, Milwaukee, WI 53204	2116
Villard Library	Library	5190 N 35th St, Milwaukee, WI 53209	1466
Mitchell Park Domes	Public Park	524 S Layton Blvd, Milwaukee, WI 53215	2327
City Parking	Parking Lot	527 N 28th St, Milwaukee, WI 53208	3858

South Ridge Mall	Mall	5300 S 76th St, Greendale, WI 53129	N/A
City Parking	Parking Lot	5404 W Bluemound Rd, Milwaukee, WI 53208	1606
The Avenue	Interstate Lot	615 N. Plankinton Milwaukee, WI	Data Unavailable
Italian Community Center	Interstate Lot	631 E. Chicago St. Milwaukee, WI	Data Unavailable
Dineen Park - by the Disc Golf Course	Public Park	6600 W Keefe Ave, Milwaukee, WI 53216	1030
War Memorial Center	Event Center	750 N. Lincoln Memorial Dr., Milwaukee, WI 53202	5946
Good Hope Library	Library	7715 Good Hope Rd, Milwaukee, WI 53223	229
MAC (Milwaukee Athletic Club) Structure	Interstate Lot	777 N. Milwaukee St. Milwaukee, WI	4529
7Seventy7	Interstate Lot	777 N. Van Buren St. Milwaukee, WI	5006
MATC Lot 1143	Interstate Lot	800-820 W State St Milwaukee, WI	1180
City Parking	Parking Lot	900E E Locust St, Milwaukee, WI 53212	3032
The Couture	Interstate Lot	909 E Michigan St, Milwaukee, WI 53202	909
Boerner Botanical Gardens	Public Park	9400 Boerner Dr, Hales Corners, WI 53130	Data Unavailable
Aurora Health Care - Sinai Medical Center	Hospital	945 N 12th Street MKE, WI 53233	2218
U.S. Bank Parking Lot	Interstate Lot	North Avenue and Farwell Street	5411