

ELECTRIC VEHICLE IMPLEMENTATION GUIDANCE FOR OUTAGAMIE COUNTY

Yasmine Abdennadher, Zach Thomas, Christina Zordani

Client: Outagamie County

05/08/23





MOTIVATION

The transportation sector is transforming from combustion engine vehicles to electric vehicles and has the potential to reshape this sector. Outagamie County wants to plan for EV adoption and encourage a transition to an electrified transportation sector. This includes understanding future scenarios of EV use, infrastructure needs, energy consumption, state and local policies, and best practices. The results of this research will be used to facilitate policymaking and funding applications to accelerate EV adoption within the County.

AGENDA



Overview of Outagamie County population and transportation network



Review of funding opportunities for electric vehicles



Transportation trends in Outagamie County



Governance of charging stations



Other transportation plans for guidance



Next steps for Outagamie County

PROJECTED POPULATION OF OUTAGAMIE COUNTY TOWNS, VILLAGES, AND CITIES

Table 3: Projected Population of Outagamie County Towns, 2015-2040

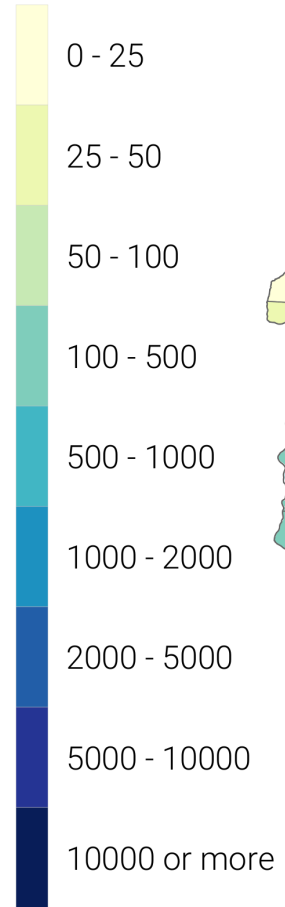
Municipality	2015	2020	2025	2030	2035	2040	Change, 2015-2040 Number	Percent
T. Black Creek	1,252	1,280	1,300	1,310	1,300	1,275	23	1.8%
T. Bovina	1,158	1,195	1,235	1,265	1,270	1,265	107	9.2%
T. Buchanan	6,935	7,600	8,605	9,280	9,795	10,180	3,245	47.0%
T. Center	3,463	3,625	3,765	3,900	3,960	3,975	512	14.8%
T. Cicero	1,106	1,110	1,115	1,120	1,105	1,075	-31	-2.8%
T. Dale	2,782	3,010	3,195	3,370	3,490	3,555	773	27.8%
T. Deer Creek	649	645	645	640	630	605	-44	-6.8%
T. Ellington	2,868	3,060	3,225	3,380	3,485	3,535	667	23.3%
T. Freedom	5,991	6,485	6,870	7,225	7,460	7,600	1,609	26.9%
T. Grand Chute	21,909	23,980	25,700	27,320	28,500	29,270	7,361	33.6%
T. Greenville	11,303	12,450	13,650	14,800	15,710	16,390	5,087	45.0%
T. Hortonville	1,094	1,150	1,190	1,225	1,240	1,235	141	12.9%
T. Kaukauna	1,272	1,360	1,430	1,500	1,545	1,570	298	23.4%
T. Liberty	871	895	920	940	945	940	69	7.9%
T. Maine	878	910	940	960	970	965	87	10.0%
T. Maple Creek	605	590	580	565	540	510	-95	-1.6%
T. Oneida	4,711	4,965	5,165	5,345	5,435	5,455	744	15.8%
T. Osborn	1,205	1,295	1,370	1,445	1,495	1,520	315	26.1%
T. Seymour	1,202	1,205	1,215	1,215	1,200	1,170	-32	-2.7%
T. Vandenberg	1,531	1,640	1,740	1,740	1,900	1,935	404	26.4%
Outagamie Co.	181,310	191,635	200,630	208,730	213,500	215,290	33,980	18.7%

Source: Wisconsin Department of Administration – Demographic Services Center, 2019.

Table 4: Projected Population of Outagamie County Villages & Cities, 2015-2040

Municipality	2015	2020	2025	2030	2035	2040	Change Number	Percent
V. Bear Creek	450	470	485	495	500	500	50	11.1%
V. Black Creek	1,321	1,385	1,435	1,480	1,500	1,495	174	13.2%
V. Combined Locks	3,477	3,855	4,170	4,475	4,705	4,870	1,393	40.1%
V. Harrison*	0	0	0	0	0	0	n/a	n/a
V. Hortonville	2,700	2,895	3,030	3,150	3,220	3,250	550	19.9%
V. Howard*	0	0	0	0	0	0	n/a	n/a
V. Kimberly	6,677	7,025	7,335	7,610	7,760	7,815	1,138	17.4%
V. Little Chute	10,778	10,740	10,950	11,100	11,070	10,900	122	1.1%
V. Nichols	271	260	250	245	235	220	-51	-18.8%
V. Shiocton	930	940	955	960	950	930	0	--
V. Wrightstown*	155	170	190	205	215	225	70	45.2%
C. Appleton*	60,838	62,800	64,500	65,850	66,200	65,600	4,762	7.8%
C. Kaukauna	15,848	17,120	18,120	19,050	19,680	20,020	4,172	26.3%
C. New London	1,623	1,690	1,745	1,790	1,810	1,800	177	10.9%
C. Seymour	3,436	3,535	3,610	3,680	3,680	3,640	204	5.9%
Outagamie Co.	181,310	191,635	200,630	208,730	213,500	215,290	33,980	18.7%

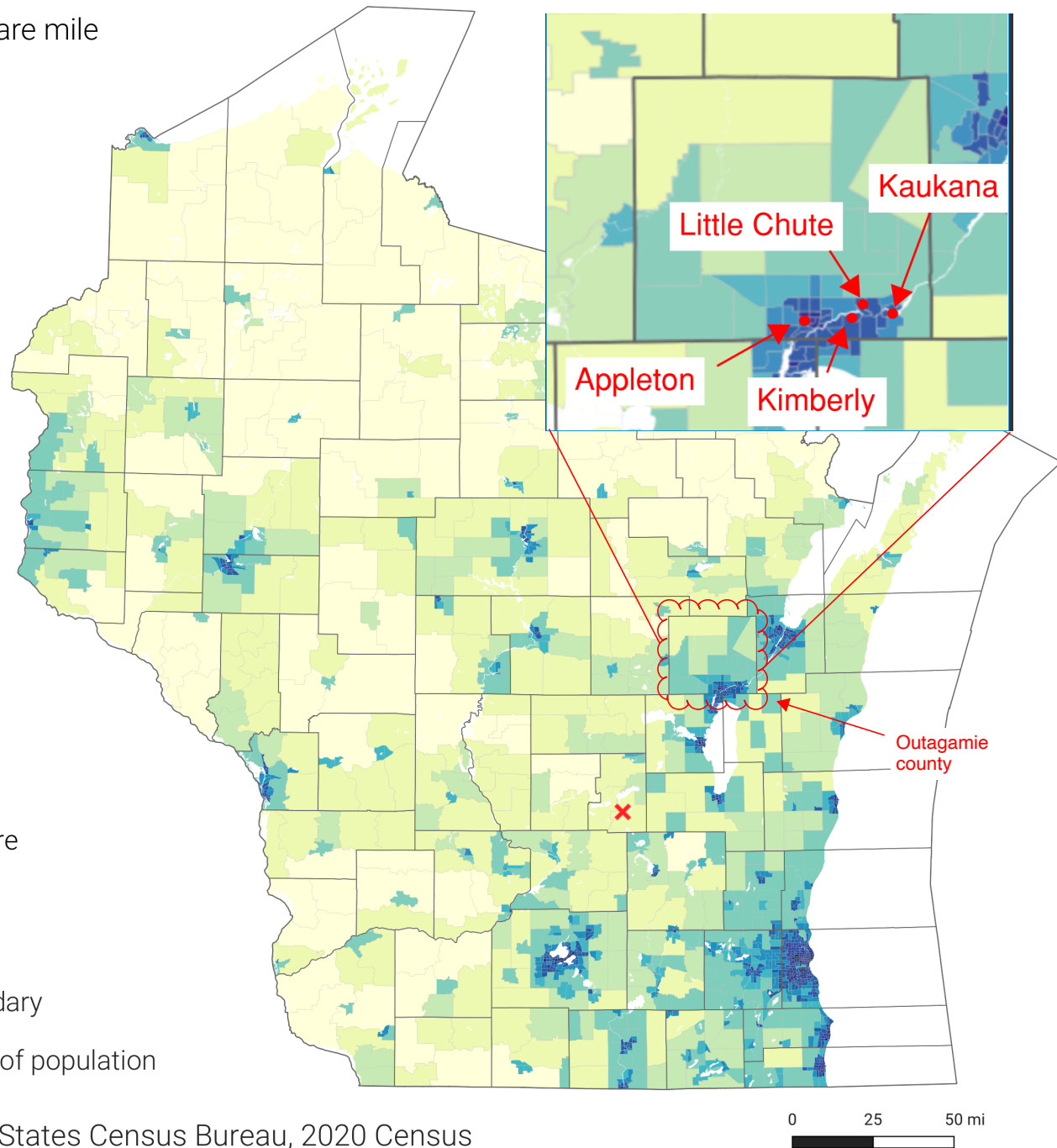
People per square mile
by census tract



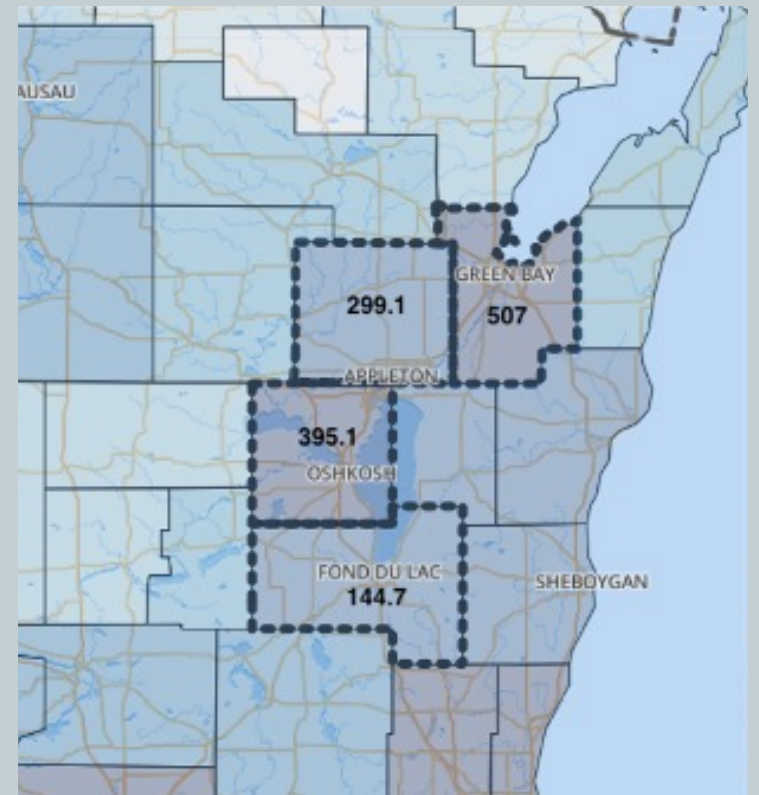
water
county boundary
x mean center of population

This block contains three symbols: a white square for water, a thin grey line for county boundaries, and a red 'x' for the mean center of population.

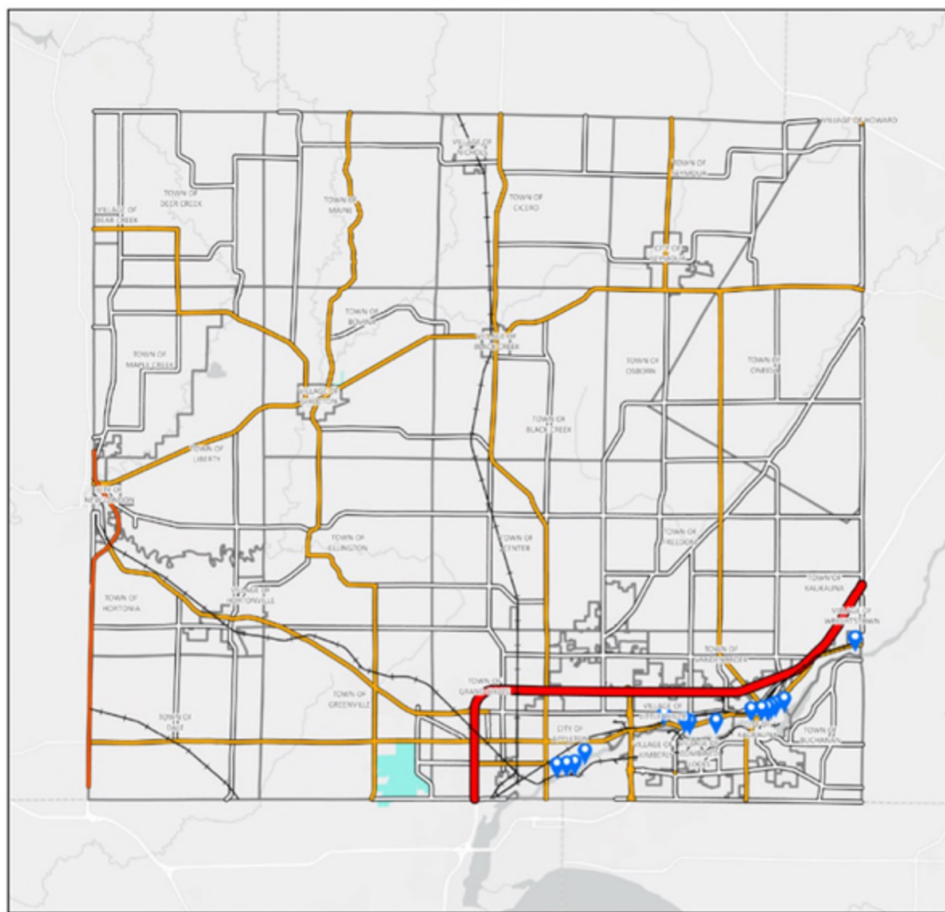
Source: United States Census Bureau, 2020 Census



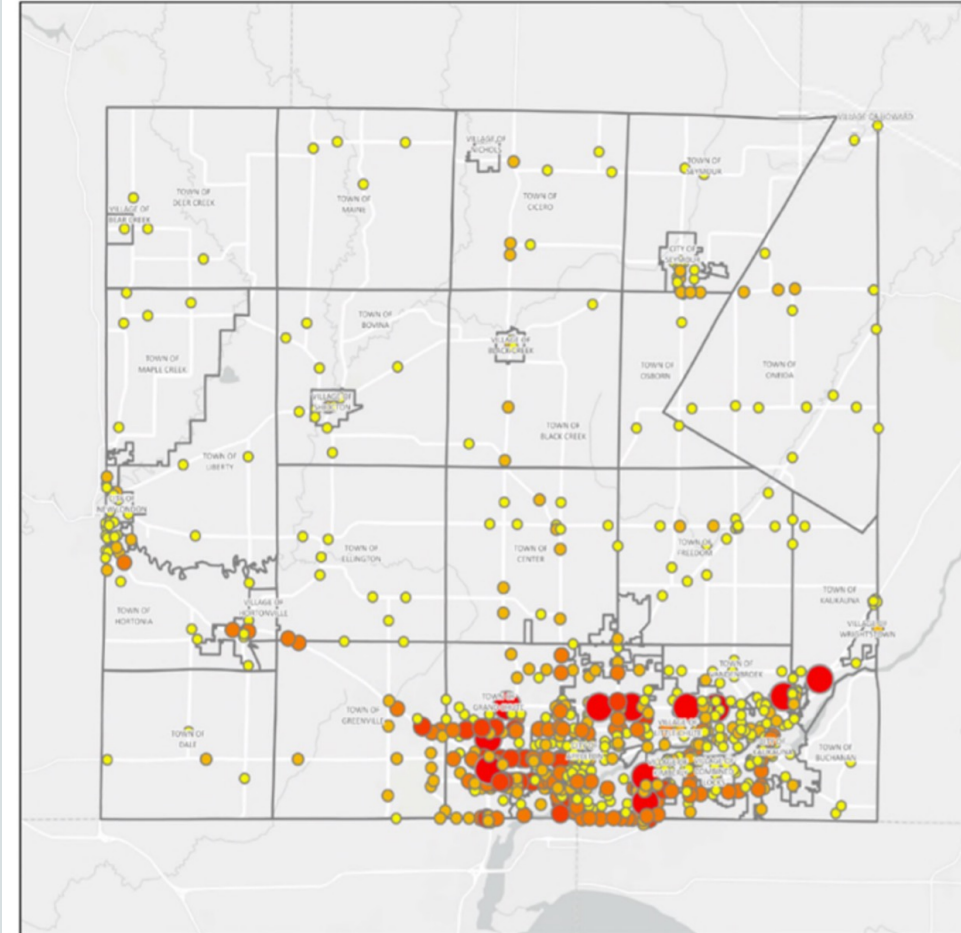
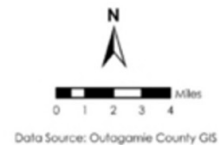
Population Density



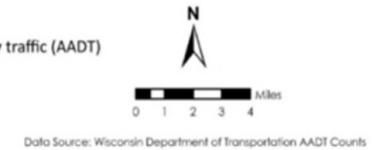
TRANSPORTATION NETWORK



- Legend
- Navigation Locks
 - Railroads
 - Interstate
 - US Highway
 - State Road
 - County Road
 - Airports



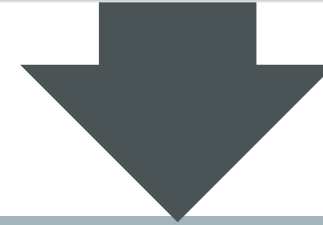
- Legend
- Traffic Counts - annual average daily traffic (AADT)
- 5,000-9,999
 - 10,000-19,999
 - 20,000-39,999
 - 40,000-74,999
 - 75,000+



**BIPARTISAN
INFRASTRUCTURE
LAW**

A total of \$550 billion infrastructure investment

EV focus is amongst the projects



\$7.5 billion in EV charging directly, \$10 billion in clean transportation, and over \$7 billion in EV battery components, critical minerals, and materials.

WHY SHOULD THE U.S EXPAND EV CHARGING INFRASTRUCTURE?

- There is a limited network of EV charging stations, specifically along highway corridors
 - 150,000 gas station
 - 41,000 publicly accessible non-Tesla EV charging stations (4,800 fast charging)
- Federal government set a goal for a nationwide network 500,000 EV chargers by 2030

SEVERAL DOT FUNDING AND FINANCING PROGRAMS

Construction and installation of EV charging infrastructure including parking facilities and utilities.	Workforce development and training related to EV infrastructure.	EV acquisitions and engine conversions - cars or trucks.	Planning for EV charging infrastructure and related projects.	Construction and installation of EV charging infrastructure to support operational, resiliency, national energy security, environmental, and community goals for freight transportation.	Installation of EV charging infrastructure as part of transit capital projects eligible under chapter 53 of title 49, United States Code.		
	FY 2022 ¹ AMOUNT						
FORMULA PROGRAMS							
National Highway Performance Program (NHPP)	\$28.4 B ²						
Surface Transportation Block Grant Program (STBG)	\$12.5 B ^{2,3}						
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	\$2.5 B ²						
National Highway Freight Program (NHFP)	\$1.4 B ²						
State Planning and Research (SPR)	\$983.3 M ⁴						
Metropolitan Planning (PL)	\$438.1 M ²						
Carbon Reduction Program	\$1.2 B ^{2,5}						
National Electric Vehicle (NEVI) Formula Program	\$685 M ^{2,5,6}						
DISCRETIONARY PROGRAMS							
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly known as BUILD)	\$1.5 B						
Infrastructure for Rebuilding America (INFRA) Grant Program	\$1.64 B ^{2,7}						
Advanced Transportation and Technologies and Innovative Mobility Deployment	\$60 M ²						
Discretionary Grant Program for Charging and Fueling Infrastructure	\$300 M ^{2,5}						
Rural Surface Transportation Grant Program	\$300 M ^{2,5}						
Reduction of Truck Emissions at Port Facilities Program	\$80 M ^{2,5,7}						
OTHER ALLOCATED PROGRAMS							
Federal Lands and Tribal Transportation Program (FLTTP)	\$1.3 B ^{2,8}						
Puerto Rico Highway Program (PRHP)	\$173 M ²						
Territorial Highway Program (THP)	\$46 M ²						
INNOVATIVE FINANCE PROGRAMS							
State Infrastructure Banks (SIBs)	Varies						
Transportation Infrastructure Financing and Innovation Act (TIFIA)	\$250 M ²						

NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE

- Aims to provide dedicated funding for states to strategically “deploy EV charging infrastructure and establish an interconnection network to facilitate data collection, access, and reliability”
- Funds will be made available each fiscal year (FY 2022 – FY 2023)
 - Total of \$5 billion
- The DOT and DOE worked together to develop minimum standards and requirements to ensure all states are starting with the same standards

NEVI FINAL RULINGS

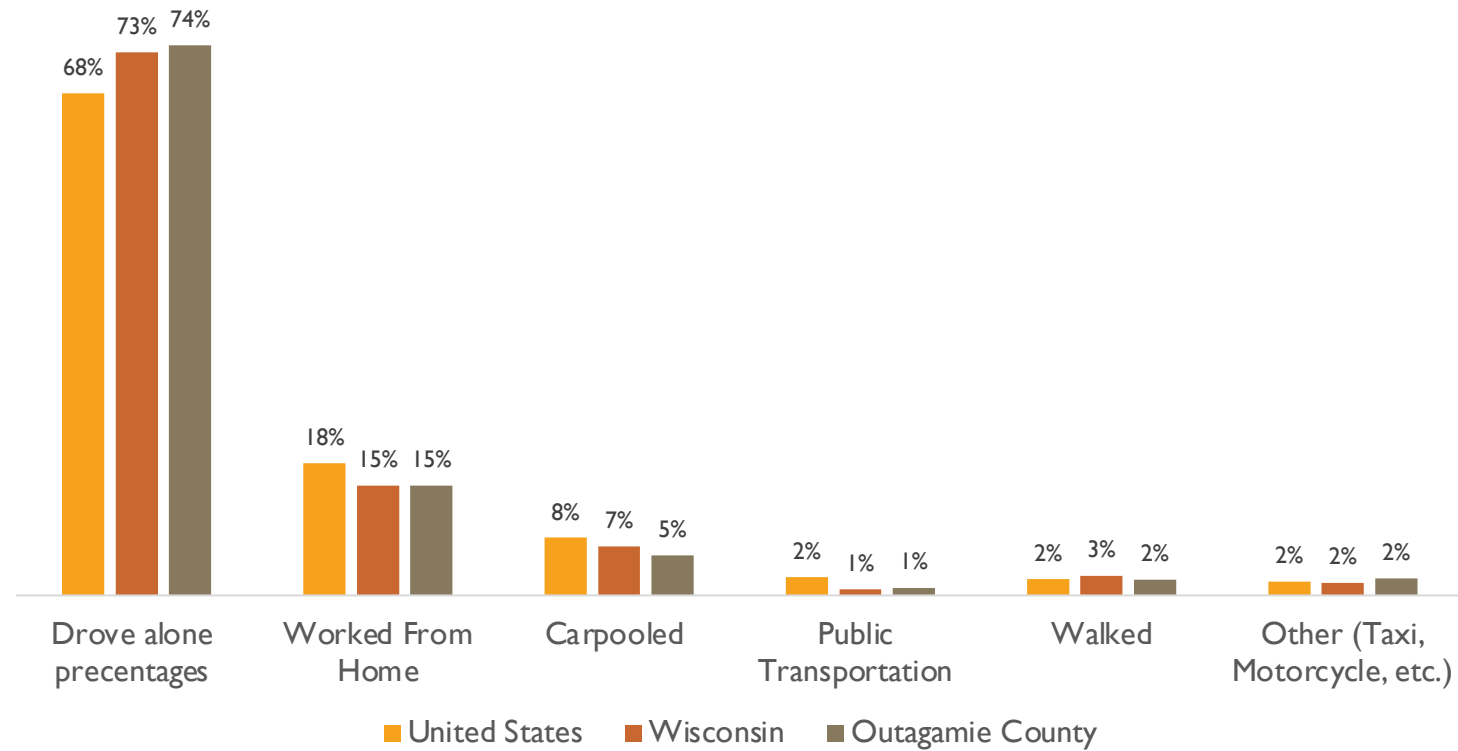
Final Ruling	Summary
Procurement Process	There needs to transparency regarding the process of how EV charging prices will be determined.
Connection Details	There needs to be at least four Direct Current Fast Chargers (DCFC) ports that simultaneously deliver up to 150kW.
Accessibility	Charging stations along designated AFCs must be available 24 hours per day, 7 days a week. Payment methods should accept major credit and debit cards.
Data Submittal	Quarterly and annual data submittal for all projects funded under the NEVI Formula Program.

Discretionary Grant Program for Charging and Fueling Infrastructure (CFI)	- An extension of the NEVI program. - This program will provide an extra \$2.5 billion throughout five years. - First round applications opened March 14th, 2023 and are due May 30th, 2023
Congestion Mitigation and Air Quality Improvement (CMAQ)	- This program provides funding sources for states and local governments to fund transportation projects that will help reduce emissions and improve air quality - CMAQ projects must come from a State Transportation Improvement Plan or a Transportation Improvement Program,
Low or No Emissions Vehicle Program	- provides funding to state and local governments that are aiming to purchase or lease low-emission transit buses and supporting facilities. - this application deadline has passed for fiscal year 2023, but the DOT anticipates that there will be more windows within the next three years.
The Electric Vehicle Supply Equipment (EVSE) Rebate Program	- Administered by the Wisconsin Office of Energy Innovation and provides rebates of up to 50% of the cost of charging station - Up to a maximum of \$70,000 per site

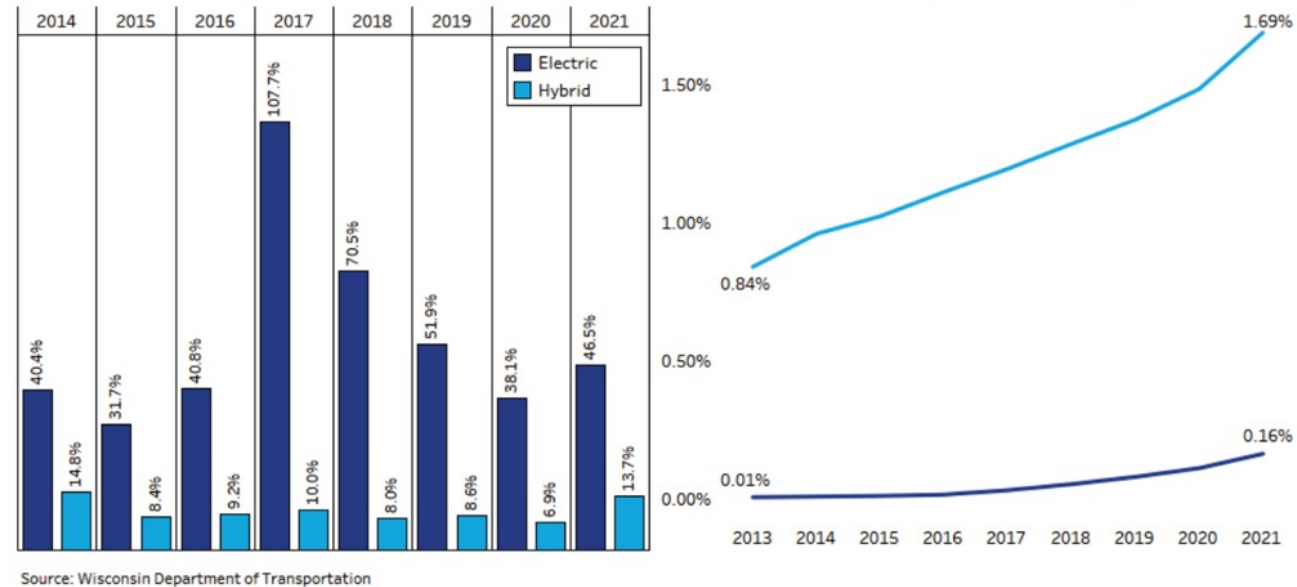
ADDITIONAL NATIONAL PROGRAMS

TRANSPORTATION TRENDS

How Residents Get To Work (2021 ACS Data)



TRANSPORTATION TRENDS



Where is Outagamie?

- Wisconsin has 9,039 EV registrations
- Outagamie has 216 EV registrations (146 automobiles, 1 motorcycle, 69 trucks)

CURRENT PLAN



Vision:

"Develop an interconnected electric vehicle charging network that facilitates the safe movement of people and goods throughout Wisconsin."



Goals:

Continue stakeholder collaboration to inform planning, deployments, program evaluation, and annual plan updates.

100% of Wisconsin Interstates and AFCs fully built out to NEVI Program standards.

85% of the Wisconsin State Highway System within 25 miles of NEVI-compliant fast charging stations.

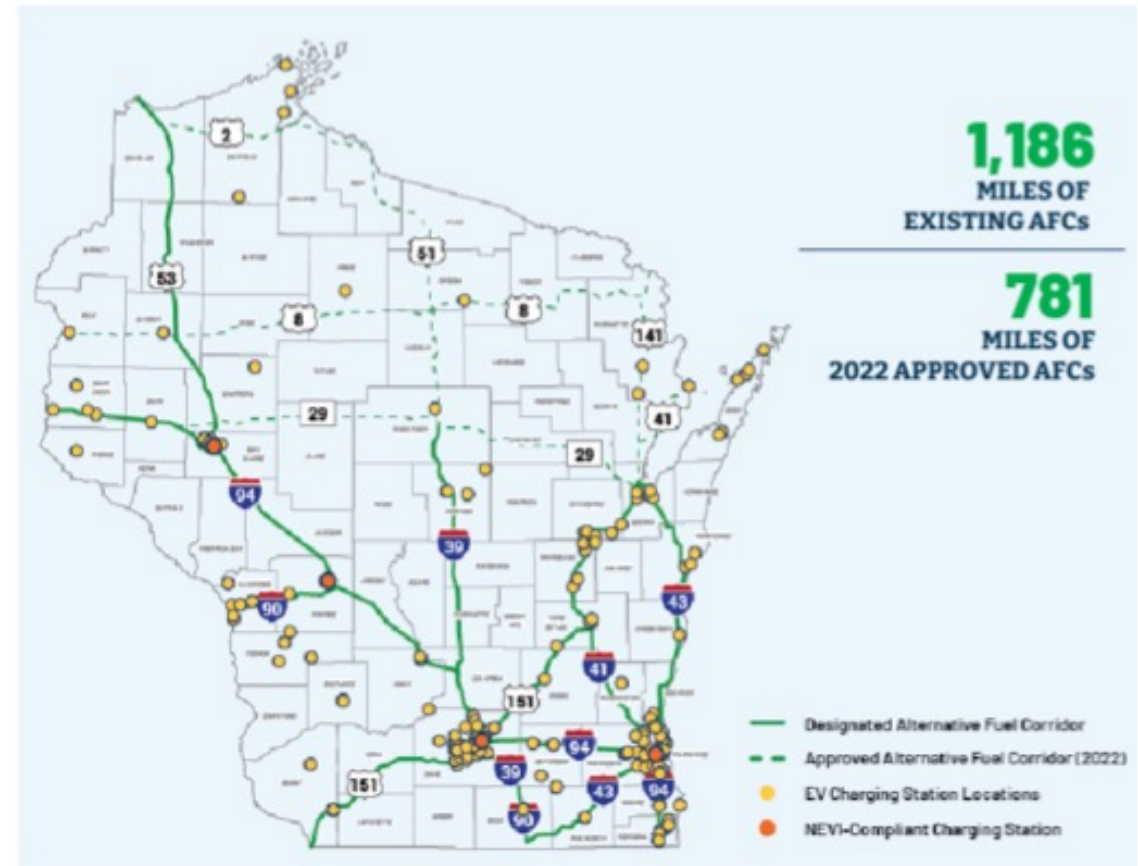


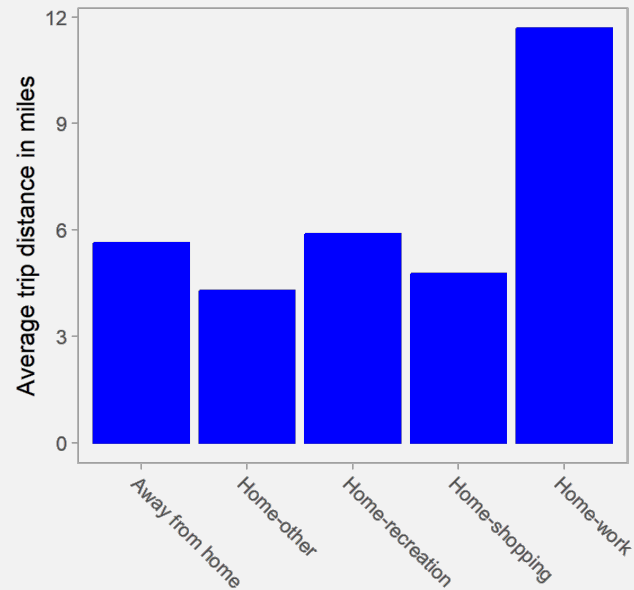
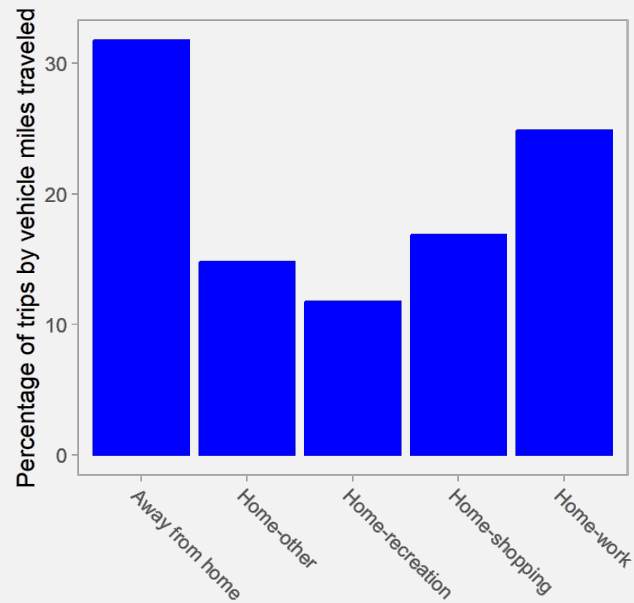
What does this mean for Outagamie?

Counties throughout the state should analyze where they are currently standing and work on areas that will individually push them toward these goals

WISCONSIN'S EXISTING EV CHARGING INFRASTRUCTURE

- As of 2022 Wisconsin has a total of 306 publicly available charging station locations.
- Only 4 of which are NEVI compliant
- Outagamie falls perfectly within the alternative fuel corridor





OUTAGAMIE COUNTY EV OUTLOOK

- 71% of EV owners would prefer to charge their vehicles at home
- Most trips will involve home as the origin or destination
- Data on residential charging installation is difficult to find
- Near-term funding for charging station installation will be mostly for
 - Residential charging installation
 - Commercial charging station installation
 - Public charging station installation along the I-14 FWHA designated EV corridor

CHARGING STATION FUNDING OPPORTUNITIES IN OUTAGAMIE COUNTY



Residents have three options for receiving funding for charging installation

We Energies

Wisconsin PSC

Wisconsin Electrification Initiative, which will allocate NEVI and WEVI funding starting in late 2023



Commercial property owners have four options for financing charging installation

We Energies

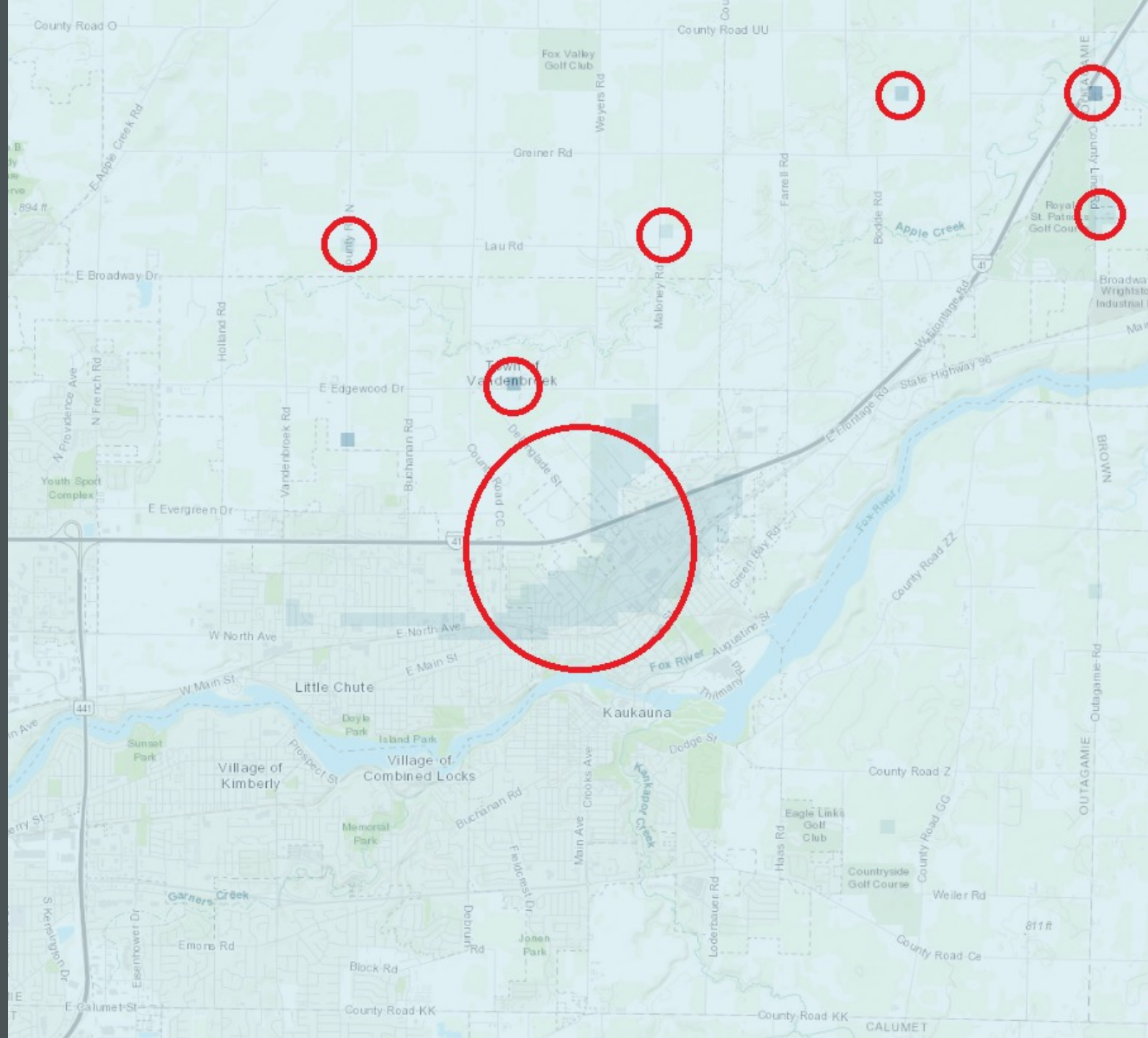
Wisconsin PSC

Wisconsin Electrification Initiative, which will allocate NEVI and WEVI funding starting in late 2023

Wisconsin PACE

POTENTIAL
CHARGING
STATION
LOCATIONS

- Argonne National Lab has published a tool to cite potential charging station locations
- These are along I-41, a FHWA designated EV corridor
- Five of these locations are under Outagamie County zoning jurisdiction, five are in unincorporated land parcels



ZONING AND PERMITTING OF CHARGING STATIONS



Only utilities can sell electricity in Wisconsin, including through EV chargers



The FHWA has given Wisconsin until March 2024 to approve private sale of charging station electricity in order to receive NEVI funding



Other counties in the US have made agreements with utilities for businesses to sell electricity through charging stations



Outagamie County can ease permitting for charging station installation by adopting standards and zoning requirements for new construction



PNNL and the Wisconsin Environmental Research and Policy Center provide sample language



The US Department of Transportation offers a checklist for local governments to prepare for EV adoption, including project scoping, utility planning, installation, and operation

OTHER
TRANSPORTATION
PLANS

- Eau Claire's Roadmap
 - Establishing stakeholders
 - Create areas of focus
 - Programs
- Dane County Transportation Plan
 - Council on Climate Change
 - MGE
- Rural Electric Mobility Infrastructure
 - Partnerships
- Utility Rebates

NEXT STEPS FOR OUTAGAMIE

1

Work with We Energies to establish charging rebate program and allow commercial sale of electricity through charging stations

2

Establish building codes and zoning permits to standardize charging station installation – this will help reduce anxiety about access to EV charging and ambiguity over EV infrastructure projects

3

Stay updated about WEVI and NEVI funding developments and requirements

4

Explore establishing a committee of stakeholders affected by EV adoption, similar to the Dane County Council on Climate Change