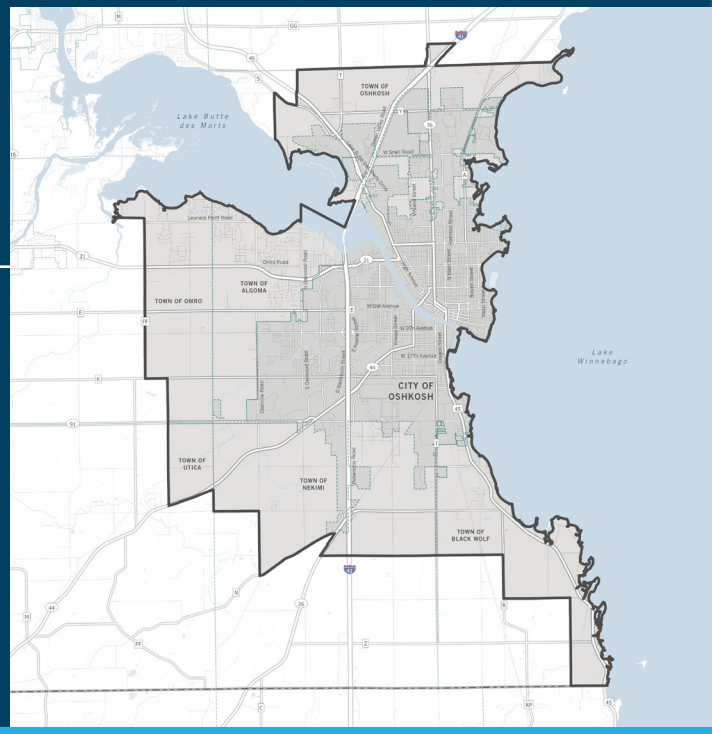
Oshkosh Area MPO EV Readiness Plan

Oshkosh City Council Presentation

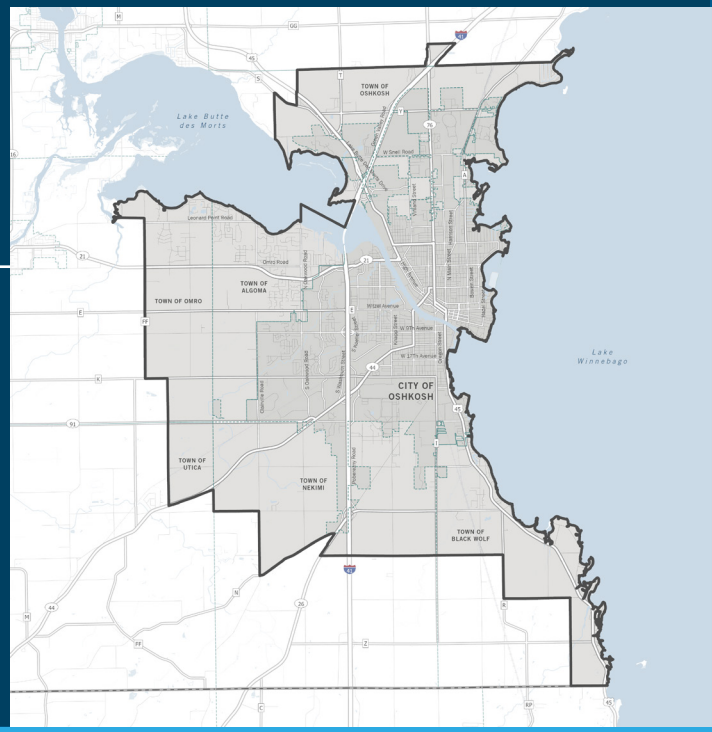
October 10, 2024



Agenda

- Purpose of the Plan
- Summary of Engagement
- Overview of the Scope/Focus Domains
- Current and Future Charging Demand
- Recommendations:
  - Charger Type
  - Locations
  - Operations
- Actions Needed

BACKGROUND


Lake Butte des Morts
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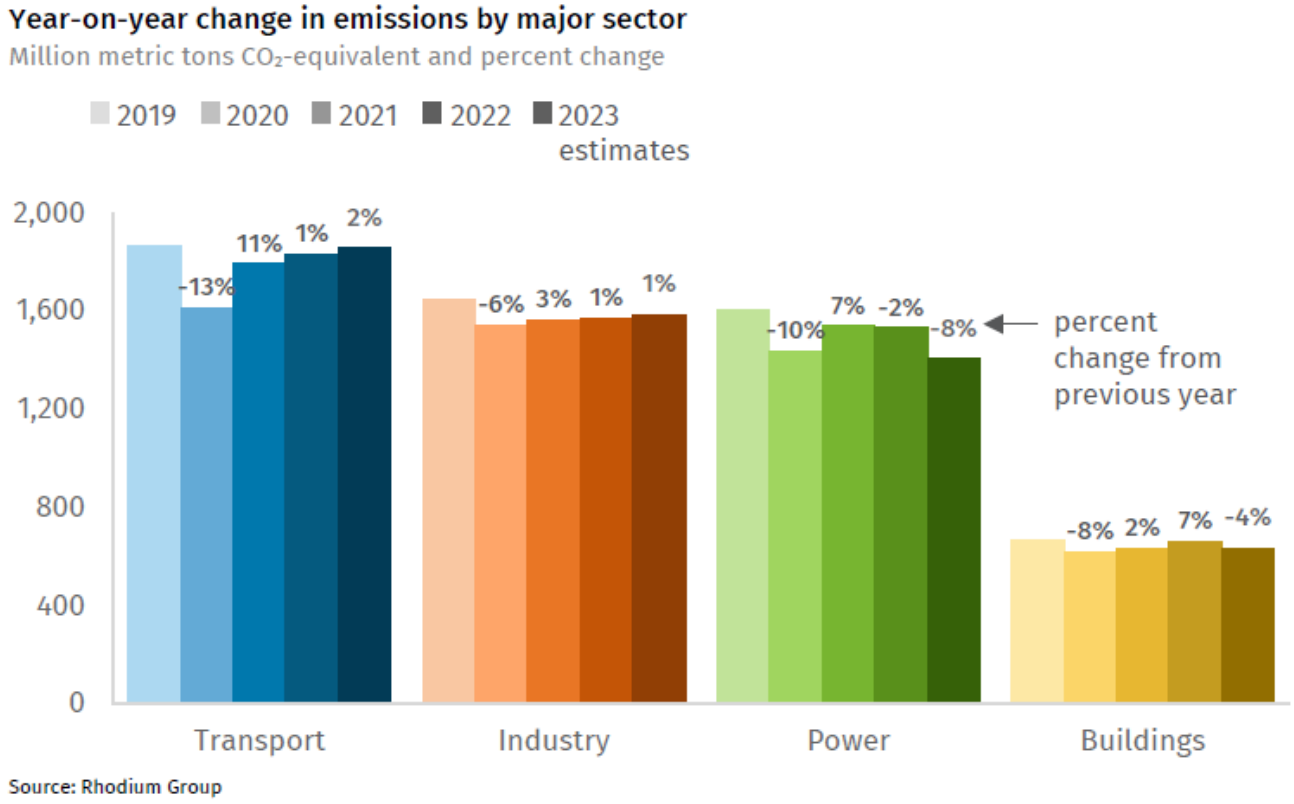
TOWN OF ALGOMA
TOWN OF OMRO
CITY OF OSHKOSH
Lake Winnebago
TOWN OF UTICA
TOWN OF NEKIMI
TOWN OF BLACK WOLF

Why Have an EV Plan?

- Transportation is the largest source of GHG emissions in the country (28%), higher than electric generation (25%) and industry (23%)
- Cars and small trucks make up the majority of transportation emissions
- Electrifying vehicles is a critical piece of getting to reduced carbon emissions
- IIJA has invested $5.0 billion to build out a national EV charging network for all Americans



Why Have an EV Plan?

1) Governments Can Be Direct Participants

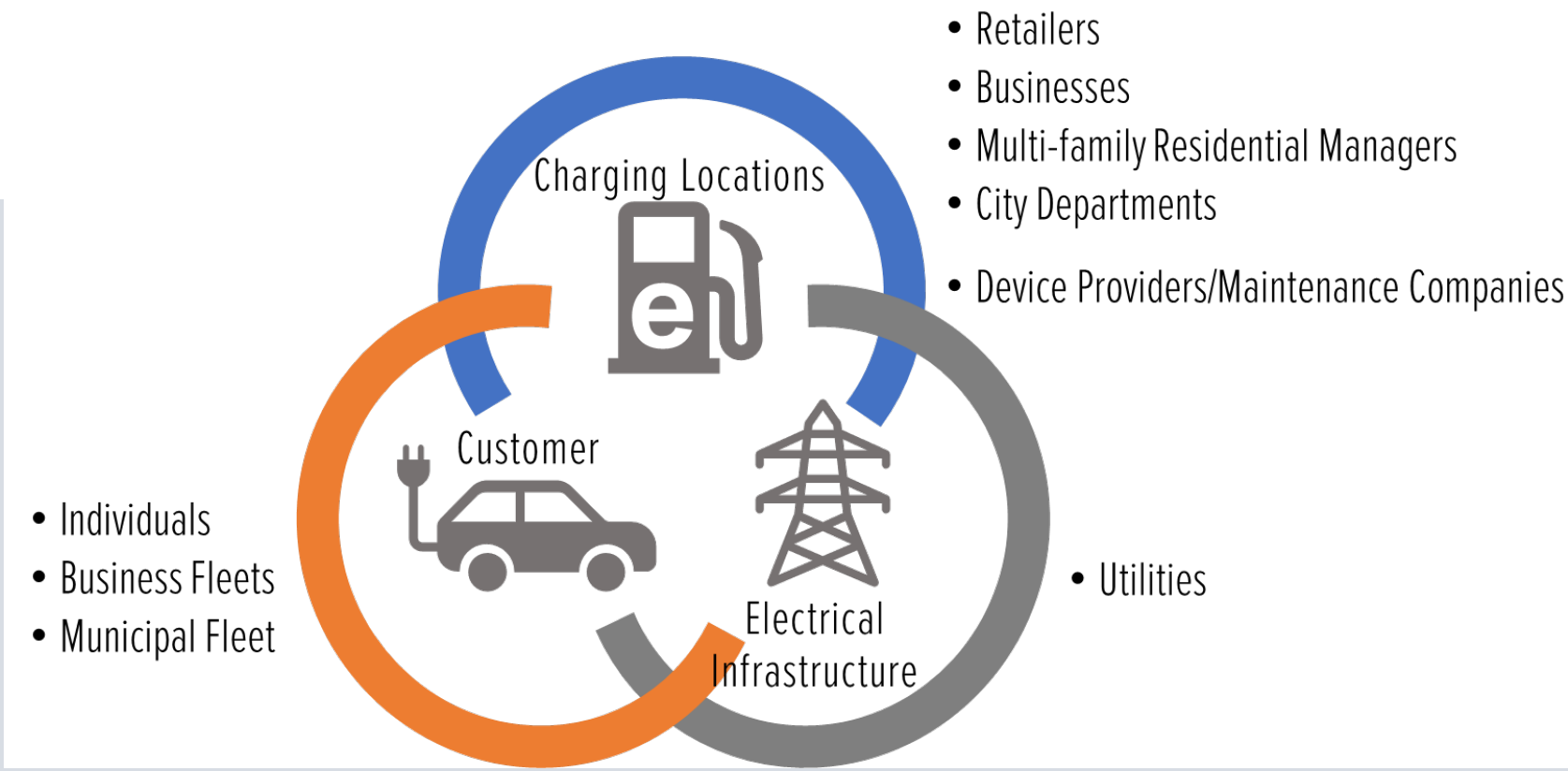
Public Charging

Fleet Electrification

EV Sharing/Charging Partnerships

Why Have an EV Plan?

2) Diverse Stakeholders



Why Have an EV Plan?

3) Unique Challenges

BARRIERS TO ADOPTION

- Cost differential (EV Relative to Gas Powered)
- Limited Public Charging Opportunities
- Multi-family Access to Charging
- EV Models Available Versus Buyer Preference
- Limited EV Supply – Especially Used Vehicles

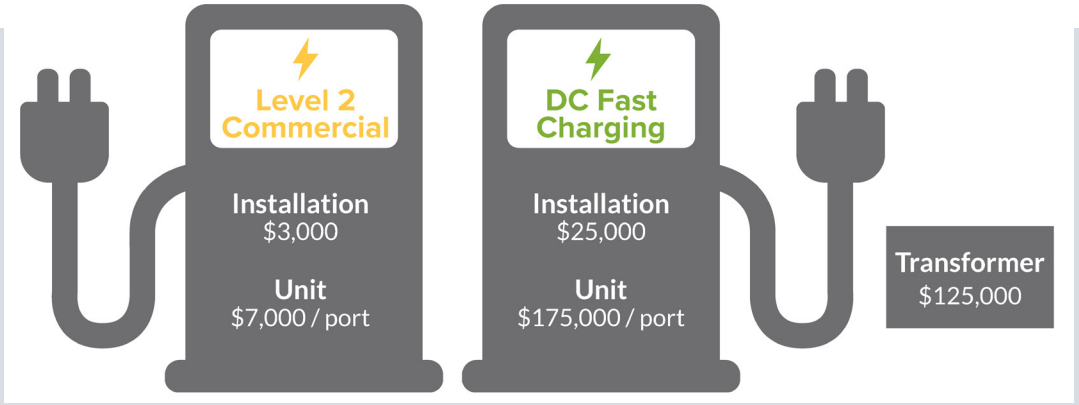
BARRIERS TO GROWTH IN PUBLIC CHARGING

- Investment Relative to Current Demand (Low ROI):
  - Charging Stations
  - Utility Extension
  - Backend Infrastructure Cost
- Time it Takes to Charge – 30-Plus Minutes
- Electric Provider Demand Charges
- Limited Equipment Availability

Why Have an EV Plan?

4) And Unique Opportunities!

NEVI Final Rule:



Allows Level 2 Chargers
- Lower Capital Cost
- Lower Operating Cost

"Community Charging" Access
- Business Hours, 24/7 not required
- Reduces Security Concerns
- Reduces Customer Service Concerns

Plan Range of Domains

OSHKOSH
FOCUS ON THESE DOMAINS

- Vehicles
- Charging
- Maintenance

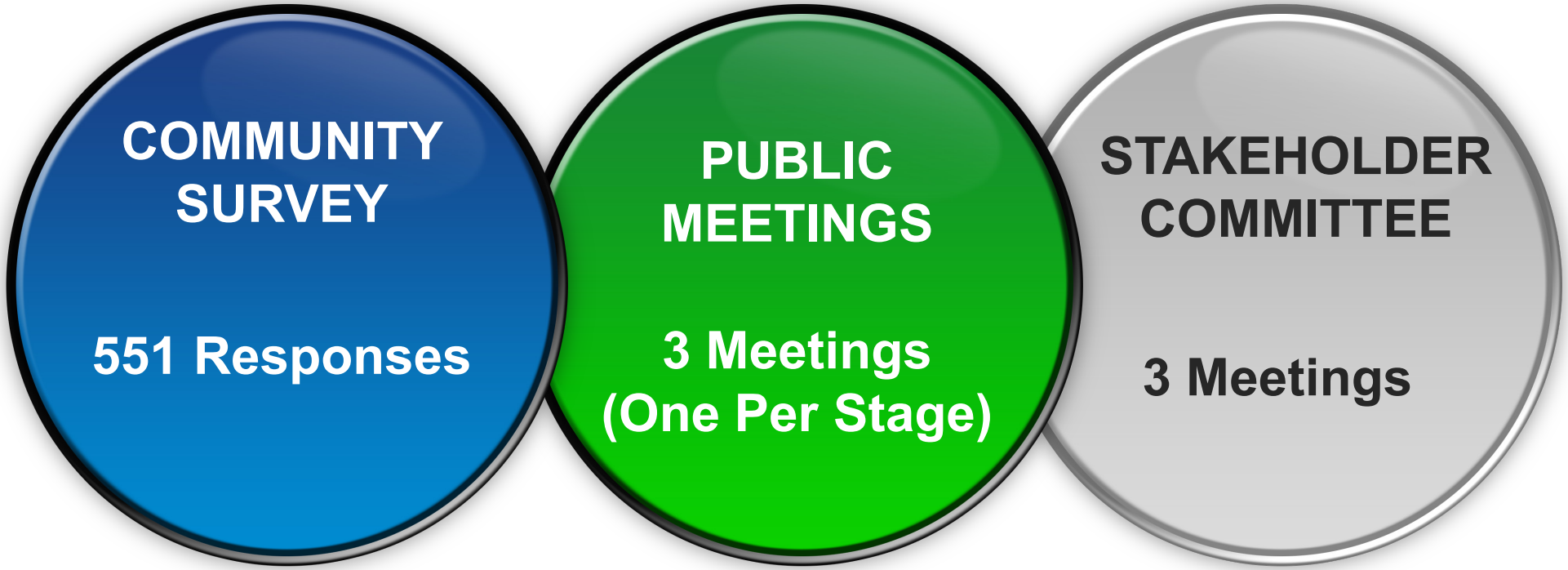
- Locations
- Charger Types
- Payment Model
- Access/ADA

- Residential
- Multi Family
- Commercial
- Charger Types
- Charger Number

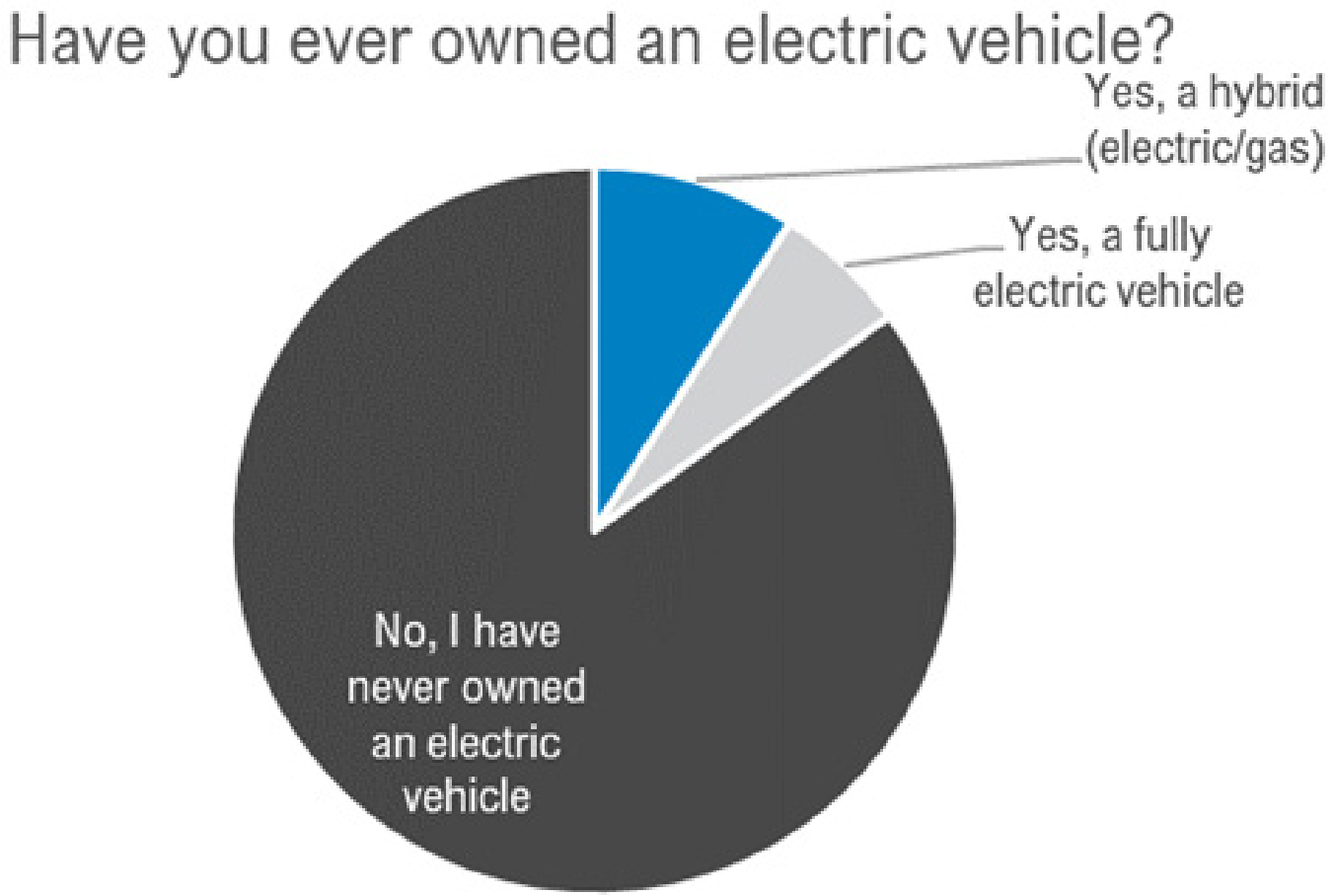
- Placement
- Signing
- Aesthetic
- On-Street Stds

- Multi Family
- Commercial
- Parking Facilities
- Surface Lots
- Charger Types
- Charger Number

Engagement Opportunities

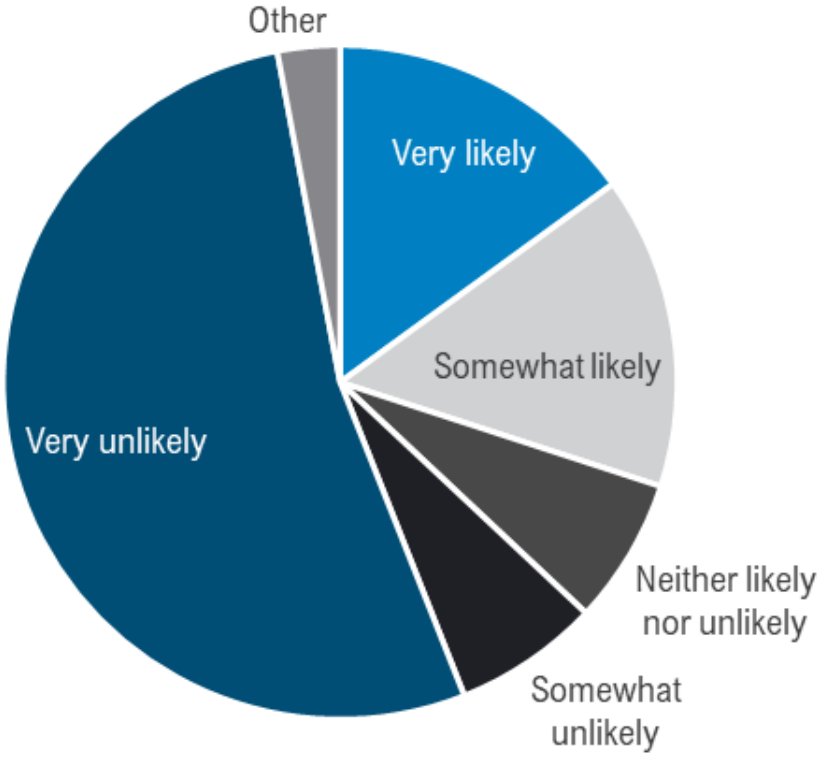


Community Survey – Key Results

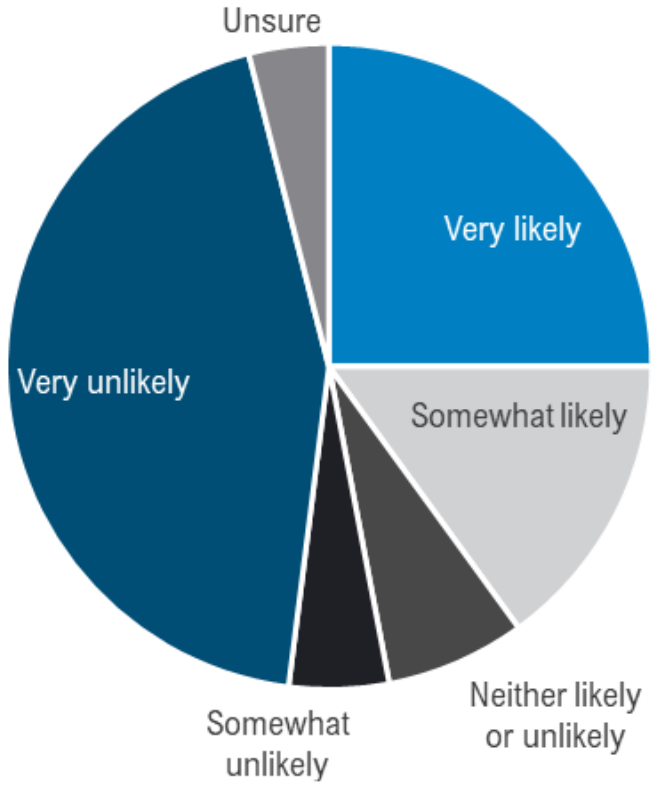


Community Survey – Key Results

How likely are you to consider buying an electric vehicle in the next 3 years?



How likely are you to own an electric vehicle in the next 5-10 years?



Perceptions of EV

Advantages

- Environmental Benefits
- Reduced Cost of Ownership
- Convenience (Less Maintenance – Vehicle Performance)

Disadvantages

- Charging Access Concerns (Range Anxiety)
- Higher Cost
- Range Limitations
- Environmental Concerns (Electricity Generation – Battery Disposal)

Public Meeting Input

Meeting 1

- Most were familiar with EVs (Owned)
- Most charge at home
- Some interest in public charging
- Looking for information on locations and number of chargers
- Consider the differences in needs between local and visiting popluations

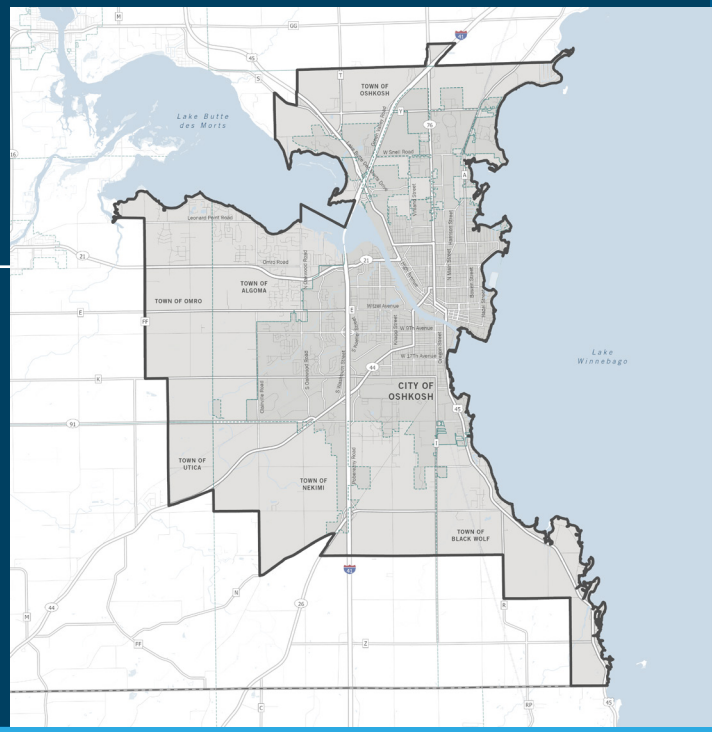
Meeting 2

- Consider public Level 3 charging in plan
- Consider feasibility to upgrade (Level 2 to Level 3)
- Locations must be where they will be used
- How to pay for infrastructure
- Fee structure (Profitable/Not Overcharging)
- Options for payment – Must be convenient

Meeting 3

- More locations/investment needed
- Are parks appropriate?

CHARGER ANALYSIS

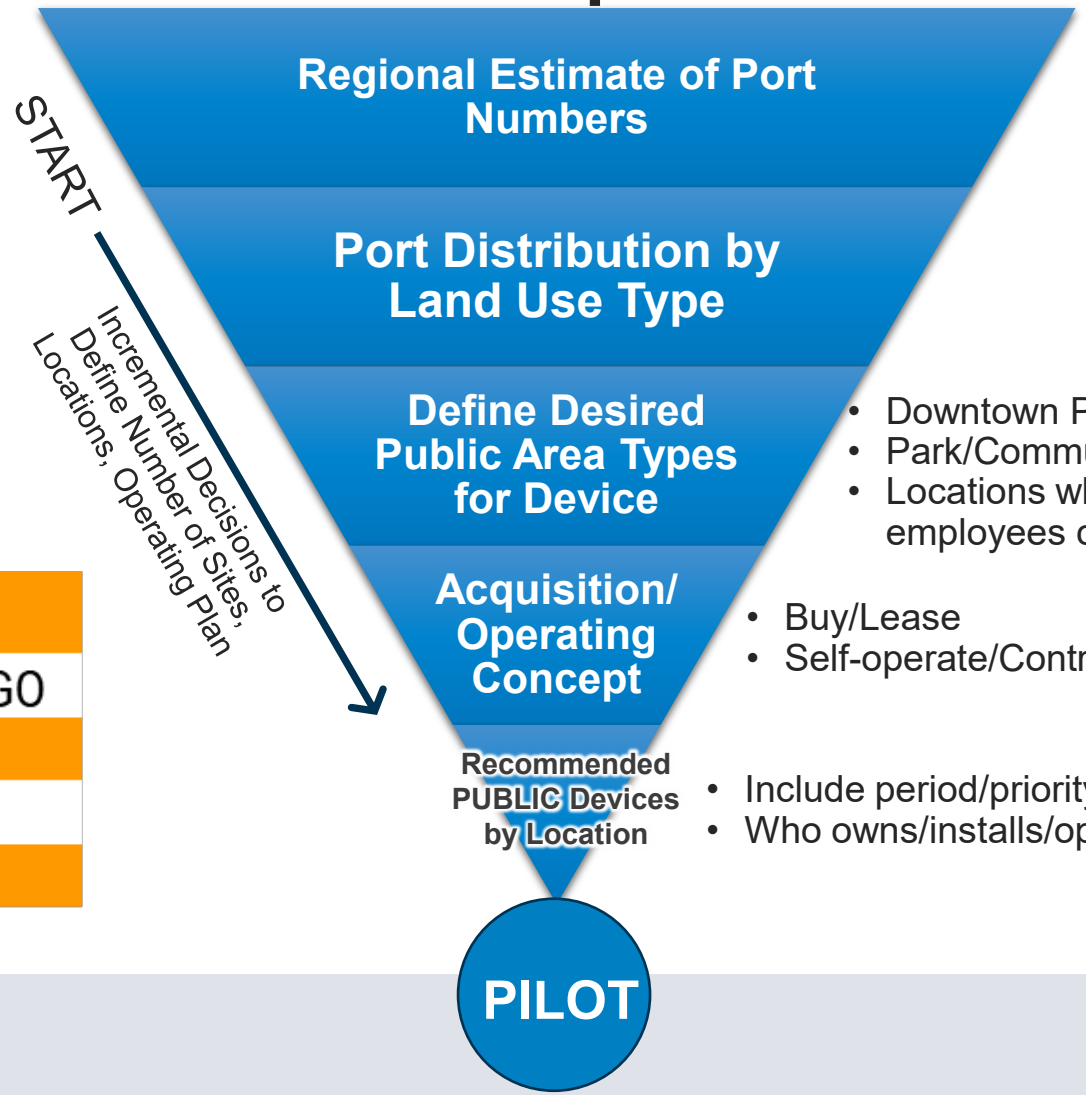


Goal - Locate Stations / Implementation

Establish a general framework for where public charging stations are recommended

REGISTERED VECHICLES (2023)		
	WISCONSIN	WINNEBAGO
Total	6,643,554	189,789
Electric (Battery)	17,084	394
Percent Electric	0.3%	0.2%

Decision Pipeline



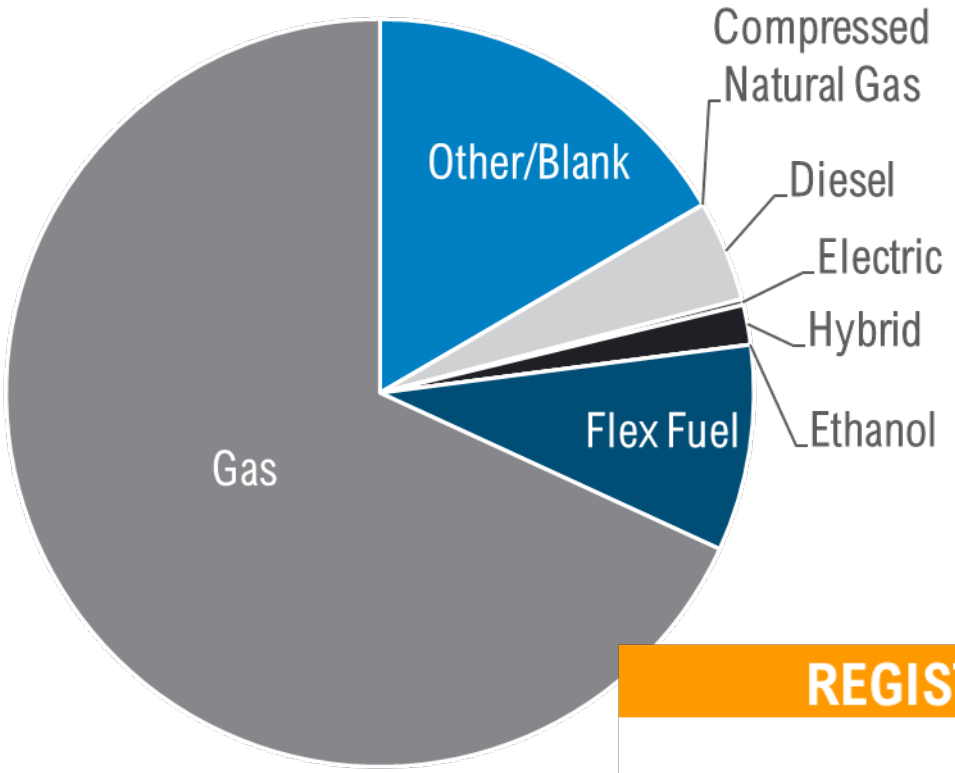
- Downtown Parking Lots
- Park/Community Facility Lots
- Locations where city employees commute

- Buy/Lease
- Self-operate/Contractor

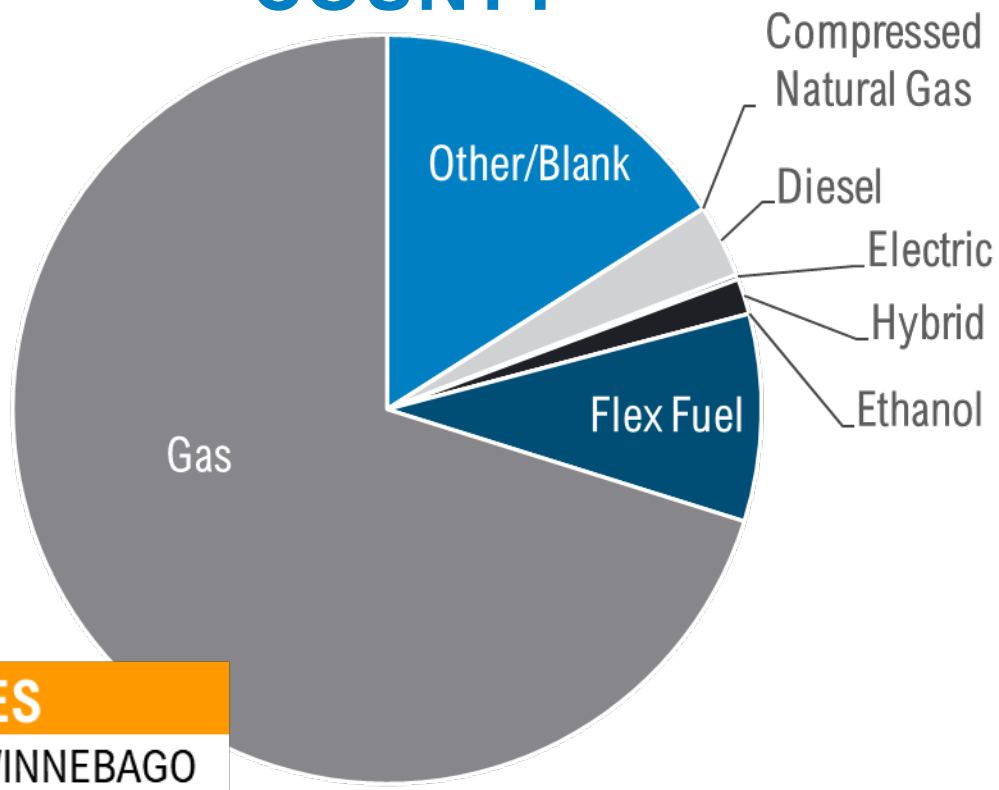
- Include period/priority for installation
- Who owns/installs/operates?

Number of Plug-in Electric Vehicles

WISCONSIN



WINNEBAGO COUNTY



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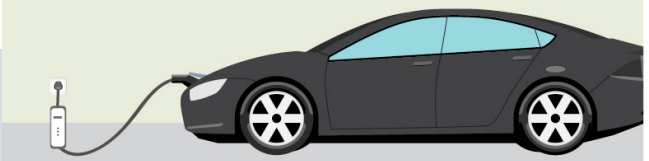
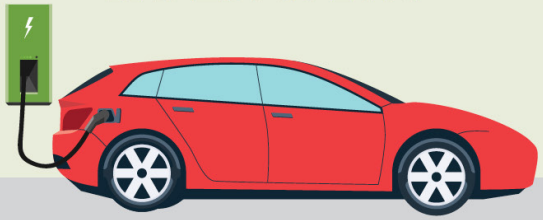
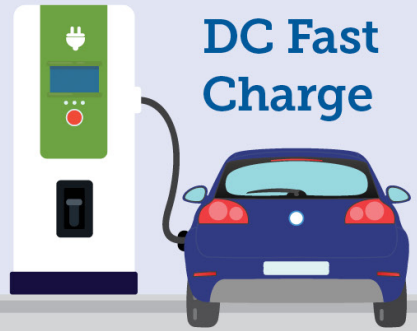
Background

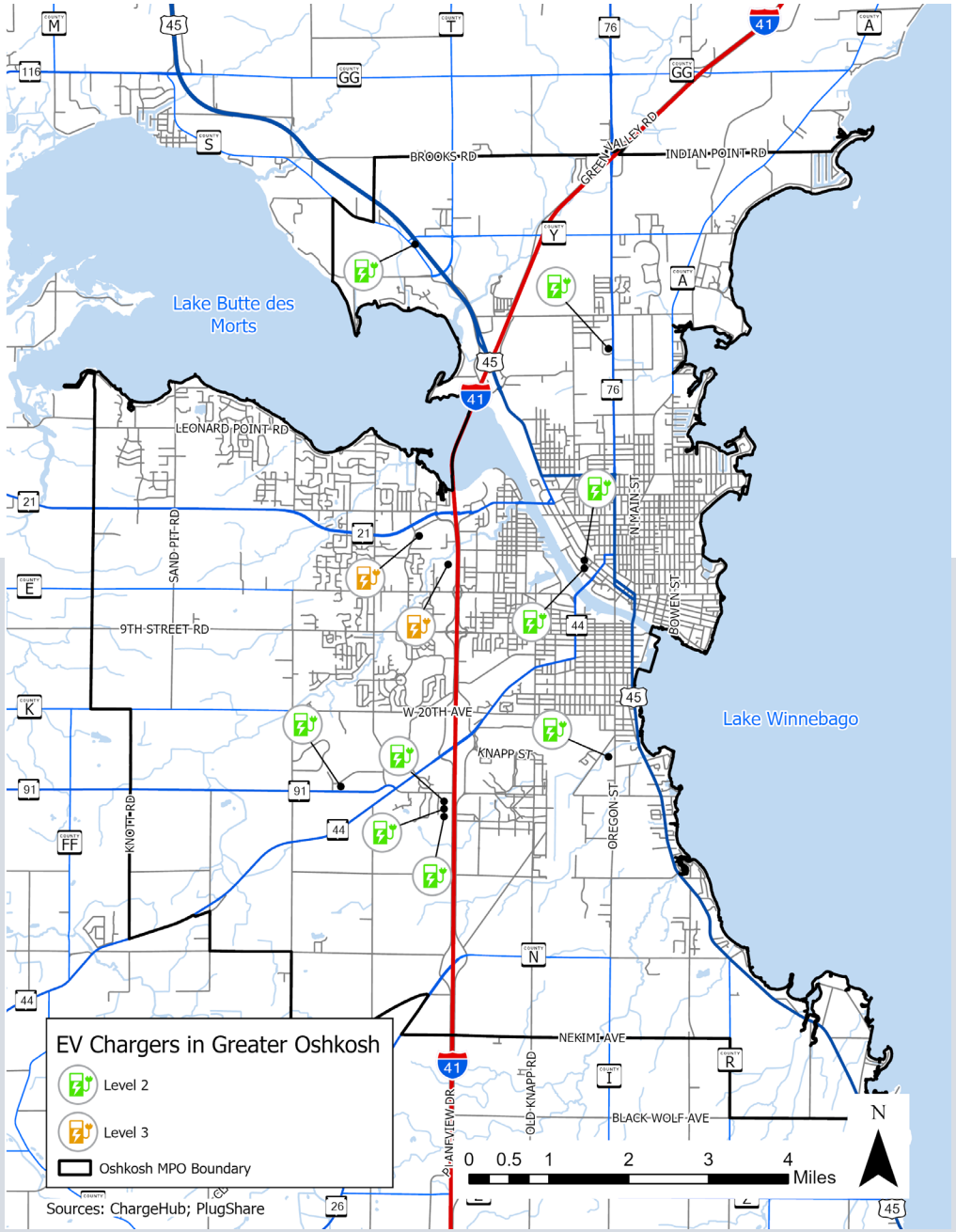
Charger "Levels"

Home Charging	Used for Public Charging	
AC Level One	AC Level Two	DC Fast Charge
		
Voltage 120 V – 1-Phase AC	**Voltage** 208 V or 240 V – 1-Phase AC	**Voltage** 208 V or 480 V – 3-Phase DC
Amps 12 – 16 Amps	**Amps** 12 – 80 Amps	**Amps** > 100 Amps
Charging Load 1.4 – 19 kW	**Charging Load** 2.5 – 19 kW	**Charging Load** 50 – 350 kW
Charge Time 20+ Hours (From 20% to 80%)	**Charge Time** 4 – 6 Hours (From 20% to 80%)	**Charge Time** 20 to 40 Minutes (From 20% to 80%)

Background

Current Public Charging Stations

- 24 Public Charger Ports
- Level 2 and Level 3 Ports:
  - 13 Level 2
  - 11 Level 3



From Background

Influences on Proposed Plan

- 10 Chargers – Car Dealerships
- Predominantly Free Charging
  - City is required to charge a fee
  - Use at fee-based charger, likely lower
- Use - Light

Oshkosh EV Charging Infrastructure Focus

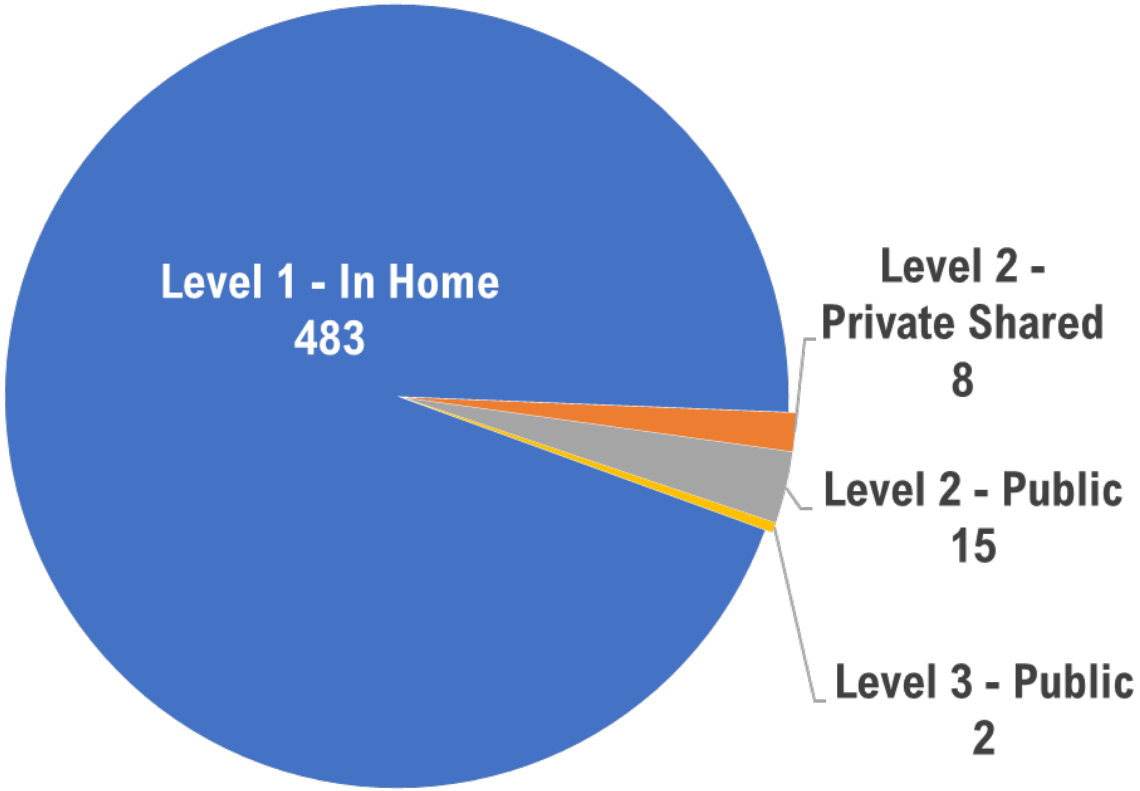
- Reflects targeted user (People parked for extended period)
- Cost (Assumes vendor will look for cost sharing with municipality)
- Infrastructure flexibility (Does not require power demand of Level 3)
- Reduces direct competition with “for pay” private chargers
- Avoids higher operating power cost (demand charges)

- Reflects targeted user (People parked for extended period)
- Supports a for pay/turn-key operations model

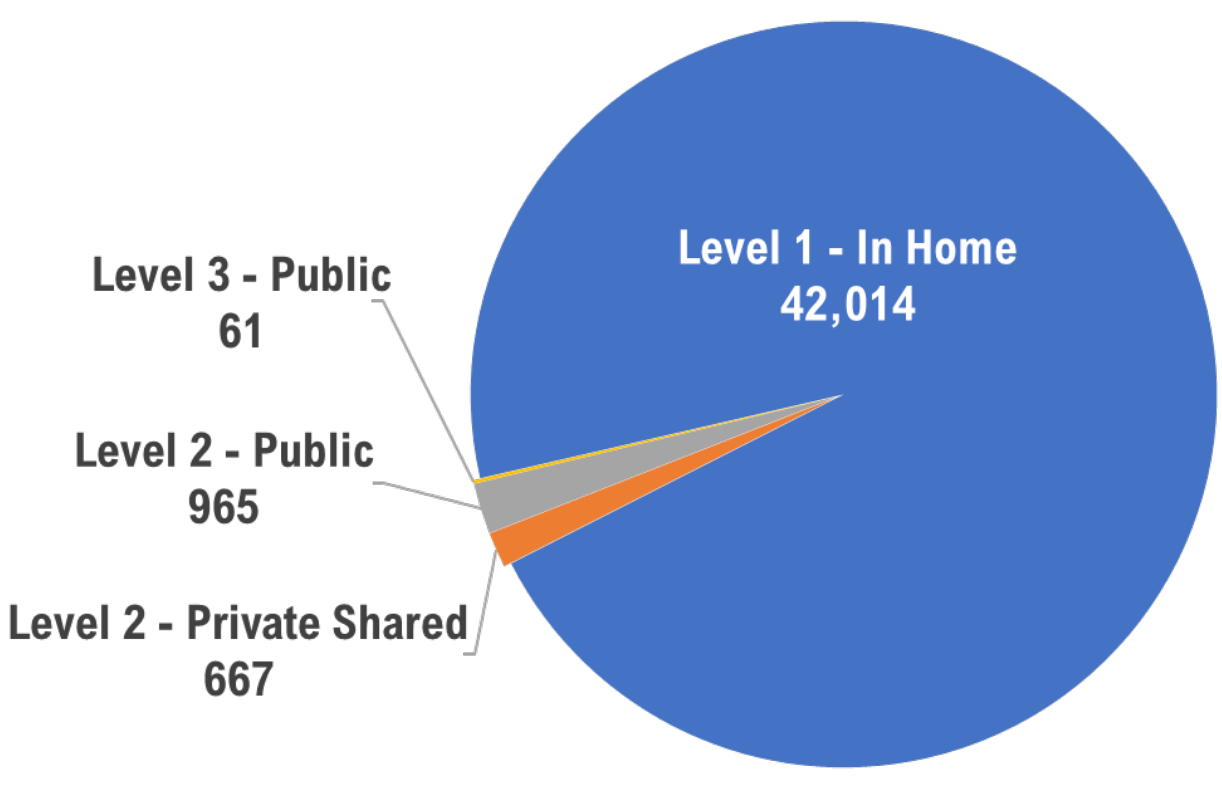
- Provides Expertise:
  - Management
  - Maintenance
- Reduces municipality risk
- Municipality may share some capital cost
- Depending on location/ use level – Municipality may receive revenue

Estimated Charger Need by 2050

TODAY



2050



Composition of Outside the Home Charging

Single Family Home

- Level 1 Ports
- Level 2 Ports

Shared Private

- Multi-Family Level 2
- Private Workplace Level 2

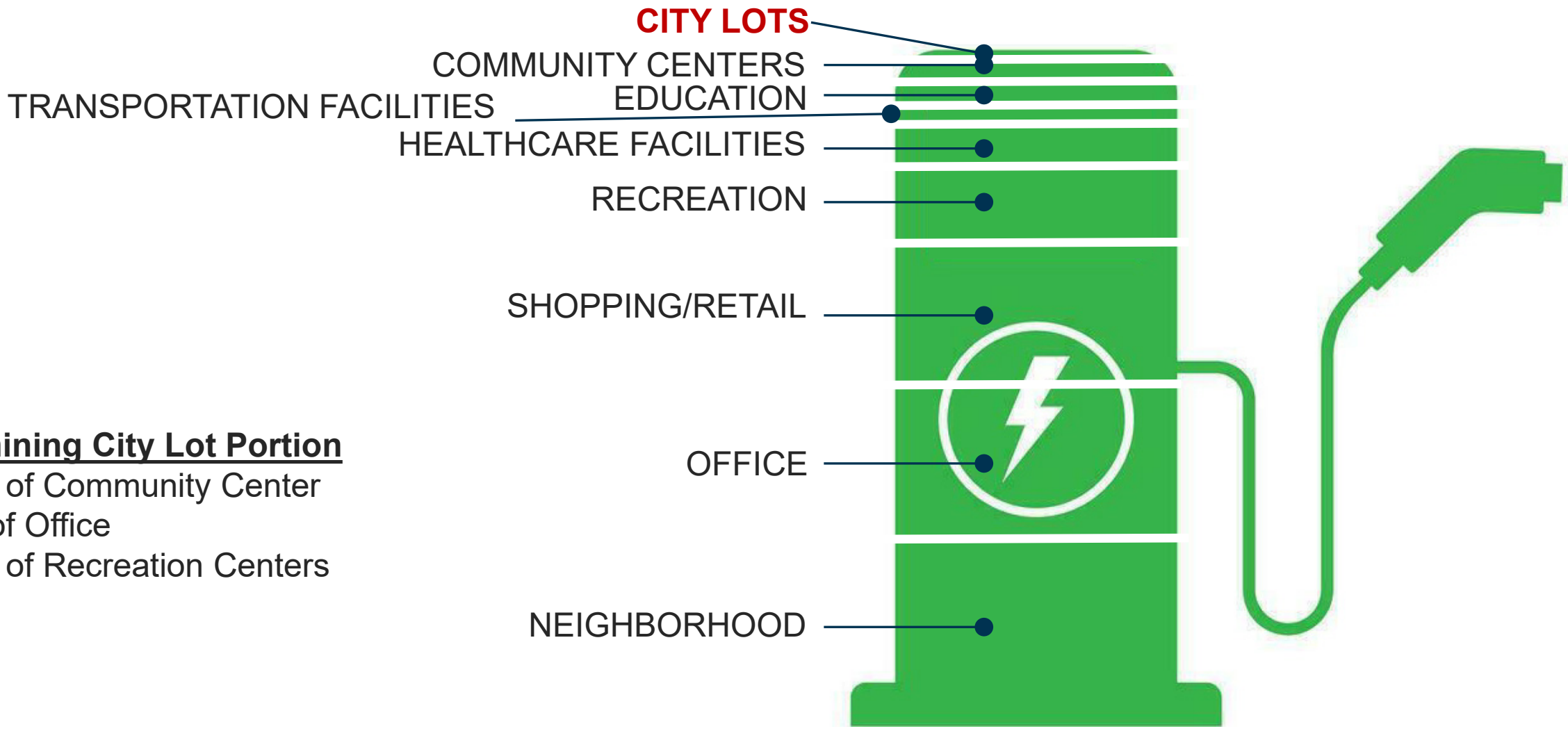
Public Level 3 (DC Fast Chargers)

- Shopping/Retail/Dining (150/250/350+ kWh Chargers)
- Recreation Center (150/250/350+ kWh Chargers)

Public Level 2

- Shopping/Retail/Dining
- Recreation Center
- Community Center
- Healthcare
- Education (Schools/Universities)
- Neighborhood (On-Street Charging)
- Transportation Facilities (Park-n-ride, Airports)
- Office

Public Charging Ports by Sector



Determining City Lot Portion

- 25% of Community Center
- 8% of Office
- 50% of Recreation Centers

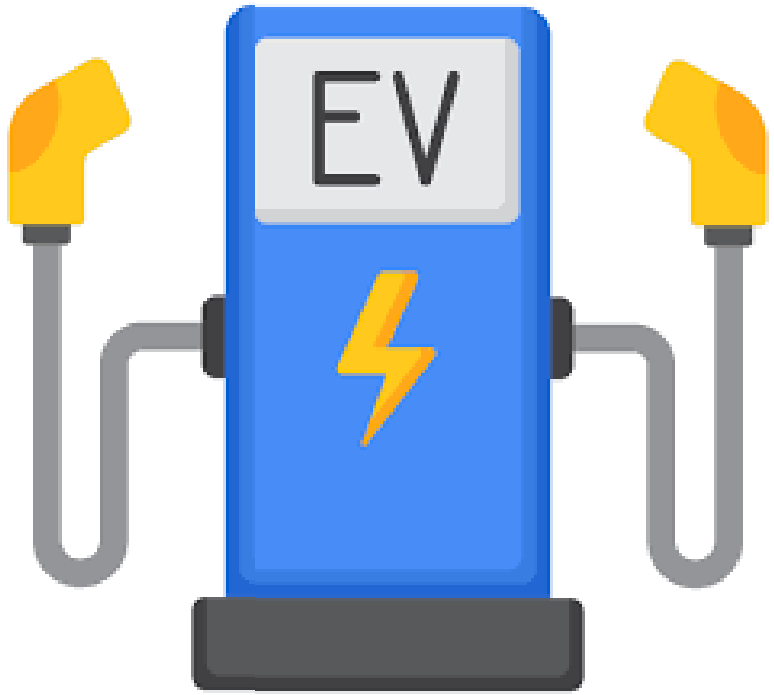
Regional Estimate of Ports – Public Facilities

- Public Parking Spaces
- City Employee Lots
- Convention Center
- City Parks

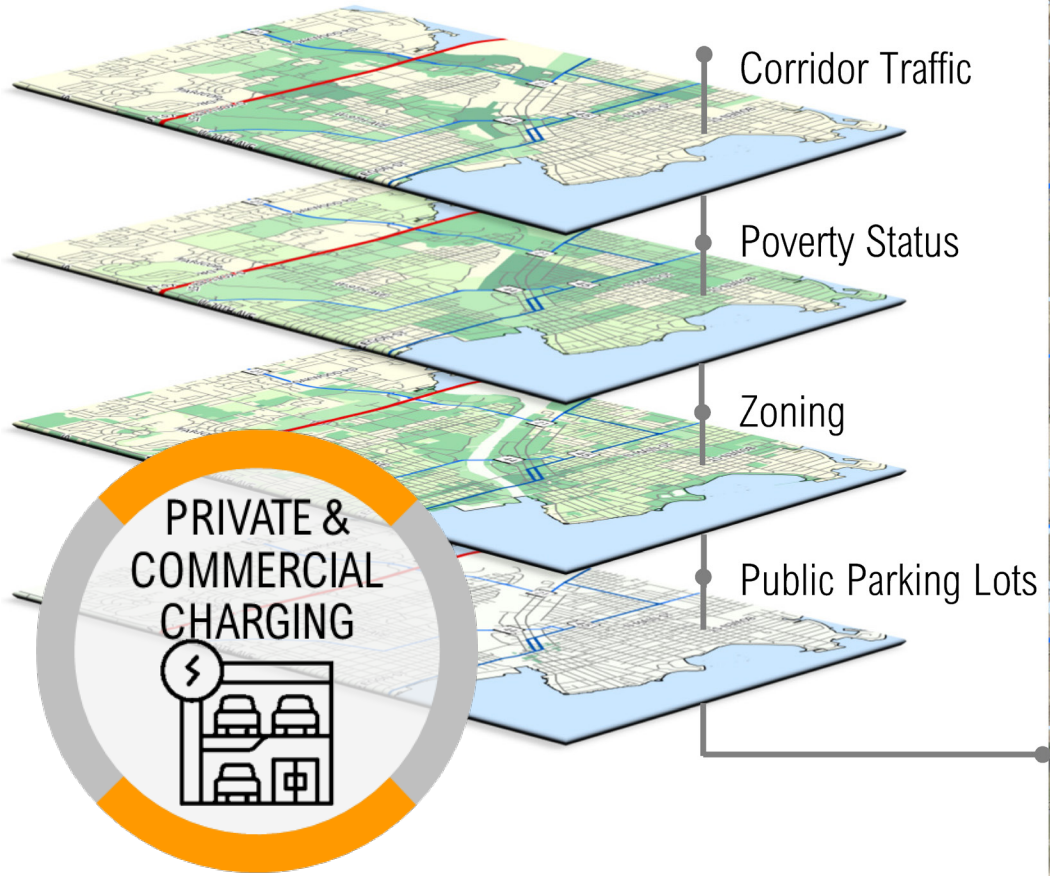
Number of Ports
By 2050

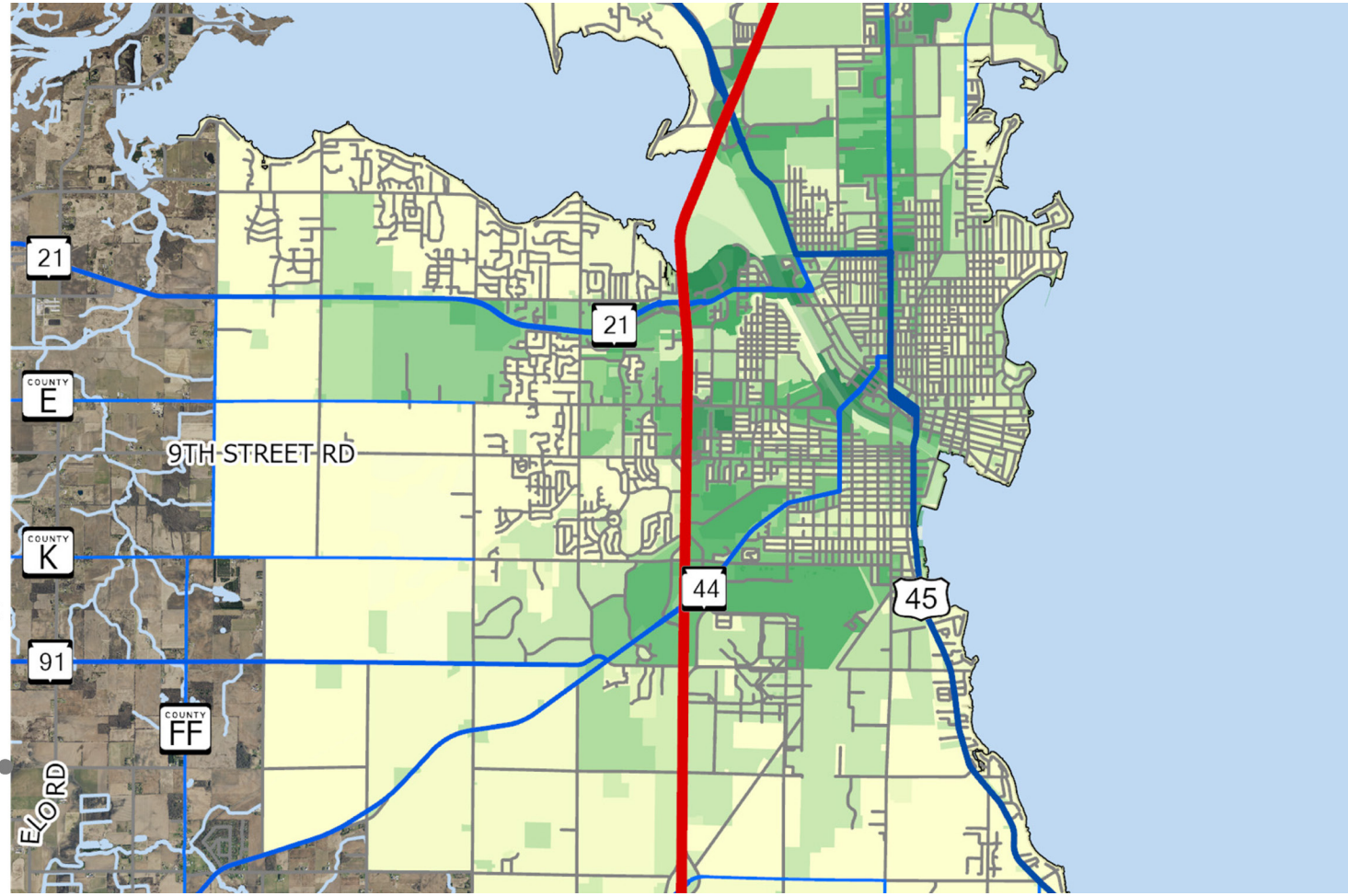
125

41



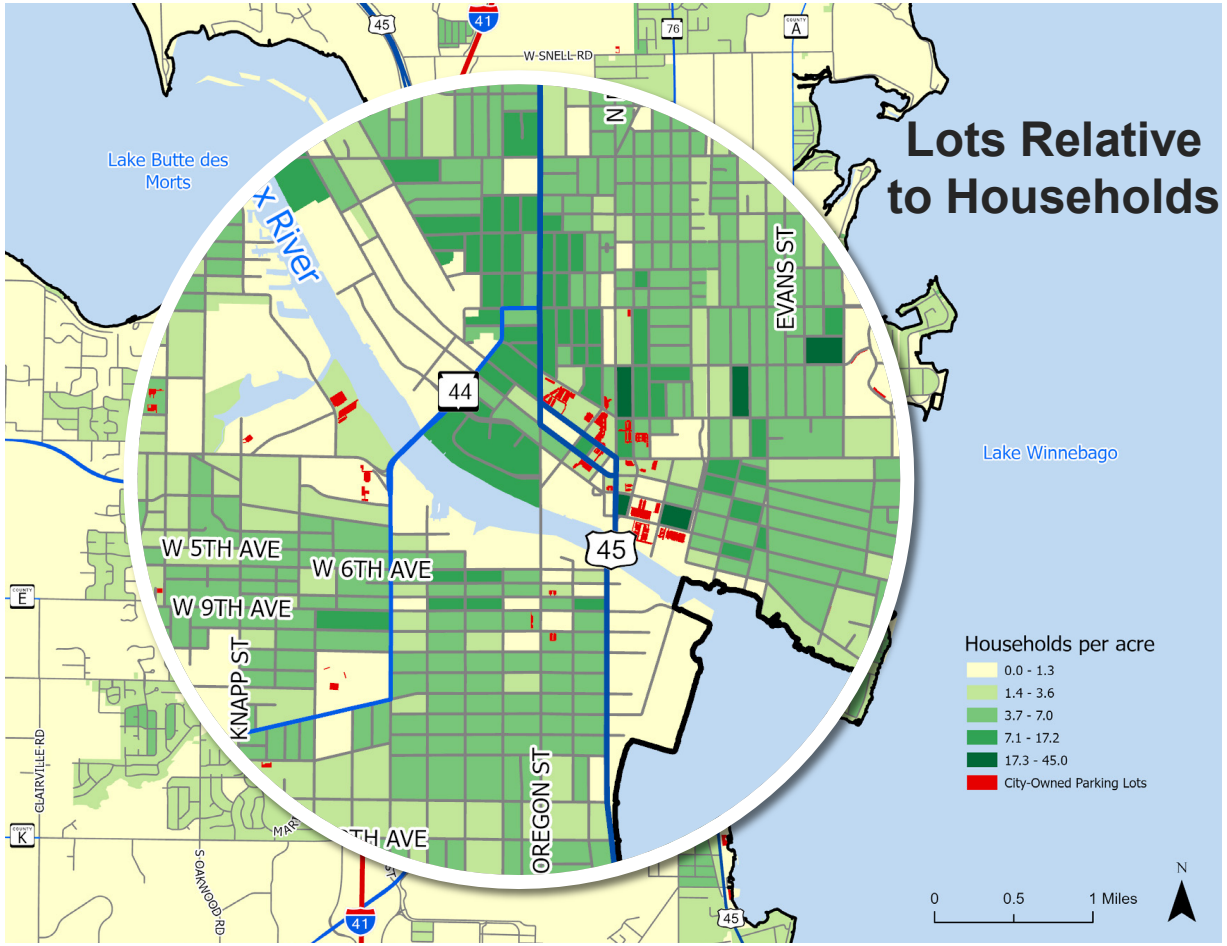
Review of Private Property Targets

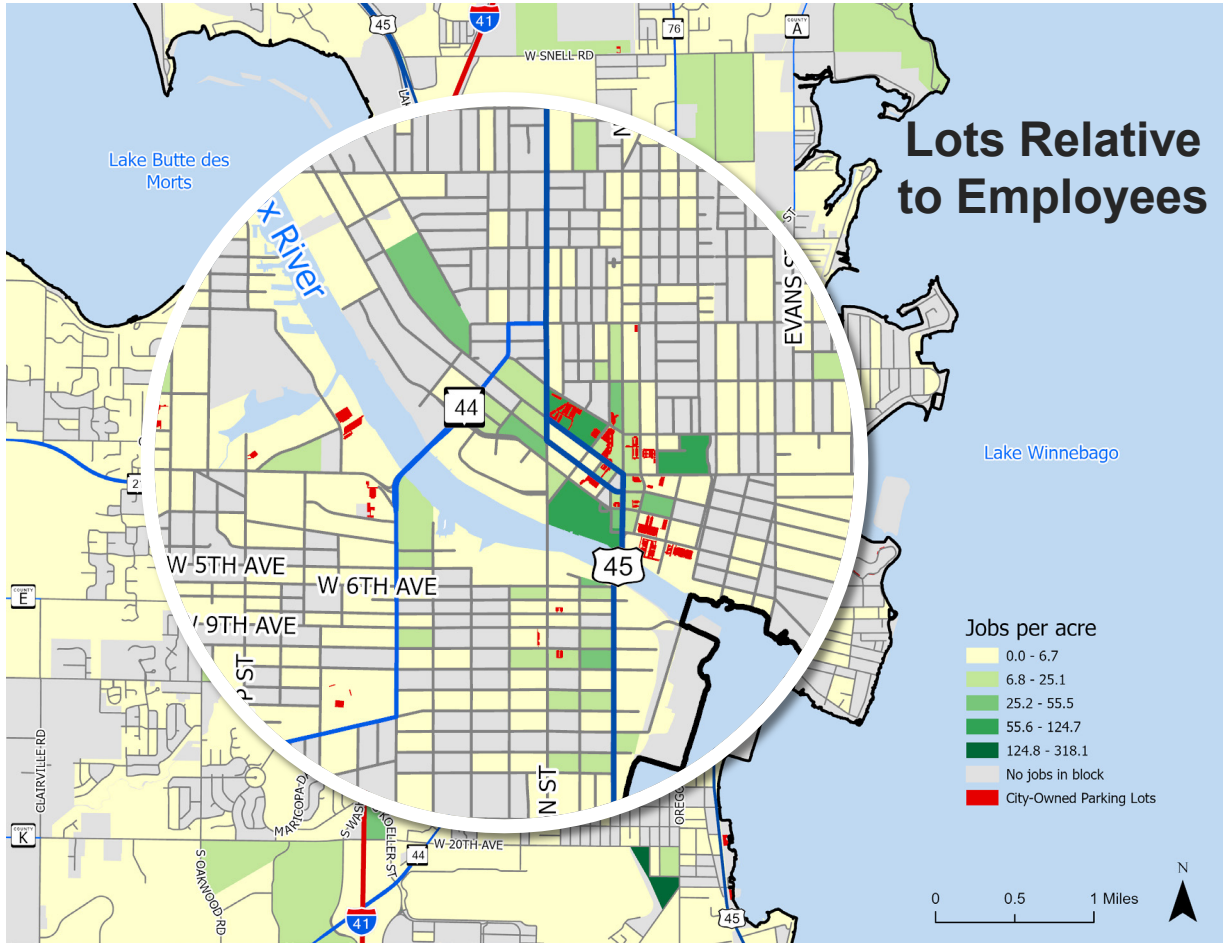




Locating Public Chargers

Selected locations should be convenient to target user



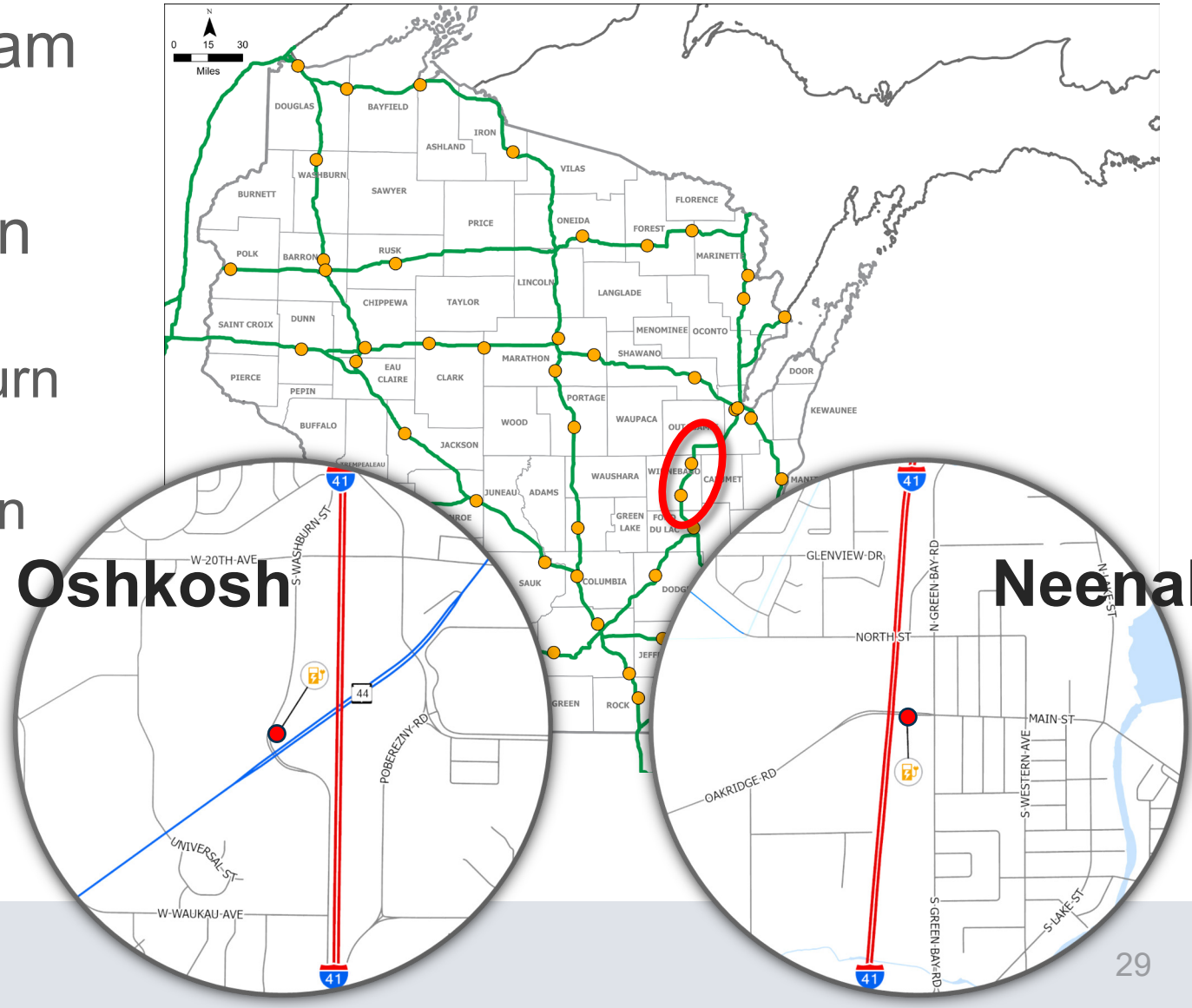


Who is the Targeted Public Charging User?

Period Available for Charger	> 8+ Hours	Venue Visitor: 1-3 Hours Work: Up to 8 Hours	>30 Minutes
Willingness to Pay For Charging Session	Low	Moderate Price	Higher Price
Charger Type	Typically: Level 1 Limited Use: Level 2	Level 2	Level 3
Location	Private Residence/Hotel	Work/Entertainment Venue/Park	Major Route

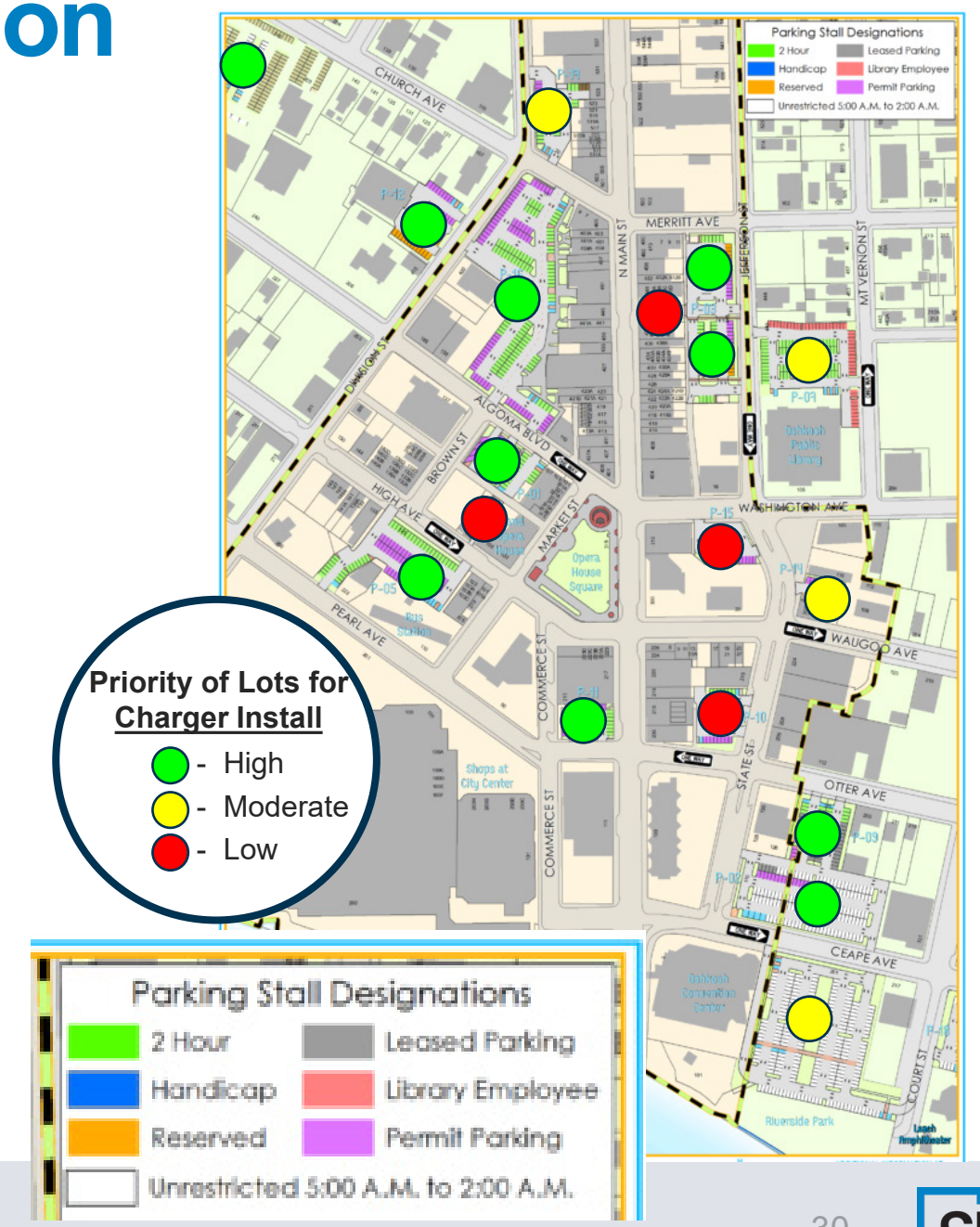
National Electric Vehicle Infrastructure Program

- WisDOT Managed Program
- I-41 is a Designated AFC
- Two Locations Selected in Round 1:
  - Kwik Trip – South Washburn Street
  - BP Station – Main Street in Neenah



Downtown Lot Implementation Phasing

- Pilot:
  - Vehicles are Expected to Park: >1-2 Hours
  - Reasonable Reserve Capacity: See Map
  - Power is Available at Location:
    - Downtown – Everywhere
- Convention Center Lot:
  - Two, two-port devices
  - North end of lot
- Lakeshore Park:
  - Test Park Concept
  - Two, two-port devices
- Contract Operations:
  - City – Electrical infrastructure
  - City - Install devices



EV Readiness – Initial Pilot Location

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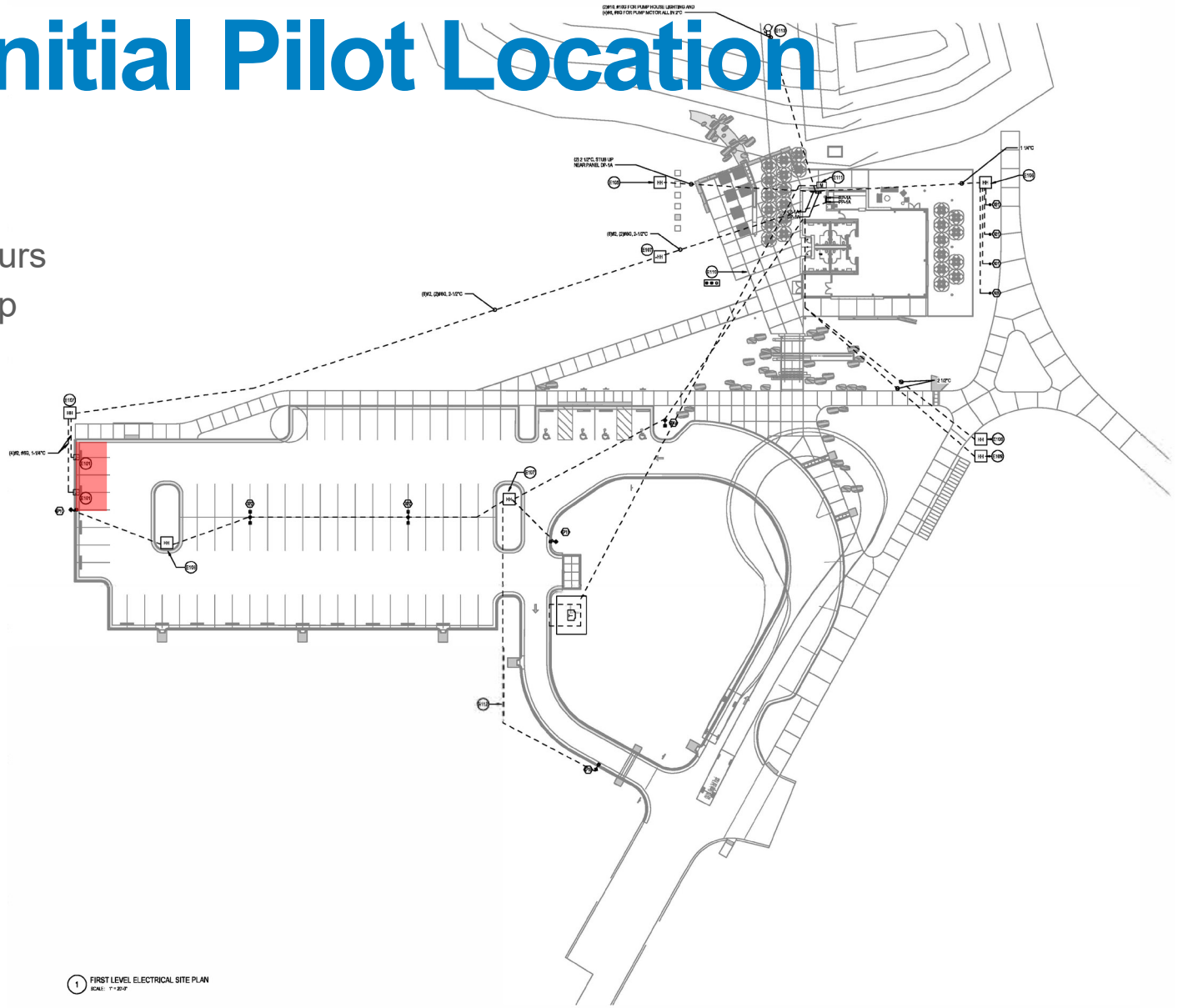
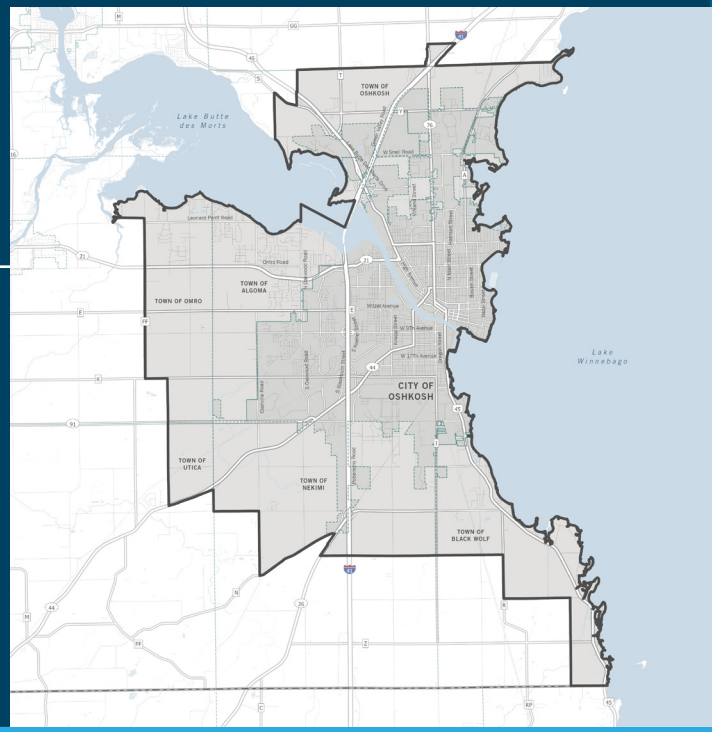


CHARGER
OWNERSHIP/OPERATIONS



Oshkosh EV Charging Plan - Recap

- Reflects targeted user (People parked for extended period)
- Cost (Assumes vendor will look for cost sharing with municipality)
- Infrastructure flexibility (Does not require power demand of Level 3)
- Avoids higher operating power cost (demand charges)
- Reduces direct competition with “for pay” private chargers (Future)

- Supports targeted user (People parked for extended period)
- Supports a for pay/turn-key operations model

- Provides Expertise:
  - Management
  - Maintenance
- Reduces municipality risk
- Municipality likely shares capital cost
- Depending on location/ use level – Municipality may receive revenue

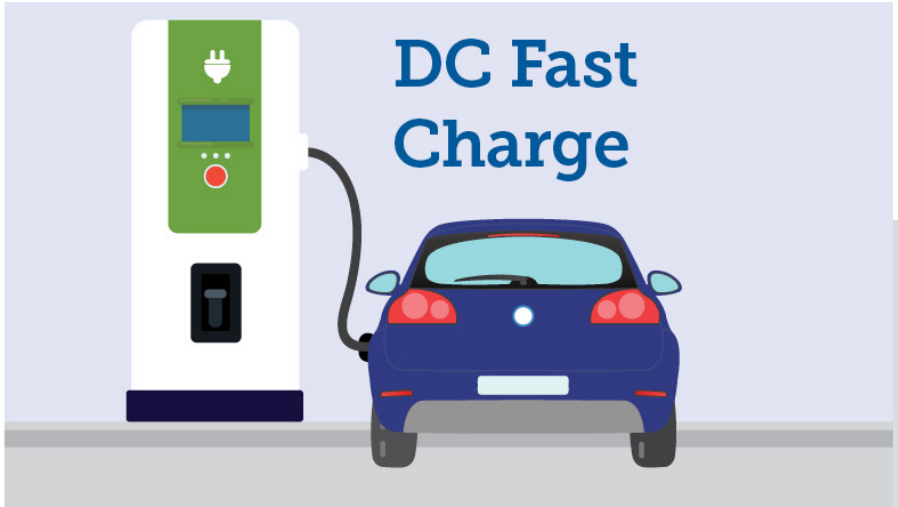
Background – Charger Cost/Power

Charge Time

Level 2
4 – 6 Hours

Level 3
20 – 40 Minutes

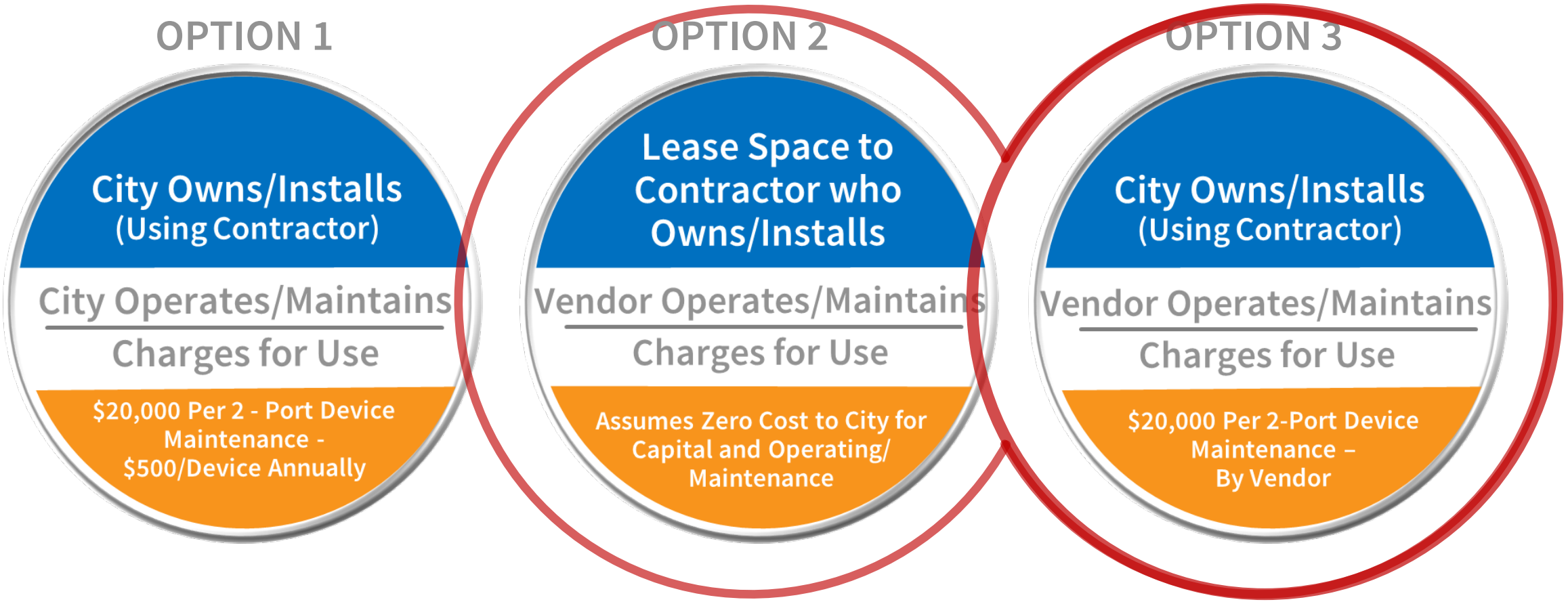
Used for Public Charging



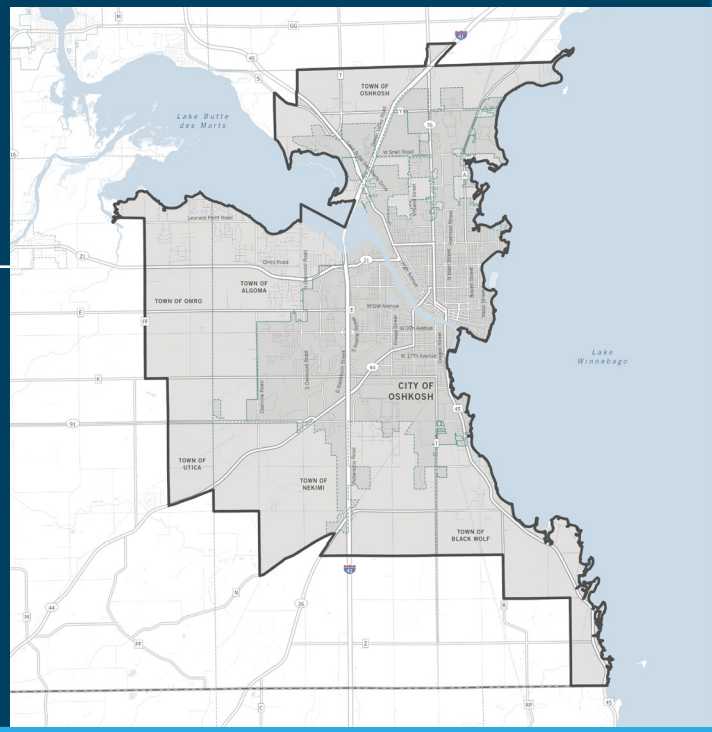
Cost is Per Port

$5,000	Device Cost	$35,000
$3,500	Installation Cost	$30,000
$500	Software/Network Cost (Annual)	$1,000
$500	Maintenance Cost (Annual)	$1,000
2.5 kW-19 kW	Power Output	50 kW – 350 kW

Construction/Operating Scenarios Considered in Plan



DISCUSSION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Wrap-up

Contacts

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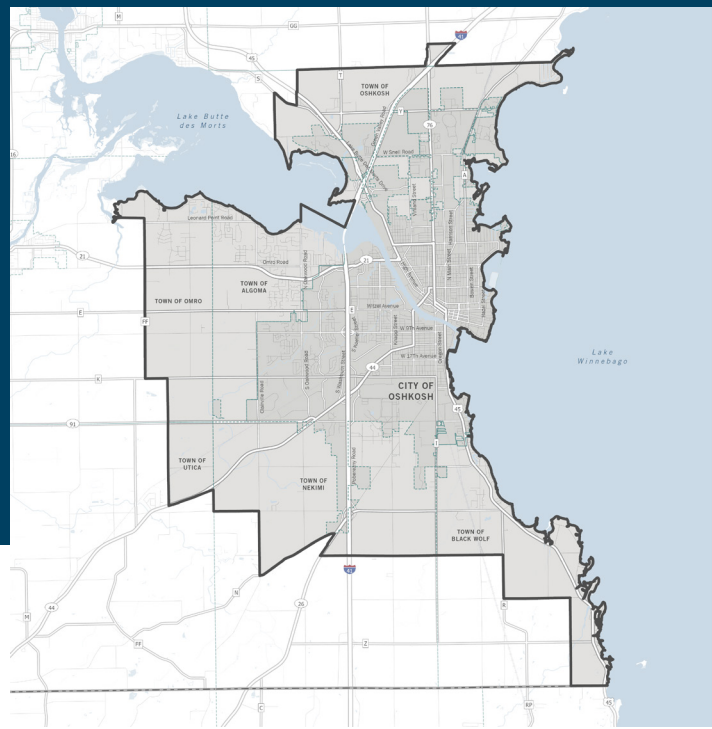
  763-452-4765

Thank you!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