



EV Public Charging Needs Analysis

Transportation Advisory Board



June 17, 2026

Overview

Presentation Topics

- Project objective and approach
- Background information and EV planning best practices
- Estimated charging needs and gaps
- Prioritized locations for investment
- Next steps



Project Objective

Planning an EV charging network for the region

- Planning level analysis of the remaining gaps in publicly available EV charging infrastructure beyond what already exists
- Identification of what part the public sector might play a role in

Project Results

**Accommodate
& accelerate
light duty EV
adoption**

**Inform the
award of federal
funds via
Regional
Solicitation**

**Inform charging
infrastructure
location needs
and CFI fund
usage**

**Provide
guidance to
cities and other
regional entities**

Approach

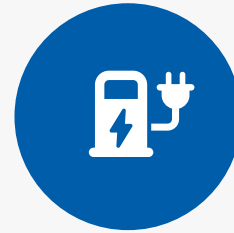
Focus Areas



**Collect
Background
Information**



**Engage
Stakeholders
and the Public**



**Estimate
Charging Needs
& Gaps**



**Prioritize Locations
for Public
Investment &
Develop
Interactive Map**

Background Information

- Reviewed federal, state, and industry guidance on planning public EV charging investments
- Analyzed dwell times to understand charging behavior across land uses
- Engaged electric utilities and private-sector charging providers to document existing plans
- Assessed needs for multifamily residents, underserved communities, and potential medium/heavy-duty charging use cases
- Evaluated seasonal and temperature effects on charging demand and incorporated community feedback



EV Charging 101

Different types of charging to meet different drivers' needs:

	Power Output	Charging Time	Cost for Equipment, Installation, and Site Costs
Level 1	1 kW	1-3 miles range / 1 hour of charging	\$0 to \$1,800 per port
Level 2	7 kW-19 kW	15-30 miles range / 1 hour of charging	\$800 to \$33,000 per port
Direct Current Fast Charger (DCFC)	Low: 50-150 kW Medium: 150-250 kW High: 250-350 kW	100-200+ miles range / 30 minutes of charging	\$30,000 to \$120,000+ per port

Using Dwell Time to Inform EV Planning

Matching EV charging type to dwell times and land use

- Dwell time is time that vehicles spend parked in a location, which can be time spent charging an EV
- Dwell time is the key considerations for selecting the appropriate charging type
 - DCFC are appropriate in locations when EV drivers stop for less than an hour
 - Level 2 chargers are cost-effective when EV drivers stop for a longer period
- Used Replica data aligned to American Community Survey (ACS) data at the census tract level to capture dwell time in the region
 - Simulated typical day of trips at the census tract level
- Assumed multi-family housing residents always seek a charge, single family home owners sometimes seek public charging

Estimating Charging Needs and Gaps

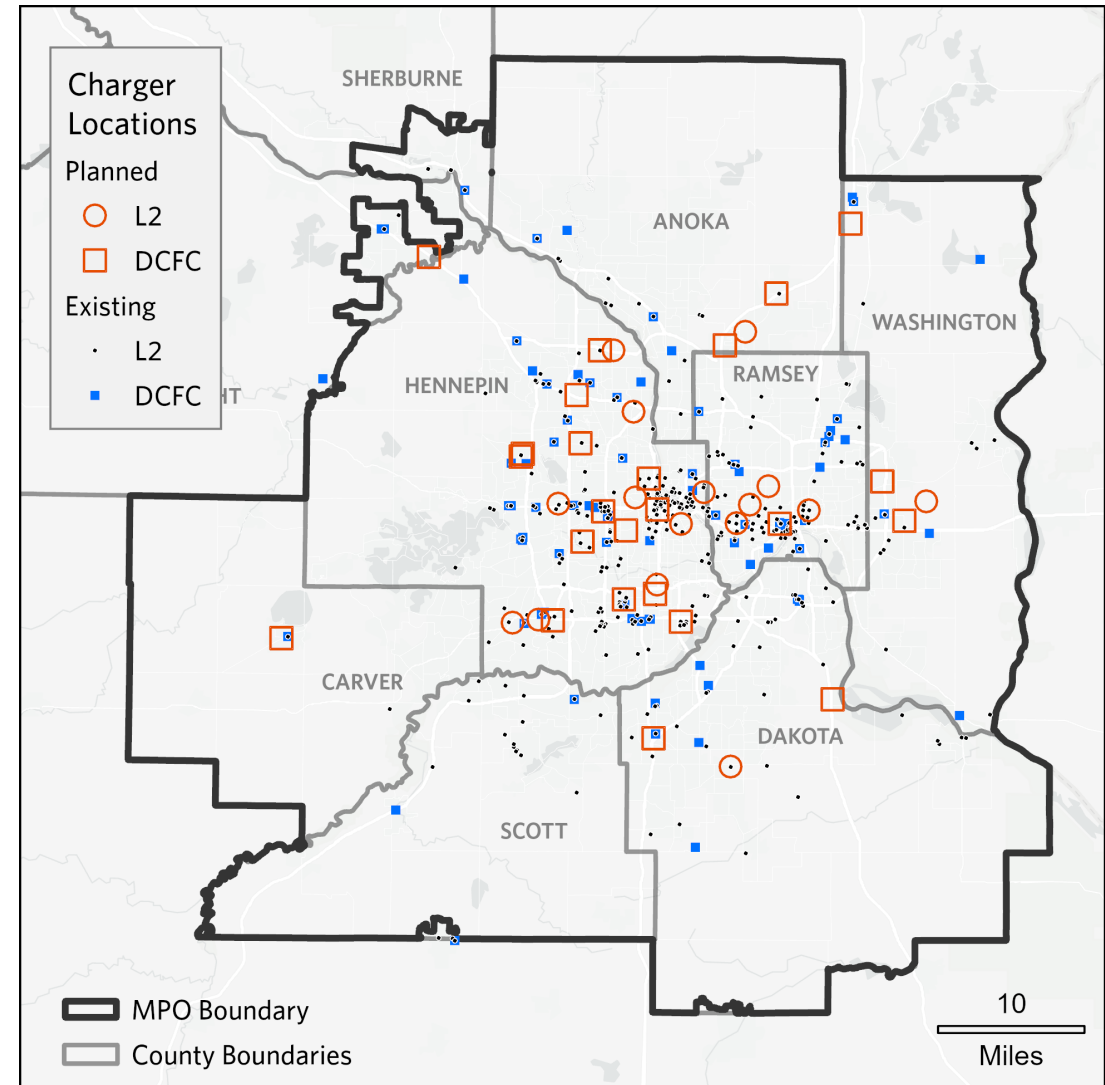
Our Process

- ☑ Identify existing and planned stations
- ☑ Forecast future EV demand across the region
- ☑ Estimate publicly accessible charging needs across the region
- ☑ Distribute charger demand at the census tract level based on:
 - Housing Type and Household Income
 - Travel Behavior (Dwell Analysis)
 - Land Use

Estimating EV Charging Needs

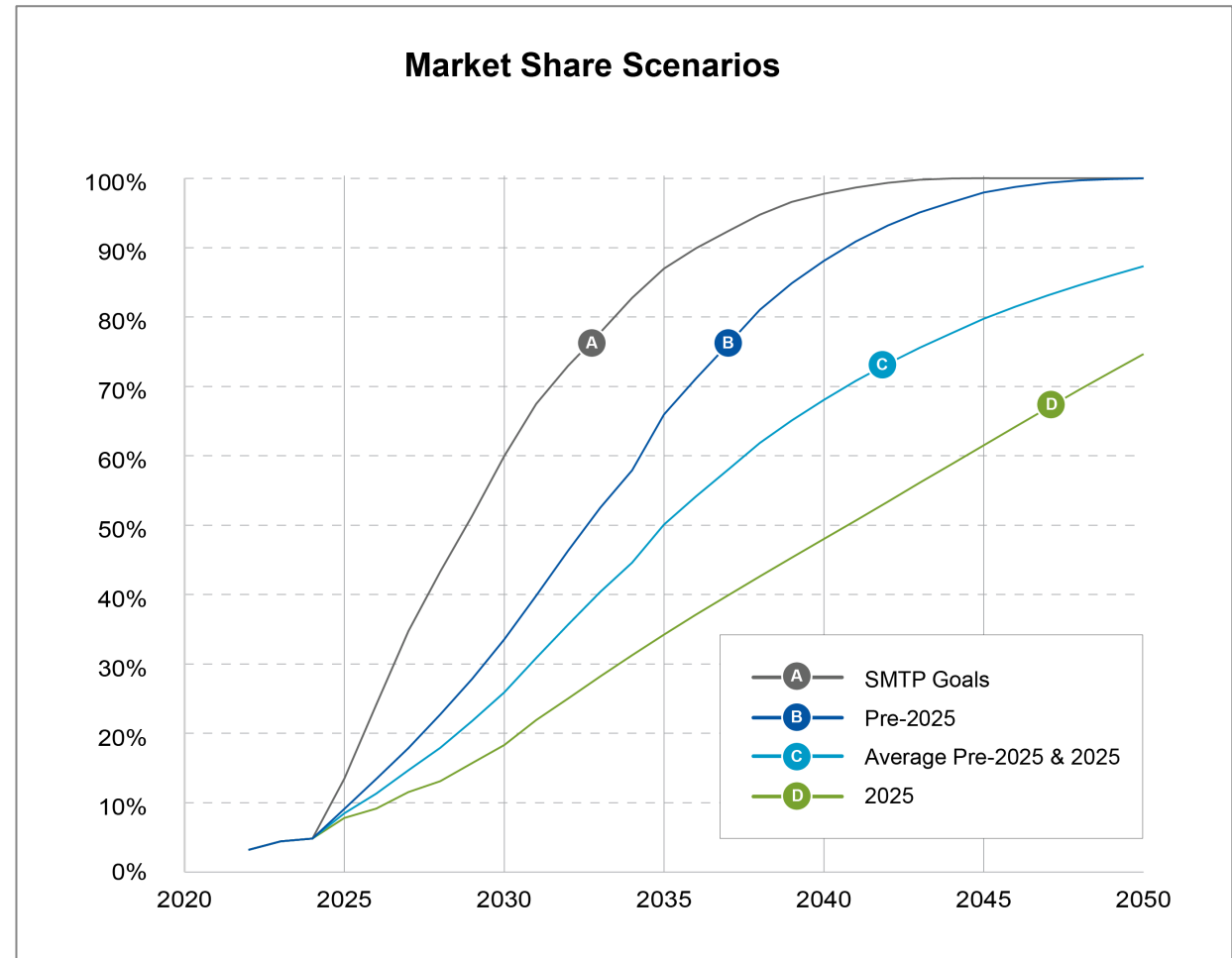
Identify Existing and Planned Charging Stations

- **DCFC Stations**
 - Near major corridors
 - Primarily in or on the outskirts of Hennepin and Ramsey County
- **Level 2 Charging Stations**
 - Concentrated in Minneapolis, Saint Paul, Hennepin County, and Ramsey County
 - Periphery counties have few chargers, even along major corridors



Forecast Future EV Demand

- Using **historic vehicle registration data + national EV market share trends**, developed **four scenarios** to project estimate of light-duty electric vehicles on the road in 2025
- **Average of Pre-2025/2025** chosen as forecasting input
 - **~In 2040, about 30%** of light-duty vehicles on the road estimated to be battery electric
 - **~1,222,600 EVs** (main input for estimating future charger demand)

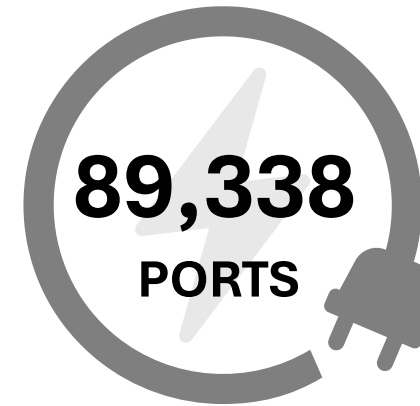


Estimate Charging Needs

Total Ports Needed by 2040 (EVI Pro-Lite)



 = 1,000 ports



 Level 1: 3,810 ports

 Level 2: 80,002 ports

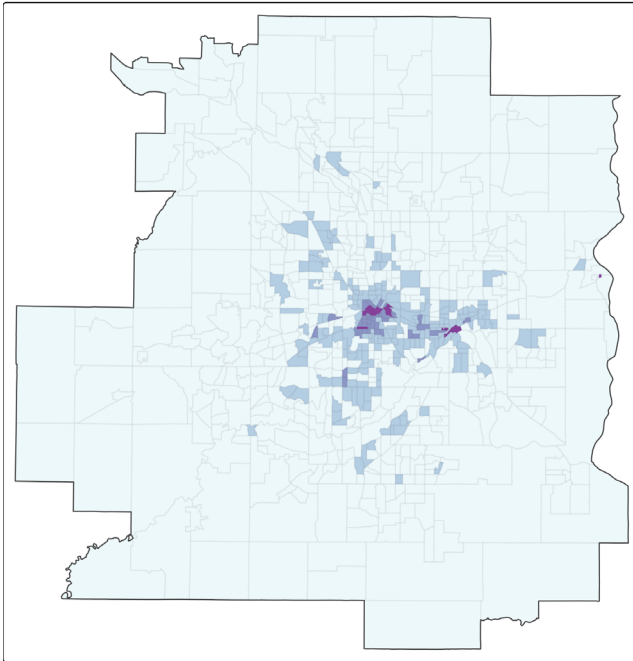
 Level 3 (DCFC): 6,236 ports

Existing Ports Account for about ~2% of Total Demand by 2040

Match Charging to Land Use, Dwell Time and Future Demand

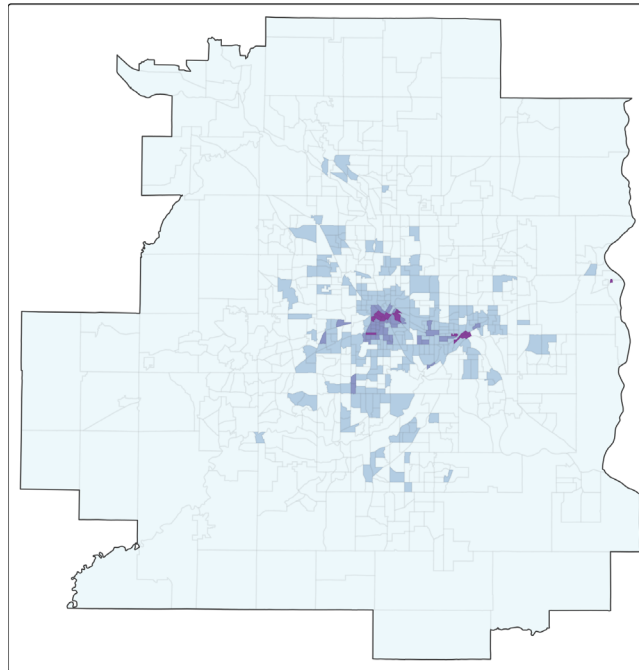
1. **Develop demand weights** by census tract based on dwell analysis and land use suitability
2. **Disaggregate regional totals** (from EVI Pro-Lite analysis) to census tracts, proportional to the demand weights
3. **Subtract existing ports** from each census tract to determine the net charging needs for each tract

Level 1



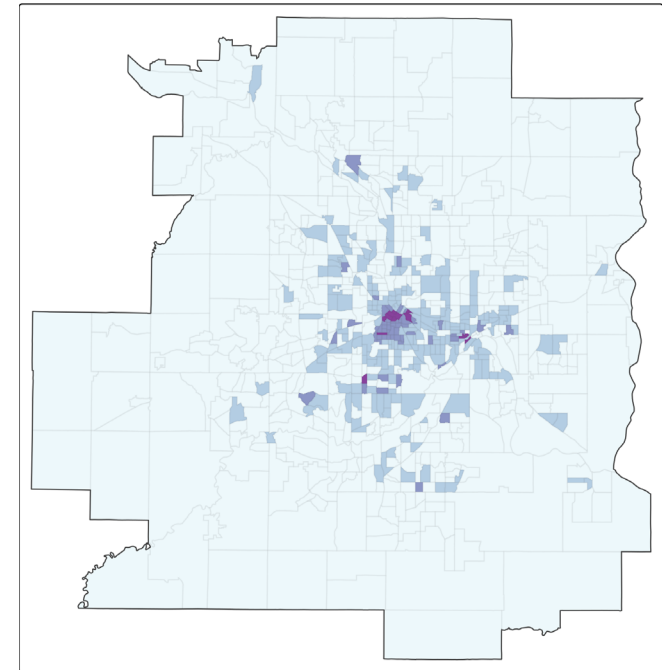
Total: 3,810 ports

Level 2



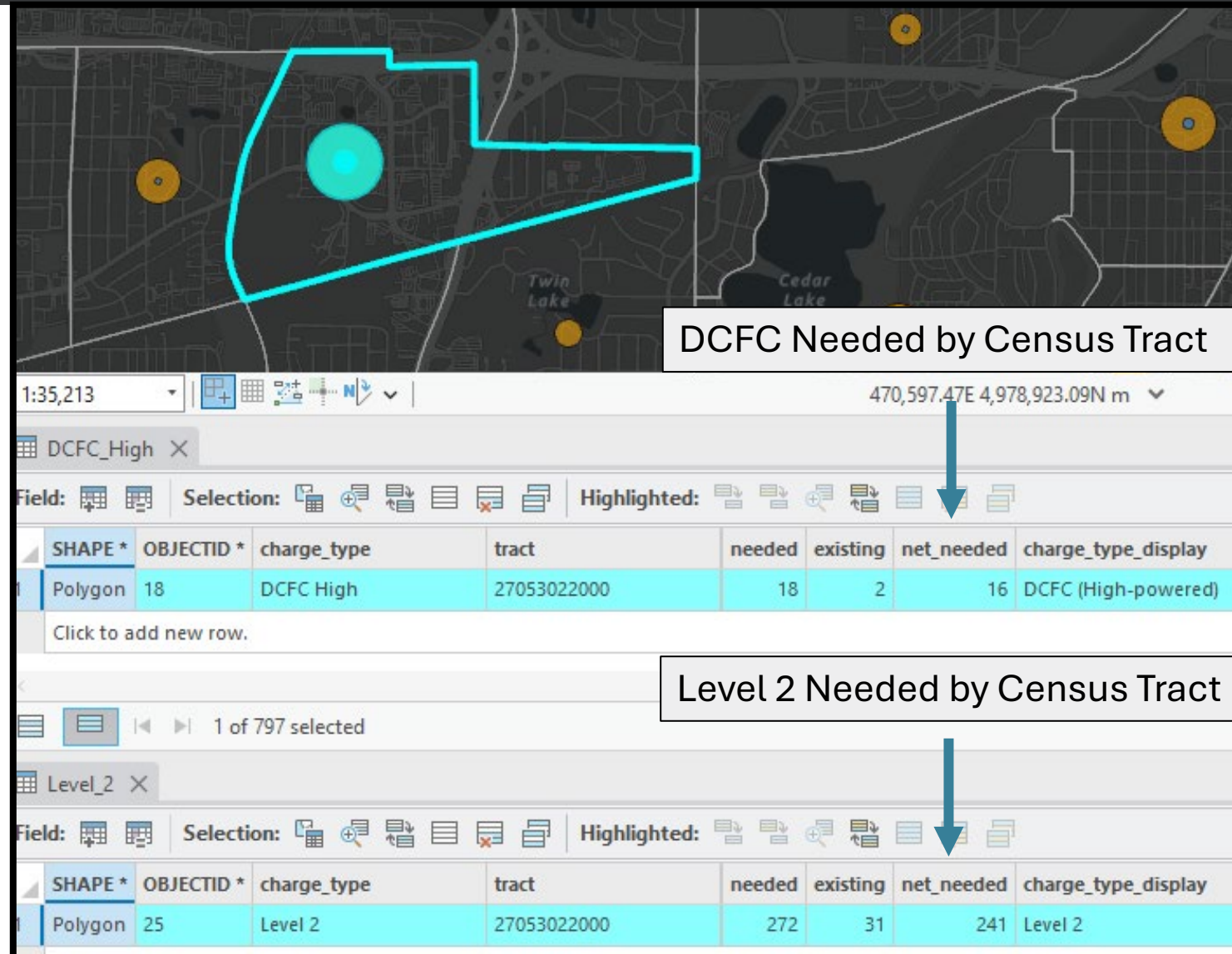
Total: 78,601 ports

DCFC (All)



Total: 5,668 ports

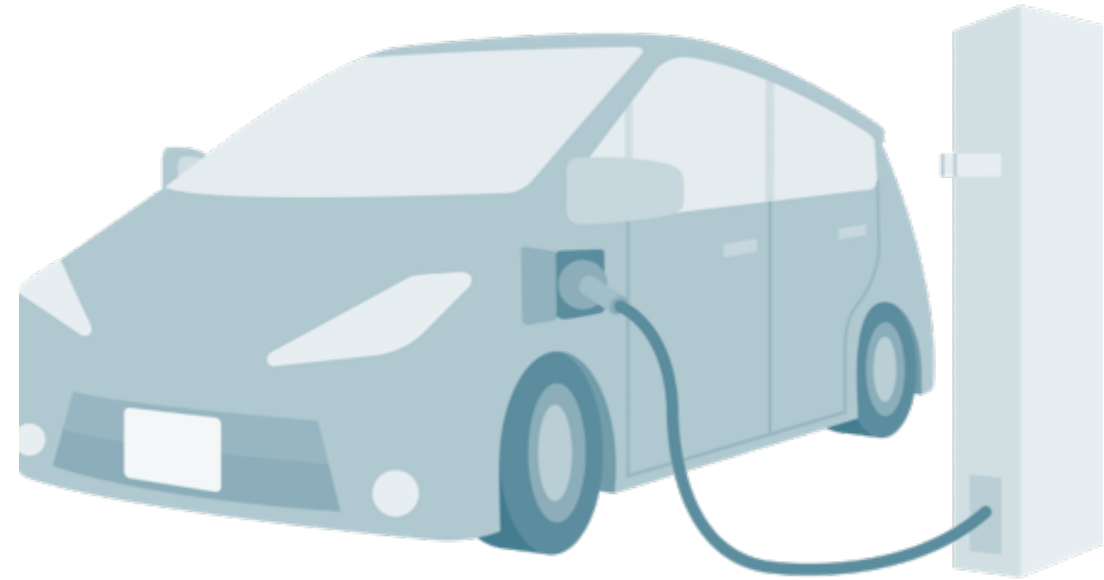
Sample Results at the Tract Level



TPP Regional Goals & Charging Network Priorities

Regional Goals & Priorities

- We lead on **addressing climate change**
 - Charging Network Priority: Site chargers at high traffic locations
 - Charging Network Priority: Consider geographic coverage
- Our region is **equitable and inclusive**
 - Charging Network Priority: Prioritize charging for residents without access to home charging
- Our communities are **healthy and safe**
 - Charging Network Priority: Support air quality improvements
- Our region is **dynamic and resilient**
 - ~~Charging Network Priority: Promote redundancy in the charging network~~



Stakeholder Engagement Summary

Approach & Activities

The community engagement approach centered perspectives of people most likely to rely on public charging. To achieve this, the project team focused on engaging two primary audiences:

- Community groups, organizations, and leaders who work closely with residents and could provide insight into equity considerations and charging access barriers.
- Community members who are less likely to have access to at-home charging, such as renters, residents of multifamily housing, and people living in older homes (pre-1925 homes without garages), as well as existing EV users who rely on public charging.

Activities (298 engagement touch points)

- 13 one-on-one interviews
- Online open house and survey (262 participants)
- 23 presentations to neighborhood organizations and residents' groups

All engagement was led by Bellwether Consulting

Stakeholder Engagement Summary

Findings

- There is strong support for prioritizing future public chargers in locations for residents without access to home charging.
- Everyday and long-dwell time destinations are the most preferred charging locations because they allow people to integrate charging into their daily schedules rather than making a separate trip solely to charge.
- Charger reliability, safety, and maintenance are as important as charger location. Public charging is essential, not supplemental, for many EV users and future users.
- Affordability and price transparency are barriers to EV adoption.
- Public charging investments should align with transportation and community goals.



Prioritization Approach: Combining the Measures

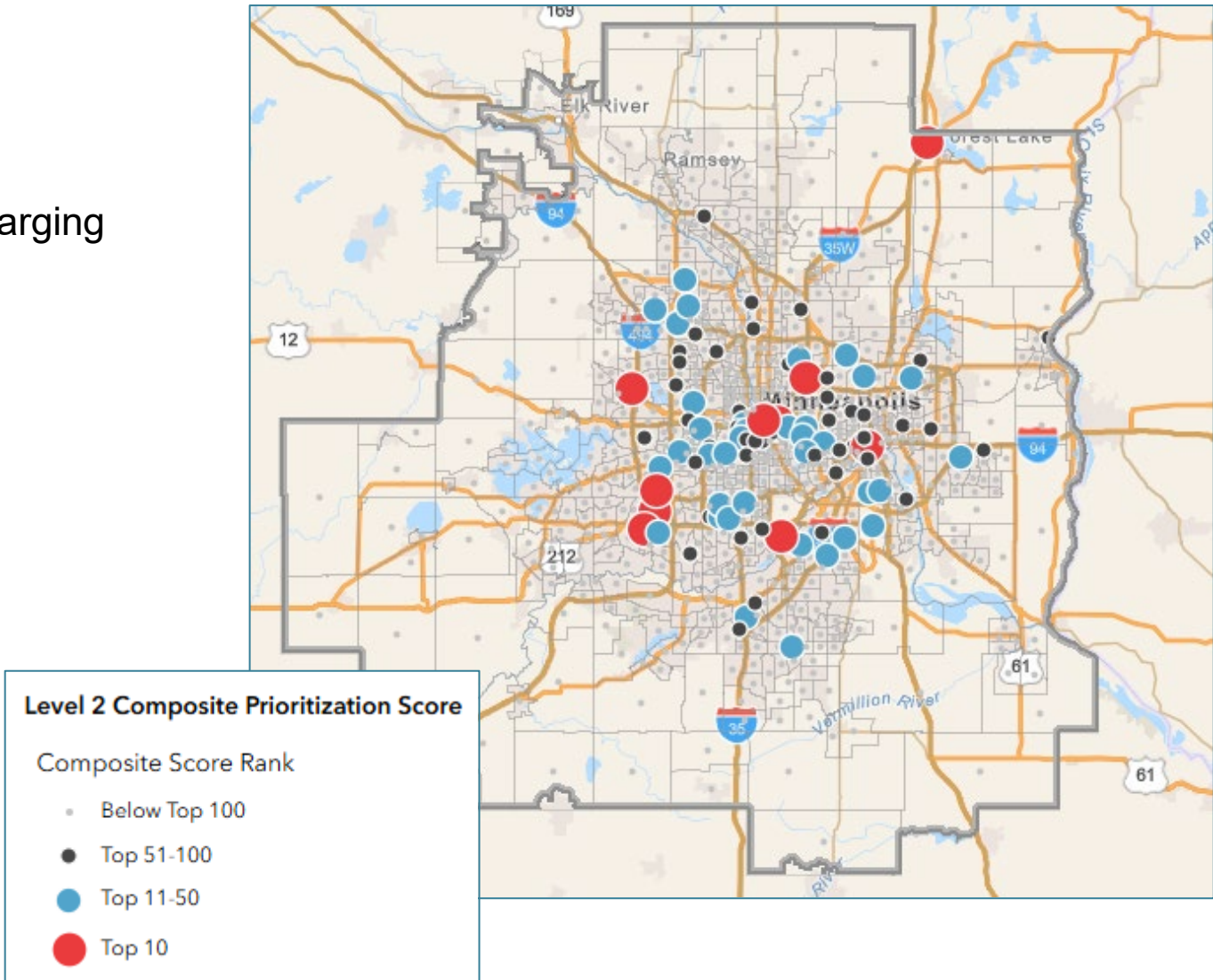
Translating Goals & Priorities into Measures

TPP Goal	Charging Network Priority	Measure	L2 Weight	DCFC Weight
Addressing Climate Change	Site chargers at high traffic locations	Future Public Charging Needs: Estimated number of charging ports needed to support forecasted publicly accessible EV charging in 2040 by census tract	15%	25%
Equitable & Inclusive	Prioritize charging for residents without access to home charging	Multi-family Housing Trips: Estimated number of trips associated with multi-family housing trips aggregated at the census tract level.	45%	40%
		Low-Income Trips: Estimated number of trips taken by residents with household income <\$75K aggregated at the census tract level.	15%	10%
Healthy & Safe	Support air quality improvements	Traffic-Specific Air Pollutants: Concentration of traffic-specific air pollutants in census tract	15%	15%
	Consider geographic balance	Rural Trips: Estimated number of trips to destinations in census tracts in Rural Town Centers	10%	10%

Prioritization Results

Level 2 Charging

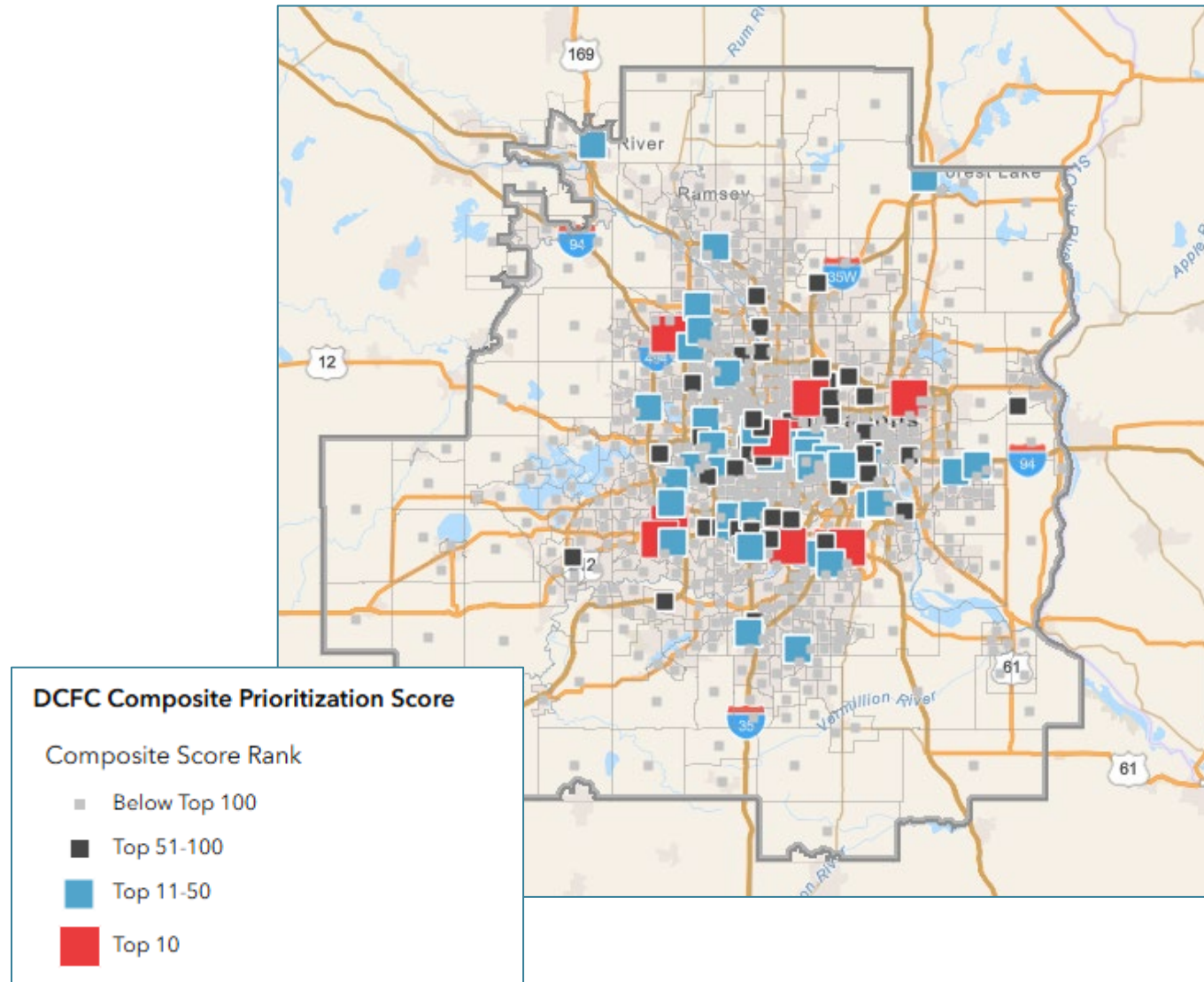
- Top 100 census tracts for Level 2 charging
- Composite score of all measures



Prioritization Results

DC Fast Charging

- Top 100 census tracts for DCFC
- Composite score of all measures



What's Next?

- Final report and interactive map to be published this summer
- Planning for \$7m solicitation in 2028
 - Data updates including air pollutants
- EV City Support Project began March 2026
- EV Public Engagement RFP Q3 2026
- Draft 2027 UPWP includes EV Curbside Charging Implementation Cohort

