



2022 DOE Vehicle Technologies Office Annual Merit Review

Twin Cities Electric Vehicle Mobility Network

Lisa Thurstin | Principal Investigator
American Lung Association | Minnesota Clean Cities Coalition

Project ID: TI126
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EV Spot Network
Evie Carshare
Multifamily: Equitable Electric Mobility

This presentation does not contain any proprietary, confidential, or otherwise restricted information.

Updated 4.29.22

Overview

Timeline

- Start: October 1, 2020
- End: December 31, 2023
- 50% complete

• Barriers Addressed

- Public with limited or no access to a garage and/or who cannot afford to purchase an EV
- Lack of public charging infrastructure

• Targets

- 70 Community Hubs (280 L2 + 12 DCFC)
- 200 Shared electric vehicles
- 25 Multi-unit dwellings with EVSE & EV

Budget

Total project funding: \$13,340,039

DOE share: \$6,653,985

Cost share: \$6,686,054

2021 (BP1): \$7,168,439

2022 (BP2): \$4,035,089

Partners

- American Lung Association
- City of Saint Paul
- City of Minneapolis
- East Metro Strong
- HOURCAR
- Xcel Energy

Project Objectives

Objectives

deploy electric vehicle charging and electric vehicles

Create a community focused mobility network

Provide supporting outreach and education

Technology Integration Goals

National Security

Economic Growth

Affordability for Consumers

Impacts

Increased EV adoption & awareness

Increased availability of electric vehicle charging infrastructure

Documented best practices for one-way & two-way carshare

Project Approach

Implement

- Finalize locations for community charging hubs/begin installation
- Place vehicles into carshare program
- Recruit multi-unit dwellings
- Initiate outreach and promotional activities

Install

- Complete final installations
- Incorporate 2nd set of vehicles into carsharing
- Initiate dedicated carsharing at multi-unit housing locations.

Data
Collection

- Support the use of infrastructure and carsharing
- Collect data and disseminate lessons to other regions.

Milestones

Budget Period 1

Milestone	Type	Description
Messaging developed	Technical	Messaging and branding for communications and outreach activities finalized.
DCFC site locations determined	Technical	Locations for ≥12 DCFC installations identified.
Electric carshare vehicles deployed	Technical	≥50 electric vehicles in the public carsharing program deployed.
Educational activities launched	Technical	≥5 ride-and-drive or other outreach events executed.
Level 2 EVSE site locations finalized	Technical	Locations for ≥70 Level 2 EVSE hubs determined and site evaluations underway.
Charging Hub Locations Installed	Go/No Go	≥30 charging hub locations have Level 2 EVSE installed.

Budget Period 2

Milestone	Type	Description
Multi-unit dwelling EVSE installation and carsharing launched	Technical	EVSE available and EV carsharing initiated at five low-income multi-unit housing locations.
Installation of Level-2 community charging hubs complete	Technical	All Level 2 EVSE at the ≥70 community charging hubs installed and operational.
Additional multi-unit dwellings will begin service	Technical	EVSE installed at ≥10 new low to moderate income multi-unit housing locations and carsharing vehicles deployed
Educational activities continue	Technical	≥10 meetings with community-based organizations completed
Carsharing EVs Deployed	Go/No Go	≥100 electric vehicles deployed in the carsharing programs.

Project Accomplishments and Progress



- EV Spot Network & Evie Carshare
 - 70 renewably powered curbside EV Spots in Saint Paul and Minneapolis
 - 150 Evie Carshare vehicles
 - 25 MUD + 50 EVs
 - www.evspotnetwork.org
 - www.eviecarshare.com



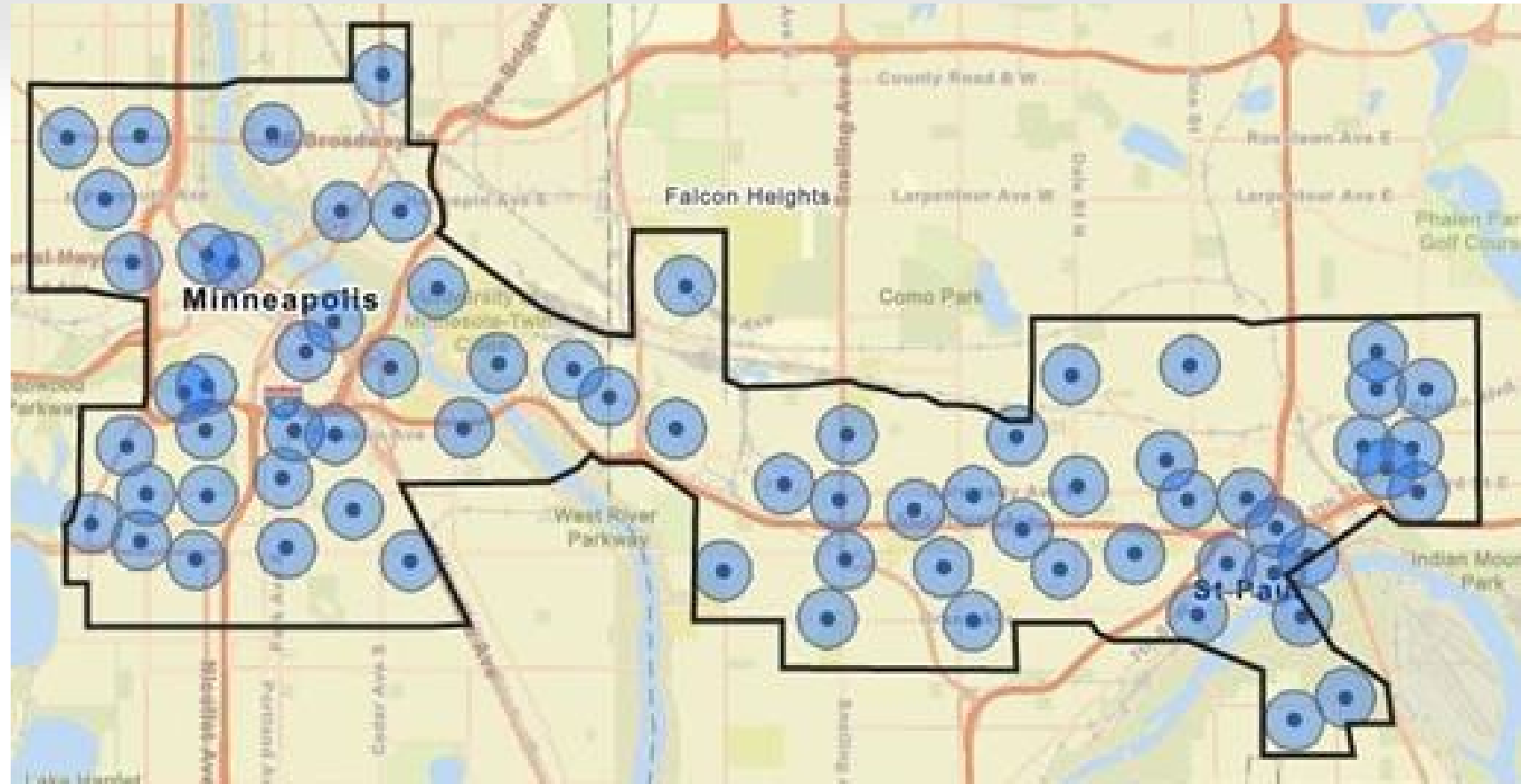
evie
Operated by HOURCAR



**ev
spot**
network

Project Accomplishments and Progress (continued)

- 50% of charging and carshare in communities not previously served
- One-way service, with on street parking
- Multi-Family doubles two-way fleet
- New app makes it even easier
- Faster verification and member approval
- 24/7 translation and interruption services available
- Self-certification for ACCESS PLUS
- Go-to cards can be used to start and end trips



evie
Operated by HOURCAR

Project Accomplishments and Progress (continued)

EV Spot Network & Evie Carshare

- Chargers at EV Spot locations are owned, maintained and operated by the respective city the chargers are located in.
- Pay at the blue public EV Spot chargers with a credit card or via the ZEFNET Charge app.
- 2022 Pricing at Public Chargers:

Components – Sales Tax included	Level 2		DCFC	
	Price to consumer	Revenue to City per transaction	Price to consumer	Revenue to City per transaction
Per kWh rate – Daytime	\$0.25	\$0.23	\$0.35	\$0.32
Per kWh rate – Overnight	\$0.23	\$0.21	\$0.33	\$0.30
Per session connection fee	\$1.25	\$1.16	\$2.50	\$2.00
Dwell time penalty	\$10/hour (maximum \$50 fee per session)	\$9.27	\$0.25/minute (\$15/hour; maximum \$50 fee per session)	\$0.23

Project Accomplishments and Progress (continued)



Project Accomplishments and Progress (continued)

**On-site at 25 MDUs
across the Twin Cities
by 2023**

**Level 2 EV charging
infrastructure, installed
and maintained by Xcel
Energy**

**Electric vehicle two-
way carsharing service,
provided and operated by
HOURCAR**



**Siting
Requirements**

**Selection
Criteria**

**Timeline &
Funding**

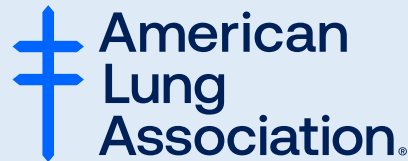
**Application
Process**

**Contact
Information**

We are seeking site hosts—owners, developers, or managers of residential real estate—interested in offering electric vehicle carsharing to residents at one or more of their properties at very low cost.

Collaboration among Project Team

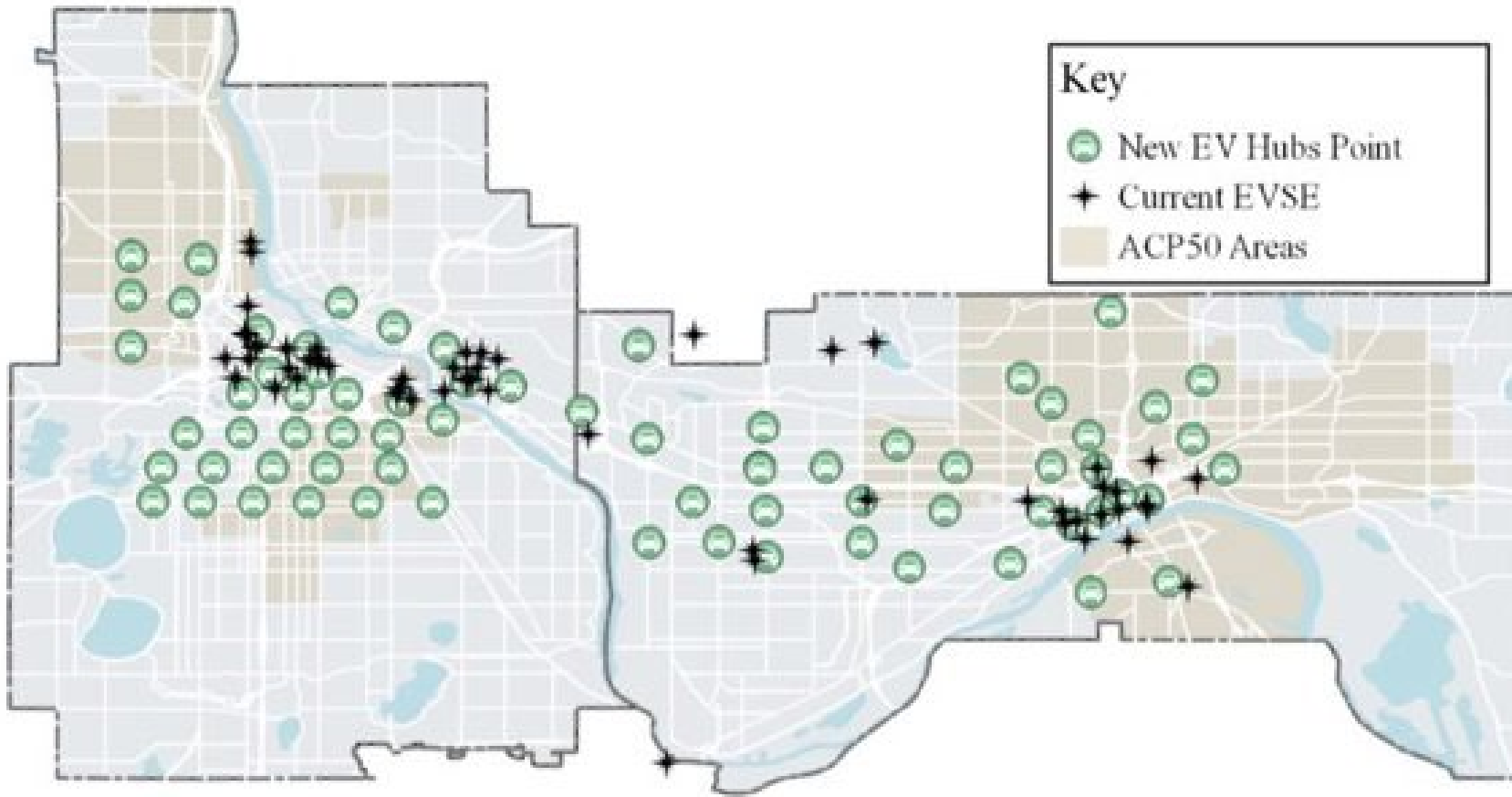
Blue: Prime, Yellow: Funders
Left White: Project Leads, Circle: Partners



American Cities
Climate Challenge



Contribution to Energy Equity & Environmental Justice

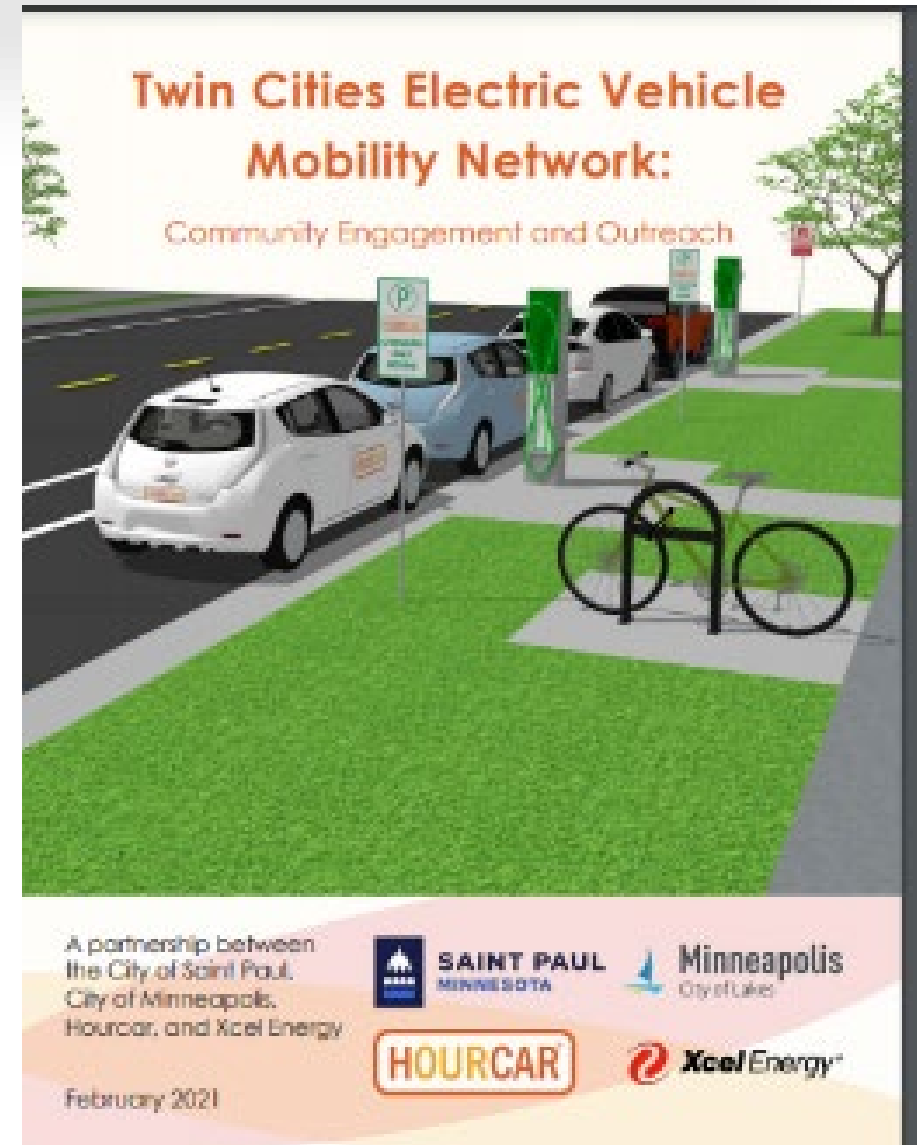


Acronyms:
EVSE: Electric Vehicle Supply Equipment
ACP50: Areas of Concentrated Poverty where 50% or more of residents are people of color



Sustainability

- Wide variety of funding partners will make project sustainable beyond the period of performance.
- Media support and presentations continues to grow carshare territory and multi-unit dwelling support and interest.
- Key messaging, best practices and speaking opportunities will continue to be developed and shared with partners outside of region.



Challenges

- New public/private partnership
- Financing
- Regional Solicitation Categories
- American-Made Equipment and Products requirement – led to leasing vehicles
- How to relate to older existing public charging
- Coordination between 2 Cities, Xcel, HOURCAR, Clean Cities
- Politics of siting stations and where/whom to serve
- Procurement
- Availability of EVs for fleet
- Chevy Bolt Recall
- Global Supply Chain challenges

1 Neighborhood Selection

Considerations taken when selecting neighborhoods for the charging hub locations include:



Transit usage



Resident demographics



Density of renters & public housing



Density of one- and zero-vehicle households



Density of existing & planned bicycle facilities



Roughly a 10-min walk between hubs within the service area

2 Siting Requirements

Is there 80-100' of uninterrupted curb that meets these requirements?

- 5' from driveways and alleys
- 30' from stop signs
- 10' from any fire hydrant
- Wide boulevard and sidewalk
- Ideally located on a two-lane road



Is there bike parking nearby or room to install some?

Does the site allow for ADA considerations?

Are there any bicycle facilities nearby?

Does it conflict with an existing or planned bicycle facility?

Is there a transit stop nearby?

3 Agency Coordination

Review by divisions and agencies to avoid conflicts:

Forestry



Traffic Operations



Water Department



Sewer Division



Metro Transit



Xcel Energy



4 Additional Considerations

While charging hub locations are nearly finalized, input from adjacent property owners and tenants is being gathered regarding a narrow scope of issues, such as:



Is there an unmarked loading zone for a business where there is no feasible alternative location for loading?



Is there an unmarked bus layover area where there is no feasible alternative for laying over?



Are there any other important local curbside activities that a charging hub could negatively impact?

Summary

Approach

- Create the basis for a highly visible, sustainable electric vehicle (EV) ecosystem in Saint Paul, Minneapolis, and the surrounding seven-county metropolitan area.
- Make the benefits of EV technology broadly available in the Twin Cities region, especially in underserved areas.

Collaborations

- Local governments, Community Based Organizations, Utilities, Private and Non-Profit Companies

Accomplishments

- 30 of 70 charging hubs port level 2 EVSE have been installed and commissioned
- 12 DC Fast Charging locations have been confirmed and equipment right sized and ordered
- 101 of 150 have been deployed as a one-way carsharing network
- 12 of 50 vehicles for use by residents at the multi-unit dwellings have been secured
- 8 of 25 ride and drive events have been completed



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