



Credit: Seattle Department of Transportation

SEATTLE PROJECT LIVING CASE STUDY

Making the Business Case for Smart, Shared, and Sustainable Mobility Services

By Conner Smith and Charles Satterfield

JUNE 2020, VERSION 1.0



ATLAS PUBLIC POLICY
WASHINGTON, DC USA

As a part of the EV Shared Mobility Project, Seattle will test whether the deployment of charging infrastructure at prioritized locations would increase the use of electric vehicles (EVs) in shared mobility services. The Seattle Department of Transportation (SDOT) has developed a methodology which is detailed in their EVSE Roadmap (“Roadmap”) for prioritizing charging station deployments to serve areas where gaps in shared mobility, equity, transit access, and EV charging infrastructure have been identified. Seattle City Light (City Light) will deploy 20 DC Fast Charging stations throughout its service territory in alignment with the Roadmap and its own utility business needs. The Puget Sound Clean Air Agency (PSCAA)’s Western Washington Clean Cities (WWCC) will continue their EV education and outreach campaign designed to increase awareness of the benefits of EVs among shared mobility drivers and better understand the barriers of ride-hail electrification. The City of Seattle is also the project manager for the overall EV Shared Mobility Project and will ensure that the goals for all project partners and outcomes of all interventions align with grant requirements and contribute to the expansion of the electrification of shared mobility services.

PROJECT GOALS



Deploy Charging Infrastructure

- Install 20 DC fast charging stations
- Deploy supportive wayfinding signage



Engage with Shared Mobility Drivers

- Conduct outreach and engagement with shared mobility drivers
- Host driver workshops on the benefits of electrification



Encourage Adoption of EVs

- Quantify EV adoption in for-hire vehicle fleets
- Evaluate emissions reductions

PROJECT SUCCESSES

Seattle has made considerable progress on its implementation plan. Some of these successes include:

- Publishing SDOT's EVSE Roadmap for Shared Mobility, which detailed the design and framework behind its EVSE Dynamic Siting Tool (GIS-based tool)
- Installation and operation of eight charging stations with ongoing data collection with four more anticipated in Q3 of 2020
- EV awareness campaign launched by WWCC
- Coordination of data collection and analysis regarding deployed Electric Vehicle Supply Equipment (EVSE) between City Light and Atlas Public Policy
- Led submission of 2 approved project amendments

CHALLENGES AND PROJECT RESTRUCTURING

Seattle adjusted its project implementation based on the withdrawal of project partners. Some of the challenges Seattle has overcome to date include:

- Withdrawal of charging service provider Eluminocity and rideshare rental company ReachNow from the project in late 2018 and early 2019 respectively
- Maintaining continued engagement across all project partners despite unexpected delays
- Establishing systems to coordinate a complex project with multi-regional, cross-sector, public-private partners

CURRENT STATUS AS OF MAY 2020

To date, the city has installed eight out of the 20 planned charging stations. Four more stations are on-track to be operational by the end of July 2020. The city has completed their wayfinding signage plans for three stations located in the right-of-way. In the first quarter of 2020, Seattle updated its EVSE Roadmap for Shared Mobility to account for recent project changes, including adjusted roles and responsibilities. Seattle also coordinated its data sharing agreements with City Light and Atlas Public Policy to begin evaluating EVSE usage.

The ride-hail outreach and engagement work is moving forward led by WWCC, and events are being planned at the Uber hub and Seattle airport. As a part of outreach efforts, WWCC is collaborating with a driver advocacy organization called [Drive Forward](#) to hold workshops on the benefits of electric vehicles and the process of acquiring an EV.

Seattle also submitted a proposal to DOE to re-purpose its funds to conduct a shared mobility electrification needs assessment. This assessment would identify barriers to making all shared mobility options electric by 2030, including for-hire transportation, car share, bike share, and scooter share.

PROJECT OVERVIEW

The Seattle Department of Transportation (SDOT) is working with other city departments and regional partners to support EV adoption in shared mobility services. This case study as well as updates to the [EVSE Roadmap for Shared Mobility Hubs](#) highlight the evolution of this work throughout the course of the project and innovative ways in which the city has addressed roadblocks. This case study also provides a brief overview of Seattle's role as the project's prime recipient.

STATE OF THE EV AND SHARED MOBILITY SPACE IN SEATTLE



Local Charging Stations

- 261 DCFC ports in the Seattle metro area
- 71 ports per 1 million people
- Ranked 9th out of 50 leading metro areas
- 1,840 Level 2 ports
- 501 ports per 1 million people
- Ranked 9th out of 50 leading metro areas



Statewide EV Deployment

- 42,001 state BEV sales through April 2020
- 5.76BEVs per 1k people
- Ranked 3rd out of 50 states
- 15,194 state PHEV sales through April 2020
- 2.08 PHEVs per 1k people
- Ranked 7th out of 50 states

Source: [Atlas EV Hub EV Indicators Dashboard and State EV Sales and Model Availability Dashboard](#)

Seattle is seeking to accelerate transportation electrification efforts and benefits from a supportive policy environment. Launched in 2017, the city's [Drive Clean Seattle](#) initiative sets goals of electrifying 30 percent of all vehicles by 2030. This initiative also calls for municipal fleet electrification, electric utility investment in charging infrastructure, and increased public-private partnerships to accelerate transportation electrification. In May 2019, the city also required all new buildings with off-street parking to be "[EV-ready](#)" by installing charging infrastructure. This forms the basis of SDOT's close partnership with Seattle City Light (City Light), the municipal electric utility serving the city, and shared goals to reach [citywide carbon neutrality by 2050](#).

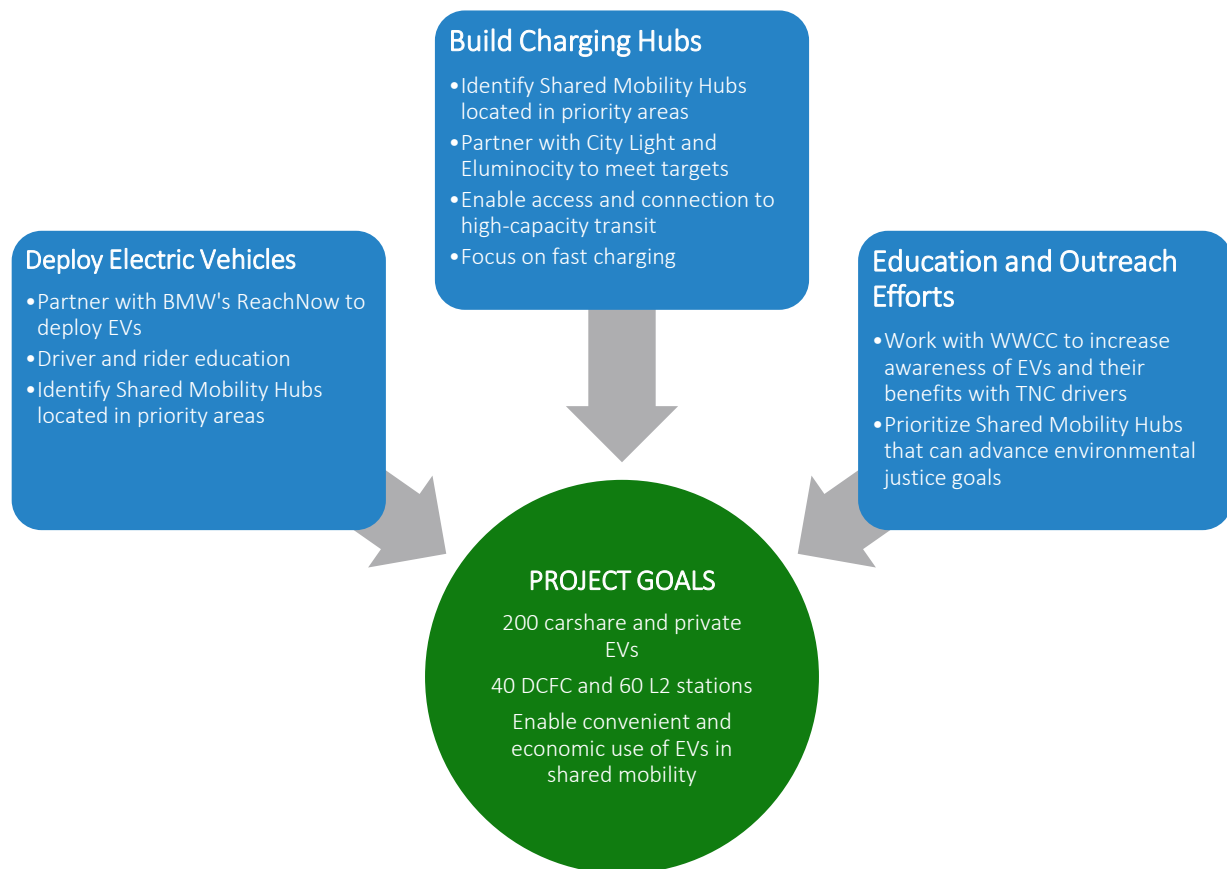
As a part of Drive Clean Seattle, the city also implemented the [Electric Vehicle Charging the Right-of-Way \(EVCROW\) pilot](#). This pilot permitted the installation of EV charging stations at public curbside locations.

Some of City Light’s charging stations deployed for this project will be deployed using the EVCROW permit pilot.

PROJECT STRUCTURE AND CORE GOALS

Seattle’s goals have adapted to shifts in the local EV market since the project proposal was approved in the fall of 2017. This section highlights the dynamic nature of the project and adaptations undertaken by Seattle in order to advance transportation electrification and raise EV awareness among TNC drivers in the region. First the initial goals and scope of the project will be covered followed by the current goals and scope.

INITIAL GOALS AND SCOPE



Seattle identified charging infrastructure and EV awareness gaps as key barriers to EV adoption among TNC drivers in the project proposal. To address these challenges, the city originally sought to explore the impact of hub-based fast charging on shared mobility electrification. In addition to charging infrastructure deployment and outreach efforts, Seattle originally sought to work closely with vehicle providers to test whether EV access was also an important barrier for ride-hail electrification. In the project proposal, the city initially set a target to deploy a total of 40 DC fast charging stations and 60 Level 2 charging stations as well as 200 carshare and private EVs throughout the city.

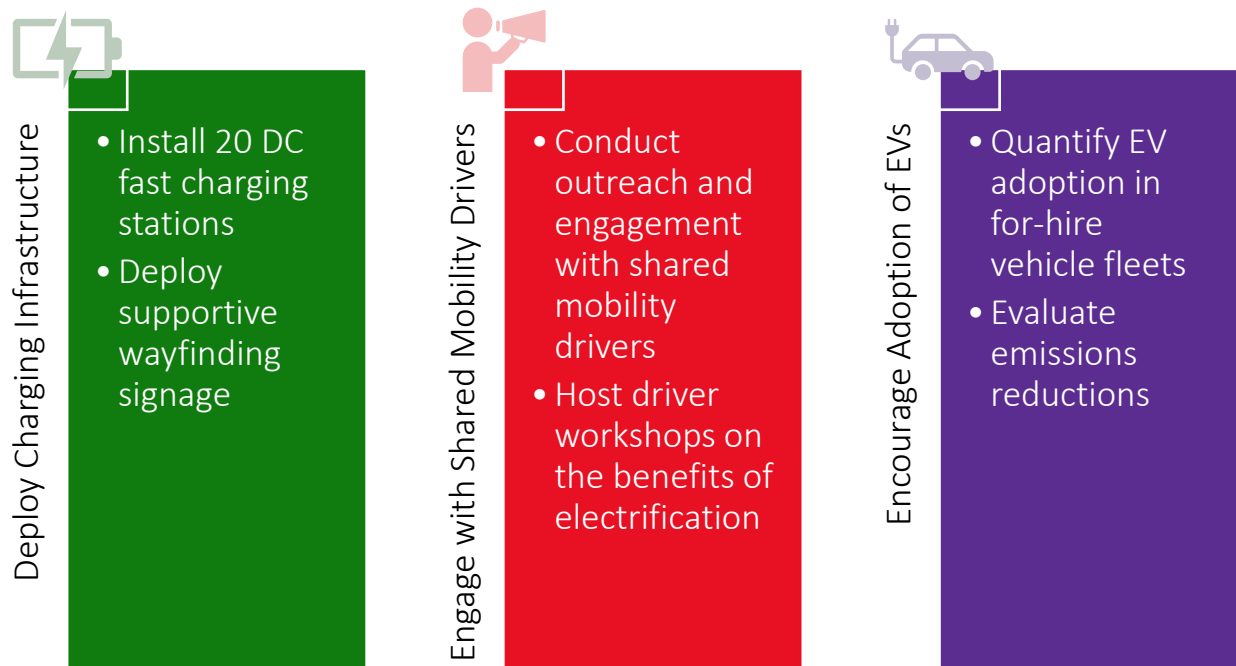
SEATTLE PROJECT LIVING CASE STUDY

In coordination with outreach partners, Seattle sought to convene regular meetings between the stakeholders in the EV outreach space to ensure TNC drivers were connected with information that could help them make the switch to EVs.

The city designed their program to incorporate community feedback, address air pollution, improve access to transit, and reduce barriers to EV adoption. In addition to these broader focus areas, Seattle sought to leverage their strong public transit system to address the integration of shared mobility services. The hub-based approach and partner-led efforts to electrify shared mobility was designed to improve access and connectivity to public transit while reducing the dependency on private vehicle transport.

CURRENT GOALS AND SCOPE

Seattle remains committed to charging infrastructure deployment and EV outreach despite unexpected project changes that have led to some restructuring of the original implementation plan. The withdrawal of carshare service ReachNow as a partner in the project due to the end of their service in the region led to the removal of the original project strategy to deploy electric vehicles. Tasks related to deploying vehicles have been adjusted to supporting the adoption of EVs in shared mobility services. The withdrawal of Eluminocity as a partner led to the removal of their commitment for charging station installations. City Light will lead charging station deployment and remains committed to installing 20 DC Fast Chargers for this project. Current goals include the following:



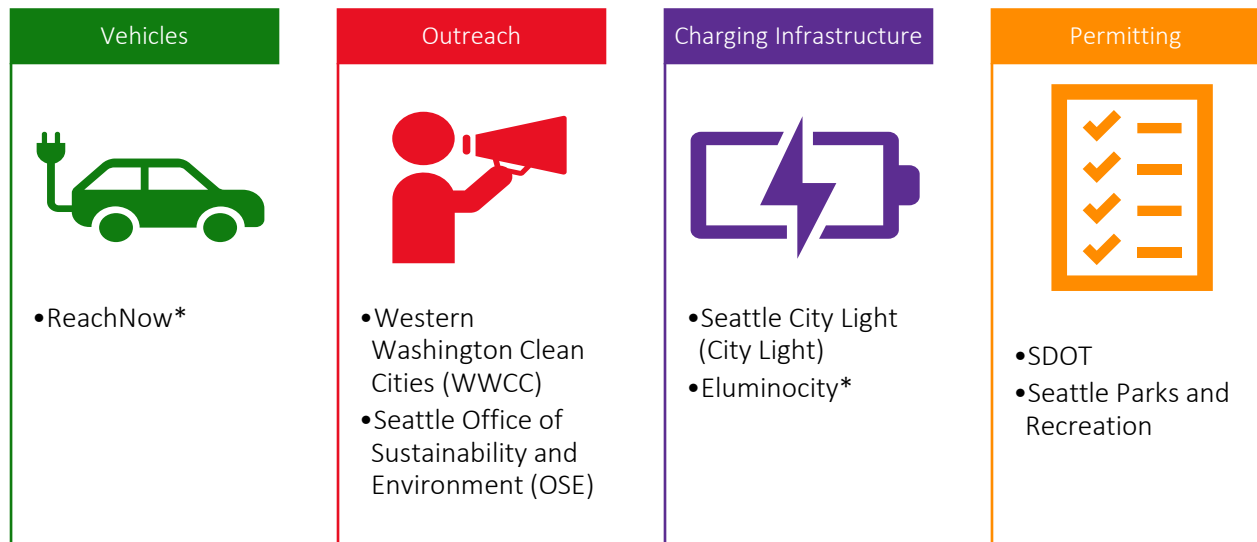
Seattle has gone beyond looking at shared mobility hubs for their charging stations and has included locations within City Light’s service area, which reaches beyond City of Seattle boundaries, for site location options. The city’s [EV Dynamic Siting Tool](#) provides guidance for charging station deployments. The tool converges on 11 metrics for site assessment, drawing on feedback provided by TNC drivers and other stakeholders to create an overall prioritization score. The tool also includes Equity and Environmental Justice as one of its considerations to help guide equitable EVSE deployments. The EV Dynamic Siting Tool also informed Seattle’s EVSE Roadmap for Shared Mobility (“EVSE Roadmap”). The EVSE Roadmap

SEATTLE PROJECT LIVING CASE STUDY

provides an implementation plan for regional partners. Seattle revised its EVSE Roadmap to reflect strategy shifts in the first quarter of 2020. For more on Seattle's EVSE Dynamic Siting Tool, site selection process, implementation plan, partner roles, and evaluation plan, see the [EVSE Roadmap for Shared Mobility](#).

As the project manager, Seattle is also working to ensure that all EV Shared Mobility Project partners make necessary changes following shifts and restructuring of the overall project and maximize shared learning across all cities involved.

PARTNERSHIP BUILDING AND CONTRACTING



* Indicates partners that have withdrawn from the project

Throughout the project, Seattle partners have leveraged existing relationships across different city departments to accelerate the deployment of charging infrastructure. For example, chargers installed as of June 2020 are on SDOT property (public right-of-way), Seattle City Light property, and Seattle Parks and Recreation property.

Challenges around partnership building have largely arisen from business developments and shifts stemming from activities outside of the EV Shared Mobility Project. The decision of original project partners Eluminocity and ReachNow to withdraw from the project were precipitated by the ending of service in the Seattle market. These developments led Seattle to shift their focus away from vehicle provision to assessing the impact of EV charging station access and supportive outreach and engagement among ride-hail drivers to increase EV shared mobility adoption.

Partnership has remained more consistent on the outreach front. City Light is responsible community outreach around EVSE deployment sites, in partnership with SDOT and OSE. According to the [updated EVSE Roadmap](#), City Light works “to integrate community feedback in deployment plans, secure appropriate permits and host agreements with site owners and install and maintain” charging infrastructure once it is deployed. WWCC is leading direct engagement with TNC drivers and is supported by OSE which is conducting citywide stakeholder convenings with shared mobility providers. Feedback

from these meetings and contribution from other partners has been integrated into the design of WWCC's outreach campaign.

DATA COLLECTION AND ANALYSIS STRATEGY

To determine the impact of the newly deployed charging infrastructure, SDOT will work closely with City Light to collect charging station use data from stations installed through the project. One challenge will be identifying the ride-hail driver's use of these stations since they will be open to the public. Atlas Public Policy is working to finalize data sharing agreements with the National Renewable Energy Laboratory to devise ways to analyze TNC driver charging behavior across all EV Shared Mobility project partners.

To measure the impact on EV adoption in shared mobility services, the city plans to leverage existing for-hire driver information to identify the current number of ride-hail drivers with EVs and assess EV adoption in for-hire fleets throughout the course of the project.

Outreach metrics have been standardized across the different EV Shared Mobility projects and the city will work with WWCC, the outreach lead, to ensure that the outcomes of their campaign are reflected in this shared framework.

Seattle is also working with Atlas Public Policy to coordinate quarterly reporting with project partners to ensure that metrics are being collected regularly to support requirements established by the DOE.

PROJECT TIMELINE

Seattle has experienced early successes and challenges as their intervention for the EV Shared Mobility project has been implemented. This has revealed lessons that the organization can share to inform efforts in other cities. Key highlights for the project so far include:

SEATTLE PROJECT LIVING CASE STUDY

March 2017 Proposal Submitted

- Seattle, along with Forth, City and County of Denver, City of New York, and 16 other participants submitted the proposal for "Making the Case for Smart, Shared, and Sustainable Mobility Services"

September 2017 Grant Award Issued

- After reviewing the proposal, the U.S. Department of Energy awards the grant to the primary recipient the City of Seattle and work begins

January 2018 First Charging Stations Operational

- Two charging stations operational in the Beacon Hill Neighborhood

November 2018 EVSE Roadmap Published

- This guide will be used by regional partners to deploy EV charging infrastructure

December 2018 Withdrawal of Eluminocity

- Shifting market constraints and business circumstances led to the withdrawal of Eluminocity as a partner from the project

February 2019 Withdrawal of ReachNow

- This withdrawal led to significant shifts in the project framework and goals that are reflected in the restructuring

June 2019 Second Project Restructure Submitted

- Seattle led the process of designing and submitting project restructuring to the DOE in light of the withdrawals of several project partners across several cities in the EV Shared Mobility Project

June 2019 Outreach Effort Launched

- WWCC launched their outreach work focused on sharing the benefits of electrification with ridehail drivers

September 2019 WWCC Releases Ride-Hail Electrification Report

- WWCC published report outlining the existing state of electrification in the ride-hail sector as well as potential opportunities and barriers to further electrification

November 2019 Second Charging Site Operational

- Four charging stations operational at Seattle City Light's South Service Center public parking lot

November 2019 Second Project Restructure Approved

- Project partners move forward with all portions of the revised project


March 2020 Third Charging Site Operational

- Two charging stations operational at Magnuson Park

May 2020 EVSE RoadMap 2.0 is Published


- SDOT released the updated version of the EVSE Roadmap for Shared Mobility Hubs including key information on project progress

PROJECT SUCCESSES




Vehicles

- Identifying data to track EV adoption in for-hire vehicle fleets




Outreach

- Campaign launched with WWCC
- WWCC releases report on electrifying ride-hailing in Seattle
- More than 190 drivers engaged at events



Charging Infrastructure

- EVSE Dynamic Siting Model completed
- 8 charging stations deployed by City Light
- 4 more in the site construction phase



Permitting and Project Management

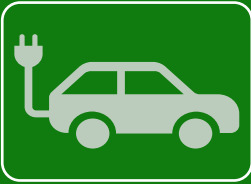
- EVCROW permitting complete for current sites
- Signage pilot designed
- Project restructuring approved

Seattle has had considerable success rolling out charging stations at several locations throughout the city. The city has been able to adapt quickly to significant shifts in the EV landscape by capitalizing on internal partnerships across city departments and especially with City Light.

Charging station deployment has been carried out in alignment City Light's [investment plans](#). SDOT and City Light coordinated a permitting processes that allowed for the installation of infrastructure within the first year of the implementation phase of the project, the only project partner to do so.


As part of their work, Puget Sound Clean Air Agency (PSCAA) through WWCC released a report with their initial outreach and research findings and recommendations in September of 2019 titled [Electrifying Ride Hailing in Seattle](#). PSCAA continues to expand their direct engagement with drivers and has identified key barriers to EV adoption, including a lack of charging access, based off feedback received at engagement events attended by more than 190 drivers.

CHALLENGES AND PROJECT RESTRUCTURING




Vehicles

- Withdrawal of vehicle partner from the Seattle market
- Shifting interest in local electrification initiatives from TNCs due to focus on IPOs




Outreach

- Delays in outreach work due to project restructuring
- Postponement of outreach events due to COVID-19 restrictions on public gatherings



Charging Infrastructure

- Ongoing difficulties separating TNC driver charging from public usage
- Withdrawal of one of the infrastructure partners from the Seattle market



Permitting and Project Management

- Delay of project work due to focus on restructuring

The withdrawal of the vehicle and charging infrastructure partners from the project forced Seattle to restructure the scope of the project. Concurrent shifts in the EV market in other cities required Seattle to lead two rounds of amendments to the project proposal and modifications of project goals to advance the project.

As is the case in other cities included in the EV Shared Mobility Project, the COVID-19 pandemic has led to significant declines in public transit and shared mobility usage in Seattle. This includes a decline in charging station use that will be conveyed in later updates. The city continues to adapt to the challenges posed by COVID-19 to focus on online engagement as in-person events continue to be postponed.

LESSONS LEARNED

When reflecting on lessons learned, the Seattle team has found:

- Internal city processes and teams must be agile enough to adapt to constant change and be prepared with multiple backup sites for charger installations because, according to the [EVSE](#)

SEATTLE PROJECT LIVING CASE STUDY

[Roadmap](#), “many potential sites pose unforeseen challenges in site feasibility, host negotiations or construction.”

- It is best to be cautious when trying strategies specific to technologies or companies. With local shared mobility markets evolving quickly, it is important to focus on strengthening and leveraging partnerships with more organizational stability.
- Implementing the original strategy to electrify Mobility Hubs across Seattle was not the best fit for reasons explained in the EVSE Roadmap Version 2. Instead of focusing on Hubs, Seattle shifted to a revised strategy outlined in the updated document.

Seattle has adapted well to shifts in the local EV sector and has integrated these learnings into its updated EVSE roadmap in the first quarter of 2020.

CURRENT STATUS AS OF MAY 2020

Seattle has made significant progress through the second quarter of 2020. Key milestones so far include:

- Eight charging stations installed with construction for four more underway
- Wayfinding signage designed for all right-of-way sites and installed at one site
- EVSE Roadmap update complete and published
- Preliminary data delivered to Atlas Public Policy

NEXT STEPS

Seattle continues to make progress on charging infrastructure deployment and charging use analysis. Some key focuses in 2020 for Seattle include:

- Continuing the installation of the remaining EV charging stations
- Continued outreach to ride-hail drivers
- Conduct further stakeholder engagement meetings and collaboration with advocacy groups
- Deploy remaining wayfinding signage
- Assess TNC usage of EVSE

SEATTLE PROJECT LIVING CASE STUDY

This material is based upon work supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy under the Vehicles Technologies Office Deployment Award Number DE-EE0008261.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



ATLAS
PUBLIC POLICY

WWW.ATLASPOLICY.COM