



NEW JERSEY OVERBURDENED COMMUNITIES ELECTRIC VEHICLE AFFORDABILITY PROGRAM STUDY

September 2022



Disclosures

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At the time of publication of this report, the Board has made no determinations in response to the analysis, and recommendations contained herein. This report may be used to facilitate the development of an electric vehicles in overburdened communities program or programs in the future; however, this report does not represent the Board’s views or policies on this topic. The Board makes no warranties or representations, expressed or implied, as to the fitness of any proposed methods, processes or other information contained, described, disclosed or referenced in this report.

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Definitions & Acronyms

Car Sharing: Means a car rental model where a vehicle is rented for short periods of time, typically by the hour or day.

DCFC: Means direct current fast charging.

EDC: Means electricity distribution company.

EV: Means electric vehicle.

eMobility: Means electric mobility, or equitable shared transportation using electric vehicles, such as for electric taxis, electric car sharing and ride-hailing, and electric shuttle services.¹

EVSE: Means electric vehicle supply equipment, the equipment needed to charge an electric vehicle battery from a source of electricity. EVSE is more commonly known as an electric vehicle charging station. This can refer to Level 1,² Level 2,³ or DCFC charging equipment.

GHG: Means greenhouse gases, which include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride (SF₆).⁴

ICE: Means internal combustion engine.

NJBPU: Means the New Jersey Board of Public Utilities.

Make-Ready: Means the pre-wiring of electrical infrastructure, including conduits, wiring, etc., at a parking space, or at a set of parking spaces, to facilitate the easy and cost-effective future installation of EVSE, including, but not limited to, Level 2 EVSE and DCFC, as well as expenses relating to service panels, junction boxes, conduit, wiring, etc. necessary to make a particular location able to accommodate EVSE on a “plug and play” basis.⁵

¹ New Jersey Department of Environmental Protection (“NJDEP”), *Drive Green: eMobility*, (May 17, 2022), <https://nj.gov/dep/drivegreen/emobility.html> (hereafter, “*Drive Green: eMobility*”).

² “Level 1” charging equipment refers to a 120 volt (“V”) charging, which can be done through a common wall outlet. These chargers are commonly located in homes, workplaces, and other public charging locations. See Tom Moloughney, *What are the Different Levels of Electric Vehicle Charging?*, <https://www.forbes.com/wheels/advice/ev-charging-levels/>.

³ “Level 2” charging equipment refers to 208 to 240 volt charging. This is the most commonly used type of charging for daily charging. Similar to Level 1 chargers, Level 2 chargers are commonly located in homes, workplaces, and other public charging stations. *Id.*

⁴ Eurostat Statistics Explained, *Glossary: Kyoto Basket*, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Kyoto_basket.

⁵ *In the Matter of Minimum Filing Requirements for Light-Duty, Publicly-Accessible Electric Vehicle Charging*, BPU Docket No. QO20050357, Order dated October 20, 2020, <https://www.state.nj.us/bpu/pdf/boardorders/2020/20200923/8F%20-%20ORDER%20Electric%20Vehicle%20MFRs.pdf>; Law Insider, *Make Ready*, <https://www.lawinsider.com/dictionary/make-ready>.

Micromobility: Means transportation using lightweight vehicles such as bicycles or scooters, especially electric ones, that may be borrowed as part of a self-service rental program in which people rent these vehicles for short-term use within a particular town or city.

MUD: Means multi-unit dwellings, which include apartments, condominiums, or mixed use residential and commercial locations that feature a minimum of five units and have dedicated off-street parking.⁶

EV/BEV: Means an electric vehicle or battery electric vehicle, a vehicle that does not have the ability to be propelled by gasoline and instead draws electricity from a battery with a capacity of at least four kilowatt-hours, and is capable of being charged from an external source.⁷

PHEV: Means a plug-in hybrid electric vehicle, a vehicle that uses batteries to power an electric motor and uses another fuel, such as gasoline, to power an ICE.⁸

Ride-hailing (or Ridesharing): Means an arrangement in which a passenger pays a fee to travel in a private vehicle that the vehicle's owner drives, an arrangement that is typically made through a smartphone app or website.

TNC: Means transportation network company, a corporation, partnership, sole proprietorship, or other entity that is registered as a business in the State or operates in the State, and uses a digital network to connect a rider to a driver to provide a prearranged ride.⁹

⁶ NJBPU, *NJBPU Opens Application Window for Multi-Unit Dwelling Electric Vehicle Charging Program*, (January 26, 2022), <https://nj.gov/bpu/bpu/newsroom/2022/approved/20220126.html>.

⁷ DOE, *Plug-In Electric Vehicle (PEV) Definition*, <https://afdc.energy.gov/laws/9355>. In addition, PEVs cannot have been modified from their original equipment manufacturing power train specifications, must have a gross vehicle weight of 8,500 pounds or less, can travel at a maximum speed of at least 65 mile per hour (mph), and meets all applicable requirements in Title 49 of the U.S. Code of Federal Regulations, section 571. *Id.*

⁸ DOE, *How Do Plug-In Hybrid Electric Cars Work?*, <https://afdc.energy.gov/vehicles/how-do-plug-in-hybrid-electric-cars-work>.

⁹ New Jersey Motor Vehicle Commission, *Transportation Network Company Safety and Regulatory Act ("Act")* Frequently Asked Questions ("FAQs"), <https://www.state.nj.us/mvc/pdf/business/tncfaq.pdf>.

Executive Summary

This is a feasibility study to identify paths to increase access to electric vehicles in overburdened communities. While EV adoption continues to grow, access to clean transportation in overburdened communities remains challenging. Increased access to EVs provides benefits, such as reduced localized air pollution, and can address transportation gaps that existing public transit options miss.

The DOE Grant Statement of Project Objectives (“SOPO”)¹⁰ required four tasks to be completed:

Task 1 - Outreach to Overburdened Communities

To accomplish this task, the Study team began with a proactive outreach effort into three overburdened communities: Newark, New Brunswick, and Washington Township of Gloucester County (“three communities”). Within these three communities, a series of interviews were conducted with local government representatives, community group leaders, and industry experts to gather perspectives on issues they face, particularly transportation issues, air quality concerns, and best practices for engaging their communities in future efforts regarding access to EVs. Interview participants discussed issues such as up-front cost, where and how to utilize charging, language and technology as some of the main barriers to accessing EVs in overburdened communities. The feedback received from these interviews was taken into account when developing the recommendations in the final task of this Study.

Task 2 – Multi Unit Dwellings & Ride-hailing/Car Sharing Analysis

Multi-Unit Dwellings represent a large portion of housing for NJ residents that may lack the ability to charge an EV where they reside, due to lack of access to a private driveway or garage, which is the most common place for EV owners to charge their vehicles. To accomplish this portion of the task, a review of charging ownership models and installation and siting cost considerations of EVSE sited at MUDs was conducted.

For this task, the Study team also performed a review and analysis of existing ride-hailing and car sharing programs that utilize EVs to identify how to effectively facilitate residents of overburdened communities’ participation in these programs. The review and analysis showed the following:

- There is a direct correlation between DCFC infrastructure and the presence of EV ride-hailing operations
- Level 2 charging sited at home or near-home locations reduces lost opportunity cost for ride-hail drivers and is necessary for best-case operation
- Larger, established TNCs are focused more on ride-hailing, not car sharing

¹⁰ The SOPO is included as an appendix to this report

Task 3 – Funding & Incentives

To complete this task, funding sources were identified that could support or stand up the development of a program or programs to help achieve the goal of increasing access to EVs in overburdened communities. Additionally, a list of current EV and charging incentives was compiled for interested parties. These incentives are made up of state, federal, and utility programs currently being offered.

Task 4 - Recommendations

Finally, a list of recommendations and best practices, summarized below, were developed in response to the issues and barriers discussed in detail throughout this report:

1. **Develop a Used EV Incentive Program:** Interviewees stated that current EV incentives do not lower the barrier to entry sufficiently enough for those in overburdened communities. While the growing used EV market is a more realistic entry point, there still needs to be additional incentive support to facilitate increased adoption.
2. **Site DCFC in Overburdened Communities:** The literature review found a direct correlation between the presence of DCFC and EV ride-hailing activity.
3. **Develop a Level 2 Home Installation Incentive for Ride-hailing Drivers:** Incentives in New Jersey for Level 2 at-home chargers are already being developed. However, having an additional incentive for those who operate an EV for ride-hailing purposes should be considered.
4. **Establish Consistent Funding for MUD Incentive Programs:** While the State has established an incentive program for MUD owners to install EVSE at their properties, there is a need for a consistent funding source to continue to accelerate growth.
5. **Establish an Advantageous Charging Rate for EV Ride-hail Drivers in Overburdened Communities:** Advantageous charging rates in overburdened communities for EV ride-hail drivers could reduce localized emissions by encouraging operation in these areas.
6. **Implement the California Clean Mile Standard:** This California regulation compels TNCs to reduce GHG emissions and expedites their shift to EVs. New Jersey should review this regulation and implement something similar, with priorities focused on reducing emissions in overburdened communities.
7. **Establish A Private Fleet Incentive Program:** Businesses that utilize light duty vehicles could be compelled to transition their fleets from gas to electric through incentives. This incentive could apply to fleets whose base location is situated in overburdened communities or have significant operations within them. This incentive would not be intended for TNC companies that do not own their fleet vehicles.
8. **Develop Neighborhood Charging:** For those who do not have access to private driveways or parking lots, charging stations located in residential neighborhoods either in public parking lots or curbside, could provide a similar opportunity to allow for someone to charge overnight and start their day with a full charge.

9. **Legislative Support for Recommendations in this Report:** Mandates implementing policies recommended within this report will help improve EV access in overburdened communities take place in a timelier fashion than if left to evolve naturally. Goals or financial appropriations codified into law would also provide long-term certainty to relevant industries or communities interested in the benefits of increasing access to EVs.

The Study also found that the following best practice considerations should be incorporated in conjunction with the Study's recommendations:

1. **Proactive Community Inclusion Process:** This was the most universally received feedback during the outreach portion of this study. Interviewees called for a dialogue between the State and local community leaders during the development phase of any programs intended for deployment in their community. This serves the purpose of identifying local issues that otherwise would have not been accounted for under traditional stakeholder engagement methods.
2. **Payment Option Diversity:** Using EVs and charging stations requires reservation and payment options that are not universally available to all people. This can include smart phones, credit cards, or memberships to charging networks. Any programs developed for residents of overburdened communities should address these barriers by increasing the methods that people can use to make payment.
3. **TNC Information Gathering Process:** Several of this report's recommendations pertain to ride-hail drivers utilizing large TNC platforms. To properly administer incentives to EV ride-hail drivers, there needs to be a dialogue between the state and the major TNCs to formalize a verification process to ensure that those incentive are being properly utilized.

Introduction

This is a report of a study Board Staff performed as a result of the Board receiving a competitive grant (No. DE-EE0008622) awarded by the DOE via their State Energy Program (“SEP”). Board Staff prepared this report in furtherance of its mission to ensure the equitable deployment of clean energy technologies and energy efficiency programs, a measure that will ensure access to clean energy for all State residents, including those residing in New Jersey’s overburdened communities.

The purpose of this Study, per the DOE Statement of Project Objectives (“SOPO”), was to identify paths to increase access to electric vehicles in overburdened communities.¹¹ Overburdened communities are defined by income, race, and English proficiency levels established in New Jersey’s Environmental Justice Law.¹²

For the purposes of this report, overburdened communities can include:

- **Cities**, where there is not a significant enough presence of EV infrastructure to allow people to own an EV with the same level of ease as people who are able to charge an EV at their own private residence.
- **Transportation deserts**, or communities with limited access to public transit and with low walkability caused by a lack of accommodating infrastructure, such as sidewalks or crosswalks, for pedestrian usage.
- **MUDs**, which may be found within either a city or a transportation desert. Residents of MUDs across all income levels are subjected to similar EV access issues, as this housing type typically has a parking lot that presents challenges for the owner to install EVSE, or offers no parking at all.

To execute the SOPO, the Study team focused on four main tasks:

- **Task 1 - Outreach into selected overburdened communities.** This consisted of conducting interviews with local government representatives, community group leaders, and industry experts. The communities selected for this Study were considered to be representative of overburdened communities in need of better access to electric vehicles. The selected communities were Newark, New Brunswick, and Washington Township in Gloucester County. Newark and New Brunswick were selected for being compact cities facing a range of transportation access issues. Washington Township was selected due to its being a transportation desert.
- **Task 2 - Analysis of issues facing MUDs, and existing eMobility alternatives.** Focusing on ride-hailing and car sharing programs enabled data to be gathered to determine the suitability of implementing such eMobility alternatives in overburdened communities. Analysis was also conducted through the lens of issues seen in MUDs, including high initial

¹¹ New Jersey’s original 2017 DOE application used the term “Underserved Community.” The project SOPO is located in the appendix.

¹² N.J.S.A. 13:1D-157; See also NJDEP, *What are Overburdened Communities (OBC)?*, <https://www.nj.gov/dep/ej/communities.html>.

cost barriers of MUD residents transitioning to EVs, and improving conditions to allow for EV ride-hailing and car sharing access to grow in overburdened communities.

- **Task 3 - Identification of funding sources that could establish long term programs and/or policies.** Knowledge of these sources and how to access them can facilitate the Study's goal of increasing EV access in overburdened communities. These funding sources are meant to address EVSE installation and EV costs, and also aid in the expansion of the eMobility market to overburdened communities.
- **Task 4 - Final recommendations** were then compiled from feedback received during the interview process, screened against the Study team's research and analysis. These recommendations are intended to address the largest areas of impact for increasing access to EVs while considering implementation feasibility.

A draft version of this report was provided to stakeholders and posted on the NJBPU website for stakeholder comment on July 19th, 2022, with comments due on August 9, 2022. Comments from 14 stakeholders were received. Information provided by commenters has been incorporated where appropriate in this report. While most commenters agreed that increased methods of access to EVs in overburdened communities is necessary to achieve equitable electrification of the transportation sector, several concerns were expressed.

The main concern was the potential cost of any incentive programs, as some stakeholders cautioned that undue financial burdens may be placed on those who would not be able to utilize the programs. There were concerns that EVSE present at MUD's could impose higher demand charges on other residents. Additionally, some stakeholders felt that a general increase in electrification efforts by the State would lead to higher utility bills for ratepayers.

Another concern expressed particularly by the EDC's was the potential difficulty of implementing the recommendations pertaining to favorable charging rates for ride-hailing drivers. These incentives were characterized as potentially creating administrative burdens in the verification process to assure that those drivers receiving the favorable rates were in fact operating as ride-hail drivers.

It should be noted that this report was not intended to address detailed program, incentive, or rate designs. Any programs, incentives, or rates developed as a result of the recommendations contained in this report would undergo detailed analysis, specifically with regard to cost and feasibility of implementation before being finalized.

Task 1 – Outreach to Overburdened Communities

1.1 Introduction

Interviews conducted as part of this Study were intended to gather information regarding local conditions and stakeholder perspectives related to unique transportation challenges faced by residents of overburdened communities.

Stakeholders repeatedly raised the issue of their input needing to be included in the development phase of programs affecting their communities. These stakeholders considered this to be a crucial aspect of any program development. Outreach to these stakeholders and inclusion of stakeholder input can result in multiple benefits, including:

- Local knowledge, which can help identify and potentially mitigate fatal design flaws from the outset, preventing the flaws from being part of a final deployment plan;
- Increasing trust within the community if a program was developed in partnership with respected community leaders/organizers. Elevated trust levels increase the chances of programmatic success; and
- Community leaders/organizers may be able to assist in utilizing their own skill sets in the most effective ways during the development phase of programs to help launch the programs.

The three communities selected for outreach face issues that can limit access to electric vehicle transportation. And, while they are similar insofar as they each suffer from a lack of access to EVs, the interviews with members of these communities highlighted that each community has its own unique considerations and barriers. While many issues raised were not directly related to access to EVs, stakeholders frequently noted how these issues could be alleviated through increased EV accessibility.

Newark

This community faces significant local air quality concerns. Pollution from dense transportation emissions severely impact environmental air quality conditions, particularly emissions from medium and heavy-duty vehicles. Respondents made mention of Port Newark, where an estimated 15,000 diesel truck and buses operate on a daily basis,¹³ as a source that contributed heavily to localized pollution issues. These issues include, but are not limited to high asthma rates and a chronic heat island effect, where the local temperature in the city can be 15-20 degrees¹⁴ hotter than surrounding areas. As one local Newark sustainability official mentioned, Newark was identified as the second most intense heat island in the country. This issue presents the community with unique challenges, such as walking to public transportation stops. The official noted that without shade during warmer months, enduring significantly higher

¹³ Associated Press, *Congested New Jersey Port Roads Targeted with DOT Grant* (July 26, 2021), <https://www.northjersey.com/story/news/2021/07/26/new-jersey-port-roads-newark-elizabeth-targeted-dot-grant/5379906001/>.

¹⁴ Climate Central, *Hot Zones: Urban Heat Islands* (July 14, 2021), https://assets.ctfassets.net/cxgsgstp8r5d/1XZZjkLYwtcmKL5k3wEiNl/5f8c9b5b2d8dd56e1bda7f51278fc3d2/2021_UHI_Report.pdf.

temperatures than surrounding areas can prevent people, especially the elderly, from being able to wait outside for public transit.

New Brunswick

This community demonstrates conditions of clustered, dense, development with low walkability between clusters. These factors collectively force residents to rely on private vehicle ownership, or on public transportation networks which can have service gaps. Having reliable public transportation is particularly important in this community, as it brings residents to essential destinations such as employment opportunities or grocery stores.

Washington Township

This community displays characteristics of a transportation desert. In particular, it is afflicted with difficult access to public transit due to its highway centric development and low walkability. As one community organizer emphasized, higher reliance on public transit that is not easily accessible due to placement along highways, or lack of routes/stops, can significantly hinder economic opportunity and security for residents who do not own a vehicle.

The information obtained from within these three communities can be used to inform local policy decisions. It, along with its analysis, can also serve as a blueprint for outreach efforts in locations with similar characteristics.

The interview format consisted of an interview panel developing a standard set of questions for all three communities. These questions focused on the overarching transportation and equity goals of this Study. The interview panel began each interaction with a brief summary of the goals and objectives of the project, followed by preliminary questions to discuss the role and general function of the organization the participant was representing. The interview panel then proceeded to ask topic-specific questions focused on local and regional transportation access and characteristics, residents' transportation needs and perceptions of EV benefits. The interviews concluded with questions designed to identify best practices for future EV program-specific outreach and education. Interviews were administered between the panel and an individual, as uniformly as possible. Interview participants represented stakeholders across a variety of groups, including residents of overburdened communities, community advocacy organizations, electric vehicle industry representatives, academic institutions, TNCs, electric utilities, and state and local government agencies. Efforts were made to be inclusive and to interview individuals from a diverse pool of organizations and backgrounds. In doing so, the interview panel was able to investigate this topic from a holistic perspective.

Key lessons learned from this engagement, as discussed in the sections below, examine the value of local knowledge, public perception of EV benefits, understanding local transportation characteristics, and addressing barriers to adoption of clean transportation access.

1.2 Value of Local Knowledge

Obstacles for EV adoption and utilization are well known and described in peer reviewed reports and other supporting literature. Common roadblocks are typically the availability of charging infrastructure and the upfront costs related to transitioning to an EV. However, details associated

with best practices for overcoming these challenges are best implemented when location specific information is considered. The local factors that contribute to limited access are community-specific and are influenced by a range of transportation and socioeconomic issues. Stakeholders suggested identifying existing local transportation profiles, understanding community needs, and identifying optimal siting locations for charging infrastructure in the public domain as focus areas for outreach, in order to add value to development processes. Given the emerging nature of eMobility services, information gaps in existing supporting literature can be supplemented by engaging in stakeholder outreach to tap into local knowledge to determine what a community needs and how policy actions can address those needs.

Local knowledge describing community specific challenges, such as identifying transportation sector-related issues that pose health issues as well as the human health factors that are priorities for stakeholders, can yield valuable information for policy development to shape successful programs for that community. In discussions with stakeholders representing community organizations and local governments, individuals identified key pieces of information describing how stakeholders value clean transportation and best practices for overcoming known local barriers to EV adoption. Common topics stakeholders discussed included local air quality and health concerns, lack of functional public transportation, public versus personal transportation methods, parking availability, and financial barriers. These stakeholders also gave examples regarding optimal siting locations for charging infrastructure, best practices for communicating with stakeholders, and place-based strategies for leveraging individual EV ownership, public transportation, and TNC networks. As state and federal agencies further develop clean transportation programs in the future, tapping into local knowledge as part of the development process will benefit broader policies and lead to a better chance for successful implementation.

1.3 Perceptions of EV Benefits

Although the primary benefit of electrifying transportation is rooted in overall GHG emissions reduction and climate change mitigation, there are many secondary benefits as well. These benefits include improved local air quality as a result of reducing harmful particulates generated by tailpipe emissions from ICE vehicles, and community economic growth opportunities. As part of our outreach efforts, participants were asked how they perceive these additional benefits, and were asked to describe how EVs could add value to their communities.

Common among participant responses was the importance of improved local air quality, as it relates to emissions in the transportation sector. Stakeholder responses focused mostly on light duty passenger vehicles. However, in Newark, medium and heavy duty (“MHD”) vehicle emissions were an additional concern. Port Newark was mentioned specifically as being an extreme local polluter that should be addressed by implementing emission reduction efforts. A Newark sustainability official spoke of systemic problems leading to heavy duty trucks idling, which causes pollution and congestion within the city. This person identified this issue as a factor contributing to persistent respiratory health stressors. Conversely, some respondents claimed air quality issues are something people were only vaguely aware of due to being preoccupied with more immediate issues such as finances or access to healthcare. Most respondents indicated that

the human health benefits of electrified transportation would resonate within their community and should be a point of emphasis in future outreach efforts.

Economic opportunities associated with EV adoption was also a recurring discussion point. Repeatedly during interviews, participants placed value on increased EV usage supporting local workforce and business districts. Collaboration among local technical schools, universities, and EVSE companies was mentioned as being important partnerships that could assist in developing curriculum and preparing students for careers in emerging EV technologies. Some participants identified the benefits of workplace charging at large employment centers, such as office complexes or warehouse districts, as a means to drive local economic opportunities while simultaneously increasing transportation access in overburdened communities. One community advocacy organization leader from Washington Township noted that installing charging at employment centers and pairing that development with electric shuttles or an influx of EV ride-hailing vehicles would bridge transportation and employment access gaps existing in and around that municipality.

Some respondents discussed the perception that EVs are still an aspirational purchase for many residents in overburdened communities. Measures such as rebates and tax credits on lower priced and used EV's were suggested as being necessary to reduce the initial costs for people to even consider transitioning from an ICE vehicle. They explained that in order to see movement toward transitioning to EVs, people need to see and have confidence in a path to do so, both economically and functionally.

In interviews with public transit organizations and TNCs, rider and driver perceptions of sustainable transportation and access were discussed. Transportation organizations underscored the importance of marketing their sustainable programs and fleet upgrades to their customers. In the public transit sector, representatives discussed their sustainability goals by highlighting fleet upgrades, emission inventories, improved resilience planning, and reduction of vehicle miles traveled ("VMTs") by individuals, all of which can improve conditions and access to EVs in overburdened communities. As one public transit representative noted, one of the best ways to ensure that overburdened communities are taking advantage of EVs and reaping the benefits they offer is to aggressively market them in an effort to increase their utilization. Without individuals' awareness leading to increased EV utilization, any efforts made will not achieve maximum impact.

Giving people the option to utilize EVs in ride-hailing networks was an emerging but important consumer value option, according to TNCs. This option is being deployed in targeted market roll-outs, according to one TNC representative, where consumers can opt into a "clean ride" when an EV is booked instead of an ICE vehicle. The representative noted that where available, this option has become popular amongst riders, and that the TNC with which this person is associated is interested in expanding this option to additional markets. This example highlights the positive perceptions of EVs that can be leveraged in future outreach efforts. TNCs pointed out that for many riders, their first trip in an EV will take place on their platform, which is both a form of outreach and a proven method for increasing awareness that drives consumer adoption. Talks with members of various communities showed that they anticipate a demand for this cleaner EV transportation and would support it in their community. Most respondents supported the

concept of EV ride-hailing, and some went a step further expressing a desire to see electrified buses as well.

1.4 Understanding Local Transportation Characteristics

When discussing how residents and commuters alike travel, several common themes among stakeholders appeared. First, in densely populated cities with well-developed public transportation networks, individuals are less likely to own a vehicle and more likely to rely on public transportation or ride-hailing networks. Second, and conversely, in locations with characteristics of a transportation desert, options are more limited, as individuals face additional barriers when relying on public transportation and may be financially limited in their ability to purchase their own vehicle. These issues create critical gaps in access to reliable transportation. As a community advocacy leader familiar with Washington Township's public transportation succinctly stated, the most valuable transportation asset in the community was a person's own car.

In locations within major transportation hubs and more densely populated housing conditions, participants communicated high levels of public transportation use, and often related this to limited public and private parking options. Both availability and expense for parking a private vehicle is a limiting factor to private vehicle ownership. Furthermore, to bridge last-mile-traveled transportation gaps, or how people get from a transit hub to their final destination, respondents from Newark and New Brunswick spoke of non-motor vehicle transportation methods such as bicycles and electric scooters being used when such systems are available. However, these respondents had mixed opinions regarding these options. An academic institution representative from New Brunswick explained that in their community, pedestrian travel is very limited, and local parking outside of transit centers is also limited. These factors together create a demand for transportation where many commuters and students have begun to utilize electric scooters.

Suburban sprawl is common throughout the U.S. and New Jersey, and when coupled with socio-economic conditions that limit access to privately owned vehicles, mobility itself can be difficult, making the need for increased transportation access options a priority. During interviews, Washington Township-affiliated respondents identified that their main transportation mobility is constrained by a lack of public transit. They noted that this mobility issue was often coupled with limited non-motor vehicle transportation options, in settings that require moderate travel distances from places of residence to workplaces or business districts. For example, pedestrian options can be limited due to concerns about walking to highway-centric developments lacking in pedestrian safety accommodations such as sidewalks and crosswalks. Individuals are likely to depend on local bus routes that provide varying reliability due to scheduling or punctuality issues, which can impact employment security among other things. For people in these settings, additional modes of transit, such as EV ride-hailing, would increase their mobility access and reduce their risk to adverse transportation conditions.

There was strong support among most respondents for employing varied approaches to increasing EV access, including incentives for EV ownership, TNC EV drivers, and improved public transit options. Each of these options can help address certain transportation-related issues. However, there is not one catch-all for improving access in overburdened communities. In

addition, respondents spoke about raising residents' awareness of the benefits EVs offer, as well as any programs related to increasing their availability as a measure equally important to any policies or programs that may be developed. The common reasoning behind this answer involved bridging an existing information gap regarding EVs generally and an overall lack of residents' awareness of programs being available in their communities.

1.5 Addressing Barriers to Adoption & Clean Transportation Access

Stakeholders who engaged in this outreach, including academic institutions, community advocacy organizations, state and local government, and industry, spoke of similar common barriers to EV adoption, despite coming from varied backgrounds. Some barriers are unique to an EV transition, such as higher upfront cost, range anxiety, or lack of used vehicle options. Other barriers relate to cost prohibitive issues regarding private vehicle ownership, including maintenance or other ownership-associated costs such as fuel or insurance payments. There were also more generalized issues that people living in overburdened communities may face, such as language barriers and lack of financial tools, such as checking accounts or credit cards, as well as smartphones or internet, which are needed to utilize these platforms and charging networks or access information regarding available services. These issues are not strictly related to electric vehicles but make utilizing EVs or EV-related services difficult.

According to respondents, vehicle usage and the necessity of owning a personal vehicle posed significant challenges for residents. For many living in overburdened communities, personal mobility is often limited to public transportation methods due to financial constraints on car ownership. This issue is often compounded by limited public parking, particularly for MUD residents, and additional costs of private lot/garage parking. A New Brunswick planning official identified parking as a major limitation for car ownership in the community, causing many people to opt to use public transit or ride-hailing services as preferable options instead of dealing with the limited parking situation. A government representative from Newark spoke of private parking lots in the city as a factor adversely impacting their ability to support public charging infrastructure. In particular, Newark does not have enough public lots in high traffic areas to build out sufficient EV charging infrastructure. Working with private lot owners was viewed as a necessary part of the process to adequately equip the city with EVSE. In communities with these conditions present, EV ownership, which already requires generally higher initial purchasing power compared to ICE vehicles, remains challenging. Furthermore, in cities, public transportation is better developed or a ride-hailing service may be less expensive due to shorter trips and often is a more practical means of mobility, thus lowering demand for private vehicle ownership. This only further highlights the gap in access to EVs that could be filled by an increased EV ride-hailing presence in these communities.

Regarding private EV ownership, continued government funded EV incentives were characterized as necessary but not going far enough to help those in overburdened communities. Respondents indicated that the relatively higher cost of most EVs make the current incentives unlikely to encourage adoption in these communities. Additionally, current EV incentives in New Jersey focus on the purchase of new EVs. However, many people in overburdened communities purchase used vehicles. As more EVs cycle onto the used car market there is an opportunity for New Jersey state agencies to provide a similar incentive for purchasing used EV models.

While the penetration of EVs into the used car market may require more time to reach parity with ICE options, TNC companies have developed creative solutions for both EV drivers and riders using their networks. As previously mentioned, on the rider side, TNC platforms have begun integrating the ability for riders to request an EV for their trip. On the driver side, in an effort to increase the number of EVs on their platform, TNC's have begun offering to rent or lease EVs to drivers who have an interest in using EVs.

Expanding existing charging infrastructure was a critical area of concern among participants. As anticipated, access to home and destination charging was identified to be a limiting factor in expanding EV utilization. Incentivizing home charging options and reduced charging rates in overburdened communities were repeatedly requested or were a point of inquiry. Similarly, charging options in multi-unit dwellings, which have limited access to private parking, were also a point of regular inquiry.

Home charging access is a crucial factor for growing EV ride-hailing in overburdened communities. As one TNC representative indicated, many of their drivers that live and operate in overburdened communities have no access to at-home charging. People living in MUDs can receive incentives to purchase an EV, however without the ability to charge at their residence, the likelihood to adopt is reduced. Complications associated with installing/operating EVSE and managing designated private parking at MUDs was also of concern. A discussion about MUDs and ways to address MUD residents' concerns regarding access issues is contained in the next section of this report.

Furthermore, respondents raised the issue of individuals that are unable to access financial tools which greatly increases difficulty when trying to use the popular smartphone based ride-hailing services. TNCs are attempting to address this obstacle by integrating prepaid cards, hailing kiosks, and landline phone options. However, the fact remains that increasing EV access is not an issue limited to just vehicles and chargers. There is a need to consider the different languages spoken within communities as information regarding any upcoming programs or incentives should be readily disseminated in the community to all people, which includes different language speakers. Utilization of services such as EV ride-hailing or EVSE assumes access to certain financial tools and language proficiency, factors which often are not present in certain communities. Identifying and accounting for ways to bridge access gaps in the absence of one or both of these factors should be included in program development as EV growth continues.

Overcoming barriers to clean transportation access that participants discussed do not have a "one size fits all" solution and vary in how they are applied, based on community socioeconomic and transportation conditions. For example, in transportation deserts, increasing clean transportation services like EV ride-hailing, which may be more adaptable to individual trips, needs to be coupled with lowering barriers to private EV ownership through either EVSE or EV incentives. Conversely, in dense transportation hubs, increasing the electrification of commuter options via EV ride-hailing or public transit and the medium to heavy-duty sectors may yield more local benefits in terms of improved air quality and quality of life.

To summarize stakeholder input, there are challenges and opportunities within each overburdened community that are unique and require consideration in efforts to increase access

to, and enjoy greater community adoption of, EVs. A proactive outreach process can help identify and address unique localized characteristics, leading to increased EV utilization in these communities. Adopting best practices for engagement in overburdened communities should be focused on identifying and opening communication with trusted community groups and targeted stakeholders early in the planning phase for any EV programs.

Task 2 – Multi Unit Dwellings & Ride-hailing/Car Sharing Analysis

2.1 Multi Unit Dwellings (MUDs)

2.1.1 Introduction

The purpose of this section is to outline EV charging limitations and opportunities in the MUD housing sector that influence EV access in overburdened communities where MUDs are located.

Currently, EVs are predominantly located at single-family homes. Owners of home chargers install and use their chargers in their driveways and garages. The lack of availability of a driveway or garage is one of the biggest barriers to entry for an interested EV adopter. Residents of MUDs typically do not have the ability to have EVSE installed where they park, removing the most commonly utilized location for EV charging as an option. In New Jersey, 36% of all residents live in MUDs,¹⁵ which represents a large market of potential EV adopters who currently may lack access to at-home charging.

Increasing EV adoption in the MUD market also represents a step in the direction of equity in EV access. Residents of MUDs may have lower incomes than most single-family homeowners. Removing the charging at home barrier for people who may purchase a moderately-priced EV or who want to take advantage of the growing used EV market can facilitate the goal to increase EV access in overburdened communities.

A compounding benefit of increasing EVSE installation at MUDs is providing the opportunity for ride-hailing drivers who currently use ICE vehicles to transition to an EV. Ride-hailing drivers who live at MUDs would gain access to at home charging, removing a significant barrier, while also allowing these drivers to begin each day with a fully charged vehicle. Developing the MUD sector while EVSE installations concurrently continue in high traffic areas, such as in transit centers, will help facilitate the increased movement of people using clean transportation. Providing ample options for charging in urban centers and at MUDs allows the market for EV ride-hailing and car sharing to grow.

2.1.2 Importance of EV Charging – The Case for Expanded Access to EVSE in MUDs

Expanding access to EVSE in MUDs not only benefits property owners and residents, but also benefits the State as a whole. There are large-scale statewide benefits to be realized as more passenger vehicles are electrified. This has led to MUDs being included in the EV Act¹⁶, which mandates that “[b]y December 31, 2025, 15 percent of all multi-family residential properties in the State shall be equipped with EVSE for the routine charging of plug-in electric vehicles by residents through a combination of Level One EVSE, Level Two EVSE, or charger ready parking spaces”¹⁷

¹⁵ Census Reporter, *ACS 2020: New Jersey*, <https://censusreporter.org/profiles/04000US34-new-jersey/>.

¹⁶ See N.J.S.A. 43:25-1, *et seq.*

¹⁷ N.J.S.A. 43:25-3a.(6)(a).

By siting EVSE at MUDs, the State is also addressing the disproportionate effects of air pollution seen in overburdened communities throughout New Jersey. Urban communities located in densely populated areas, where many residents are people of color, have seen spikes in air quality related illnesses, such as asthma. New Jersey State Health Assessment Data (NJSHAD) has reported higher rates of asthma related hospitalizations for Black and Hispanic people across all age ranges than their white counterparts per 100,000 people.¹⁸ EVSE installation and the proliferation of EV use in and around these communities removes localized pollution from cities via reduction in tailpipe exhaust.

The NJBPU is establishing a framework for utilities to increase build-out of EVSE, as seen in the September 23, 2020 Board Order establishing Minimum Filing Requirements for Light-Duty, Publicly Accessible Electric Vehicle Charging (the “September 23, 2020 Board Order”).¹⁹ At present, there is a rulemaking occurring on these minimum filing requirements for light-duty EVs to codify these items and ensure equitable access to charging, while providing clear standards for all public utilities. These minimum filing requirements seek to standardize the process in which utilities support and build-out EVSE, which includes sites like MUDs.

To date, the four major investor-owned public electric distribution companies (“EDCs”) Serving New Jersey²⁰ have submitted filings to address EVSE build-out, and two EDCs, Public Service Electric & Gas (“PSE&G”) and Atlantic City Electric (“ACE”), have EVSE programs running. NJBPU anticipates that the two remaining EDCs, Jersey Central Power & Light (“JCP&L”) and Rockland Electric Company (“Rockland Electric”) will have EVSE programs running by the end of 2022. These programs may range from EVSE-specific rates for MUDs to financial support for EVSE installations or make-ready work, which refers to the pre-wiring of electrical infrastructure at a parking space to facilitate future installation of EV chargers on a “plug and play” basis. A list of EDC programs for which MUDs are eligible is contained further in this report.

2.1.3 Costs of EVSE Installation and Ownership Models at a MUD

2.1.3.1 EVSE Installation & Siting Cost Considerations

In terms of overall project development cost, the installation cost associated with EVSE is the widest ranging variable. Charger pricing is readily available and is a fixed cost. However, a number of factors can impact the installation process. Costs to consider when installing EVSE include contractor fees for undertaking the project, and labor rates, both of which could vary based on their experience with EVSE. Permitting or inspection fees may be required by a municipality or county to install EVSE as well. A contractor may assist with permitting and inspections but MUD owners should be aware of these fees as variables that could affect cost.

¹⁸ New Jersey State Assessment Health Data, *Complete Health Indicator Report of Asthma Hospitalizations and Emergency Department Visits* (February 10, 2022), https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/NJEPHTAsthmaHosp.html.

¹⁹ See *In the Matter of Minimum Filing Requirements for Light-Duty, Publicly-Accessible Electric Vehicle Charging*, BPU Docket No. 20050357, Order dated September 23, 2020, <https://nj.gov/bpu/pdf/boardorders/2020/20200923/8F%20-%20ORDER%20Electric%20Vehicle%20MFRs.pdf> (hereafter “September 23, 2020 Board Order”).

²⁰ These four EDCs include: (i) Jersey Central Power & Light Company; (ii) Atlantic City Electric Company; (iii) Public Service Electric and Gas Company; and (iv) Rockland Electric Company.

Cost can also be affected by the siting location of the EVSE on the property. Considerations such as whether the EVSE requires the ground to be trenched through grass or pavement in order to run underground wiring from the EVSE to the point of grid interconnection will impact cost, as trenching in pavement is more expensive than trenching through grass. Another siting consideration is the distance to American Disabilities Act (“ADA”) compliant ramps or elevators. To satisfy ADA requirements, a MUD owner should take ADA considerations into account, such that EVSE should be positioned reasonably close to any ramps, elevators, or other handicap accessible features that a MUD provides. There are also amenities like lighting for safe nighttime charging, signage, and protective equipment such as bollards that can affect cost.

Finally, to fully consider the costs of a potential EVSE installation project, MUD owners should be aware that electrical site upgrades may be required to support the chargers for a MUD. These upgrades have generally been paid for by the MUD owner in the past, but due to the need for EV charging in the State, EDCs have submitted filings to the NJBPU that propose to cover a portion of the cost of these upgrades. The September 23, 2020 Board Order indicates that these upgrades are a prudent responsibility of each electric utility. These offerings would greatly decrease the potential project costs for EVSE installation and make a project more cost efficient.

[2.1.3.2 EVSE Ownership Model in MUDs](#)

There are several ownership models MUD owners and property managers can consider before planning to install EVSE. Each ownership model presents advantages and disadvantages, based on the MUD owner’s goals and the resources available.

EVSE Owned by the MUD Owner

The most common EVSE ownership model is the site host model. In this model, the MUD owner or property manager owns the EVSE and pays for the installation as well as for operation and maintenance. This allows the site owner to earn all revenue from the EVSE. This ownership model gives MUD owners the most control over the installed EVSE, including the flexibility of choosing the EVSE models they prefer, installation options, and the ability to determine how to manage who uses the EVSE. However, MUD ownership of EVSE requires greater up-front capital costs and makes the MUD owner responsible for operations and maintenance.

EVSE Owned by a Third-Party

Third-party EVSE service providers offer a different business model. In this model, the third party pays for the installation, operation, and maintenance of the EVSE, while sharing a percentage of the revenue with the MUD owner. In this model, the MUD owner has the flexibility of choosing which third-party partner to work with based on the available EVSE brands and models, installation options, profit-sharing agreements, etc. However, once a third-party partner is selected, the MUD owner will have minimum responsibility and thus will not have much flexibility in the operation and management of the EVSE. This model requires less up-front capital cost, if any, and shifts the responsibility for operation and maintenance to the third party. However, in this model MUD owners only retain a share of the revenue generated, and will have less control over EVSE operations and pricing.

Conclusion

In conclusion, the proliferation of EVs in New Jersey is underway, but there is a gap in providing access to home charging for residents who live in MUDs. The State is taking steps to increase EV access to this population, particularly those living in overburdened communities. Development of charging at MUDs also opens the market for EV ride-hailing and car sharing to grow.

The decisions a MUD owner must make will dictate the service offered and the benefits both they and the residents of their community will reap. MUD owners' ability to work with experienced professionals throughout both the site preparation and construction process is crucial. Also, communication with the local utility, particularly during the preparation phase, is encouraged and may lead to cost savings. Providing EV access to the overburdened market will provide localized benefits for MUD owners and their residents, as well as to the EV market as a whole.

2.2 Analysis of Ride-hailing/Car Sharing Programs

2.2.1 Introduction

The initial capital cost of an EV is a key factor preventing most residents of overburdened communities from acquiring them. Ride-hailing/car sharing programs allow residents in overburdened communities to access clean, non-emissions-emitting electric transportation, without the burden of upfront costs or ongoing operational costs. Ride-hailing/car sharing options can be deployed quickly into communities and can begin providing benefits including emissions reductions, increased connectivity to crucial destinations such as employment opportunities or healthcare where traditional transportation options may have service gaps, and accessing employment opportunities as EV ride-hailing drivers.

The Study team identified recent ride-hailing/car sharing models via research/literature review, and in some cases conducted telephone interviews with program sponsors. Findings were then compiled in order to guide the recommendations contained in this report.

2.2.2 Car Sharing Programs

The following car sharing programs were identified and evaluated:

1. **Zipcar** provides automobile reservations to its members, billable by the minute, hour, or day. Members may have to pay a monthly or annual membership fee in addition to car reservation charges.

Zipcar locations accessible in the New Jersey area are primarily limited to the New York and Philadelphia regions. Zipcar is the largest car sharing company in the world²¹, but no electric vehicles are available in the United States based on information on their website, <https://www.zipcar.com/>. Zipcar has been in business since 2000 and was acquired by

²¹ Michael Coates, *Best Car Sharing Programs* (December 15, 2019), <https://cleanfleetreport.com/best-car-sharing/>.

Avis in 2013.²² Zipcar did not appear to have specific accommodations for overburdened communities.

2. **BlueLA** serves areas of Los Angeles, California and is the largest EV car share program in the country²³, providing discounted rates for income-qualifying participants, as determined by gross total income per household member or by belonging to certain public assistance programs.²⁴ These individuals can access the BlueLA EV rental fleet at a \$1 per month reduced membership rate, and enjoy reduced per use fees.

BlueLA participates in public-private partnerships with several non-governmental organizations (“NGOs”), the Los Angeles Department of Water and Power (“LADWP”), which is a municipally-owned utility, and the California Air Resources Board (“CARB”). These public-private partnerships allow BlueLA to receive city and state funding. This funding has been used to partially reimburse BlueLA for EVSE and installation fees.²⁵ The BlueLA program operates over 300 chargers at 40 locations²⁶ with 300 Chevrolet Bolt EVs.

Overall, BlueLA appears to have a strong mix of project partners, access to abundant chargers, and a large quantity of high range/low-cost EVs. However, an online article reported that “there are still plenty of kinks to iron out...complaints about the BlueLA app and with the cleanliness of vehicles.”²⁷

3. **BlueIndy** was an EV car sharing service in Indianapolis, Indiana that launched in 2014. The service closed in 2019, due to financial losses stemming from underutilization. BlueIndy said in a news release that 11,000 members took approximately 180,000 rides over the course of four years, but “Indianapolis drivers have been slow to adopt alternative transportation options and car ownership remains extremely high.”²⁸ Other challenges the service faced were malfunctioning kiosks, availability of vehicles or spaces, and

²² Zipcar, *Avis Budget Group To Acquire Zipcar For \$12.25 Per Share In Cash* (January 2, 2013), <https://www.zipcar.com/press/news/avis-budget-group-to-acquire-zipcar-for-1225-per-share-in-cash>.

²³ California Air Resources Board, *Mayor Garcetti Launches Electric Vehicle Car Share Program for Disadvantaged Communities*, *Clean Air* (June 9, 2017), <https://ww2.arb.ca.gov/news/mayor-garcetti-launches-electric-vehicle-car-share-program-disadvantaged-communities-clean-air#:~:text=BlueLA%20%E2%80%94%20the%20nation's%20largest%20EV,options%20to%20low%20income%20communities>.

²⁴ Blink Mobility, *Pay Less and Drive More with the Community Membership*, <https://blinkmobility.com/documents/>.

²⁵ Shared-Use Mobility Center, *Electric and Equitable Learning From the BlueLA Carsharing Pilot* (April 2019), https://sharedusemobilitycenter.org/wp-content/uploads/2019/04/NewFile_SUMC_04.15.19.pdf

²⁶ Blink Mobility, *LA's All Electric Car Sharing Service*, <https://blinkmobility.com/>.

²⁷ Zac Estrada, *BlueLA EV Car Share Is Expanding, Despite Cleanliness Concerns, Vandalism* (December 8, 2021), <https://www.newsbreak.com/news/2455548388467/blue-la-ev-car-share-is-expanding-despite-cleanliness-concerns-vandalism>.

²⁸ Kellie Hwang, et al., *BlueIndy: Indianapolis Electric Car-Sharing Program to Shut Down* (December 20, 2019), <https://www.indystar.com/story/news/local/transportation/2019/12/20/blueindy-indianapolis-electric-car-sharing-program-shuts-down/4259749002/>.

upkeep of the fleet.²⁹ BlueIndy did not appear to have specific accommodations for overburdened communities.

One stakeholder, Turo, Inc, operates what they describe as a national peer-to-peer car sharing service. This service allows individual car owners to make their vehicle accessible to other users through an online and mobile device interface. Through peer-to-peer car sharing platforms, vehicle owners and prospective users agree to a location where the owner provides the key to their vehicle to the user, and for when and where the vehicle is returned.

2.2.3. Ride-hailing Programs

The following ride-hailing programs were identified and evaluated:

1. **Uber Technologies, Inc. (Uber)** is a TNC, providing mobility as a service. Its services include ride-hailing, as well as electric bicycles and motorized scooter rental. Uber does not own any vehicles; instead, it offers a platform to drivers of their own vehicles to provide rides to Uber users, and Uber receives a commission from each ride that takes place. According to Uber's website, they are committed to becoming a fully electric, zero-emissions platform by 2040, with 100% of rides taking place in zero-emissions vehicles, on public transit, or with micromobility.³⁰ Uber is an established firm operating on a very large scale. Their public pronouncements about transitioning to EVs and supporting drivers, including disadvantaged drivers, are consistent with the goals of this research. They have not yet significantly transitioned to EVs in New Jersey.

According to a February 15, 2022 teleconference with Uber representatives:

- Approximately 20% of Uber drivers live in overburdened communities.
- Uber has collaborated with the car rental company Hertz, which is in the process of purchasing 100,000 Tesla Model 3s. These EVs would be offered as rentals to drivers on Uber's platform.
- Uber offers an "Uber Green" capability, where riders can request an EV instead of an ICE vehicle. Based on Uber's comments after their review of the draft report, this capability is available in more densely populated areas of northern New Jersey, in and around Union, Hudson, and Bergen Counties.³¹ Drivers can earn from Uber a premium of \$1.50 per EV trip (the passenger pays \$1.00 and Uber pays \$0.50).
- Uber and EV manufacturer Arrival, will collaborate on designing a low-cost EV for the TNC industry, which should benefit low-income drivers.

²⁹ James Briggs, *RIP BlueIndy, a Great Concept that was Too Clunky to Work in Indianapolis*, (December 20, 2019), <https://www.indystar.com/story/opinion/columnists/james-briggs/2019/12/20/blueindy-indianapolis-electric-car-sharing-greg-ballard/2709243001/>.

³⁰ Zero Emission Transportation Association, *Member Profile – Uber*, <https://www.zeta2030.org/members/uber>.

³¹ Hayley Prim, *Comments of Uber Technologies, Inc.*, (August 3, 2022), https://publicaccess.bpu.state.nj.us/DocumentHandler.ashx?document_id=1271317.

2. **Lyft, Inc.** is a TNC providing mobility as a service. Lyft offers ride-hailing, vehicles for hire offered by Hertz or Flexdrive, motorized scooters, and a bicycle-sharing system. Lyft is an established firm operating in all 50 states. Their public pronouncements about transitioning to 100% EVs by 2030 and supporting drivers, including drivers from overburdened communities, are consistent with the goals of this research. Like Uber, Lyft does not own any vehicles; instead, it receives a commission from each booking that takes place on its platform. According to Lyft's website, Lyft has committed to reach 100% EVs used on the Lyft platform by 2030.³² Lyft touts that drivers will save up to \$10 billion from lower EV operating expenses.³³ Lyft also offers to help transition drivers to EVs through their "Express Drive" program, where drivers can rent an EV from Lyft through Hertz or Flexdrive.³⁴ Lyft has partnerships with EVSE companies Electrify America and EVGo that include fast charging with the EV rental price.

According to a February 22, 2022 teleconference with Lyft representatives:

- Drivers can rent EVs at a similar cost to ICE vehicles.
 - Centrally located parking lots with consistently high ride demand such as airport lots, are effective charging locations to ensure high utilization of EVs.
 - EV ride-hailing rides tend to cluster around DCFCs. Siting DCFCs in overburdened areas would help increase EV miles traveled in those locations.
 - Seventy percent of Lyft's drivers are lower income and/or minority.
3. **VIA Jersey City** is a dynamically routed, on-demand, mobile-app-powered shuttle service operated in partnership with Jersey City, New Jersey.³⁵ This city-subsidized service is open to all residents, workers, and visitors to Jersey City. The vehicles in service are either conventional vans or Kia EVs. Jersey City is relatively well served by EV chargers.

Jersey City Mayor Steven Fulop has recently reported that the program is "a huge success...even beyond our most ambitious expectations."³⁶ The New Jersey Department of Environmental Protection ("NJDEP") recently announced a \$600,000 grant to further support the project.³⁷

³² Lyft, *Leading the Transition to Zero Emissions: Our Commitment to 100% Electric Vehicles by 2030* (June 17, 2020), <https://www.lyft.com/blog/posts/leading-the-transition-to-zero-emissions>.

³³ Roberto Baldwin, *Lyft Announces Commitment to a Total Electric-Vehicle Fleet by 2030* (June 17, 2020), <https://www.caranddriver.com/news/a32885490/lyft-all-electric-vehicle-fleet-2030/>.

³⁴ Lyft, *Lyft Express Drive*, <https://www.lyft.com/expressdrive>.

³⁵ Via Transportation, Inc., *Reimagining How the World Moves*, <https://ridewithvia.com/>; Via Transportation, Inc., *Modernizing Public Transit in Cities Around the Globe*, <https://ridewithvia.com/audience/cities>.

³⁶ Megan Pererro, *Via Jersey City Success Story* (August 17, 2021), <https://www.masstransitmag.com/alt-mobility/shared-mobility/car-sharing/article/21231115/via-jersey-city-success-story>.

³⁷ NJDEP, *Overview of Distribution of Mitigation Funds* (April 21, 2022), <https://www.nj.gov/dep/vw/project.html>. This project was funded with RGGI Auction proceeds, announced on April 21, 2022. The funding for this program

4. **GM's Maven Gig** operated from 2016 to 2020, mostly in the Los Angeles, California area. Maven Gig operated 5,000 gas-powered vehicles and 1,000 2017 Chevrolet Bolt EVs with a 238-mile range.³⁸ Ride-hail drivers paid a fixed weekly fee for unlimited miles, and in the case of EVs, unlimited charging at specific EVGo locations. The EVs had only 23 minutes of additional downtime per day (6%) over ICE vehicles, and just slightly lower range.³⁹ The small distance and downtime penalties were offset by the lower operating costs of EVs when drivers are given access to low-cost charging.

2.2.4 Other Programs

In addition to the ride sharing and ride-hailing programs identified above, the NJDEP manages a program identified on their website as “eMobility: Grants for Electric Car Sharing and Ride-hailing Services.”⁴⁰ The program offers “Grants for electric shared mobility project[s] such as electric car sharing and ride hailing. Projects that benefit low- or moderate-income communities that are disproportionately impacted by air pollution will be prioritized.” The website invites interested parties to submit an online application.⁴¹

The program has funded the following applicants. Note that each of these projects are currently in the planning phase:

Gloucester City eMobility Project: (Applicant: Zapp Electric (“Zapp”)). Zapp describes themselves as a “first of its kind company working with TNC . . . drivers such as Uber and Lyft and FHV (For Hire Vehicles) such as limo/livery companies and drivers to migrate to EVs.”⁴² Zapp offers both ride-hailing and car sharing services. However, their business model is to lease vehicles to Uber and Lyft drivers, which makes this more of a ride-hailing project. The project would serve the Gloucester City area in Camden County. Zapp does not solely focus on overburdened communities.

Newark eMobility Project: (Applicant: Zapp Electric). This project is similar to the Gloucester City eMobility Project. For this project, charging is intended to be sited near Newark Airport, a high intensity use area for ride-hailing opportunities.⁴³

Trenton eMobility Project: (Applicant: Isles, Inc. (“Isles”)) Isles is a community development and environmental organization based in Trenton, New Jersey.⁴⁴ Isles

came under the category “Electric Car Share Programs” and is described as being awarded to City of Jersey City/VIA with respect to the “eMobility Project, existing car share program.” *Id.*

³⁸ *Racing to Accelerate*, *infra* note 52, at 4.

³⁹ *Id.*, at 4.

⁴⁰ NJDEP, *Incentives to Drive Green – State Incentives – eMobility: Grants for Electric Car-sharing and Ride-hailing Services*, <https://nj.gov/dep/drivegreen/dg-electric-vehicles-affordability.html>.

⁴¹ *Id.*

⁴² Zapp Electric, <https://zappfast.com/>.

⁴³ From interview with Zapp Electric representative on February 1, 2022.

⁴⁴ Isles, Inc. <https://isles.org/>.

recently issued a Request for Proposals (“RFP”)⁴⁵ for the Trenton eMobility Project, a project that will help to “provide affordable and reliable [EV] transportation to low-income residents” as well as to all Mercer County residents, in order to improve mobility and increase access to jobs, healthcare, and new opportunities. Isles is intending to offer a car sharing service, a ride-hailing service and a shuttle service.

The Isles program targets an overburdened community that lacks access to clean transportation, a mission consistent with the goals of this project. There is an emphasis on community outreach and engagement in this project’s development strategy. Isles intends to hire Trenton residents to provide new employment opportunities and require any vendors working with them to prioritize local hires.⁴⁶ Also of note from interviews with Isles, routes for future shuttles are intended to be planned with community feedback to maximize efficiency. Isles intends to pilot and then evaluate the ride-hailing service. The Isles application indicates that 30% of Trenton households do not have a car⁴⁷, and 21% of Trenton residents rely on carpooling as their primary mode of transit.⁴⁸

Woodbridge eMobility Project: (Applicant: Township of Woodbridge, Woodbridge Electric Shuttle Connection). This project would provide an electric trolley service.⁴⁹ The project does not necessarily focus on overburdened communities.

Overall, key elements of the eMobility applications noted above were:

- DCFC is a central element in the development of eMobility businesses, and EDC participation in installing the “Make-Ready” infrastructure is essential. Applicants must be able to apply to the participating EDC for such infrastructure to be sited at locations benefiting their operations.
- Drivers using Zapp (Gloucester County and Newark) have access to no fee DCFC.
- Drivers generally do not have access to home charging.
- A wide variety of project partners are engaged, including the electric utility.

2.2.5 Key Findings

The review of the programs described above resulted in the following key findings:

- Large, established programs such as Uber and Lyft focus on ride-hailing, not car sharing.
- Small startups such as BlueLA and Isles focus more on overburdened communities than larger TNCs, but they have a short history, so their likelihood of success cannot be predicted.
- Established TNCs such as Uber and Lyft operate at scale, plan to transition to EVs, and have plans to support drivers interested in a transition to EVs. Such plans are consistent

⁴⁵ Isles, Inc., *Trenton E-Mobility Project* (October 6, 2021), <https://isles.org/wp-content/uploads/2021/10/Charging-Stations-RFP.pdf>.

⁴⁶ *Id.* at 2, 3.

⁴⁷ *Id.* at 3.

⁴⁸ *Id.*

⁴⁹ From interview with DEP representative on December 22, 2021.

with the goals of this Study and these TNCs have the highest likelihood of success in facilitating access to clean transportation in overburdened communities at scale. Drivers operating EVs on these companies' platforms receive additional compensation per trip, and are being offered charging cost benefits. However, it remains to be seen whether these plans provide enough incentive to cause larger scale adoption of EVs on these platforms. Government support for the drivers who participate in such programs would help establish EV-TNC programs in overburdened communities. Support could include providing a clearinghouse for information on EVs, targeted EV purchase and charging incentives, or adoption of elements of certain California programs described below.

- Car sharing entities are more prone to having vehicle cleanliness issues and to experiencing vandalism,⁵⁰ as a vehicle owner is not present during the time of operation.
- There were no examples found of large, EV-based car sharing companies currently operating in the U.S.
- Early EV ride-hailing programs, such as BlueIndy, failed due to the nascent nature of the market at that time. Costs of the vehicles were higher, and the population's comfort level in trusting EVs was far less than today.
- Current and future EV ride-hailing programs will likely have a greater chance of success because:
 - EVs are becoming less expensive and more widely available.
 - Accessing ride-hailing apps via smart phones is becoming more convenient.
 - Government support for such programs is increasing, and can target issues preventing growth that the private market would otherwise not address, particularly in overburdened communities.
 - Utility "Make-Ready" programs are increasingly emerging.
 - Overall public awareness about the benefits of EVs is increasing.
- While car sharing options are more limited at this time, the qualities of BlueLA are exemplary for any eMobility effort focused on increasing access in overburdened communities because:
 - BlueLA focuses on the overburdened population by offering reduced rates for qualified low-income drivers.
 - Monthly memberships are reduced by 80% and per minute rental fees are reduced by 25%, compared to standard rates.⁵¹
 - The program has an ample quantity of both EVs and chargers.
 - The program is supported by a strong mix of government, utility and NGO partners.
 - The program is operational, and was acquired by the EV company Blink in 2018.
- The Isles and Zapp projects appear to hold much promise, but they are both in the development phase and bear further monitoring. The Isles program is, notably, entirely focused on providing clean transportation to overburdened communities.

⁵⁰ David Iaconangelo, *et al.*, *Los Angeles Bids to Bridge the EV Divide* (November 22, 2019), <https://www.eenews.net/articles/los-angeles-bids-to-bridge-the-ev-divide/>.

⁵¹ Blink Mobility, *Ride for Less with Car Sharing – Low Membership Costs and Great Rates*, <https://blinkmobility.com/rental-rates/>.

2.2.6 Critical Factors for the Success of Car Sharing and Ride-hailing Programs

The Study team identified 4 factors critical to the success of ride sharing or ride-hailing programs in overburdened communities, summarized below.

EV Technological Capability

According to the report published by the Rocky Mountain Institute (RMI) *Racing to Accelerate Electric Vehicle Adoption: Decarbonizing Transportation with Ridehailing*⁵² (the “RMI Report”), the battery range of an EV must be sufficient to accomplish the daily mileage requirements of ride-hailing drivers. RMI cites EVs with roughly 250-mile driving ranges as fitting that profile. This range reduces the need for recharging while in operation, which is an opportunity-cost loss for drivers. In short, EVs are available now that meet the daily driving demands for successful EV ride-hailing drivers. The accelerating pace of hailing-suitable EV deployment by vehicle manufacturers will result in an even greater accessibility to suitable EVs. In May 2022, Plugstar,⁵³ an online EV information hub, lists 32 EVs with a range of at least 240 miles.

In addition to range, the ratio of initial cost to driving range is also a key metric for EV ride-hailing drivers interested in purchasing or leasing their own vehicle. The price per mile of range of a new EV continues to decline. As of February 2022, the lowest-cost EV identified by Plugstar had an initial cost per mile of electric range of \$120, when applying the (current) federal EV purchase tax credit of \$7,500. Some drivers may prefer leasing/purchasing the lowest cost vehicle, whereas other drivers may prefer leasing/purchasing the vehicle with the lowest cost per mile of range. The vehicle with the lowest capital cost per mile of driving range may prove to be a better value, as fewer stops an EV driver needs to make for charging would increase profitability during hours of ride-hailing operation. These factors may influence purchasing decisions by ride-hailing drivers.

Financial Viability of EV vs. ICE Vehicles

RMI also reports that in order to accelerate EV ride-hailing adoption the cost of owning and operating an EV must be lower than the ICE vehicle it replaces. RMI viewed this lower cost as being necessary to motivate ICE drivers to make the transition to EVs. EV drivers who wish to avoid the high initial capital costs of purchasing an EV may prefer renting or leasing their EV rather than buying it. Larger TNC companies, such as Uber⁵⁴ and Lyft⁵⁵, have begun to offer EV renting or leasing on their platform. In addition, some EVSE companies are offering discounts to drivers who operate their EVs on large transportation network platforms. For example, Uber and EVGo

⁵² Rocky Mountain Institute, *Racing to Accelerate Electric Vehicle Adoption: Decarbonizing Transportation with Ridehailing* (January 2021), https://rmi.org/wp-content/uploads/dlm_uploads/2021/01/RMI_Insight_Brief_Accelerating_EV_Transition-1.pdf. (hereafter, “Racing to Accelerate”).

⁵³ PlugStar, <https://plugstar.com/>.

⁵⁴ Uber, *Together on the Road to Zero Emissions*, <https://www.uber.com/us/en/drive/services/electric/>

⁵⁵ Lyft, *Our Commitment to Achieve 100% Electric Vehicles Across the Lyft Platform by 2030*, <https://www.lyft.com/impact/electric>

recently announced a partnership by which Uber drivers will receive up to 30% off standard EVGo DCFC rates.⁵⁶

EV drivers wishing to lease or rent an EV are not obligated to rent or lease the EV directly from the TNC they are working with for ride-hailing purposes. These drivers could rent an EV from third-party companies, such as Hertz, whose partnership with Uber is outlined in this report, or lease one from a dealership. Drivers who are interested in renting from the TNCs should examine offers such as the charging benefits included with the lease when deciding if that approach is suitable for their needs. The bottom line is that ride-hailing drivers must perceive EVs to be a better value than an ICE vehicle, based on either initial cost, total cost of ownership (fuel, maintenance, upkeep, etc.), or both.

EV Charging Infrastructure

A robust charging network needs to be in place to instill ride-hailing drivers with the confidence that they can transition from an ICE vehicle to an EV and conveniently carry on their ride-hailing operations. Ride-hailing vehicles tend to have higher daily mileages than the average EV driver and they have disproportionately low access to home charging stations. These factors make public charging infrastructure especially important. RMI identified the need for both Level 2 and DCFC charging to support EV ride-hailing. The RMI Report showed that a best-case scenario is that an EV driver can charge the EV they use for ride-hailing at home overnight with Level 2 charging, allowing them to begin the day with a full charge, and therefore minimize lost opportunity costs throughout the day, i.e., the need to travel to a charger and charge during productive work hours.

However, many prospective EV ride-hailing drivers who live in overburdened communities do not have access to overnight Level 2 charging. For example, the International Council on Clean Transportation estimates that, for a variety of reasons, only 44% of ride-hailing drivers have the ability to install Level 2 charging at their residences.⁵⁷ Public Level 2 charging near drivers' homes will be required for those drivers that cannot access home charging. Siting chargers in residential areas presents another opportunity to bridge access gaps to EV charging. Placing EVSE in these areas allows for charging in closer proximity to people's homes as opposed to current public siting which is more likely to be in retail, employment or transit centers. Options for installing neighborhood-sited chargers include underutilized parking lots or vacant lots, or curb-side charging along streets in areas where driveways/parking lots are not ubiquitous.

The optimal charging methodology for a TNC EV driver is to start the day with a full charge from a Level 2 home charger, then charge with local DCFCs as needed. The RMI Report notes that there is a direct correlation between areas with DCFC and higher EV ride-hailing instances taking place in those areas. The RMI Report states: "There is ample TNC demand in low-income areas. The

⁵⁶ EVGo, *Uber and EVgo Expand Partnership to Support High-Volume Rideshare Drivers with Fast, Reliable Public Charging* (November 9, 2021), <https://www.evgo.com/press-release/uber-evgo-expand-partnership-support-high-volume-rideshare-drivers-fast-reliable-public-charging/>.

⁵⁷ International Council On Clean Transportation, *Charging infrastructure requirements to support electric ride-hailing in U.S. cities* (March 2020), https://theicct.org/wp-content/uploads/2021/06/Charging_infrastructure_ride_hailing_US_03242020.pdf.

fact that electric TNC vehicles today operate in wealthier areas is not because there is insufficient demand elsewhere, but because there is insufficient charging infrastructure.”⁵⁸ Installing EVSE in overburdened communities would increase EV access in these areas.

RMI also asserted that DCFC charging prices would need to be reduced to below market rates in order for TNC EV drivers to achieve Total Cost of Ownership (“TCO”) parity with ICE vehicles, assuming no other policy support. RMI estimated that substantial incentives, on the order of 60% of charging costs, might be needed to achieve TCO parity. In addition, the use of a DCFC by TNCs will likely result in a higher utilization rate of the DCFC, which will spread demand charges over a larger number of kilowatt-hours of utilization and will serve to lower the cost of using the DCFC.

Organizational Stability

Many ride-hailing/car sharing organizations are both new and small. As such, their ability to remain in business is viewed with more uncertainty than an established organization. Larger, established organizations are viewed as more likely to remain operational. The Interstate Renewable Energy Council (“IREC”) report, *Paving the Way: Enabling Equitable Electric Vehicle Shared Mobility Programs*⁵⁹ (the “IREC Report”) identified that public-private partnerships are essential to launching and sustaining EV ride-hailing services in overburdened communities.

⁵⁸ Rocky Mountain Institute, *EV Charging For All* (2021), at 7, <https://rmi.org/insight/ev-charging-for-all/a>.

⁵⁹ Interstate Renewable Energy Council, *Paving the Way: Enabling Equitable Electric Vehicle Shared Mobility Programs* (February 2, 2022), <https://irecusa.org/resources/paving-the-way-enabling-equitable-electric-vehicle-shared-mobility-programs/> (hereafter, “*Paving the Way*”).

Task 3 – Funding and Incentives

3.1 Introduction

Current EVSE infrastructure development focuses on private EV ownership. EVSE companies prioritize installations of public charging in areas that service the demand of private EV owners, which are typically higher income communities. This focus can unintentionally deprioritize or ignore other EV use models that can increase EV access in overburdened communities, such as EV ride-hailing or charging at MUDs. This lack of EVSE investment furthers the access gap to EVs in these overburdened communities. During the stakeholder outreach phase of this Study, there was strong support for the integration of EV deployment, specifically ride-hailing programs, in these communities. This indicates that the lack of demand for EVSE in overburdened communities ignores other uses for EVs, such as ride-hailing or car sharing, that are still developing. The following sections outline target areas for EV funding, and identify funding sources/incentives that can help catalyze private investment in overburdened communities, and drive market growth.

The Study Team wishes to note that the funding sources identified below are potential sources based on current statutory and regulatory structures. The Study Team makes no recommendations on which, if any, of these sources should be used for any future programs designed to increase access to EVs in overburdened communities. The Study team also notes that the available incentives identified below are those that are currently existing. Any incentive or other programs that may be developed to increase access to EVs in overburdened communities would be subject to stakeholder input.

3.2 EVSE Installation

As more of New Jersey's light duty vehicles transition to EVs, a robust and properly sited network of charging stations is needed to support it. Installation of EVSE in both public and private locations will encourage adoption of EVs through addressing range anxiety concerns and by providing service at locations that can facilitate new uses for EVs. As RMI notes, trips by ride-hailing drivers with EVs tend to be concentrated in locations where there is DCFC infrastructure. However, with only a small percentage of vehicles on the road to date being EVs, the high upfront installation costs, and a perceived lack of demand in overburdened communities, EVSE projects may be unattractive to property owners and charging companies at this time. For these reasons, supplementary funding sources may be needed to assist in the purchase of EVSE and with the make-ready expenses for electrical preparation at sites best suited to increase EV access. State government and utilities are providing investment in infrastructure to address the high upfront costs associated with EVs and EV charging, all of which contribute to gaps in EV utilization where EVSE is lacking, particularly in overburdened communities.

3.3 Charging Costs

The utilities are instrumental not only in EVSE infrastructure investments but also in making EV charging affordable to drivers. For example, DCFCs draw a high electrical load, which can trigger high demand charges that can make it uneconomical for drivers or EVSE operators. Ride-hail drivers especially are sensitive to higher charging costs driven by high demand charges, as high costs of EV charging can affect the overall profitability of their work.

Utilities use electricity rates and tariffs to discourage demand at peak periods in an attempt to shift this demand to other times. These rates and tariffs need to be structured to allow for appropriate costs for site owners and users of the chargers. Commercial PSE&G customers with DCFC can register for demand charge rebates; a portion of this expense is returned as a discount on the electricity bill.⁶⁰ Within this program's first two years, 75% of monthly distribution demand charges will be rebated, and 50% will be rebated in subsequent years until \$5 million has been rebated or an EV-specific tariff is set.⁶¹ PSE&G and ACE residential charging customers may use a time-of-use rate schedule to charge EVs at lower rates during off-peak times.⁶² Residents may also use smart charging hardware that shares data with PSE&G and receive similar rates for just their EV as a bill credit. It is critical that multi-unit dwellings must receive the same residential rate as single family units. The utilities' demand charge plans are in place as a pilot through 2025, when they will bring a rate case for EV charging.⁶³

3.4 Electric vehicles

The initial purchase cost of EVs remains higher than ICE vehicles. Reducing that upfront cost difference can bridge access to these vehicles for low-income drivers. Both the state and federal governments provide incentives for EVs, which are outlined in sections below. This could be taken one step further, wherein EV incentives could be offered for growing ride-hailing services, as ride-hailing drivers typically drive personally owned cars, which serves the goals of increasing personal EV ownership in overburdened communities, as well as improving access to EV's by supporting ride-hailing growth. In addition, incentives for purchasing used EVs is an important factor in increasing EV access in overburdened communities.

3.5 New Jersey Funding Sources

Several sources were identified at the state level that could provide funding or assistance to eMobility initiatives in overburdened communities, such as EVSE development or EV incentives. Each of these sources may require a detailed application process, involving a proposal specifying how much money is requested and for what purposes. For this reason, it is important that newly interested communities inform themselves on the details regarding what, for many of them, may be a new type of project. Communicating with local utilities in the early research and planning phases of EV-related projects or programs is recommended, as this type of consultation can provide crucial information regarding costs and eligibility for existing utility and government funding. Targeted funding options in the sections that follow are generally for fixed amounts, and for specific uses.

⁶⁰ In the Matter of the Petition of Public Service Electric and Gas Company for approval of its Clean Energy Future – Electric Vehicle and Energy Storage (“CEF-EVES”) Program on a Regulated Basis, BPU Docket No. EO18101111, Order dated January 27, 2021), at 14, <https://www.state.nj.us/bpu/pdf/boardorders/2021/20210127/8A%20-%20ORDER%20PSEG%20EV%20Filing.pdf>.

⁶¹ *Id.*

⁶² *Id.* at 13.

⁶³ *Id.*

Regional Greenhouse Gas Initiative (RGGI)

RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia to cap and reduce power sector CO₂ emissions.⁶⁴ Funds from the RGGI will be available for electric vehicles through December 31, 2023, when the current three-year funding cycle ends. The next tranche may have a different focus.

In New Jersey, RGGI has supported purchase of electric school buses, transit buses, and garbage trucks.⁶⁵ RGGI and the Volkswagen Diesel Emissions Environmental Mitigation Trust have collectively allocated \$100 million for various transportation electrification grants.⁶⁶ This includes “\$5 million in grants for equitable mobility projects that will bring electric vehicle ride hailing and charging stations to four New Jersey towns and cities.”⁶⁷

The NJDEP, supported by RGGI funds, administered funding for eMobility services intended to benefit low and moderate-income communities disproportionately impacted by air pollution. In 2021, they funded four applicant programs which are outlined in greater detail in the Task 2 section of this report.⁶⁸

RGGI funding could be used to support, for example, an electric car sharing program operated by or in conjunction with a municipality, funding the purchase of fleet electric vehicles, or the installation of EVSE.

Societal Benefits Charge (SBC)

The SBC in New Jersey is assessed on gas and electricity bills to support social programs, nuclear plant decommissioning, gas plant site remediation, consumer education, and the state’s Clean Energy Program. eMobility initiatives for overburdened communities could be considered both part of the Clean Energy Program and a social program, making it an ideal candidate for SBC funding. N.J.S.A. 48:3-60, which discusses the SBC and its usage, provides the NJBPU with the authority to utilize SBC funds to effectuate programs that provide funding for “energy efficiency, plug-in EVs, and plug-in EV charging infrastructure.”⁶⁹

The New Jersey Energy Master Plan identified that priority for grants in the Clean Fleet EV Incentive Program, which the SBC funds, should be given to low and moderate-income communities and that there should be incentive carve-outs for charging stations and EV purchases in environmental justice communities to prioritize improved affordability and air pollution reduction in overburdened communities.⁷⁰ The SBC can further these equity goals if it

⁶⁴ The Regional Greenhouse Gas Initiative, <https://www.rggi.org/program-overview-and-design/elements>.

⁶⁵ Government Fleet Staff, *New Jersey to Invest \$100M in Clean Transportation Projects*, (February 19, 2021), <https://www.government-fleet.com/10137062/new-jersey-to-invest-100-million-in-clean-transportation-projects>.
Id.; Volkswagen Diesel Emissions Environmental Mitigation Trust, *State Trust - New Jersey*, <https://www.vwenvironmentalmitigationtrust.com/state-trust/new-jersey>.

⁶⁷ *Id.*

⁶⁸ See *infra*, Section 2.2.4.

⁶⁹ N.J.S.A. 48:3-60-12.a.(3).

⁷⁰ 2019 New Jersey Energy Master Plan, at 69, https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

is used as a consistent funding source, which can be used not only for EV fleets and charging stations but also can be used for ride-hailing and car sharing programs.

In addition to SBC funds, the Board may direct utilities to create programs to advance specific goals consistent with the EV Act and within the Board's authority. In 2020, the Board released a Straw Proposal outlining guiding principles for utility programs for light duty charging. That proposal was the guiding document for minimum filing requirements the Board approved in the September 23, 2020 Board Order and has resulted in filings from each of the EDCs.⁷¹

Legislative Appropriation

The New Jersey Legislature has prioritized funding support for EVs and EVSE in recent years. Laws such as the EV Act, which established the Charge Up New Jersey Program,⁷² can provide long-term confidence to interested parties. State-funded programs may require multiple years of funding before finding success, and longer-term appropriations allow for programs to develop and refine their approach towards accomplishing their goal.

The legislature has the ability to provide support for electric vehicles in a variety of ways. Laws, such as the EV Act, can mandate a state program be developed, establish goals and identify areas of prioritization, such as overburdened community EV access, as well as designating funding for those purposes. The legislature also has the ability to designate General Funds to further such programs or goals, either to state agencies, as they did in FY22 by earmarking in the New Jersey State Budget and Appropriations Act \$14 million to NJBPU for EV Infrastructure,⁷³ or to specific local projects.

Utility Ratepayers

Programs supporting increased adoption of EVs and EVSE can be designed and/or administered by regulated utilities. In those cases, utilities recover the costs of those programs through either increases in existing rates charged to customers, or by separate charges to customers, and are thus borne by utility ratepayers.

3.6 New Jersey Funding Opportunities

In New Jersey, the EDCs are responsible for wiring and backbone infrastructure necessary for installation of charger-ready locations, but site owners or EVSE infrastructure companies are the preferred owners and operators of EVSE. New Jersey utilities PSE&G and ACE, the NJBPU, and the NJDEP provide incentives for installation of EVSE and make-ready costs.⁷⁴ JCP&L will begin their EVSE programs later in 2022. The following is a list of current incentive programs in the state of New Jersey that pertain to electric vehicles or EVSE. Some incentives are greater in designated overburdened municipalities. Interested municipalities, businesses and property owners should contact the entity listed to gain a better understanding of the incentives outlined below.

⁷¹ See generally September 23, 2020 Board Order, *supra* note 19.

⁷² N.J.S.A. 48:25-1 *et seq.*

⁷³ P.L. 2021, c. 133.

⁷⁴ For additional information regarding PSE&G's incentives, see *infra*, note 76. For additional information regarding ACE's incentives, see *infra*, note 77. For additional information regarding NJDEP's incentives, see *infra*, note 79.

- New Jersey Treasury
 - Zero-emission vehicles are exempt from New Jersey sales taxes⁷⁵
- PSE&G⁷⁶
 - Residential Level 2 charger: Up to \$1,500 of make-ready costs
 - Commercial Level 2 chargers, including multi-unit dwellings and public workplaces: \$7,500 of make-ready costs per charger, up to 4 chargers
 - DCFC: Up to \$25,000 of make-ready costs per charger for up to 4 chargers
- ACE⁷⁷
 - Residential Level 2 charger: 50% of make-ready costs up to \$1,000
 - Multi-unit dwellings: 75% of make-ready costs up to \$5,000 per smart charging port; up to 100% and \$6,700 per port in overburdened communities, up to 10 ports per site
 - Workplaces: Up to 50% of eligible installation costs up to \$4,500 per port, up to 10 ports per site
 - Public Level 2 charger: 50% of make-ready costs up to \$4,500 per smart charging port, up to 2 ports per site
 - Public DCFC: 90% of make-ready costs up to \$60,000 per smart charging port, up to 2 ports per site
 - Fleet chargers: 50% of make-ready costs up to \$2,500 per port, up to 10 ports per site
- JCP&L⁷⁸
 - EV Driven Program
 - Residential Customer Sub-program
 - 100% of make-ready costs, up to \$1,500 per Level 2 charger
 - Public/Community-based Component Level 2 charger: 100% of make-ready costs, up to \$6,700 per port
 - Workplace Component Level 2 charger: 100% of make-ready costs, up to \$5,000 per port
 - Multi-family Component Level 2 charger: 100% of make-ready costs, up to \$6,700 per port
 - MUD Level 2 charger in Overburdened: 100% of make-ready costs, up to \$8,375 per power

⁷⁵ NJDEP, *Sales and Use Tax Exemption* (May 17, 2022), <https://nj.gov/dep/drivegreen/dg-sales-use-tax-exemption.html>.

⁷⁶ PSE&G, *PSE&G Electric Vehicle Charging Program*, <https://nj.myaccount.pseg.com/myservicepublic/electricvehicles>.

⁷⁷ ACE, *EVsmart Residential, Multi-family, Public, Workplace & Fleet Rebates*, <https://aceevsmart.programprocessing.com/programapplication/?ft=63FD5B9048BD11EC96ED5321AAB5C8A0>.

⁷⁸ *In the Matter of the Verified Petition OF Jersey Central Power & Light Company for Approval of an Electric Vehicle Program and an Associated Cost Recovery Mechanism*, BPU Docket No. EO21030630, Order dated June 8, 2022, at 5, 8, <https://www.state.nj.us/bpu/pdf/boardorders/2022/20220608/8D%20ORDER%20JCPL%20EV%20Program.pdf>

- Direct Current Fast Charger Public Charging Sub-program: 100% of customer make-ready, up to \$25,000 per port up to 4 ports per site
- NJDEP
 - It Pay\$ to Plug In program⁷⁹
 - Level 1 EVSE: Up to \$750 per port
 - Level 2 EVSE: Up to \$4,000 per port
 - DCFC: up to \$200,000 in a competitive solicitation
 - eMobility Program, grants for electric shared mobility project(s). Projects that benefit low or moderate-income communities will be prioritized
- NJBPU⁸⁰
 - Charge Up New Jersey
 - Incentive rebate of up to \$5,000 for electric vehicles in FY21 and FY22
 - Multi-Unit Dwelling Electric Vehicle Program
 - Level 2 charger at multi-unit dwellings: \$1,500 per charger, plus 50% of make-ready costs up to \$5,000 for up to six charging stations in FY 22
 - In overburdened municipalities: \$2,000 per charger, plus 75% of make-ready costs up to \$7,500 for up to six charging stations
 - Clean Fleet EV Incentive Program
 - Level 2 charger: 50% of make-ready costs up to \$5,000 per charger, up to 4 chargers, plus \$1,500 per charger for a fleet location or \$2,000 per charger for a public location in FY 22
 - DCFC: 50% of purchase and make-ready costs per charger, up to \$75,000
 - All awards are increased by 50% in overburdened municipalities
 - EV Tourism
 - Level 2 charger in travel destinations: \$2,000 per charger, plus 50% of make-ready costs up to \$5,000 for up to six charging stations in FY22
 - DCFC in travel destinations: 50% of purchase and make-ready costs per charger, up to \$75,000

These incentives promote growth of electrified transportation by facilitating availability at both residential and commercial locations. Of note is the applicability for MUDs, where residents are unable to install EVSE for their own use. EVSE at MUDs will support overnight charging for multiple drivers who live there, making them a high-utilization investment. As MUDs tend to have lower-income residents than single-family homes where EVSE can be independently installed, EVSE installed at MUDs is key to increasing EV access equity. New Jersey has a goal of 30% of MUDs having EV chargers by 2030.

The EVSE installation incentives will promote EV use by ride-hailing drivers, who would benefit from having reliable access to charging before starting their operation. Approximately 70% of Lyft drivers live in overburdened communities,⁸¹ where overnight and fast charging may be underdeveloped. Long days of driving may exceed the EV's range, requiring use of DCFC during

⁷⁹ NJDEP, *It Pay\$ to Plug In* (May 26, 2022), <https://www.drivegreen.nj.gov/plugin.html>.

⁸⁰ Electric Vehicle Incentive Programs, New Jersey Office of Clean Energy, <https://www.njcleanenergy.com/ev>

⁸¹ *Comment from Lyft, Inc.* (February 2, 2022), <https://www.regulations.gov/comment/FHWA-2021-0022-0316>.

the day. DCFC should be installed in areas where drivers can rest between trips and new passengers are reliably waiting for these drivers. Airports and other hub locations where drivers can charge while waiting for a passenger are particularly useful to ride-hail drivers, and incentives should be targeted toward such areas.

3.7 Federal Funding Opportunities

Since 2010, the federal government has offered an EV tax credit of up to \$7,500⁸². This credit has been phased out and is no longer available for Tesla, Inc. and General Motors, LLC, as each of these companies reached and passed the milestone of selling 200,000 EVs through this program.⁸³ A comprehensive list of eligible vehicles as well as their credit amounts can be found [here](#).⁸⁴

More recently, the current administration has undertaken efforts to galvanize the transition to EVs, under the Biden-Harris Electric Vehicle Charging Action Plan, which was released on December 13, 2021.⁸⁵

New Jersey can expect to receive \$104,373,268 in National Electric Vehicle Infrastructure (“NEVI”) formula-based funding over 5 years for strategic deployment of EV corridor charging infrastructure.⁸⁶ This infrastructure is expected to be networked to facilitate data collection, access, and reliability to ensure long-term success with proper operation and maintenance.

Also in development is a Charging and Fueling Infrastructure Program that will have \$2.5 billion in competitive grants available.⁸⁷ These grants are for installation of public EV charging infrastructure, 5 years of operating assistance, and traffic control devices.⁸⁸ One half of the funding is for Alternative Fuel Corridors for deployment along interstate highways and designated community locations.⁸⁹ The other half is for EV charging at public facilities including schools, parks, parking facilities, and other public access points.⁹⁰

⁸² Internal Revenue Service, *Plug-In Electric Drive Vehicle Credit (IRC 30D)* (March 2, 2022), <https://www.irs.gov/businesses/plug-in-electric-vehicle-credit-irc-30-and-irc-30d>.

⁸³ Internal Revenue Service, *IRC 30D New Qualified Plug-In Electric Drive Motor Vehicle Credit*. (May 6, 2022), <https://www.irs.gov/businesses/irc-30d-new-qualified-plug-in-electric-drive-motor-vehicle-credit>.

⁸⁴ *Id.*

⁸⁵ The White House, *FACT SHEET: The Biden-Harris Electric Vehicle Charging Action Plan*, (December 13, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/13/fact-sheet-the-biden-harris-electric-vehicle-charging-action-plan/> (hereafter, “*Biden-Harris EV Charging Action Plan*”).

⁸⁶ Federal Highway Administration, *5-year National Electric Vehicle Infrastructure Funding by State* (February 10, 2022), https://www.fhwa.dot.gov/bipartisan-infrastructure-law/evs_5year_nevi_funding_by_state.cfm.

⁸⁷ *Biden-Harris EV Charging Action Plan*, *supra* note 85.

⁸⁸ Senator Maria Cantwell, *Bipartisan Infrastructure Investment and Jobs Act Summary*, at 22, <https://www.cantwell.senate.gov/imo/media/doc/Infrastructure%20Investment%20and%20Jobs%20Act%20-%20Section%20by%20Section%20Summary.pdf>.

⁸⁹ *Id.*, at 21.

⁹⁰ *Id.*, at 22.

Both the formula funding and competitive grants will prioritize rural areas, LMI neighborhoods, and places with more MUDs or low ratios of private parking.⁹¹ Eligible recipients are state and local governments and public transportation authorities.⁹² The state will monitor these funds as details become more readily available.

⁹¹ *Id.*, at 22.

⁹² *Id.*, at 21.

Task 4 – Recommendations

The purpose of this Study was to identify realistic and desired paths forward for increasing access to EVs in overburdened communities. The following list of recommendations was compiled by considering direct feedback taken from outreach and by screening this feedback against the Study team's own research efforts in order to identify the most effective measures to increase access to EVs in overburdened communities. These recommendations also consider stakeholder comments on the draft report. These proposed measures address increasing access to EVs through private, personal ownership as well as developing or increasing EV TNC operation in overburdened communities. These recommendations are purposely generalized, as communities, state agencies, or any other governing bodies should consider and amend them to best fit their unique conditions.

Develop a Used EV Incentive Program

The most common way to access EVs and the benefits they provide to a community is through private vehicle ownership. However, the price of an EV, while dropping, is still prohibitive to many people. There have already been efforts made to provide incentives to put new EVs on the road, however, the used EV market has not received the same level of incentive support. Lowering the initial cost of used EVs by providing an upfront cash incentive will increase access to even more residents. Additional considerations regarding incentives can be given to those from overburdened communities or within certain income levels. Before any used EV incentive program is considered, additional research and analysis should be undertaken regarding the availability of used EVs, and the potential market for used EVs in overburdened communities.

A used EV incentive also presents opportunities for the TNC sector. As longer-range battery EVs cycle from the new to used market, TNC drivers who have an interest in purchasing their own EV will have access to these longer-range batteries, which are best suited for ride-hailing. This will allow TNC drivers to operate in a more cost-effective manner, as the longer the battery range, the less down time for charging during operation hours is necessary. An additional consideration may be given to those who purchase a used EV with the intent of operating as a TNC driver.

Site DCFC in Overburdened Communities

Efforts to increase construction of DCFC stations in overburdened communities should be made. DCFC is the charging method best suited for EV ride-hail driving after a driver has begun operation, due to the shorter charge times. The Study team's research found there is a direct correlation between the presence of DCFC stations in a community and EV ride-hail activity.

Increasing the number of DCFC stations in these areas would not only increase EV charging access for residents, but it would also allow drivers to travel shorter distances to areas of ride-share operation, theoretically improving these drivers' profitability.

Develop a Level 2 Home Installation Incentive for Ride-hailing Drivers

A ride-hail driver is able to operate most efficiently when they begin each day with a fully charged vehicle. To help reduce the high initial investment of transitioning to EVs, an incentive should be provided for the home installation of Level 2 charging. While incentives in New Jersey for home Level 2 EVSE are already being developed, a bonus consideration for those who operate an EV

for ride-hailing in overburdened communities also should be explored. In developing such a program, consideration must be given to a process for verifying that drivers who receive such an additional incentive are in fact providing ride-hailing service in overburdened communities.

Establish Consistent Funding for MUD Development Incentive Programs

Residents of MUDs represent 36% of New Jerseyans. In order to increase equitable access to EVs, it is important that residents have accessible charging at their residence. While the State has established an incentive program for MUD owners to install EVSE at their properties, there is a need for a consistent funding source to continue to accelerate growth in this market. New Jersey's goal of 15% of all MUDs in the state to be equipped with EVSE by December 31, 2025 is an aggressive one that should be supported with consistent, significant funding.

Establish an Advantageous Charging Rate for EV Ride-hail Drivers in Overburdened Communities

Advantageous charging rates in overburdened communities would further encourage EV use in these communities. These rates could be further targeted toward TNC drivers who provide higher emissions reductions than non-ridehailing drivers, due to increased miles driven.

It should be noted that EVSE owners who receive reduced charging rates are not required to pass the lower rates along to EV drivers at an EV charging station. Legislation should be considered to correct this imbalance, particularly in overburdened communities and/or to ride-hail drivers. As with the recommendation for additional incentives for Level 2 charging in overburdened communities, there will need to be a way to verify that drivers receiving these reduced charging rates are in fact operating from or within overburdened communities. One possible solution in the interim is the utilization of prepaid cards distributed to EV ride-hail drivers, to be used at charging stations in overburdened communities.

Implement the California Clean Mile Standard

In California, the pending California Clean Mile Standard⁹³ regulation compels TNC's to reduce GHG emissions and expedites the shift to EV's. New Jersey should review this regulation and implement something similar, with priorities focused on reducing emissions in overburdened communities.

Establish a Private Fleet Incentive Program

Compact cities deal with emissions from a variety of vehicle uses. Businesses that utilize light duty vehicles could be compelled to transition their fleets from gas to electric through incentives. This could apply to those fleets that are located in overburdened communities or have significant operations within them. This incentive would not be intended for TNC companies that do not own their fleet vehicles. The large TNCs currently do not consider drivers on their platform employees. Instead, these drivers are considered independent contractors who utilize their own vehicles, thus the TNC do not possess light duty ride-hailing fleets.

⁹³ California Air Resources Board, *TNC Driver Fact Sheet* (August 31, 2021), <https://ww2.arb.ca.gov/resources/fact-sheets/tnc-driver-fact-sheet>.

Develop Neighborhood Charging

Access to charging at home is key to being able to transition vehicles from gas to electric. This report has outlined the need for charging stations to be located at MUDs to address that gap in access. However, there are MUDs and other housing that do not have driveways or parking lots. In these cases, charging stations located in residential neighborhoods, either in public parking lots or curb-side, could provide a similar opportunity to allow for someone to charge overnight in locations near their residences and start their day with a full charge. TNC companies may have an interest in working to facilitate installing EVSE in these areas as they could also serve as hubs for TNC drivers to charge, especially near areas with high ride demand.

Legislative Support for Recommendations in this Report

Legislative mandates implementing policies recommended within this report will help ensure that improving EV access in overburdened communities takes place in a timelier fashion than is being done currently. Overburdened communities are facing a higher degree of exposure to environmental hazards than the balance of other communities in the State, resulting in a concentrated amount of GHG-triggered health maladies in these communities. Reducing exposure to these environmental hazards should be treated with the appropriate urgency. Mandates such as goals or financial appropriations codified into law can provide long-term certainty to relevant industries or communities interested in the benefits of increasing access to EVs.

Best Practices

With respect to the above recommendations, there are criteria and mechanisms that need to be implemented across all efforts to increase access in overburdened communities. These best practices are outlined below.

Proactive Community Inclusion Process

Proactive community engagement in the development of any program was one of the most universally received pieces of feedback during the outreach portion of this Study. There needs to be a dialogue with trusted local community groups and leaders throughout different phases of program development. This serves the purpose of identifying local issues that otherwise would have not been accounted for under traditional stakeholder engagement methods, while also helping to enrich relationships that can lead to increased buy-in/utilization of programs among community members. If local community leaders are involved in the development of programs and policies, there is likely to be greater trust in the program than absent such involvement. There also will likely be a willingness for local community leaders to help promote the program when it is implemented.

Payment Option Diversity

Using EVs and EV charging stations requires devices and amenities that are not universally available to all people. This can include smart phones, credit cards, or memberships to charging networks. Any programs developed to support increased access to EVs in overburdened communities should address these barriers by increasing the methods that people are able to use to make payment. This can include prepaid cards, where cash can be used to load balances

onto cards, phone numbers that can be called to process payments, or physical locations where services can be reserved and paid for ahead of time.

[TNC Information Gathering Process](#)

Several recommendations contained in this report pertain to ride-hail drivers utilizing TNC platforms. In order to properly administer incentives to drivers, there needs to be a dialogue with the major TNCs. There also needs to be a formalized verification process, to ensure that incentives are being used and administered properly.

Rate reductions via incentive programs for EV riders in overburdened communities could be explored with the TNCs, both in terms of how to feasibly construct an incentive and how TNC platforms could aid in the implementation.

[Additional Research Opportunities](#)

[Micromobility Resources](#)

Lightweight vehicles such as electric bicycles and scooters have become alternative electric options for people to utilize for shorter local trips, typically in cities. These options should be studied to identify the existing barriers to determine what can be done to ease or eliminate them.

[Economics of Electric Vehicle Ride-hail Driver Study](#)

A study to better understand the financial realities of ride-hailing drivers would inform the creation of more effective incentives and identify policies to support EV ride-hail drivers.

[Demand Charge Reduction Opportunities](#)

Examination of possible ways to reduce electricity demand charges would be beneficial in providing support for implementing more DCFC. DCFC is the most effective method for EV charging during ride-hail operational hours. However, demand charges can quickly reduce profitability for an EV ride-hail driver in need of DCFC.

[Autonomous Vehicle Development](#)

Monitor developments in autonomous transportation electrification, including the New Jersey Department of Transportation's \$5 million NJDOT Local Transportation Project Fund Grant for use in the Trenton Mobility & Opportunity: Vehicles Equity System (MOVES) Project.

[Heavy Duty/Diesel Trucks Conversions to Electric](#)

Additional studies to understand the logistical challenges of transitioning heavy duty truck use to EVs in New Jersey will aid in reaping significant emissions reductions.

Appendix

Statement of Project Objectives

New Jersey Department of Treasury / New Jersey Board of Public Utilities (NJBPU or BPU)

New Jersey Underserved Communities Electric Vehicle Affordability Program

A. Project Objectives

The objective of this program is to develop a plan to provide underserved communities access to Plug-In Electric Vehicles (PEVs).

The goals of this program are:

- Programmatic
 - To create a clear path for underserved communities to access clean transportation in the form of PEVs
 - To create a feasibility study that will develop, screen and perform a detailed analysis of alternatives that achieve the objective
 - To evaluate both PEV ride hailing and ride sharing alternatives
 - To identify a stable source of funding that will allow the project to endure beyond the two year US Department of Energy (DOE) funding
 - To gain acceptance of the project recommendations by the underserved community, the host cities, the BPU itself, Electric Distribution Companies, (EDCs), and the Ratepayer Advocate.
- Social
 - To change the view about PEVs among underserved communities from awareness to consideration to preference
 - To capture lessons learned that can be reapplied by others within New Jersey (NJ) and nationally
 - To focus on multifamily housing, where access to PEV charging in New Jersey is essentially nonexistent
- Economic
 - To reduce transportation costs / increase affordability for underserved communities
 - To increase access to economic and employment opportunities for underserved communities
- Environmental
 - To improve air quality in underserved communities
 - To help meet New Jersey's Global Warming Response Act requirements

- Energy
 - To enhance energy security by using domestically produced electricity as a transportation fuel
 - To increase energy efficiency – a key advantage PEVs have over legacy vehicles

B. Technical Scope Summary

This New Jersey Underserved Communities Electric Vehicle Affordability Program intends to bring PEV transportation solutions to underserved communities. BPU's initial tasks will be to procure a consultant using grant funds and to engage underserved communities. Our approach to the project will be to perform a classical feasibility study: develop, screen and perform a detained analysis of prospective alternatives. During the initial development and screening process, less feasible alternative will be screened out. A detailed evaluation will continue for the most feasible alternatives. Finally, a specific alternative(s) will be recommended for implementation. BPU hopes to create a clear path for underserved communities to access clean transportation in the form of PEVs. This path will be developed among the following alternatives:

- * PEV Vehicle Sharing: The Project Team will explore the feasibility of various existing/emerging PEV vehicle sharing models that presently exist.
- * PEV Ride Hailing / Transportation Network Company (TNC): The Project Team will explore the feasibility of a PEV-based ride hailing / TNC model in underserved communities.
- * PEV Charging at Multifamily Dwellings: The Project Team will explore the feasibility of PEV charging at multifamily dwellings.
- * Funding Alternatives: The Project Team will explore the feasibility of a range of prospective funding options that will extend beyond the two year life of the project, including, but not limited to:

- EDC investments in PEV infrastructure and charging equipment
 - Unique Electric Vehicle (EV) tariffs
 - Use of proceeds from the sale of emission allowances
 - Use of reduced cost PEV purchasing through EV Smart Fleets, which is an aggregate purchasing model for electric vehicles PEVs. Aggregated purchasing is when one central organization coordinates customers to maximize their collective buying power. The BPU catalyzed the State of New Jersey's participation in the program.
- As the project advances, these alternatives will be either further developed or screened out, based on Project Team analysis and stakeholder input.

C. Tasks to Be Performed

Task 1: Consultant Procurement (Months 1-3)

Task Summary: For this task, BPU will develop and issue a request for proposal (RFP), solicit proposals, select a consultant, and execute a contract with the consultant. Task deliverables will consist of an RFP, consultant proposals, consultant selection and an executed agreement with a consultant.

Task Details: Barriers and risks consist of:

- An extended procurement process that sometimes affects government procurement processes. BPU will overcome these risks by engaging procurement officials prior to the official project start.
- Limited qualified consultants. This project is exploring relatively new field of bringing PEV transportation alternatives to disadvantaged communities. As such, there may be few qualified consultants. BPU will overcome this by using our industry knowledge to identify a suitable pool of qualified consultants.
- Project scope and budget preordained. The Funding Opportunity Announcement (FOA) requires BPU to develop a defined scope of work (as detailed in this proposal) at a fixed budget of \$100,000. The consulting community may determine that they cannot perform all of the required services for \$100,000. BPU has endeavored to mitigate this risk by scoping the project to the \$100,000 threshold.

Milestone 1.1 Executed consultant agreement (Quarter 1)

Deliverable 1.1 Executed consultant agreement (Quarter 1)

Task 2: Outreach to the Underserved Community (Months 1-24)

Task Summary: The Project Team will conduct outreach to the Underserved Community to gain perspectives on: air quality, transportation challenges and PEV opportunities. Other organizations the Project team will conduct outreach to include: prospective participating cities, BPU's established PEV stakeholder group, and electric utilities. BPU will commence these tasks prior to securing the consultant. The Project Team will directly engage underserved community organizations and Secondary Partners on these issues.

Task Details: The Project Team will conduct a round of interviews with organizations described above to inform them about the project and gain initial feedback. The Project Team will develop various Concept Plans (described in Task 3), present the draft Concept Plans to these parties, and solicit additional feedback. Stakeholder feedback will be compiled into a Stakeholder Memorandum that will be used to inform the Task 5 Final Report. Tasks 3, 4 and 5 also detail that draft documents will be presented to stakeholders, feedback solicited, and final documents prepared. Barriers and risks consist of: 1) The potential inability to gain a consensus among project participants and 2) A lack of awareness about PEVs.

Milestone 2.1 Initiation of Stakeholder Outreach

Milestone 2.2 Stakeholder Concept Plan Feedback Memorandum

D 2.1: Stakeholder Concept Plan Feedback Memorandum

Task 3.0 Development and Screening of Alternatives (Months 1-12)

Task Summary: For this subtask, the consultant will: 1) develop prospective alternatives to bring PEV transportation to underserved communities, and 2) screen the alternatives based on effectiveness, implementability and underserved community affordability, and 3) produce subtask deliverables that will consist of several concept level alternatives that can be presented to the underserved community for input. (With community input, the concepts would be revised and subject to detailed analysis in subsequent tasks).

Task Details: Prospective barriers and risks are that there are not many established proven models to benchmark from. And the models that exist have not been in existence for very long. The team will address this challenge with a rigorous review of existing programs in other jurisdictions. The specific and detailed work efforts are described in the subtasks below. Each subtask in this feasibility study consists of a unique potential solution. As such, evaluation of these multiple pathways early in the program is designed for risk reduction. Only the most feasible alternative(s) will be carried forward. Less feasible alternatives will be screened out. BPU will commence these tasks prior to securing the consultant.

Subtask 3.1: PEV Sharing (Month 1-12)

Subtask Summary: This task will explore the feasibility of various existing/emerging PEV vehicle sharing models that presently exist. The Team will evaluate these programs based on factors such as effectiveness, implementability and underserved community affordability.

Subtask Details: The Team will review programs, including but not limited to the following:

- Greenspot¹: This car sharing program has recently been established in Jersey City, New Jersey, and is one of the only EV car-sharing programs in the United States. The program uses ZipCar PEVs and ChargePoint chargers. According to Greenspot, urban dwellers and millennials don't want to own a vehicle that sits idle for 95% of the time.
- BlueIndy² an Indianapolis – based car sharing program. The program uses 500 PEVs and 200 chargers. The BlueIndy service is a one-way car sharing model, so participants can return the PEV to any station. The geographic zone of the project extends ten miles outside the city limits in all directions. According to a media news report, principal customers are service workers, often being paid minimum wage.³

¹ <http://joingreenspot.com/>

² <https://www.blue-indy.com/>

³ https://www.greencarreports.com/news/1104668_blueindy-electric-car-sharing-after-9-months-hows-it-doing

- BlueLA⁴: The City of Los Angeles has started a new car share service for low-income residents in six neighborhoods in disadvantaged communities currently underserved by car sharing.
- Our Community CarShare Sacramento⁵: The Sacramento Metropolitan Air Quality Management District is developing a new car share service for low-income residents at three disadvantaged community multi-unit subsidized housing projects.
- California Energy Commission, which approved a program for Electric Vehicle Ride Sharing Options in Disadvantaged Communities⁶

The team will develop a concept level action plan that can be introduced to the underserved community, as further described in the Outreach to the Underserved Community Task.

Milestone 3.1: Conclusion of PEV Sharing Development and Screening

D3.1: PEV Sharing Concept Level Action Plan

Subtask 3.2 PEV Ride Hailing / Transportation Network Company (TNC) (Months 1-12)

Subtask Summary: This task will explore the feasibility of a PEV-based ride hailing / TNC model in underserved communities. (Examples of TNC companies are Uber and Lyft). The Team will evaluate the limited existing/emerging PEV TNC mobility-as-a-service models that presently exist. The Team will evaluate these programs based on factors such as effectiveness, implementability and underserved community affordability. Subtask Details: The Team will review programs, including but not limited to Uber's first U.S. Electric Vehicle Initiative,⁷ which is focused on expanding PEV access to historically underserved communities

The team will develop a concept level action plan that can be introduced to the underserved community, as further described in the Outreach to the Underserved Community Task.

Milestone 3.2: Conclusion of PEV TNC Development and Screening

D3.2: PEV TNC Model Concept Level Action Plan

Subtask 3.3 Multifamily Dwellings (Month 1-12)

Subtask Summary: Multifamily dwellings (privately - owned condominiums and leased or rented apartments) as a key underserved PEV market. The project team will identify barriers to

⁴ <https://www.bluela.com/about-bluela>

⁵ <http://ourcarshare.org/>

⁶ http://www.energy.ca.gov/releases/2017_releases/2017-12-13_cec_approves_EV_ridesharing_disadv_communities_nr.html

⁷ <https://www.uber.com/drive/portland/resources/electric/>

deploying PEVs at multifamily housing such as: parking access, electrical service access and adequacy, property bylaws and responsibility for installation and operating costs.

Subtask Details: The Project Team will engage multifamily stakeholders such as property managers, homeowner associations, prospective vehicle customers, charging station vendors and permitting officials. The Team will conduct a literature search and may conduct surveys. The team will assess various approaches to installing chargers, such as: individual residents use; reserved/unreserved parking; surface lots versus decks, etc. The Team will prepare a concept level Multifamily Dwelling Plan deliverable identifying challenges and solutions.

Milestone 3.3: Conclusion of PEV Multifamily Dwelling Development and Screening

D3.3: PEV Multifamily Dwelling Concept Level Action Plan

Task 4: Funding Alternatives

Task Summary: The Project Team will identify a range of prospective funding options that will extend beyond the two year life of the project, including, but not limited to: utility investments in PEV infrastructure and charging equipment, tariffs, and the use of proceeds from the sale of emission allowances

Task Details: Barriers and risks consist of identifying and maintaining a long term source of funding to maintain the project. BPU will address this challenge by identifying a number of prospective funding sources. The Project Team will conduct stakeholder outreach to solicit input on funding options, prepare and present a draft concept plan to stakeholder input. The plan will be further refined and integrated into the Task 5 Final report. The deliverable for this task will be the identification of funding options for subsequent policymaking.

Milestone 4.1: Initial Outreach

Milestone 4.2: Presentation of Draft Funding Concepts Plan

D4.1: Draft Funding Concepts Plan

D4.2 Final Funding Concepts Report

Task 5: Final Report

Task Summary: A detailed analysis will compare the conceptual alternatives against themselves, so that the preferred alternative can be identified. Information gleaned during the Task 4 Funding Concepts will be incorporated.

Task Details: Barriers and risks consist of an inability to identify a long term funding source, or objections to utility involvement. The format of this study – a feasibility study explore multiple

options – was designed to ameliorate these risks. A draft report will be presented to stakeholders for comment, and a final report will be prepared.

Milestone 5.1: Presentation of Draft New Jersey Underserved Communities Electric Vehicle Affordability Program Report

Milestone 5.2: Presentation of Final New Jersey Underserved Communities Electric Vehicle Affordability Program

D5.1: Draft New Jersey Underserved Communities Electric Vehicle Affordability Program

D5.2 Final New Jersey Underserved Communities Electric Vehicle Affordability Program

D5.3 Executive Summary- Area of Interest 3

D. Project Management and Reporting

The Management Plan for the work effort will create a streamlined work flow with clear lines of responsibility and authority. This Management Plan encompasses the elements identified on pages 23 and 24 of the FOA, Items 3a through 3j.

Overall Approach to and Organization to Managing the Work

The NJBPU will have overall responsibility for managing the project and report to DOE.

Task 1 - Consultant Procurement – will be performed solely by the BPU. BPU will develop and issue an RFP, solicit proposals, select a consultant, and execute a contract with the consultant.
Task 2 - Outreach to the Underserved Community - will be initiated by the BPU, and supported by the consultant once they are engaged. The Project Team will engage with Secondary Partners, the underserved community, and other stakeholders.

Work Roles

The work to be accomplished is described in detail in the Work Breakdown Structure section of this proposal. The roles and the work to be performed by each Key Partner and other participants are shown in the table below.

Table 1. Work Roles

Task #	Task Name	Participant	Role
1.0	Consultant Procurement	NJBPU	Procure consultant
2.0	Outreach to the Underserved Community	NJBPU	Lead role
		Consultant	Support

Task #	Task Name	Participant	Role
		Secondary Partners	Provide critical commentary
		Underserved Community	Provide critical commentary
3.0	Development and Screening of Alternatives	NJBPU	Program Management. Establish goals and objectives
		Consultant	Expertise & document production
		Secondary Partners	Provide critical commentary
		Underserved Community	Provide critical commentary
4.0	Funding Alternatives	NJBPU	Program Management. Establish goals and objectives
		Consultant	Expertise & document production
		Secondary Partners	Provide critical commentary
		Underserved Community	Provide critical commentary
5.0	Final Report	NJBPU	Program Management. Establish goals and objectives
		Consultant	Expertise & document production
		Secondary Partners	Provide critical commentary
		Underserved Community	Provide critical commentary

E. MILESTONE SUMMARY TABLE

Milestone Summary Table						
Recipient Name:		New Jersey Board of Public Utilities				
Project Title:		New Jersey Underserved Communities Electric Vehicle Affordability Program				
Task Number	Task or Subtask Title	Milestone Number	Milestone Description	Deliverable(s)	Anticipated Date (months from start of project)	Anticipated Quarter (quarters from start of project)
1.0	Consultant Procurement					
		1.1	Execution of consultant agreement. Preceded by RFP, solicit proposals, select a consultant	1.1 Executed consultant agreement	1-3	1
2.0	Outreach to Underserved Community					
		2.1	Initiation of Stakeholder Outreach		1-12	4
		2.2	Completion of Stakeholder Concept Plan Feedback Memorandum	2.1 Stakeholder Concept Plan Feedback Memorandum	1-12	4
3.0	Development and Screening of Alternatives					
3.1	PEV Sharing	3.1	Conclusion of PEV Sharing Development and Screening	3.1: PEV Sharing Concept Level Action Plan	1-12	4
3.2	PEV Ride Hailing	3.2	Conclusion of PEV TNC /Ride Hailing Development and Screening	3.2 PEV TNC /Ride Hailing Model Concept Level Action Plan	1-12	4
3.3	PEV Charging at Multifamily Dwellings	3.3	Conclusion of PEV Charging at Multifamily Dwellings Development and Screening	3.3: PEV Multifamily Dwelling Concept Level Action Plan	1-12	4

Milestones Summary Table						
Recipient Name:		New Jersey Board of Public Utilities				
Project Title:		New Jersey Underserved Communities Electric Vehicle Affordability Program				
Task Number	Task or Subtask Title	Milestone Number	Milestone Description	Deliverable(s)	Anticipated Date (months from start of project)	Anticipated Quarter (quarters from start of project)
4.0	Funding Alternatives					
		4.1	Initial Outreach	4.1: Draft Funding Concepts Plan	1-12	4
		4.2	Presentation of Draft Funding Concepts Plan	4.2 Final Funding Concepts Report	1-18	6
5.0	Final Report					
		5.1	Presentation of Draft New Jersey Electric Vehicle Environmental Justice Report	5.1 Draft New Jersey Electric Vehicle Environmental Justice Report	13-18	6
		5.2	Presentation of Final New Jersey Electric Vehicle Environmental Justice Report	5.2 Final New Jersey Electric Vehicle Environmental Justice Report	22-24	8
		5.1	Completion of Executive Summary	5.3 Executive Summary	24	8