



Joint Office of
**Energy and
Transportation**

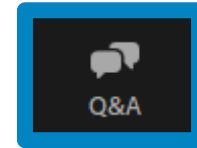
State of the Practice in EV Charging Station Site Design

4/4/2023

driveelectric.gov

Zoom Tips and Housekeeping

- Controls are located at the bottom of your screen. If they aren't appearing, move your cursor to the bottom edge.
- Submit questions using the “Q&A” window



Disclaimer

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If you speak during the webinar or use video, you are presumed to consent to recording and use of your voice or image.

Agenda

Introduction from the Joint Office

National Renewable Energy Lab

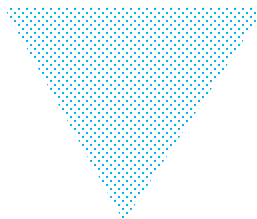
New York City Dept of Transportation

EVGo

Facilitated Discussion



Mission and Vision



Mission

To accelerate an electrified transportation system that is affordable, convenient, equitable, reliable, and safe.

Vision

A future where everyone can ride and drive electric.

BIL Programs Supported by the Joint Office

The Joint Office will provide unifying guidance, technical assistance, and analysis to support the following programs:



National Electric Vehicle Infrastructure (NEVI) Formula Program (U.S. DOT)

\$5 billion for states to build a national electric vehicle (EV) charging network along corridors



Charging & Fueling Infrastructure Discretionary Grant Program (U.S. DOT)

\$2.5 billion in community and corridor grants for EV charging, as well as hydrogen, natural gas, and propane fueling infrastructure



Low-No Emissions Grants Program for Transit (U.S. DOT)

\$5.6 billion in support of low- and no-emission transit bus deployments



Clean School Bus Program (U.S. EPA)

\$5 billion in support of electric school bus deployments

Technical Assistance Strategies

- Specialized assistance for **states, communities, Tribal Nations, transit agencies, and school districts**
- **One-on-one meetings** with states to address questions and concerns related to NEVI Formula Program
- **Concierge service** (phone, email, web form) to efficiently route technical assistance requests for NEVI, electric school buses, and transit buses
- Technical assistance support team has **50 staff members across 10 organizations.**

Technical Assistance

The Joint Office of Energy and Transportation (Joint Office) provides technical assistance on planning and implementation of a national network of electric vehicle chargers and zero-emission fueling infrastructure as well as zero-emission transit and school buses.

States and Communities

The Joint Office provides technical assistance for [states and communities](#), creating and executing [state plans](#) under the National Electric Vehicle Infrastructure Formula Program and the Charging and Fueling Infrastructure Discretionary Grant Program.

Tribal Nations

The Joint Office provides technical assistance to [tribal nations](#) electrifying their transportation systems. Learn more about zero-emission transportation [funding opportunities for tribal nations](#).

School Districts

The Joint Office provides technical assistance to [school districts](#) applying for or receiving funding through the U.S. Environmental Protection Agency's Clean School Bus Program.

Transit Agencies

The Joint Office provides technical assistance to [transit agencies](#) applying for or receiving funding through the Federal Transit Administration's Low or No Emission Vehicle Program.

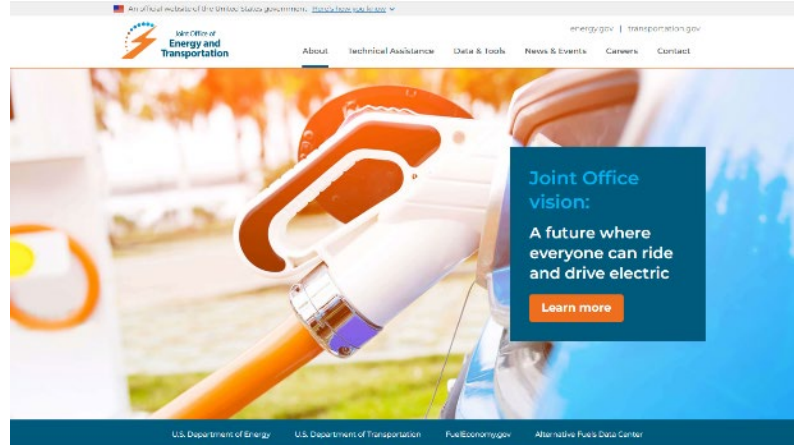
driveelectric.gov/technical-assistance

Concierge Service Contact Methods: 833-600-2751 | doe-dot-jo.ta@nrel.gov | driveelectric.gov/contact/

DriveElectric.gov

Website connects state DOTs and other stakeholders to resources, including:

- Infrastructure planning and implementation guidance
- Data and tools
- News and events
- Technical assistance request form



A modernized and interagency approach to support the deployment of zero-emission, convenient, accessible, equitable transportation infrastructure

The Joint Office of Energy and Transportation was created through the Bipartisan Infrastructure Law (BIL) to facilitate collaboration between the U.S. Department of Energy and the U.S. Department of Transportation. The Joint Office will align resources and expertise across the two departments toward leveraged outcomes. The Office will be a critical component in the implementation of the BIL, providing support and expertise for a multitude of programs that seek to deploy a network of electric vehicle chargers, zero-emission fueling infrastructure, and zero-emission transit and school buses. The scope of the Joint Office will continue to evolve as directed by both departments.

[Contact us](#)

[Technical assistance](#)

Benefits of investing in our electric vehicle charging infrastructure

Initial priorities of the Joint Office will be to support states with planning and to implement the National Electric Vehicle Charging Infrastructure program.



Support electric vehicles

Accelerates the adoption of electric vehicles, including for those who cannot reliably charge at home to enable up to 50% of new vehicle sales to be electric by 2030.



Fewer emissions

Reduces transportation-related emissions and helps out the United States on a path to net-zero emissions by no later than 2050.



Job creation

Positions U.S. industries to lead global transportation electrification efforts and create good jobs.



A network for everyone

Targeted equity benefits for disadvantaged communities, reducing mobility and energy burdens while also creating jobs and supporting businesses.



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Need technical assistance?

Send us a message or call [833-600-2751](tel:833-600-2751).



Contact Us

Use this contact form to submit a media inquiry, ask a general question about Joint Office of Energy and Transportation resources and activities, or request technical assistance for states, tribal nations, or clean school buses or transit buses.

Required fields are marked with an asterisk (*).

Inquiry type *

Name *

Email *

Subject *

Message *

Send

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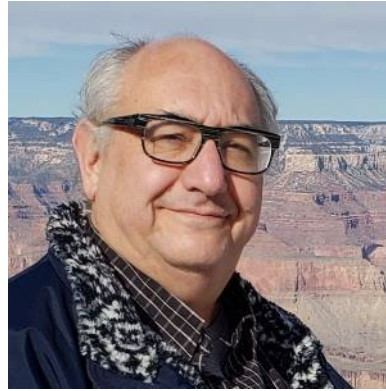
[LinkedIn](#)

driveelectric.gov/subscribe/
driveelectric.gov/contact/

Panelists



Cabell Hodge
*National Renewable
Energy Lab*



Mark Simon
New York City DOT



Marcy Bauer
EVGo



National Renewable Energy Laboratory (NREL)



EVSE Site Design Support

Cabell Hodge and Ranjit Desai
April 4, 2023





NREL EVSE Planning

- NREL supports federal fleet electrification planning from identifying fleet EV opportunities to designing charging infrastructure
- NREL has designed EVSE plans for over 40 federal sites, installed 127 EVSE ports, reviewed invoices from over 1,000 EVSE installations, and manages a high-powered charging lab
- DOE and DOD jointly funded an NREL tool to design EVSE installations and estimate their costs

EVI-Locate Web Tool (Under Construction)

EVI-Locate

Info > Locate My Site > **Add EV Features** > Review Design > Estimate Cost > Output Report

You can create or modify features for 'NREL Visitors Center Annex' below

Hints:

- Once you've added features, you can double click on the cells in the tables below to edit any of the data
- You can single click on an existing feature on the map and select "edit feature" to move it, delete it, or edit the data
- Your features must be inside your site boundary to be included in your design

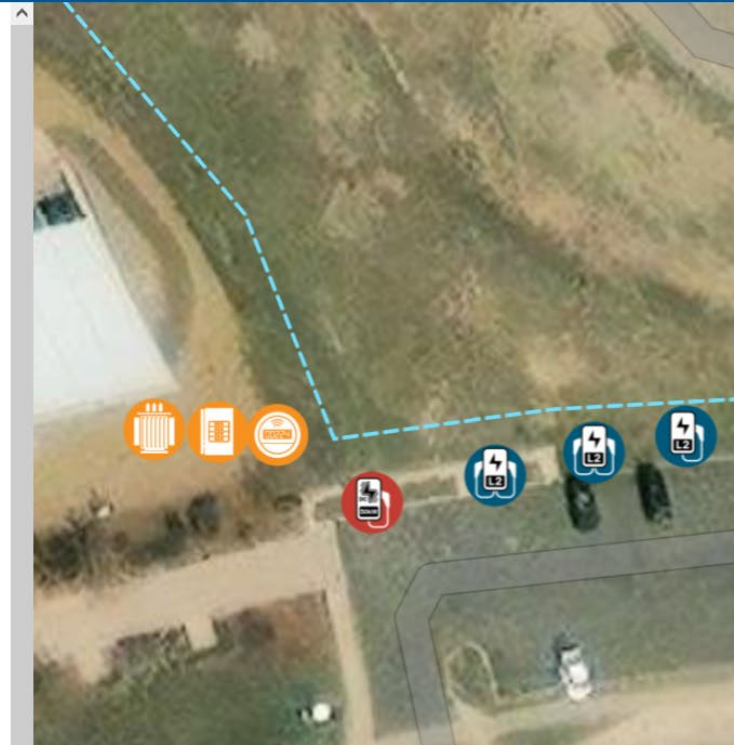
+ Add New Transformer Feature

| | Feature Type | Name |
|--------------------------|--------------|-----------------|
| <input type="checkbox"/> | transformer | 13.8 kV > 480 V |
| <input type="checkbox"/> | transformer | Step down to 20 |

+ Add New Service Panel Feature

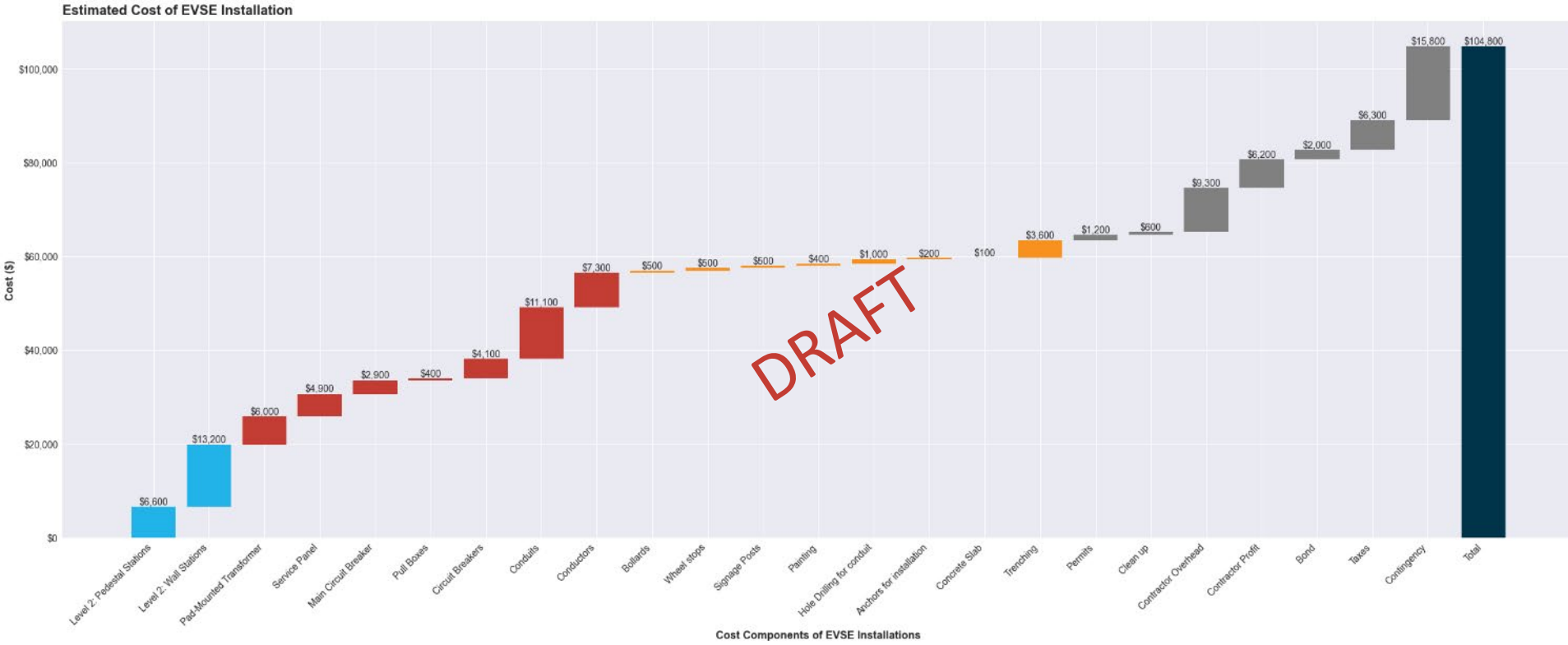
| | Service Panel Type | Name |
|--------------------------|--------------------|------------|
| <input type="checkbox"/> | Smart Meter | EMLA_Meter |
| <input type="checkbox"/> | Service Panel | EMLA_Panel |

+ Add New EV Charger



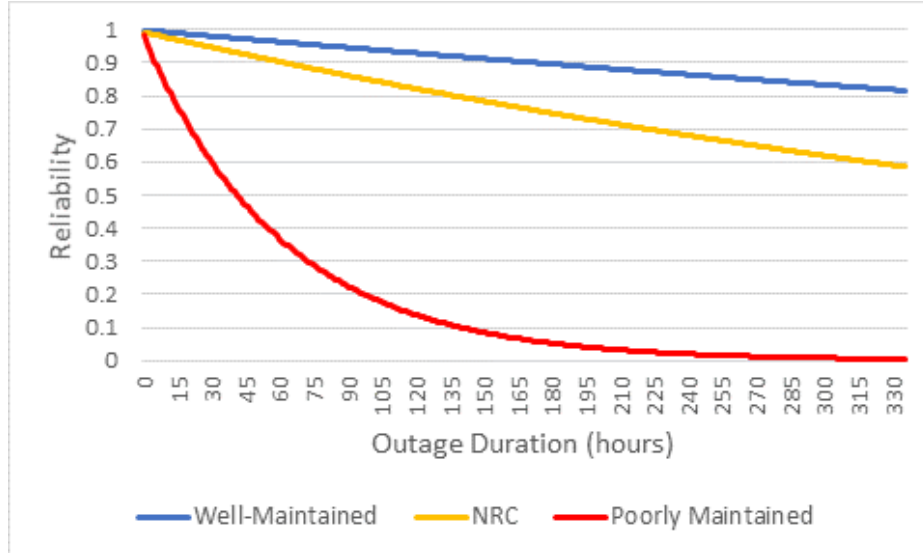
EVI-Locate Cost Estimates

- Cost estimates contain a high-degree of specificity
- They will roll up to higher levels for parking lot/base/agency
- We are using invoices to determine range of certainty
- Please send us your invoices to improve our accuracy



EV-AMP

- Exploring bidirectional charging potential for EVs as mobile power (EV-AMP)
 - Will EVs be more reliable than emergency diesel generators and other DERs?



EV TECHNOLOGY OVERVIEW



EV FINANCIAL CONSIDERATIONS



EVSE INFRASTRUCTURE



DRIVING ELECTRIC VEHICLES



<https://www.energy.gov/eere/femp/electric-vehicle-training>

Thank You

Cabell Hodge
cabell.hodge@nrel.gov



A white electric car is parked at a charging station. The car is connected to a charging cable. In the background, there is a sign that reads "max. 30 min." and a charging station with multiple charging cables. The scene is outdoors with trees and a fence in the background.

EV FAST CHARGING HUB DESIGN

The NYC Experience

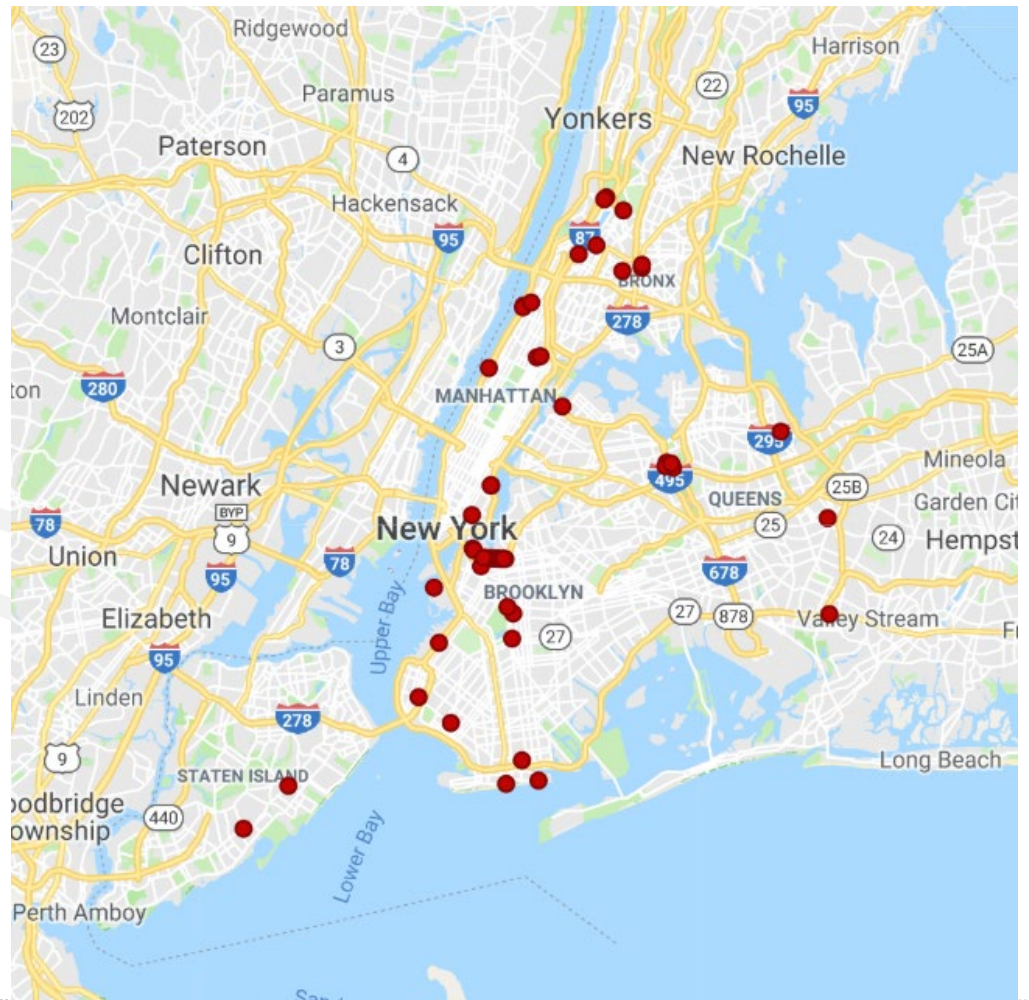
@Electrek



SITE SURVEY

Locations of Surveyed Sites

- 40 sites
- [Web viewer](#)



SITE SURVEY

Results (Bronx, Brooklyn)

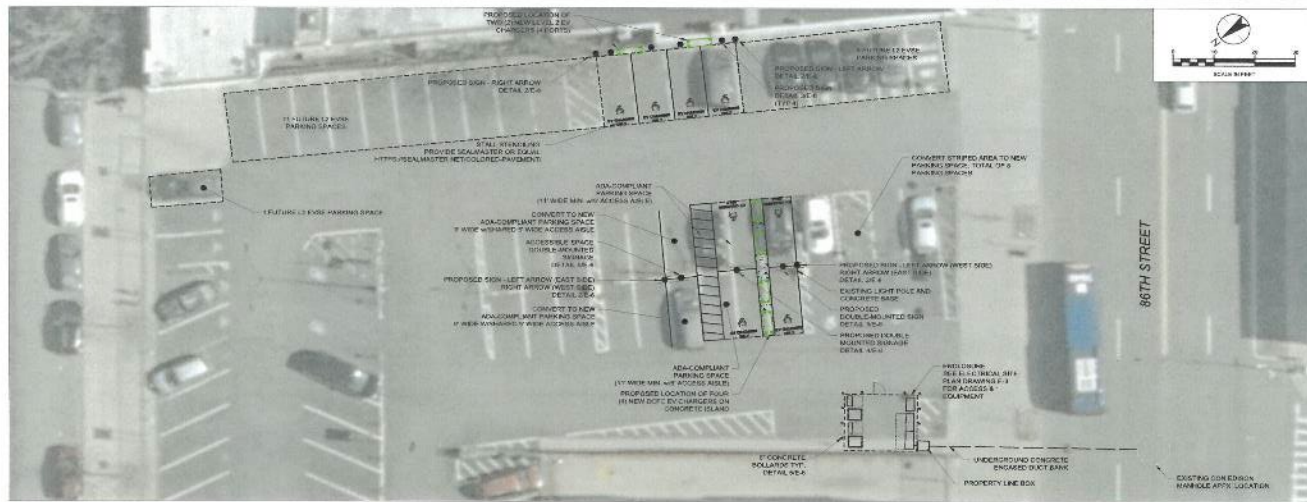
| Borough | Site Name | Criteria | | | | | | | Rank |
|----------|--|-------------------------------|------------|-----------|---------------|-----------|-----------|-------------|------|
| | | Charger Utilization Potential | Visibility | Ownership | Accessibility | Amenities | Occupancy | Final Score | |
| Bronx | Jerome Gun Hill | 1 | 2 | 3 | 2 | 3 | 3 | 2.33 | 1 |
| Bronx | White Plains Municipal Lot | 1 | 1 | 3 | 3 | 3 | 3 | 2.33 | 1 |
| Bronx | White Plains - on street (near Brady Playground) | 1 | 1 | 3 | 3 | 3 | 3 | 2.33 | 1 |
| Bronx | Jerome - 190th Street Municipal Garage | 1 | 1 | 3 | 3 | 2 | 3 | 2.17 | 4 |
| Bronx | Van Cortlandt Golf Course | 1 | 2 | 2 | 3 | 2 | 1 | 1.83 | 5 |
| Bronx | Bronx Zoo | 1 | 3 | 2 | 1 | 2 | 1 | 1.67 | 6 |
| Brooklyn | Bay Ridge Municipal Parking Garage | 2 | 2 | 3 | 3 | 2 | 3 | 2.50 | 1 |
| Brooklyn | Sheepshead Bay #1 Municipal Parking Field | 3 | 2 | 3 | 2 | 3 | 1 | 2.33 | 2 |
| Brooklyn | Bensonhurst #1 | 2 | 1 | 3 | 2 | 3 | 3 | 2.33 | 2 |
| Brooklyn | Brooklyn Botanic Garden - Museum | 2 | 3 | 1 | 2 | 2 | 3 | 2.17 | 4 |
| Brooklyn | Fleet Pl at Flatbush Ave | 2 | 2 | 3 | 2 | 3 | 1 | 2.17 | 4 |
| Brooklyn | York St & Pearl St under the Manhattan Bridge | 3 | 1 | 3 | 1 | 2 | 1 | 1.83 | 6 |
| Brooklyn | Park Ave under BQE - Navy St to Grand Ave | 2 | 1 | 3 | 2 | 2 | 1 | 1.83 | 6 |
| Brooklyn | Gowanus Municipal Parking Field | 1 | 1 | 3 | 3 | 2 | 1 | 1.83 | 6 |
| Brooklyn | Sands St and Jay St under the Manhattan Bridge | 3 | 1 | 3 | 2 | 1 | 0 | 1.67 | 9 |
| Brooklyn | Manhattan Beach Parking | 3 | 1 | 2 | 1 | 1 | 1 | 1.50 | 10 |
| Brooklyn | Medgar Evers College | 1 | 1 | 1 | 2 | 2 | 2 | 1.50 | 10 |
| Brooklyn | Red Hook Terminal | 2 | 2 | 1 | 1 | 1 | 0 | 1.17 | 12 |

CON ED LOAD LETTERS

16 Submitted

- Field visits with Con Ed/ ARUP and DOT
- This will determine cost to bring power to the site.

| Load Letter Short List | |
|------------------------|--|
| Staten Island | New Dorp (DOT Parking) |
| | Great Kills (DOT Parking) |
| Manhattan | Riverside Park @ 96 th Street |
| | 125th under the Metro North |
| Bronx | White Plains Municipal (DOT Parking) |
| | White Plains On-street |
| Queens | Court Square (DOT Parking) |
| | Queens Village Municipal (DOT Parking) |
| Brooklyn | Bay Ridge Garage (DOT Parking) |
| | Bensonhurst #1 (DOT Parking) |



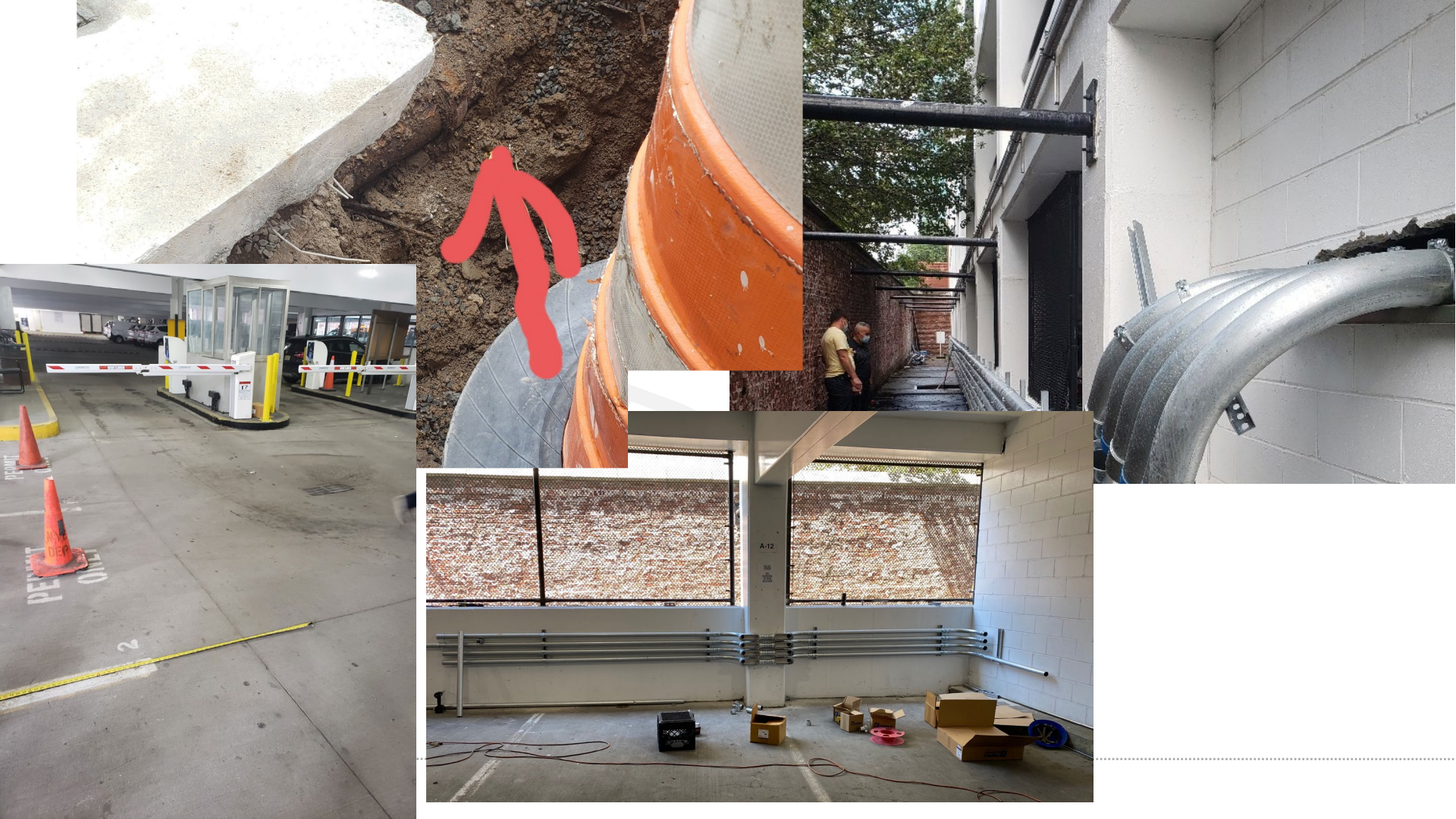
GENERAL NOTES

- ALL IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE MOST RECENT STANDARDS AND SPECIFICATIONS OF THE CITY OF NEW YORK AND/OR THE APPROPRIATE WATER, SEWER AND/OR DRAINAGE DISTRICTS. (LIMITS CITY/TOWN NOTES)
- THE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PERMITS AND PROVIDE ALL BONDS REQUIRED FOR THIS WORK INCLUDING, BUT NOT LIMITED TO, UTILITY CONNECTORS AND SIGNALING AND SITE CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE THAT ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING OCCUPANCY AND THE FINAL CONNECTION OF SERVICES.
- MAINTENANCE AND PROTECTION OF TRAFFIC ALONG WITH SECURING THE WORK AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL DEBRIS AND SOIL DERIVED FROM THE CONTRACTOR'S OPERATIONS FOUND IN THE PUBLIC RIGHT OF WAY OR CAUSING NUISGANCE TO OPERATIONS SHALL BE CLEANED/REMOVED ON A DAILY BASIS.
- CAUTION - NOTES TO CONTRACTOR:** THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES THAT MAY BE DEPICTED ON THESE PLANS, ARE NOT BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REVEAL EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS TO LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS AS REQUIRED TO MEET EXISTING CONDITIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- THE CONTRACTOR SHALL REFER TO ELECTRICAL PLANS FOR EXACT BUILDING DIMENSIONS AND BUILDING LITE TY LOCATIONS.
- THE DRAWINGS ARE INTENDED TO REQUIRE AND TO INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT PROPER FOR THE WORK.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND SAFETY PROCEDURES. THE OWNER AND/OR ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS OR THEIR AGENTS, EMPLOYEES OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK.
- OBSERVE ALL OSHA AND OTHER APPLICABLE SAFETY REQUIREMENTS INCLUDING THE USE OF SAFETY GLASSES, HARD HATS AND PROTECTION OF AREA BEING WORKED OVERHEAD. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR CONSTRUCTION SAFETY AT ALL TIMES.
- COORDINATE WORK WITH ALL DEPARTMENTS (ARCH, STREET, ELECT., ETC.) WITH PERTINENT CONDITIONS, SPECIAL REQUIREMENTS, CONSTRUCTION SCHEDULE AND OTHER CONTRACTORS PERFORMING WORK AT THE SAME TIME.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING PAVEMENT, CURBS, SIDEWALKS, LAWN AREAS, TREES AND OTHER EXISTING FEATURES CAUSED BY THEIR OPERATION. ALL SUCH DAMAGE SHALL BE REPAIRED/REPLACED IN KIND BY THE CONTRACTOR AT THEIR EXPENSE.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND ASSOCIATED WITH THIS PROJECT WORK (GOOD BIDDING) THE INTENTION OF CONTRACTOR, SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE OWNER'S REPRESENTATIVE SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.
- CONTRACTOR TO PREVENT SURFACE WATER AND SUBSURFACE WATER FLOW FROM ENTERING INTO EXCAVATIONS, PROVIDE AND MAINTAIN PUMPS, WELL POINTS, SUMPS, SUCTION AND DISCHARGE LINES, AND OTHER DRAINAGE SYSTEM COMPONENTS NECESSARY TO REMOVE WATER AWAY FROM EXCAVATIONS. DISCHARGE WATER THROUGH A SEPARATE CONTROL DEVICE (IE: DRAINAGE BASIN) INTO THE COMBINED SEWER SYSTEM.

| | | | |
|--|--------------------|------------------|-----------------|
| Stantec | | PROJECT: | |
| DRAWING TITLE: CIVIL SITE PLAN | | DATE: 05/20/2019 | SCALE: AS SHOWN |
| DESIGNED BY: [Name] | CHECKED BY: [Name] | DATE: 05/20/2019 | SCALE: AS SHOWN |
| PROJECT COORDINATOR: [Name] | | DATE: 05/20/2019 | SCALE: AS SHOWN |



| | | | | |
|-----------------------------|--------------------|-----------------------------|------------------|-----------------|
| DATE: 05/20/2019 | SCALE: AS SHOWN | PROJECT COORDINATOR: [Name] | DATE: 05/20/2019 | SCALE: AS SHOWN |
| DESIGNED BY: [Name] | CHECKED BY: [Name] | DATE: 05/20/2019 | SCALE: AS SHOWN | SCALE: AS SHOWN |
| PROJECT COORDINATOR: [Name] | DATE: 05/20/2019 | SCALE: AS SHOWN | SCALE: AS SHOWN | SCALE: AS SHOWN |
| DATE: 05/20/2019 | SCALE: AS SHOWN | DATE: 05/20/2019 | SCALE: AS SHOWN | SCALE: AS SHOWN |







THANK YOU!

Questions?



NYC DOT



NYC DOT



nyc_dot



NYC DOT

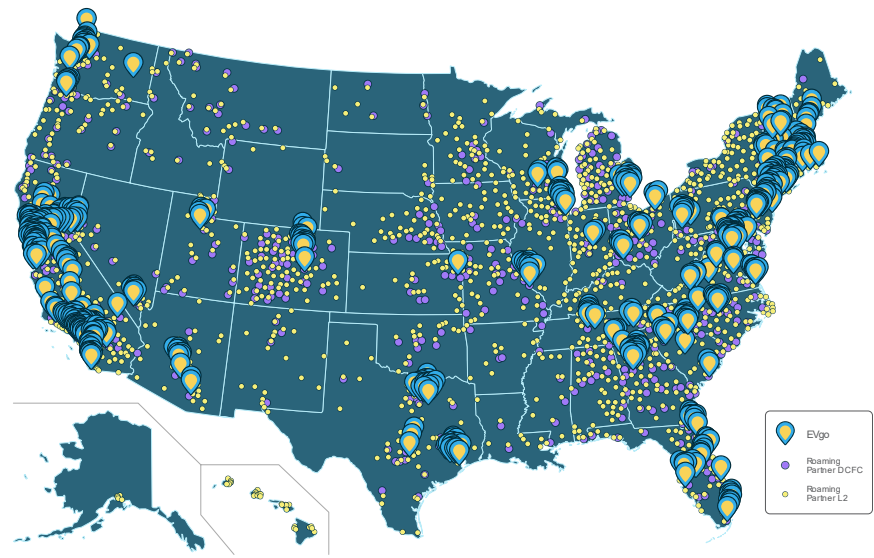


State of the Practice in EV Charging Station Site Design

- 4 April 2023



EVgo IS ONE OF THE NATION'S LARGEST PUBLIC EV FAST CHARGING NETWORKS



850+ stations in 60+ cities across 30+ states



Reliable
Committed to 98% network uptime



100% Renewable
Through renewable energy certificates



140 MM
People live within 10-miles of an EVgo station



500,000+
EV driving customer accounts



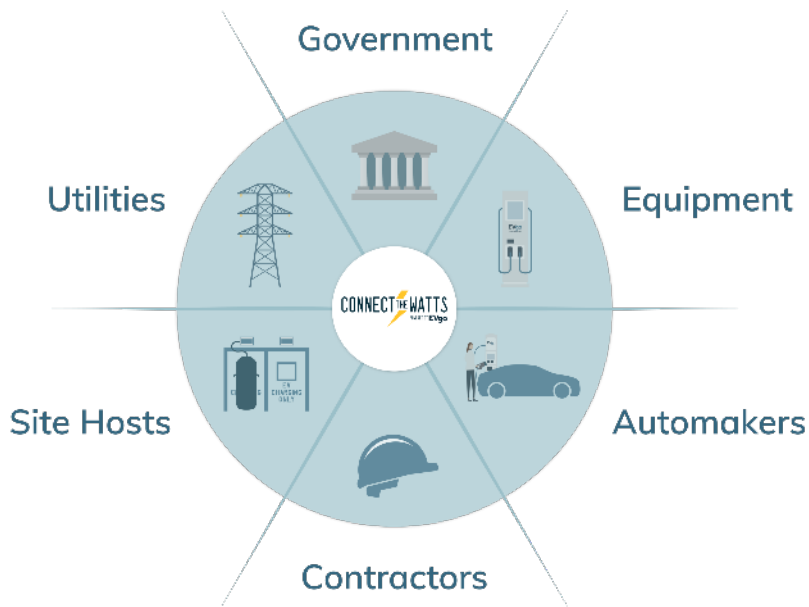
EV Compatibility
Serves all fast-charging standards – including Tesla



Drivers Love Us
High customer scores on PlugShare

EVgo's Partners Include:





The EV Charging Ecosystem

WHEN EVERYONE INVOLVED IN THE CHARGER DEPLOYMENT PROCESS UNDERSTANDS EACH OTHERS' CHALLENGES, WE CAN ADOPT SMARTER SOLUTIONS

- ▶ To accelerate the process of putting fast chargers on the ground, EVgo started **Connect the Watts™**, an initiative aimed at bringing the electric vehicle charging infrastructure community together to identify best practices for charger deployment.
- ▶ EVgo is uniquely positioned to lead this effort because of our experience, data, relationships, and standing as the nation's largest public fast charging network for electric vehicles.



Questions and Answers

Existing Resources for EV Station Site Design

- Access Board guidance

<https://www.access-board.gov/tad/ev/>

- NYSERDA Siting and Design Guidelines for Electric Vehicle Supply Equipment

https://www.transportationandclimate.org/sites/default/files/EV_Siting_and_Design_Guidelines.pdf

- Alternative Fuels Data Center

https://afdc.energy.gov/fuels/electricity_infrastructure_ada_compliance.html

- California Governor's Office of Business and Economic Development EV charging station permitting guidebook

<https://business.ca.gov/wp-content/uploads/2019/12/GoBIZ-EVCharging-Guidebook.pdf>

- World Resource Institute working paper on pole-mounted charging

<https://www.wri.org/research/pole-mounted-electric-vehicle-charging-preliminary-guidance>



Upcoming Webinar Topics

April 11th

Community Engagement #1

April 18th

Cybersecurity

April 25th

Community Charging Models

May 2nd

Ensuring a Reliable
Charging Experience

May 9th

Minority Business Outreach and
Partnerships



driveelectric.gov/webinars

** Some dates may be subject to change*

Thank you!

Today's Presentation:
State of the Practice in EV Station Site
Design

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Want to learn more about the state of the practice on site evaluation?
Ask the Joint Office: driveelectric.gov/contact



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