



GSA Virtual EVSE Showcase

August 29 & 30, 2023

Fort Moore Fleet
Electrification
Infrastructure
Damian Haye



Fort Moore Electric Vehicle (EV) Overview

Current:

- 26 ChargePoint Level 2 Stations
- 34 Beam Solar Charging Stations on-site
- FY22 Electric Vehicles Count = 127 (LRC reported, excludes tenant vehicles)

Planned:

- 63 Additional Level 2 Charging Stations NLT Q1 FY24
- FY23 Electric Vehicles Projection = 82
- FY24 Electric Vehicles Projection = 78
- FY25+ Electric Vehicles Projection = 407
- **Total Electric Vehicles Projection = 694**

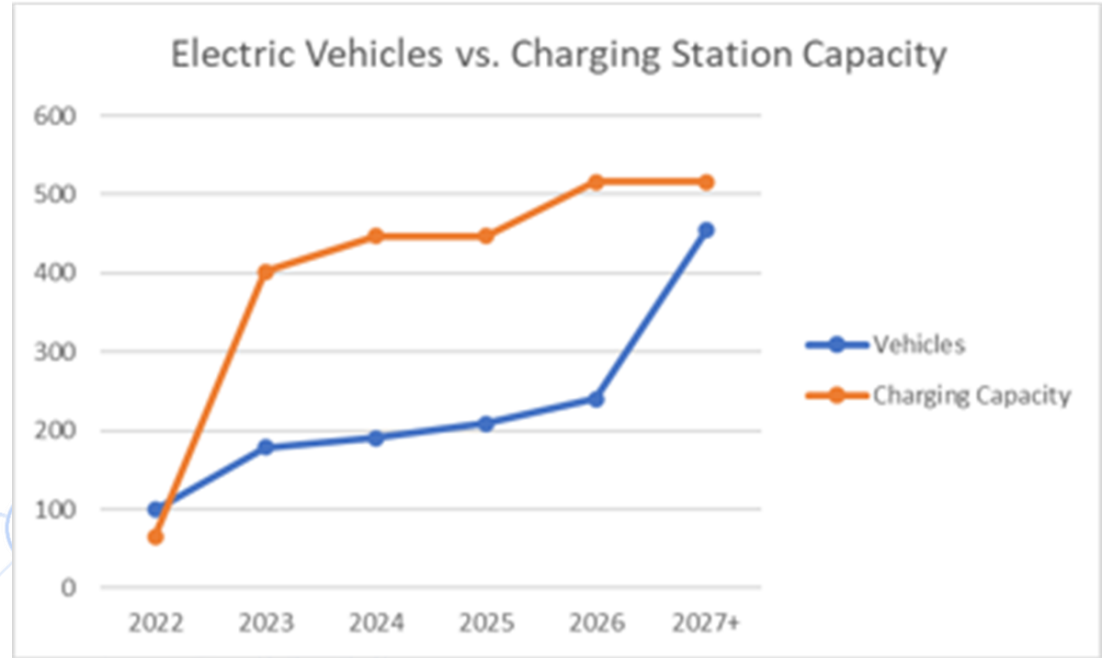
- Fort Moore to receive one EV for one gasoline vehicle (GSA Projection)
- EV Plan Covers Light/Medium Duty (LRC reported)
 - Total Light Duty = 694
 - Total Medium/Heavy Duty = 797
 - Total Electric Busses = 235+
 - **Total Non-Tactical = 1491**
- \$12.3M Investment
- EV Stations Cover 957 NTVs by 2035
- Level 3 Chargers Not Accounted in Costs

Location	FY22	FY23-24	FY25-27	FY28-35	Totals
Main Post	46	14	13	55	128
Sand Hill	15	10	7	33	65
Harmony Church	51	8	5	27	91
Kelly Hill	4	3	3	11	21
Merrill/Rudder	0	2	3	9	14
Total Stations	116	37	31	135	319
Transformers	36	27	9	32	104
Projected Cost	\$ 4,385,494.40	\$ 2,132,510.80	\$ 1,142,638.00	\$ 4,635,877.40	\$ 12,296,520.60

EV Glidepath

Assumptions:

- Based off LRC listing of GSA vehicles. Does not include tenants that control their own fleet
- Accounting for only light duty vehicles
- Estimated years 2025-2027+ based off average annual mileage and year of vehicle
- Assuming a 3 to 1 Vehicle to Dual Port Charging Ratio



Challenges

Emergency Services, Environmental and EV Challenges

Solutions

Lithium batteries require special firefighting training, cell chemistry along with high voltages, and a battery with more density results in radically different battery fire conditions.	In-person training from vehicle manufacturers highly recommended. Currently no car manufacturers have offered in person training. Currently, DES FES will conduct in-house training.
“Stranded Energy” of electrical current (voltage/amperage) remaining inside a battery when its completely disconnected from everything else.	After an EV fire, storage of the vehicle should be a minimum of 50 ft for a minimum of 72 hours from all combustibles. The purchase of fire blankets would help contain possible reignition.
Many towing operations will not remove an EV that has caught on fire from the side of a road until a minimum 72 hours have passed.	Storage of damaged EV vehicles may require a hold-yard before removing from the installation.
Thermal runaway, lithium batteries require 10 times the amount of water to extinguish as does a gasoline car fire	A water source will need to be utilized to provide copious amounts of water.

Funding Challenges

Solutions

Fort Benning does not currently have the resources on hand to manage and charge all expected T-EVs on post	Contract is needed to install and maintain all EV infrastructure on post
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Challenges Continued

<u>Total- Electric Vehicle Challenges</u>	<u>Solutions</u>
Approximate range during optimal driving conditions being 200–300 miles per charge, using A/C drains 15% faster, heater drains 17% faster, windshield wipers drain 15% faster, towing at a minimum has 40% to 60% faster drain	Education
EV tires designed for grip, or noise, and efficiency, 25-35% faster wear and less overall range. “High Load” tires are made for a specific EV	Reach out to local tire supplier regarding availability of EV Tires
<u>Vehicle Site Location Challenges</u>	<u>Solutions</u>
Four large cantonment areas on installation with ranges and land management spread out over 184,000 acres	Determine location and timeline of Government Fleet replacement for optimal installation schedule.

Miscellaneous Challenges: Cold weather charging, time required to recharge from “empty”, tire clearance, accessories affect on battery life, lack of vehicular equipment installation information, “silent” EV’s can present a hazard, tech security, and lithium leeching during vehicular fires.



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NASA EVSE and Vehicle case study

Tim Currie
NASA Agency Transportation
Manager





Roles and Policy Strategy

NASA Transportation Manager:

- NASA HQ Lead for both EVSE and Zero Emission Vehicle Polices
 - EV/EVSE Action Plan (Implementing E.O. 14057)
 - WorkPlace Charging
- NASA HQ “Sustainability Plan” Goal owner for “fleet”
- FAST data call owner
- CEQ Quarterly data call owner

ZEV Strategy and Stakeholder Roles

NASA strategy established with CEQ:

- Budget Dependent
- Invest in EVSE 90-95% of budget FY22 through FY25.
 - Labor will only go up in out years
 - EVs will come down as mass production increases
 - EVSE plans out to FY30
- EVSE single source Vendor
 - Facilitated by GSA BPA – EVSE
 - Manage POV reimbursement cost to the lowest possible
- EVSE locations identified by Centers
 - Fund Center EVSE plans
 - Locations selected in support GOV fleet
 - Allow POV use, as secondary users

NASA Stakeholders:

- EVSE locations identified by Centers
 - Center stakeholders work together to prioritize EVSE locations
 - Center Transportation
 - Center Facilities
 - Center Sustainability
 - Center MasterPlanning
- Ensure 15 to 25 year Master Plan of Campus based Center make up
- Identify Priority selection of infrastructure –
 - ease of electrical access vs need of fleet
 - Center of parking lot vs side of building
- Locations selected in support GOV fleet - only
- Develop individual cost estimates per location base on Center choice of construction model.

Hurdles

- Center upper management
 - Everybody is now a EV expert
 - GOV vs POV understanding of the law
 - POV – squeaky wheel
- Stakeholders
 - Early and often
 - Planning
 - Reporting
 - Roles clearly defined
 - I won't tell you how to build a building
 - Don't tell me how to acquire a EV

Site location estimates;

- Started with GSA estimate of \$30K (per port)
- Quickly realized cost closer to \$50K
- Out year location accepted to be \$70K
 - easy sites first
 - no level III EVSE (yet)





United States Park Police Case Study on the use of Electric Motorcycles

Presented by Lt. Matthew Cooney



United States
Park Police

Historical
Methods of Patrol

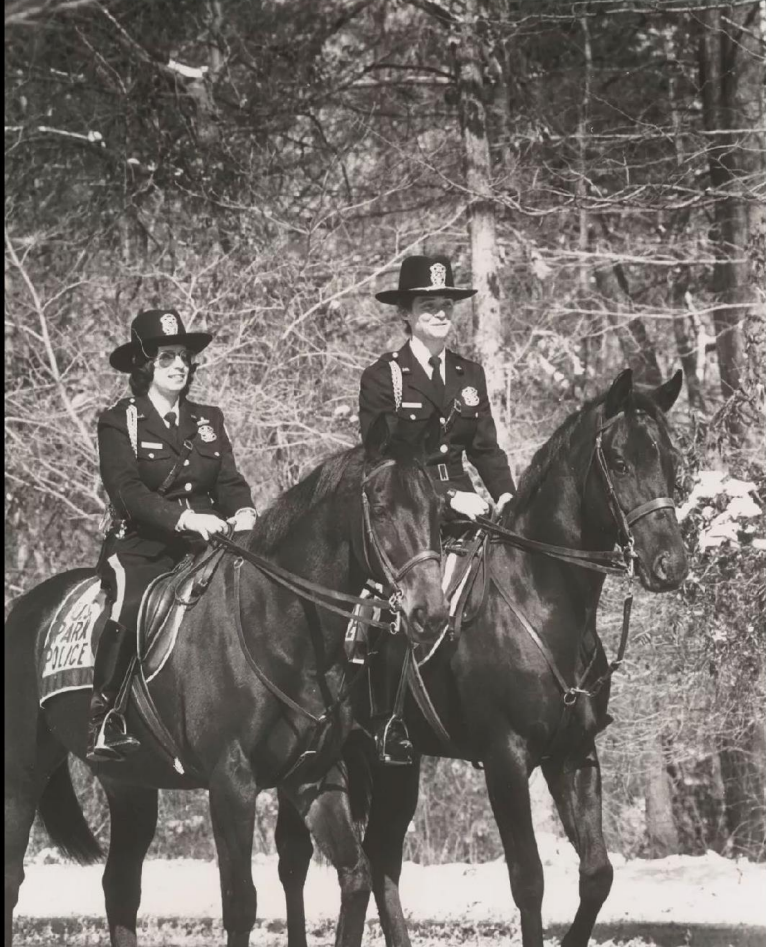




Horse Mounted Patrol

Horse Mounted
Patrol









Bicycle Patrol









All Terrain Vehicles (ATV) and Utility Task Vehicles (UTV)



Polaris Rangers (Civilian Models): Late 2000's – Mid 2010's



Kawasaki Mules: Mid 2010's – Late 2010's



Polaris Rangers (Police Models): Early 2020's – Present





Motorcycles & Scooters Under 1000cc



Vespa Scooters: 1970's



Honda Scooters: 1980's



Honda Motorcycles
(Under 1000cc):
1990's





Suzuki Motorcycles
(Under 1000cc):
Late 2000's –
Present





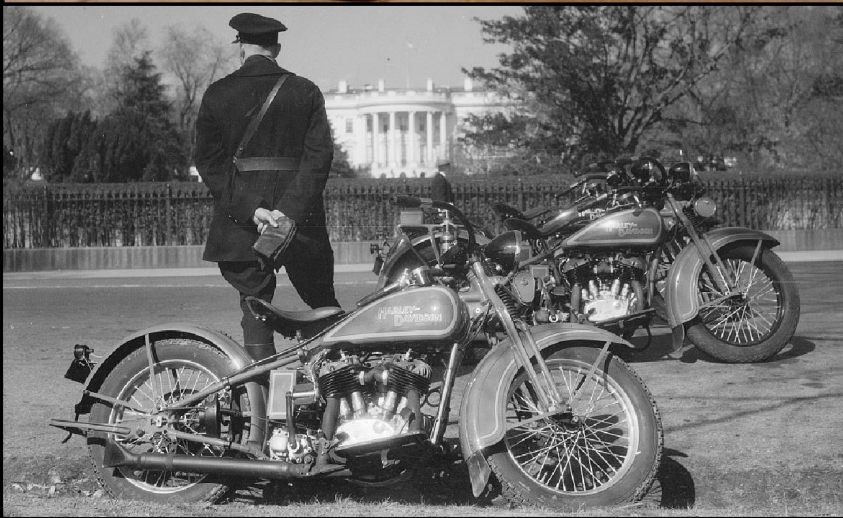
Suzuki Dirtbikes
(Under 1000cc):
Late 2000's -
Present





Motorcycles & Scooters Over 1000cc









Electric Vehicle/ Alternative Fuel Usage & Testing



In 1979, backed by an NPS grant, USPP converted 20 police cruisers and 3 trucks to run on propane.

Propane fill stations were installed at the 5 Park Police stations in the DC area.

The program phased out as gas prices came down in the 1980's

[Police Run Cars on Propane](#)
[The Washington Post- 12/6/1979](#)



A battery powered Ford Ranger EV sits on Pennsylvania Ave in front of the White House circa late 2000.

Ford made 1,500 of these NiMH battery powered trucks from 1998-2002, generally targeting government and fleet customers.

USPP evaluated one during this time.



Various electric carts were used at the Statue of Liberty and Ellis Island in NY, and President's Park in DC during the late 2000s and throughout the 2010s



Two electric scooters (above), outfitted with emergency lights, were evaluated between 2009-2011. A three wheeled stand up mobility device was tested during the July 4th Celebrations around the same time.



Current Applications

[Partnership Brings Electric Motorcycles to U.S. Park Police National Park Service Press Release](#)

[US Park Police Using Fleet of Electric Motorcycles NBC4 Washington News Story](#)





Make / Model:

- Zero DSRP with extended range battery & fast charger

Capabilities:

- 102 mph top speed
- 176 mile range on full charge
- Off road capable (to a point)
- 360° emergency vehicle lighting, siren, public address system









Community Relations








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usparkpolicepio  Five more officers spent the day on the @nationalmallnps learning how to ride #electric #motorcycles safely. The USPP has used motorcycles to patrol iconic national parks, monuments, and memorials since 1917. These ELECTRIFYING 🛵 motorcycles were added to our patrol fleet in 2019.

17w



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Future Applications





Off Road Patrol

The Zero DSR (Dual Sport) that USPP currently uses is not a direct replacement for traditional gas powered dirt bikes. While it has many advantages over the gas powered motorcycles we have previously used, the capabilities a dirt bike provides versus a dual sport (ground clearance, suspension, handling) are a requirement for many of the trail systems we patrol outside of downtown D.C. One known issue is that a quality made and capable electric dirt bike is 2-3x the cost of a comparable gas powered version.

This photo is of the Los Angeles Police Department's Off Road Unit, which has transitioned almost exclusively to Zero FSX electric dirt bikes. They are a full time unit patrolling a wide variety of terrain and trail systems.



Full Time Patrol

The U.S. Park Police currently utilizes our electric motorcycles on a part time basis. Officers, if trained, can choose to ride their motorcycle if they are assigned to a non primary patrol area for the day. They may also be assigned to ride during one of the hundreds of special events or demonstrations we work each year.

A full time, seasonally staffed, unit of 4-6 officers and a supervisor would be ideal to increase our patrol presence beyond the monumental core to park areas and trails in the metropolitan area which are often inaccessible by car. An electric variant would be the preferred motorcycle for this purpose due to their low environmental impact and visitor disruption.

Having a full time patrol motorcycle unit within the downtown park areas would increase the ability to conduct proactive enforcement of traffic and criminal violations. Officers would benefit from electric motorcycles due to the all day run time, low heat output, and no exhaust. The lack of noise output increases officer awareness, safety, and the ability to communicate with visitors and violators.



Other Potential EV Vehicles & Uses

The U.S. Park Police, in particular in the downtown areas of the National Mall and Memorial Parks, would benefit from the use of EV patrol vehicles to supplement our internal combustion engine fleet of traditional patrol cars. With a high amount of low speed driving, braking, and idle time in crowded pedestrian zones, the benefits provided by electric vehicles would be noticeable. Also, being a sub unit of the National Park Service, using electric vehicles for front line employees puts forth a positive and progressive public image for the agency.

Pictured to the right is a preproduction model of the 2024 Chevy Blazer EV Police Patrol Vehicle. This pursuit rated, police specific, electric SUV is a great example of a vehicle that could supplement our full size patrol cars and SUVs, especially when assigned to non primary patrol areas, pedestrian heavy zones, and special events. With a smaller footprint than vehicles such as the Dodge Durango or Ford Explorer, vehicles like the Blazer EV, Ford Maverick Hybrid, or the recently announced Ford Ranger EV, could fill a capability gap for a lower impact, more maneuverable, but still fully functional police car within National Park Service areas.

The remaining slides show other fully electric or hybrid vehicles currently in use with various police departments.





Ford Maverick Plug in Hybrid



Ford Mach E



Tesla Model X



Ford F150 Lightning



110 HP Electric Motor
Produces nearly 35% more power than any other utility side-by-side on the market

14" Ground Clearance
Take on rough terrain with ease

Industry-Best 1,250 Lb. Box Capacity
Get more done in fewer trips

1, 2, 3

The diagram shows a side profile of the Polaris Ranger with three callout boxes. Box 1 points to the front wheel area, box 2 points to the chassis height above the front wheel, and box 3 points to the cargo bed.

Polaris Ranger Kinetic EV Utility Task Vehicle



For further questions or follow up about this presentation, contact:
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