

EV Charging Stations

Why Charging Stations?

- FER directive to “Support replacement of petroleum-fueled motor vehicles with all-electric vehicles.”
- Industry is moving towards replacing petroleum vehicles with electric vehicles

Car Makers and EVs

- GM plans to release 20 EV models by 2023
- Ford plans to release 13 EV models by 2023
- Jaguar-Land Rover plans to electrify its entire lineup by 2020
- Volvo states that every Volvo sold after 2019 will include an electric motor
- VW group plans to offer electric and hybrid versions of 300 vehicles by 2030

Level 1 Chargers

- Slowest Method of Charging
- Charges with 1 KW at 120V



Level 2 Chargers

- Most common EV charging stations
- Charges with 3-20kW at 240V
- Uses standard SAE J-1772 Plug



Level 3 Chargers

- Also known as DC Fast Charging (DCFC)
- Charge with 50kW at 480V
- Three connectors: SAE Combo, CHAdeMO, & Tesla



Charging Station Solutions

- Networked
 - SemaConnect
 - ChargePoint
 - Greenlots
- Non-Networked
 - EVSE LLC (Supports networked charge software)

Charging Station Features

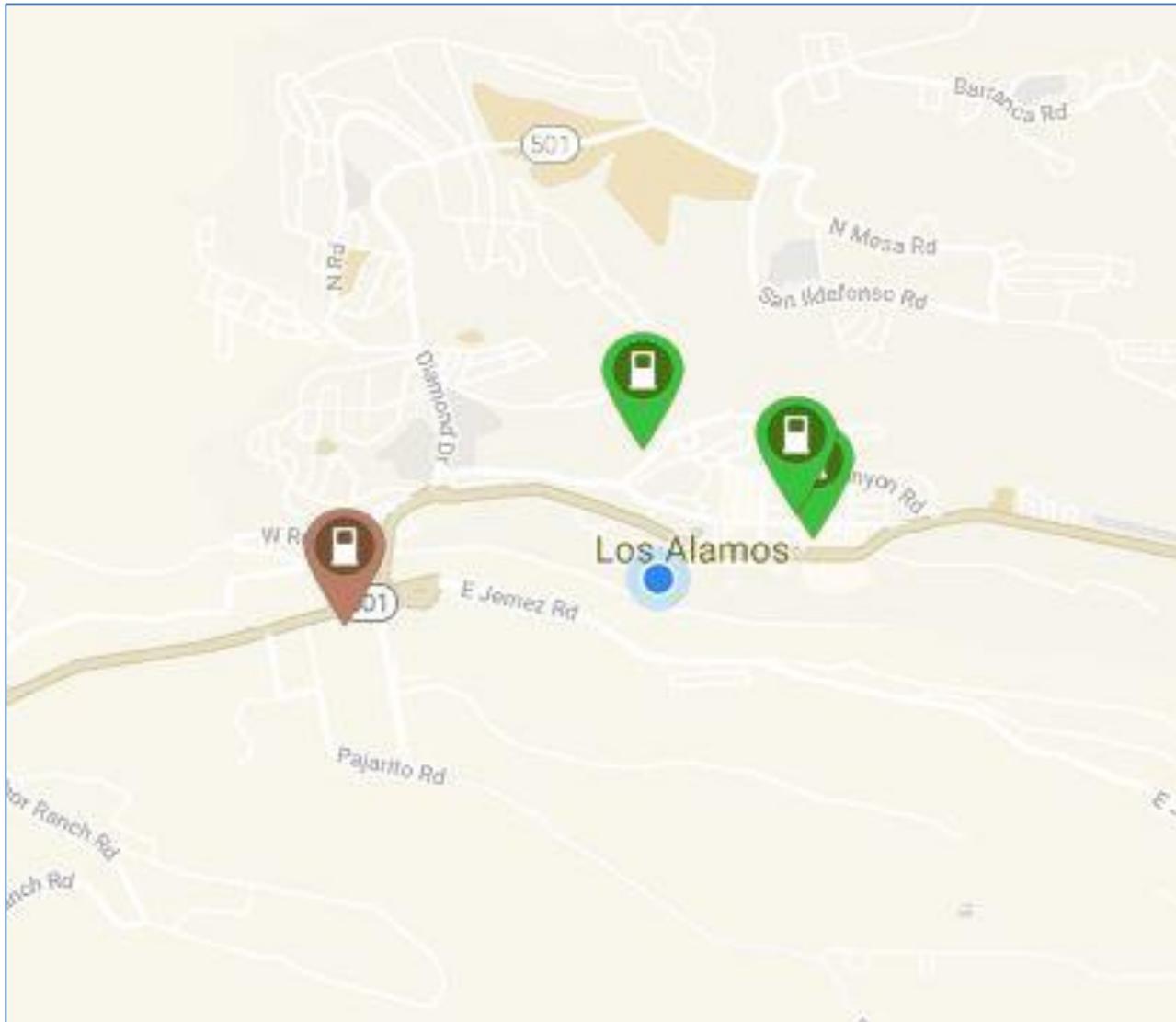
Vendor	Ocpp Compliant	Payment Method	Owner sets rates	Notifies Drivers upon charge completion
SemaConnect	Yes	RFID, Website, App	Yes	Yes
ChargePoint	Yes	RFID, App	Yes	Yes
EVSE LLC	Yes	RFID, Credit Card	Yes	No
Greenlots	Yes	Credit card, RFID, App, Phone Call	Yes	Yes

Charging Station Costs

Vendor	Station Cost	Data Fee	Service Fee	Other
SemaConnect	\$3190 Single \$6380 Dual	Included in service fee	\$250/plug/year	3% processing fee on revenue
Chargepoint	\$10,000 Dual	Included in service fee	Station cost includes 60 months \$280/plug/year	10% of driver revenue
EVSE LLC	Awaiting Quote	Included in Service Fee	\$200/plug/year	None
Greenlots	\$4500 Dual	\$150/year	\$425/plug/year	\$150 station commissioning fee

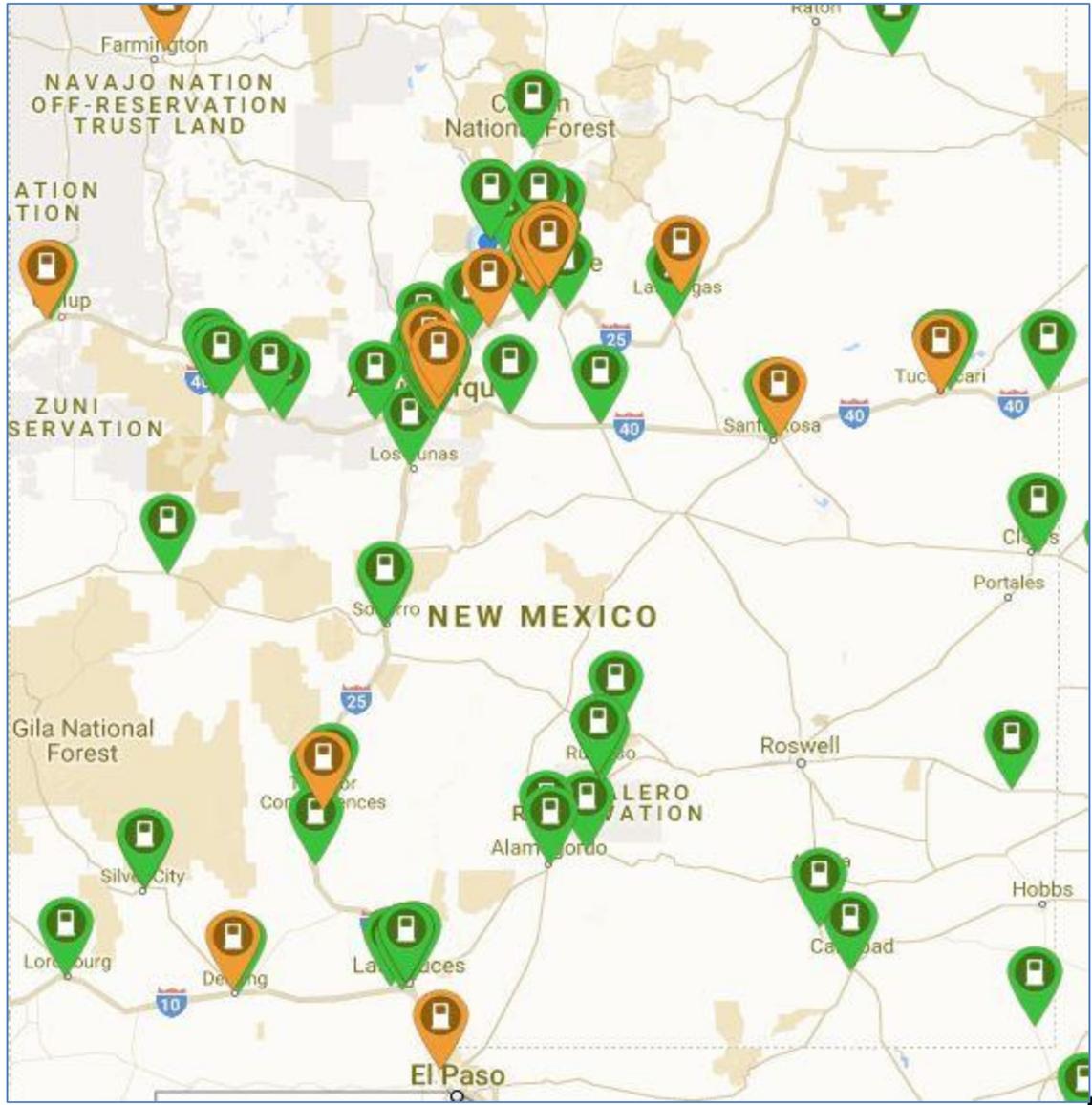
EV Infrastructure in Los Alamos County

Location	Level	Network	Plug Type	Cost	Plugs
Del Norte Credit Union	2	Non-Networked	J-1772	Free	1
MUNI Building	2	Non-Networked	J-1772	Free	6
Los Alamos Nature Center	2	Non-Networked	J-1772	Free	2
LANL	2	Chargepoint	J-1772	\$.50/hr	N/A



Stations in NM Cities

City	Total Stations	Networks	Non-Networked
Los Alamos	4	1 Chargepoint	3
Santa Fe	15	1 EVGo 1 Blink 2 ChargePoint	11
Albuquerque	20	3 Greenlots 7 Chargepoint	10



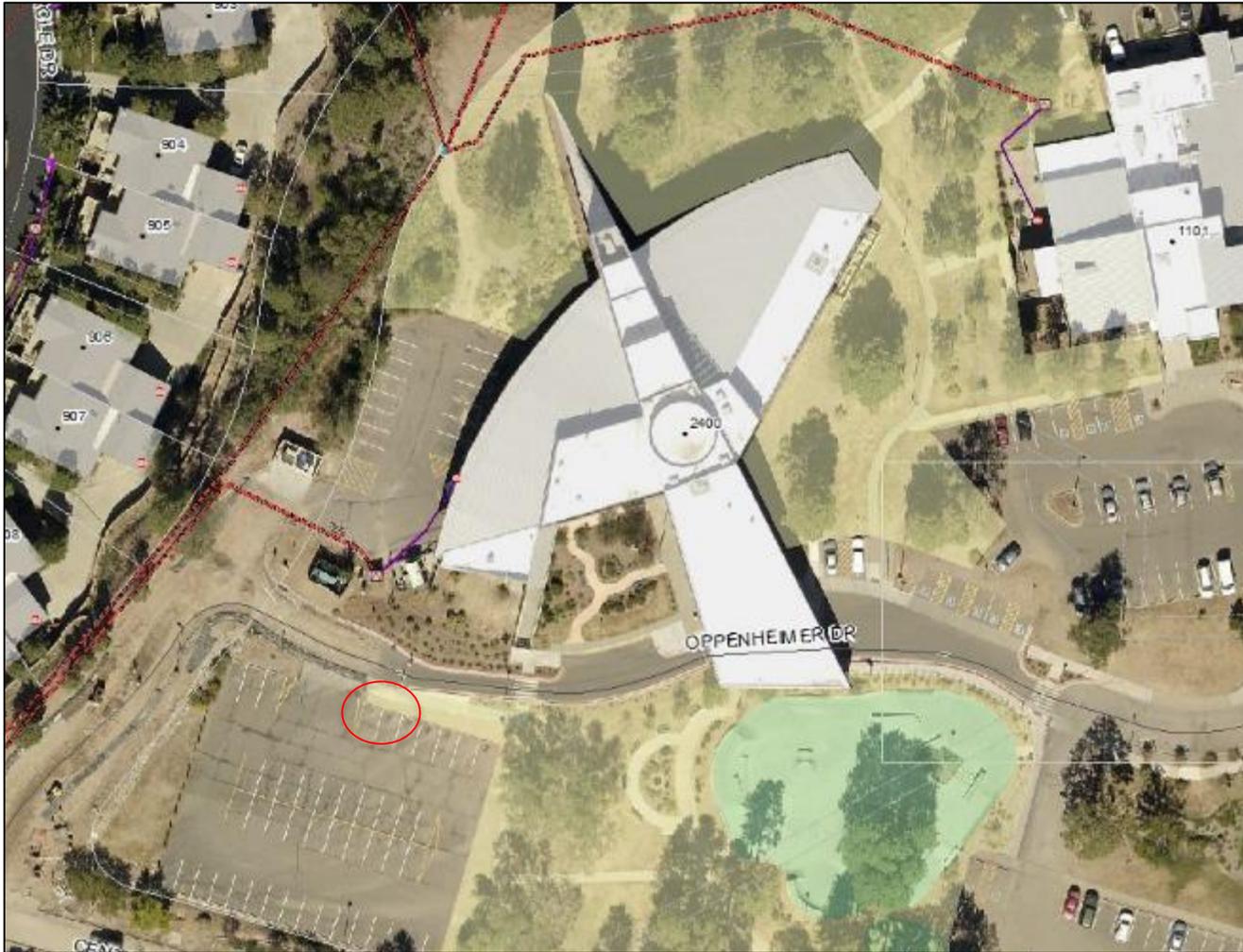
Potential EV Charging Sites: Los Alamos

- Pajarito Cliffs Site
 - Use existing MUNI building hardware
 - Charging for electric fleet vehicles
- Mesa Library
 - People stay for long periods of time
 - Park n Ride – Potential Federal Funding
- MUNI Building
 - Replace existing stations with paid stations
 - Adds ability to collect usage data
- Ashley Pond Park
 - Downtown access
 - Tourist area

Potential EV Charging Sites: White Rock

- White Rock Library
 - People stay for long periods of time
 - Local White Rock traffic
- Visitors Center-Bandelier National Park
 - Tourist area
 - People stay for long periods of time

Mesa Library



MUNI Building



Ashley Pond



Bandelier Visitors Center



White Rock Library



Next Steps

- In order to keep up with the auto manufacturers, Los Alamos County needs to provide charging stations to keep up with the rising percentage of EVs
- In order to determine where to best place stations, LAC needs to collect data by placing trial stations and monitoring usage