

Sacramento Region Medium- and Heavy-Duty (MD/HD) ZEV Infrastructure Blueprint

LIGHTNING

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Powering forward.
Together.



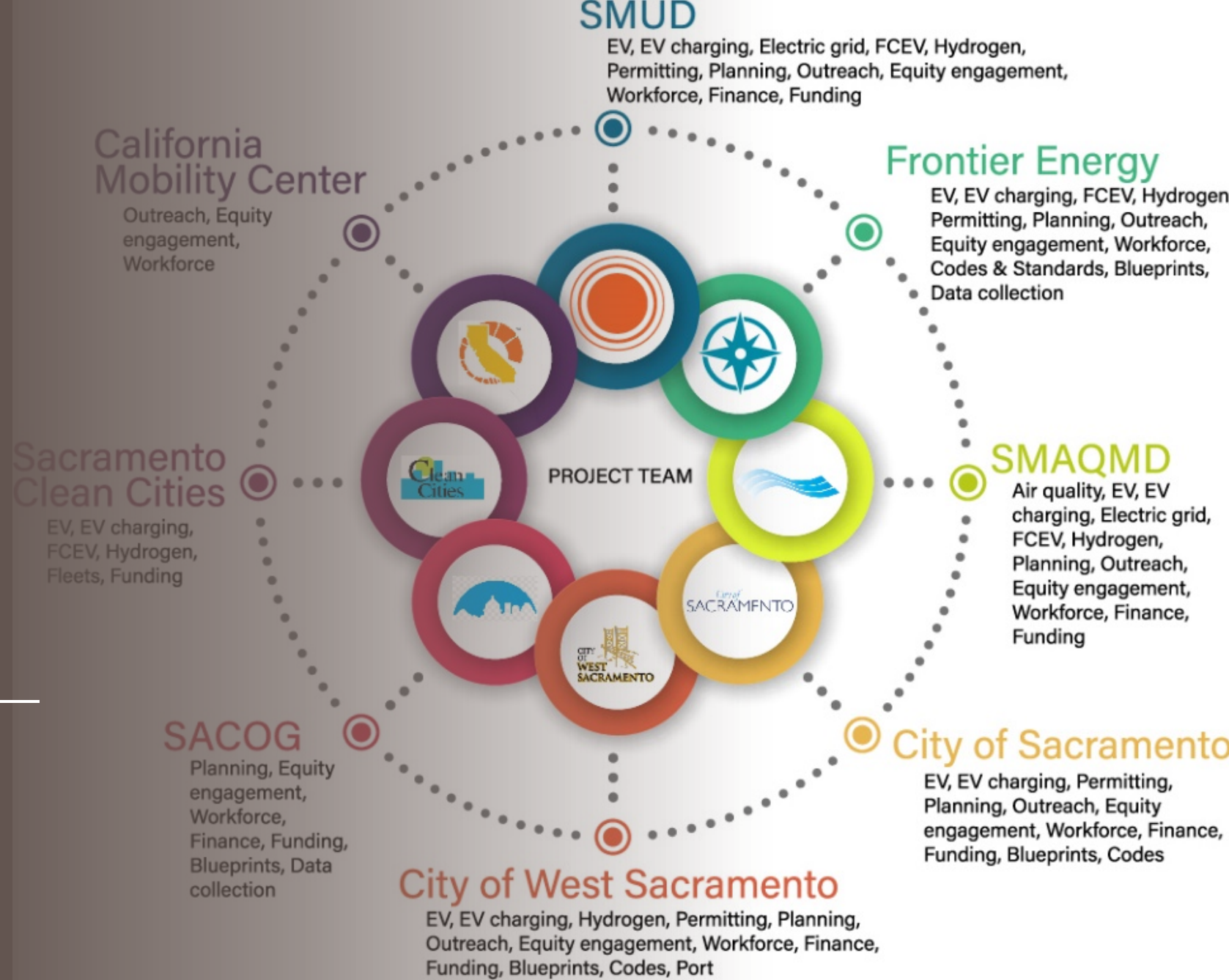
Project Overview

- Duration: 18 months (10/1/2021 through March 31, 2023)
- SMUD is prime, Frontier Energy is subrecipient (partnered with Sacramento Clean Cities)
- \$200,000 CEC award with \$586,000 in cost match from SMUD

Directives:

- Inventory MD/HD fleets in the region and identify the “home base” locations for the largest fleets in Sacramento County and West Sacramento
- Identify optimal siting for depot charging, shared or public MD/HD charging, and hydrogen stations
- Identify technologies to mitigate grid impacts
- Identify workforce needs and recommend approaches and systems to develop a pipeline of skilled labor

Regional Partners



Key Findings

- 24,389 trucks and buses domiciled at 4,818 unique addresses
- Over half of the 134 largest fleet depots are in 4 clusters, 3 of which land in SMUD's territory (Depot Park, North Sac / McClellan, and Alkali Flats) - all are in equity communities
- SMUD estimates it can meet most fleet customer charging needs with existing resources through 2030; limited capacity in West Sac (further study needed)
- Nearly all large truck and bus fleets have a dedicated fuel depot and expect to add charging near-term and H2 refueling in longer-term
- Many smaller fleets and owner-operators rely on public shared stations
- For "no depot" fleets and individual operators, ability to charge when loading/unloading is desired
- Sacramento will need 1,200 skilled labor for MD/HD ZEVs by 2027
- Interactive job training and a community support system is key for recruitment and retention

DRAFT Recommended Actions

- Support early adopter fleets
- Create an MD/HD “ecosystem” at Depot Park
- Increase access to shared ZEV charging/fueling stations
- Implement West Sacramento’s Plan for curbside MD/HD charging
- Take steps to bolster workforce development pipeline
- Support NorCal Megaregion ZEV Blueprint

A worker in a dark blue shirt and black pants is working on a piece of equipment in a factory setting. The equipment is a large, complex structure with various pipes and components. The worker is wearing safety glasses and gloves. The background shows a large industrial facility with high ceilings and windows. The overall scene is brightly lit, suggesting a clean and modern manufacturing environment.

Support Early Adopter Fleets (2024-2030)

1. Provide outreach and support to the 42 fleets that must comply with CARB's Advanced Clean Fleets (ACF) rule.
2. Support construction of planned hydrogen stations in Sacramento and West Sacramento.
3. Develop the workforce that the 42 ACF fleets need for charger installations and ZEV maintenance and repair.

Create an MD/HD Ecosystem at Depot Park

Near Term (2023-2025)

- Support deployment of depot-based charging stations
- Collaborate with existing fuel stations to add DC fast charging and hydrogen dispensing
- Explore potential for SMUD-branded charging network to include travel plazas and cardlock sites

Mid-term (2025-2029)

- Establish a ZEV apprenticeship program in partnership with the California Mobility Center
- Launch pilots: Loading dock charging and transactive energy

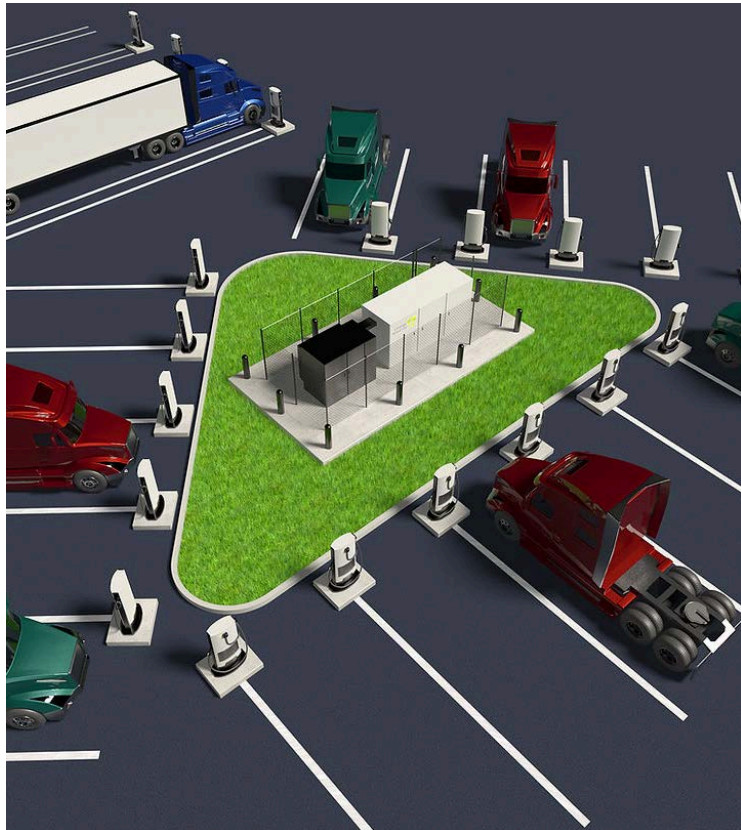
Long-term (2030 and beyond)

- Collaborate with the privately-owned landfill about producing hydrogen via gasification
- Upgrade Depot Park distribution grid to serve as a microgrid and offer load balancing



Support Access to Shared Stations (2023-2025)

1. Coordinate with local stations that offer truck fueling to add DC fast charging and/or hydrogen dispensing
2. Support planned deployment of EV charging hubs/plazas and Trucks-as-a Service offerings in the region
3. Coordinate with transit agencies to build shared infrastructure along existing bus/rail stops



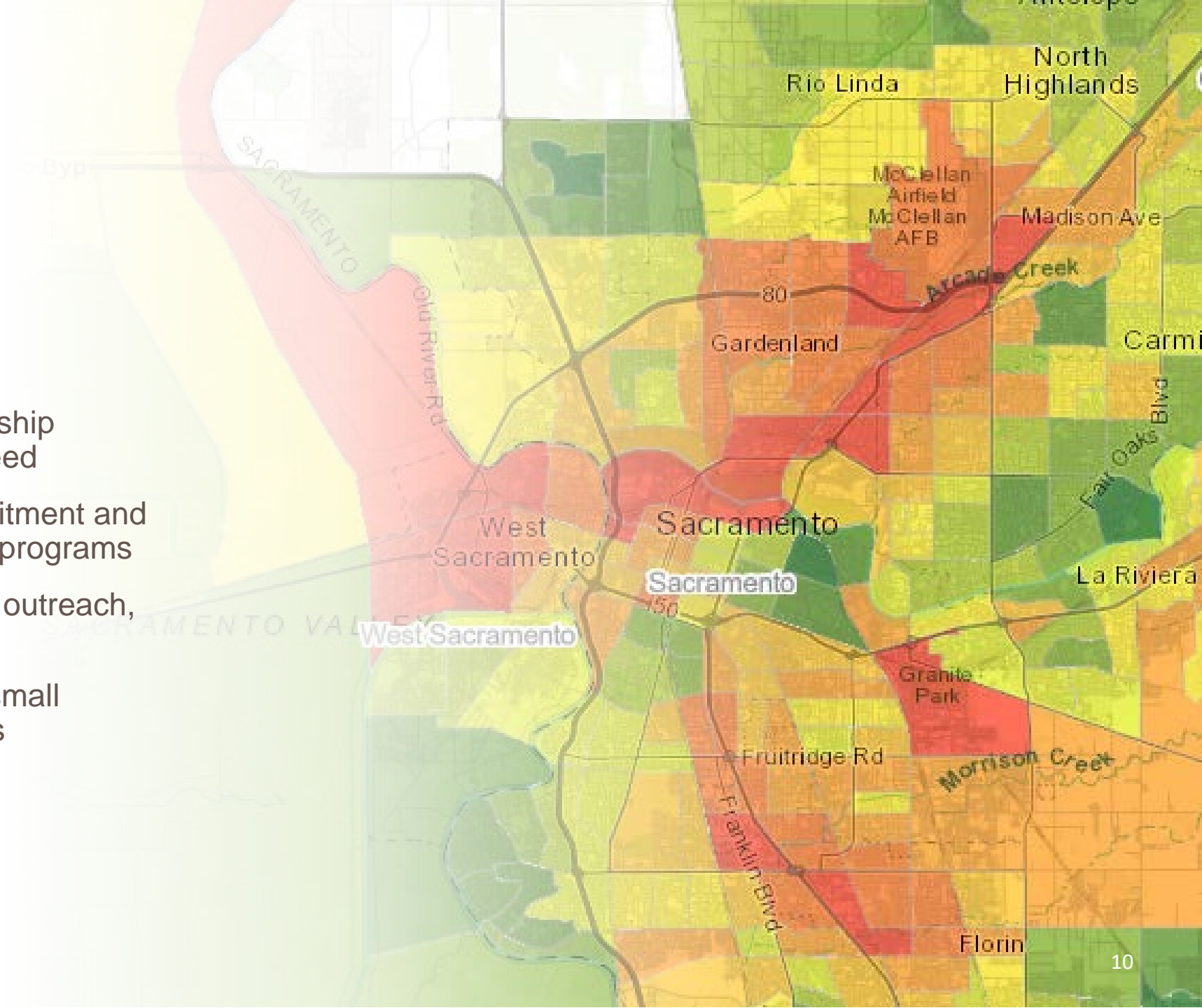
Area	Sum of MD/HD Vehicles	Unique Addresses
Elk Grove—Dino Drive/Kent St./Waterman Rd.	117	14
Gold River/Rancho Cordova-Pyrites Way	122	6
Sacramento/North Highlands—Auburn Blvd/Chippendale Dr.	113	12
Downtown Sacramento	497	65
North Sacramento/Natomas	346	52

Implement West Sacramento's Plan for Curbside MD/HD Charging (2024-2026)

1. Expand curbside L2 and DCFC to four additional locations near residential neighborhoods at which independent owner/operator vehicles are domiciled.
2. Share SMUD's experience with battery-integrated chargers with PG&E to encourage PG&E to help reduce interconnection costs in capacity-constrained locations.

Take steps to bolster workforce pipeline

- Scale EVITP and EV apprenticeship programs to meet anticipated need
- New strategies needed for recruitment and retention into workforce training programs
- New approaches needed for TE outreach, education and air quality
- Consider effect of transition on small businesses and owner operators



Support Development of NorCal Megaregion ZEV MD/HD Blueprint (2023-2030)

- Prioritize locations for grid improvements
- Forge structured public-private partnerships to bring innovative charging solutions
- Build common tools for grid analysis



Thank you

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