



TAKECHARGE

ELECTRIC VEHICLES IN THE SACRAMENTO REGION



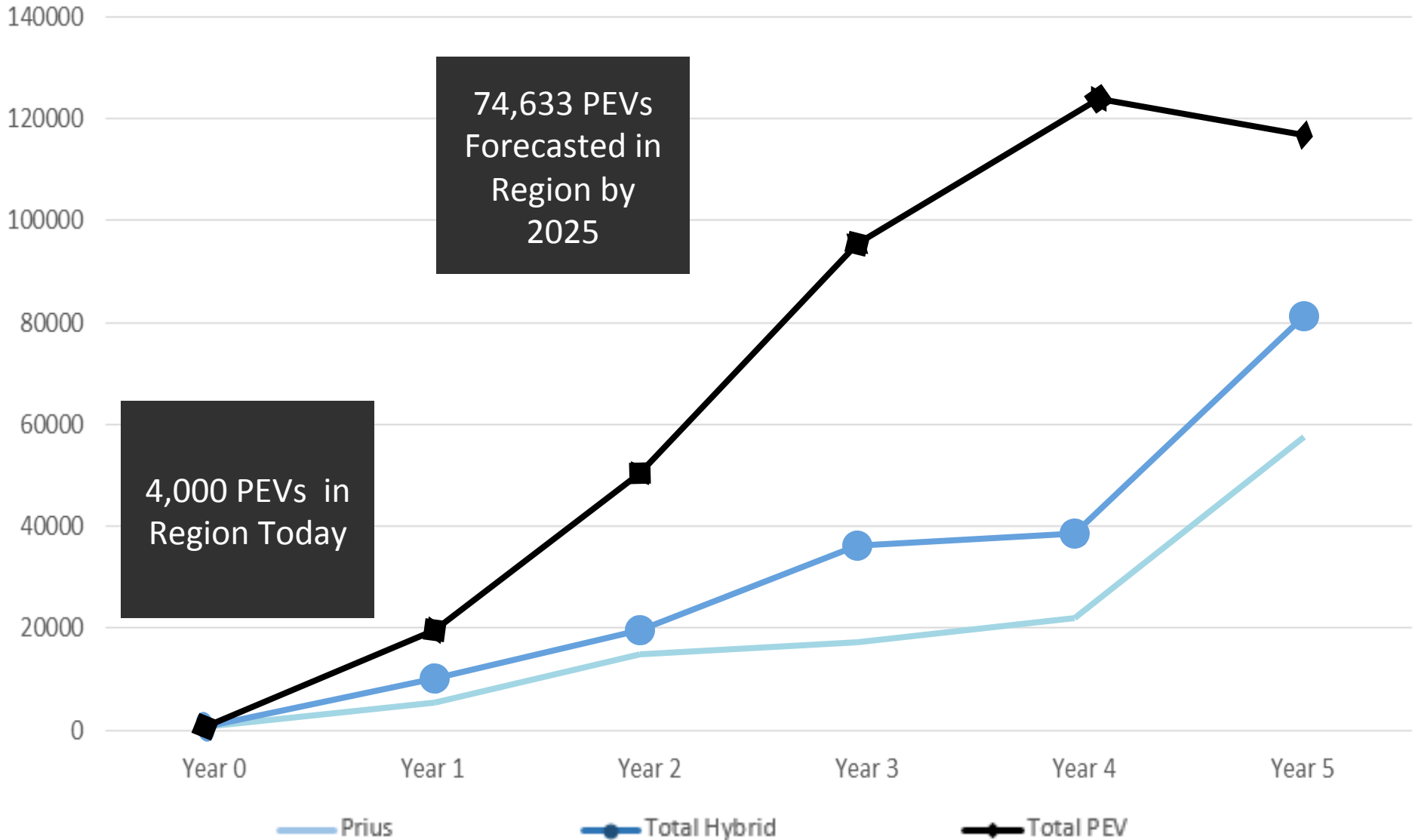
SACRAMENTO METROPOLITAN



VALLEY VISION



Nationally, Volt and PEV Annual Sales Lead Prius and HEV Sales During First 2 Years of Rollout

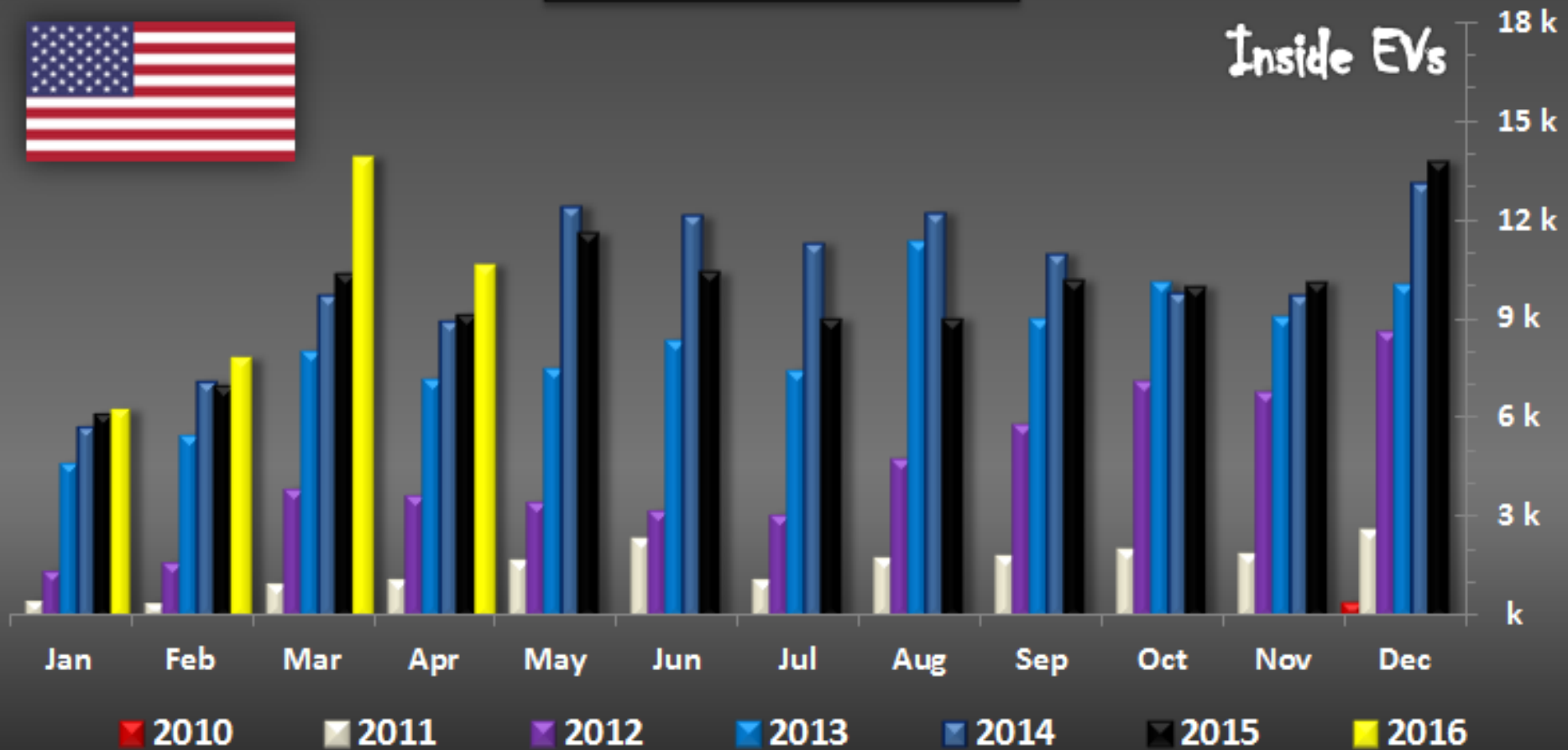


2016 PEV Sales in the U.S.



U.S. Plug-In Car Sales

Inside EVs



Who Are PEV Drivers?

Common Driver Demographics

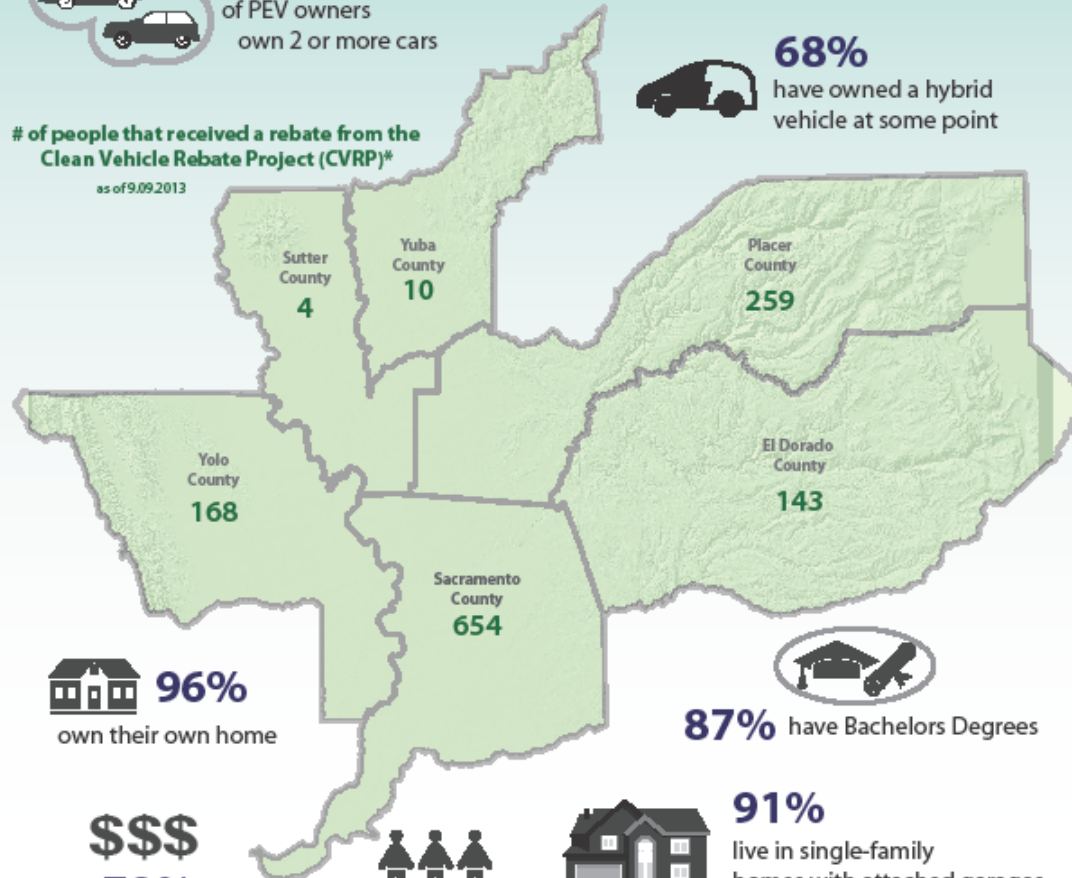


95%
of PEV owners
own 2 or more cars



68%
have owned a hybrid
vehicle at some point

of people that received a rebate from the
Clean Vehicle Rebate Project (CVRP)*
as of 9/09/2013



96%
own their own home



87% have Bachelors Degrees

\$\$\$
79%

have household incomes
≥ \$100,000



93%
live in a multi-
person household



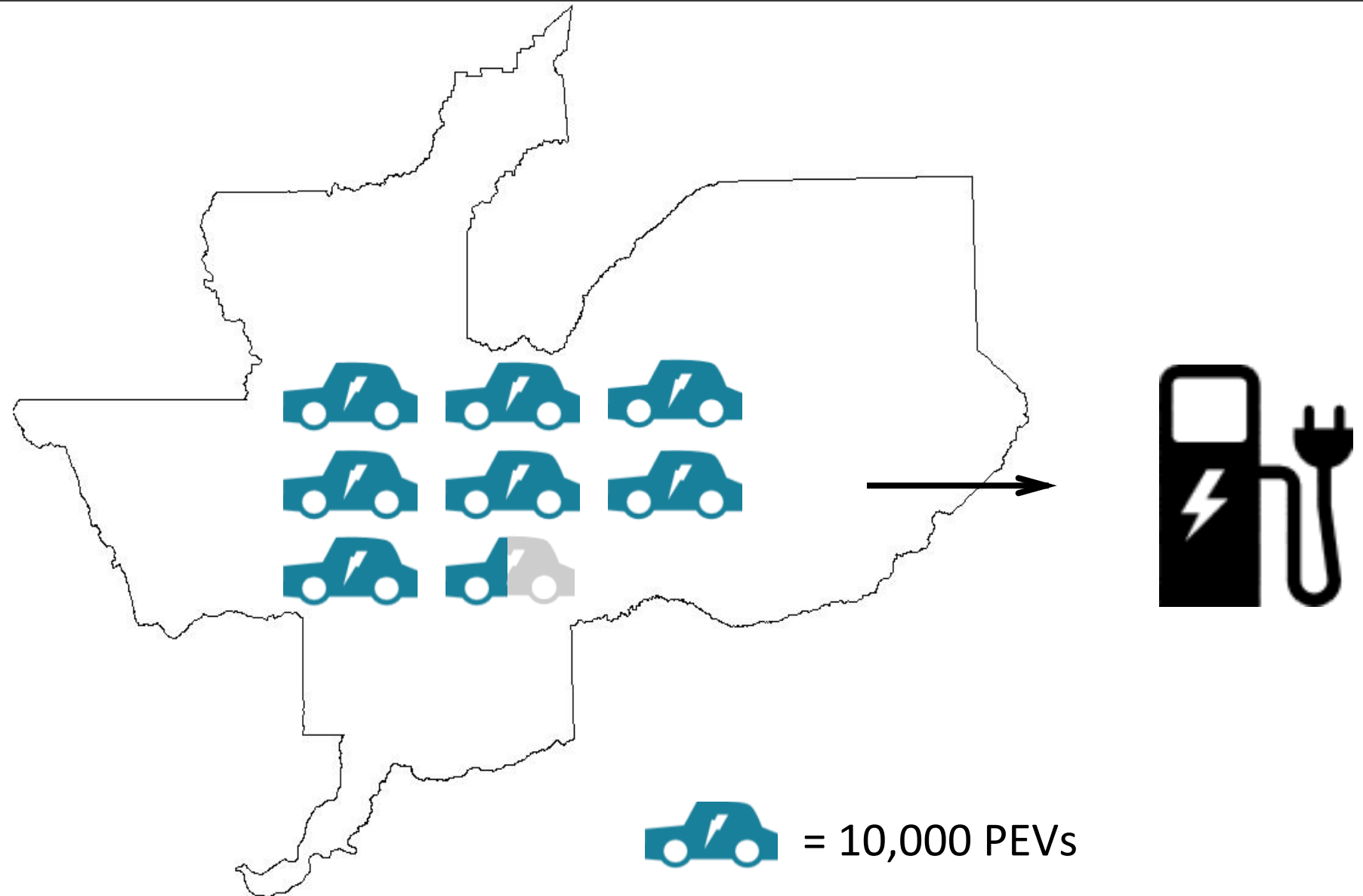
91%
live in single-family
homes with attached garages



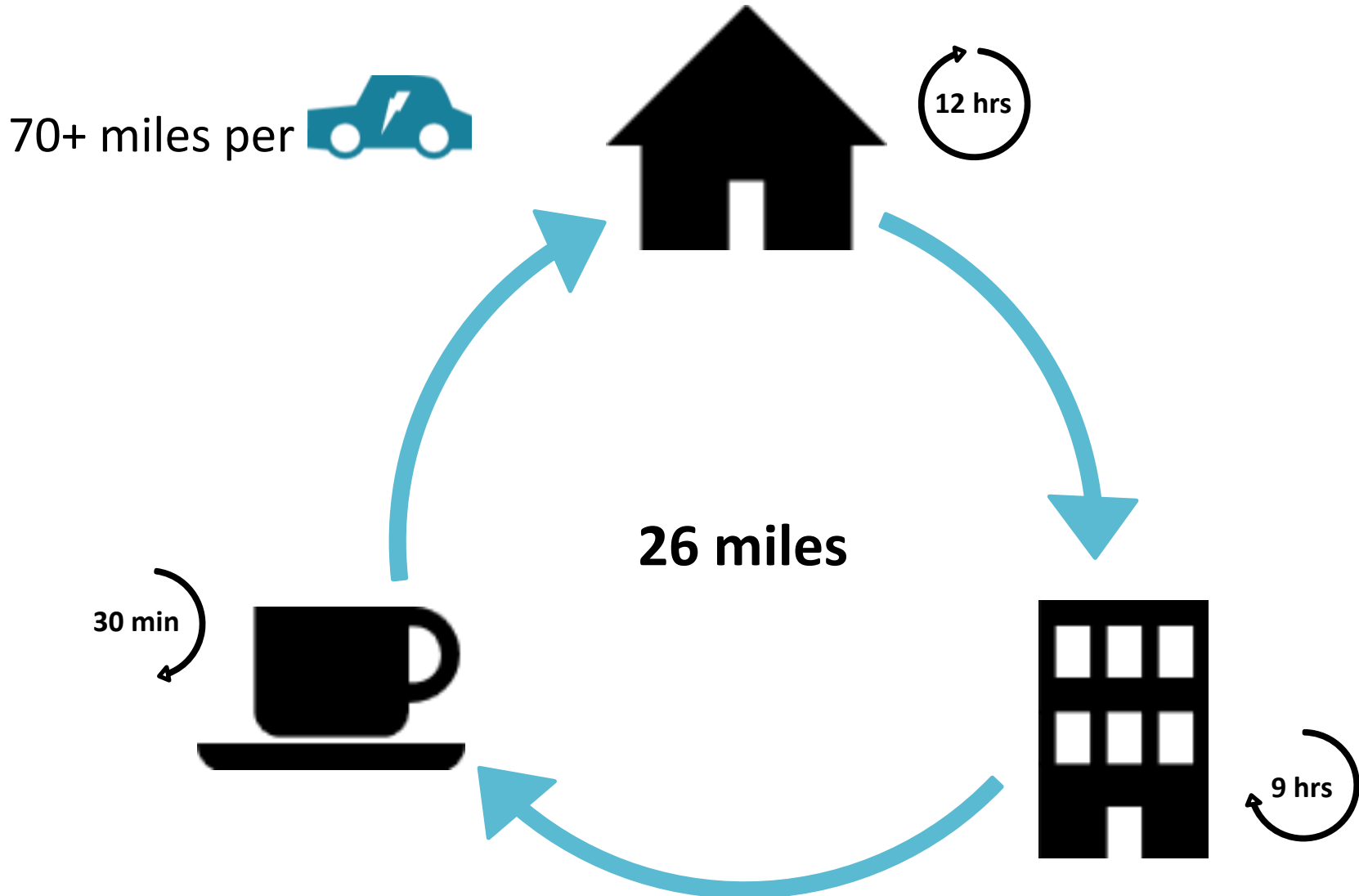
42% have solar panels on their
homes

*The CVRP provides incentives of up to \$2,500 for the purchase or lease of zero-emission and plug-in hybrid electric vehicles. The CVRP is funded by the CA Environmental Protection Agency's Air Resources Board.

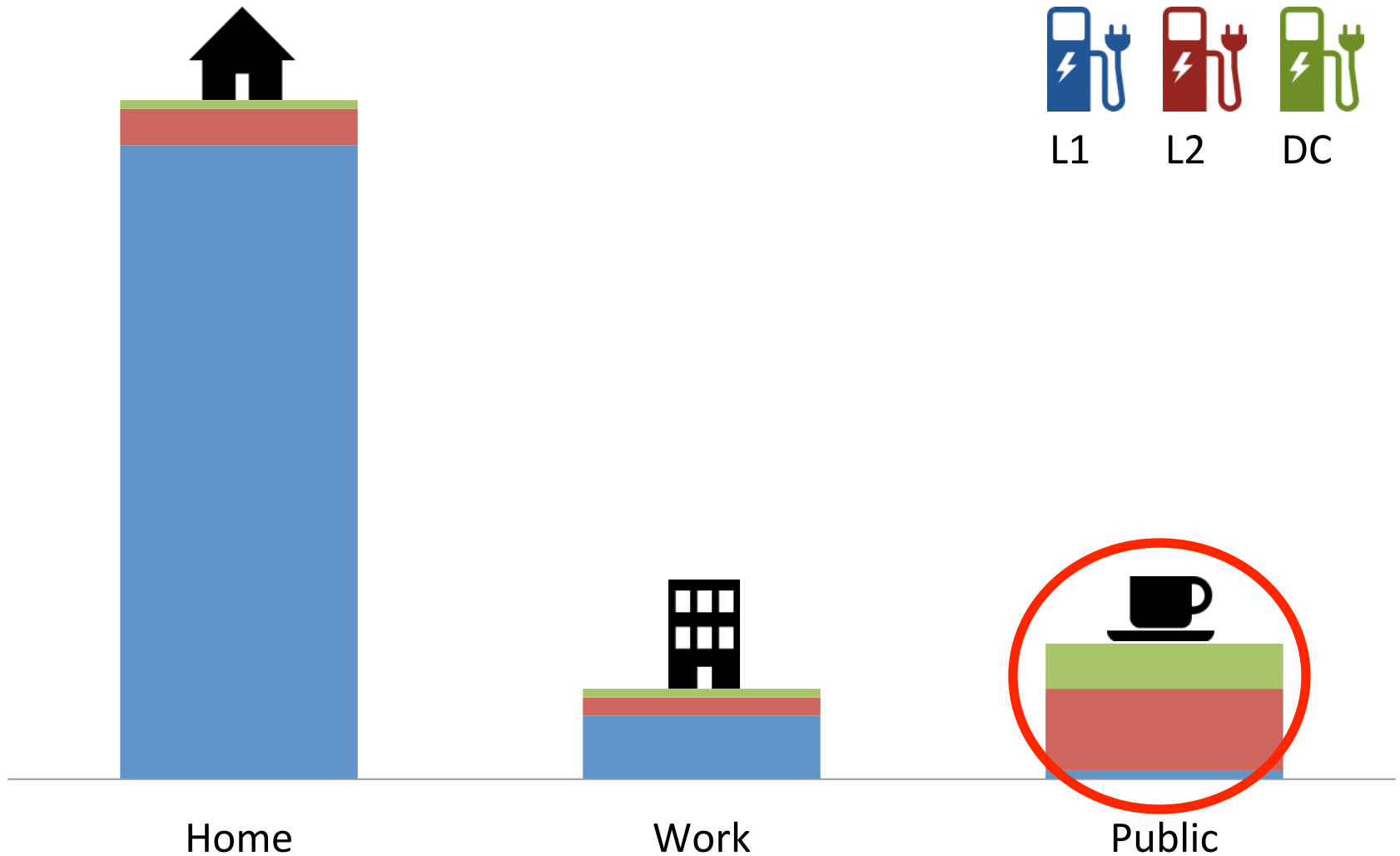
Infrastructure Forecast



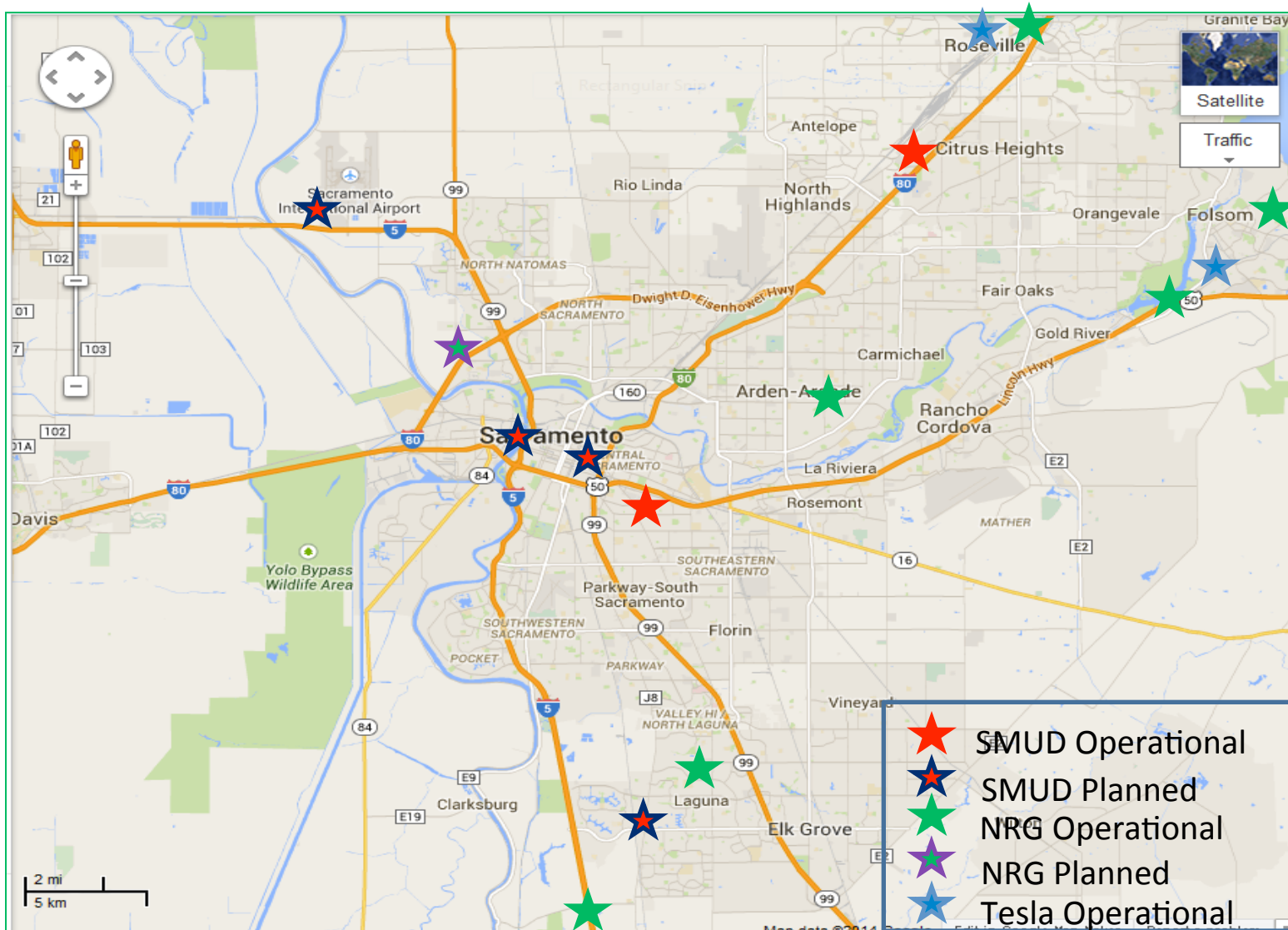
Driving Behavior Influences Charging Behavior



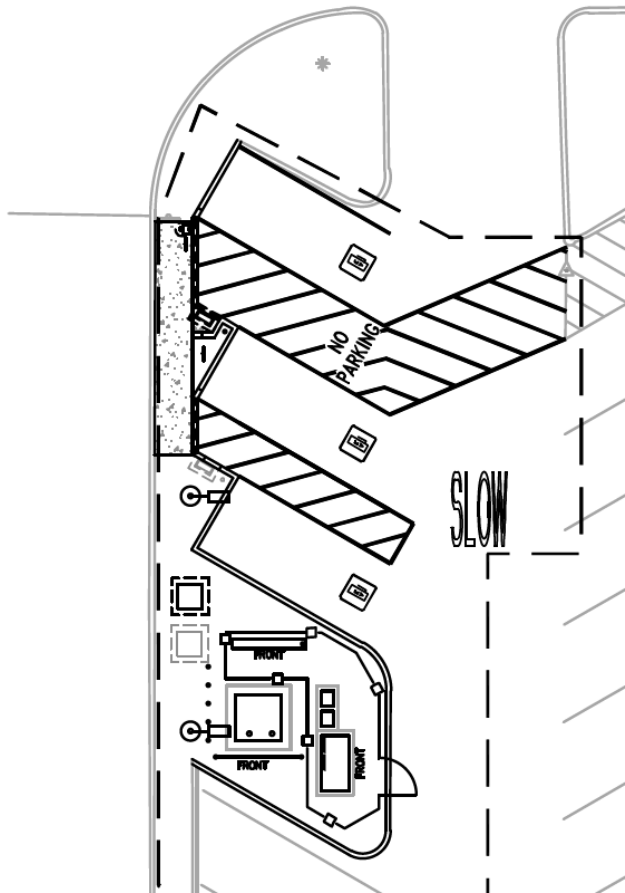
Most Charging will be Low-Voltage Charging at Home



Locations of DC Fast Chargers in Sacramento County



Standard SMUD DC Fast Charger Design / Business Model



- Stock design sized for two DC Fast Chargers and one Level 2 EVSE Units
 - Only one DCFC and 1 L2 installed at the onset
- Designs also vary by location
 - SMUD HQ designed for one standalone DCFC
 - Amtrak Sac Valley Station designed for two standalone DC Fast Chargers
- Forward looking toward ADA Compliance
- 23¢/kWh flat rate fee
 - 21¢/kWh for electricity, 2¢ City or County Tax
- Greenlots Back Office Network / Customer Interface
 - Credit Card, RFID, Cell Phone App, Pay by Phone payment capability
 - OCPP System (multiple hardware makes being used)

Lessons learned from our original activity went into our SACOG-SMUD CEC Proposal

- New Business Process Development
 - Outsourced customer service model
 - New EV flat commercial rate (No TOU or demand charge elements)
 - Cash flow / Information management model
 - Community tax collection for direct utility electricity sales
- Upfront Land Negotiation/Design Efforts are Laborious
 - Timelines average over a year and are equal to construction costs
 - Property owners / managers are generally unengaged/disinterested
- Disability Access trumps utility service proximity
- Hardware selection for higher temperatures was good
- Despite high reliability some operational gaps have occurred
- SMUD risk aversion / security cameras have been cost drivers

Additional Lessons Learned from current effort

- Earlier SMUD activity had already solved a lot of organization issues
 - Business approach and processes, Rates, Taxes
 - Hardware selection
- Property negotiation screening process needs to be improved
 - Strategic agreements with large multi-site property owners
 - Better screening processes needed
 - Take it or leave it negotiation screening tactics
 - Figure out a revenue stream for the property owner
- Focus siting activities on utility property or with single entity owners
 - Utility property requires no negotiations
 - Multi-entity property ownership complicates/slows negotiations
 - Weingarten's and Simon Properties are better models
 - Best model is where a business and property owner are one in the same
- Incorporating charging into new building / remodeling construction can be equally slow
 - Dependent on the rest of the construction activities
 - Less overall headaches and lower cost