

## DOCKETED

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# Sacramento Municipal Utility District DC Fast Charging Deployment Status and Lessons Learned

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Bill Boyce

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April 25, 2016

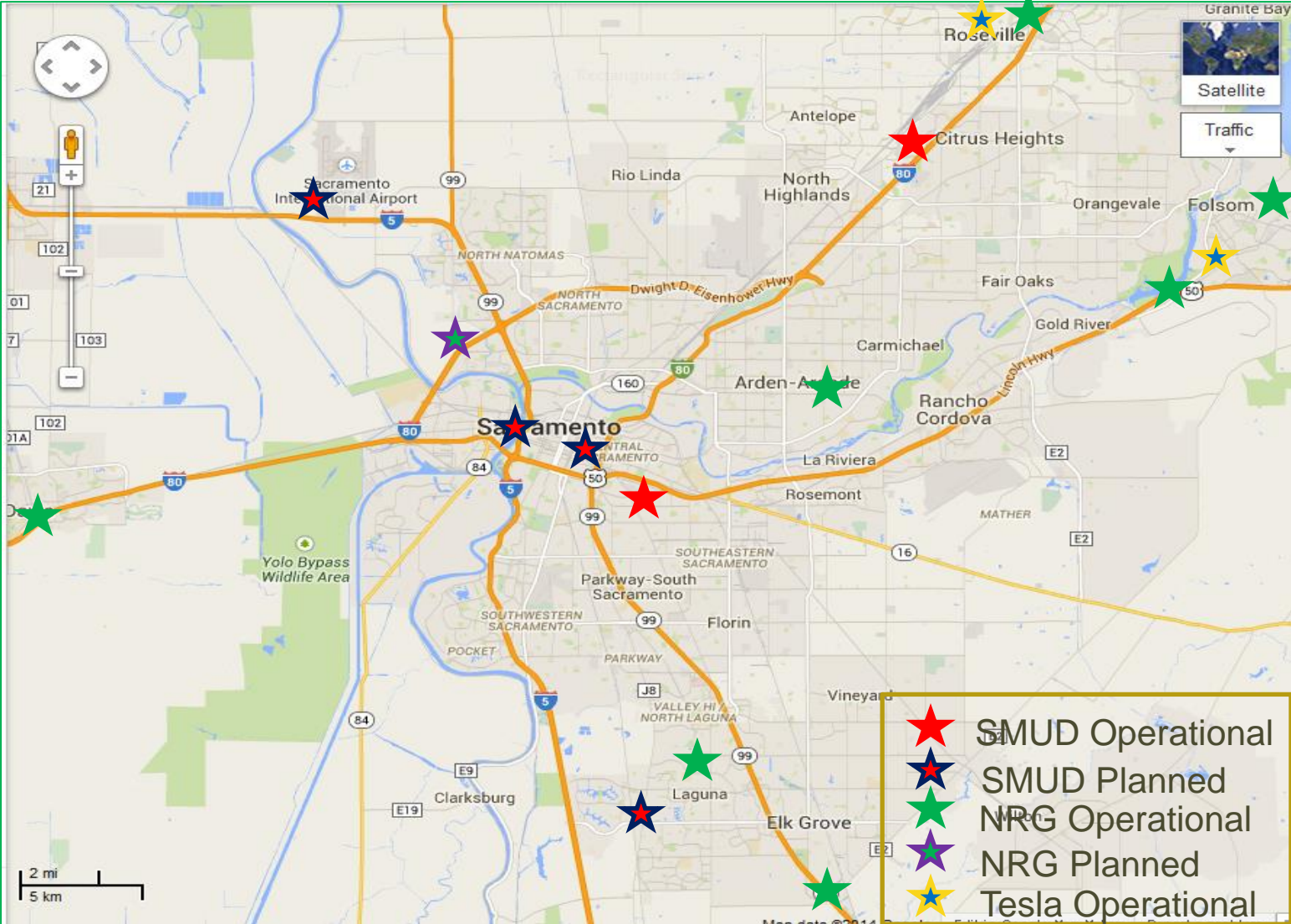
Powering forward. Together.



# SMUD DC Fast Charging Activities were initiated independently back in 2013

- Originally started in response to CPUC-NRG Settlement where POU service territories were not included for DC Fast Charging deployment
- SMUD internally funded our original DC Fast Charger deployments using SMUD AB32 Credit auction revenue
- Original owner operator model chosen for maximum project learning
- CEC funding with SACOG was pursued in 2014 to add to existing plans

# Map of Sacramento DC Fast Chargers



# SMUD DC Fast Charger Sites



SMUD Headquarter  
Operational Since March 2014



Citrus Heights Raley's  
Operational since June 2015

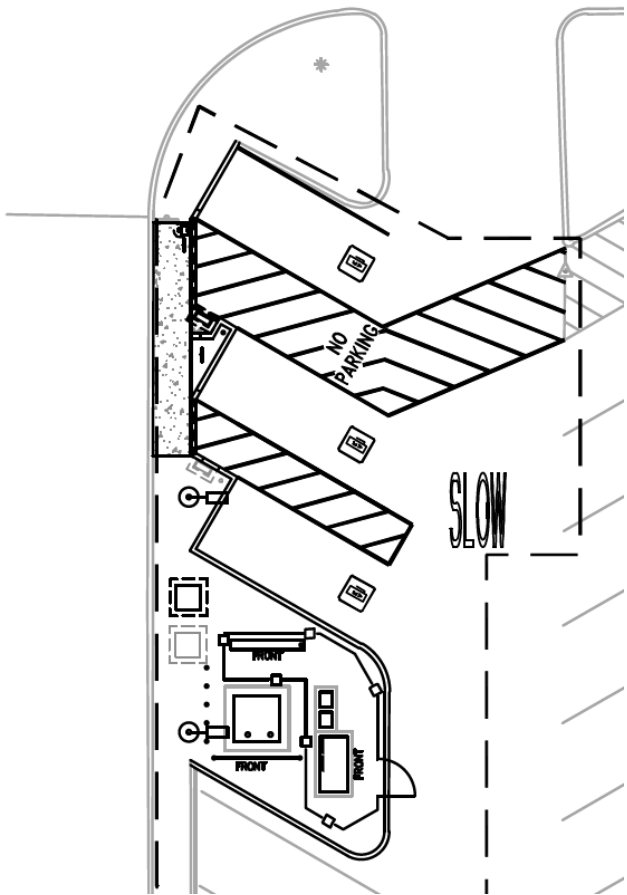


Airport Under Construction  
Cell Phone Lot (4/14/16)



Amtrak Sac Valley Station  
Site Pre Construction

# 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

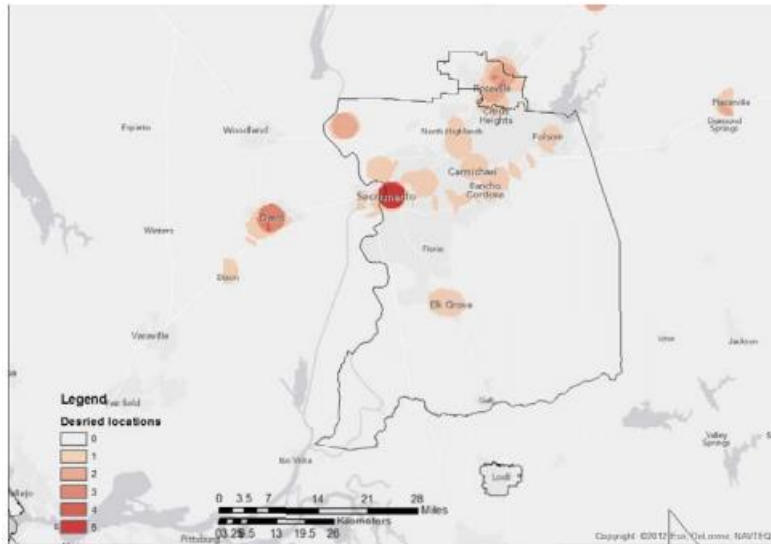
- New Business Process Development
  - Outsourced customer service model
  - New EV flat commercial rate (No TOU or demand charge elements)
  - Cash flow / Information management model
  - Community tax collection for direct utility electricity sales
- Upfront Land Negotiation/Design Efforts are Laborious
  - 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

# SACOG led the local team for the CEC Proposal



## TAKECHARGE II: Infrastructure Roadmap

TakeChargeSac.org



- Sites tied into SACOG Take Charge Sac EV Readiness Plan
- Siting analysis performed by UC Davis
- SACOG brought in other community partners
  - Sacramento Food Coop
  - Nugget Markets
- SMUD is the major subrecipient under the effort



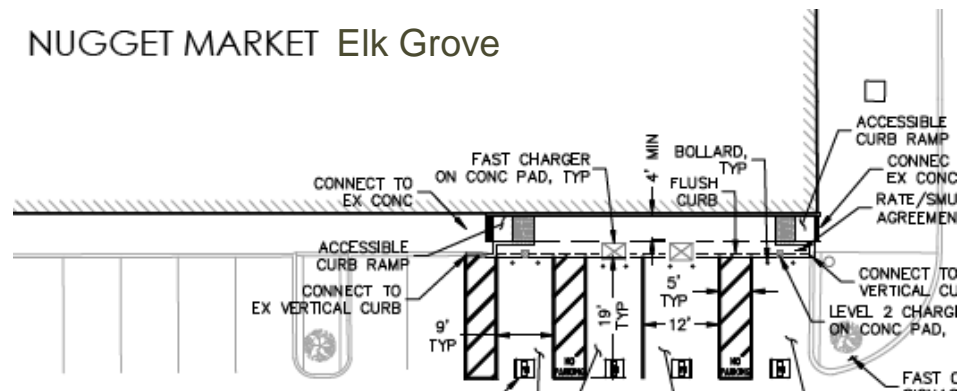
# Status on existing SACOG CEC Effort

- Original Scope for 3 new stations truncated to 2
  - Property negotiation for the third site discontinued after 2 years
    - Assessment of two other adjacent sites came to no fruition
- 2 New Sites include the Sacramento Food Coop and Elk Grove Nugget Market



Sac Food Coop Level 2's Installed

- Sacramento Food Coop built into existing facility remodeling
  - Construction Ongoing
- Elk Grove Nugget site recently completed property agreement and construction will start late Q2 2016



# 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

# Summary

- SMUD has supported Public DC Fast Charging since 2012
- Basic DC Fast Charging emerging for Sacramento
- Business approach and lessons learned shared with many entities
- Property negotiations approaches need improvement
- Drivers seem willing to pay for DC Fast Charging and Level 2 if costs are reasonable