

ELECTRIC VEHICLE PLANNING IN THE CENTRAL VALLEY

SAN JOAQUIN VALLEY POLICY CONFERENCE
APRIL 26, 2023

DAVE TOKARSKI
DKS ASSOCIATES
DMT@DKSASSOCIATES.COM

JIM DAMKOWITCH
DKS ASSOCIATES
JIM.DAMKOWITCH@DKSASSOCIATES.COM



AGENDA

1. Introduction

2. Project Spotlights

- SJCOCG, Madera County, Central Coast

3. Funding

4. Grid Resiliency

5. Working with Utilities

6. Q&A



ELECTROMOBILITY SERVICES

DKS



Fleet Electrification

Comprehensive vehicle and charging infrastructure planning to convert light, medium, and heavy-duty vehicles to electric propulsion.



Transit Electrification

Bus electrification planning including battery charging infrastructure alternatives, electrical substation feasibility, technology planning, operations and environmental review.



EV Charging Infrastructure Planning

Strategic selection of sites for fleet, workplace, residential, public right-of-way, destination, and shared mobility EV charging based on travel demand expertise.



EV Charging Infrastructure Installation Design

Infrastructure design for Level 2, DC Fast, and high-power chargers including cost estimation, construction documentation, coordination with local utilities and EV charging networks.

VALLEY MPO EV PLANNING EFFORTS

SJCOG Alternative Fuels Vision Plan (AFVP)

- Currently Underway by DKS Associates led Team



Madera County EV Readiness Plan

- Currently Underway by DKS Associates led Team



MCAG EV Readiness Plan

- Recently Awarded to Willdan Group



Fresno COG EV Readiness Plan

- Completed January 2021



VALLEY MPO EV PLANNING EFFORTS

KCAG EV Readiness Plan

- Completed April 2020 by AECOM/ Energeia



TCAG EV Implementation Study

- Completed August 2019 by Willdan Group



Kern COG EV Charging Station Blueprint

- Completed May 2019 by Center for Sustainable Energy

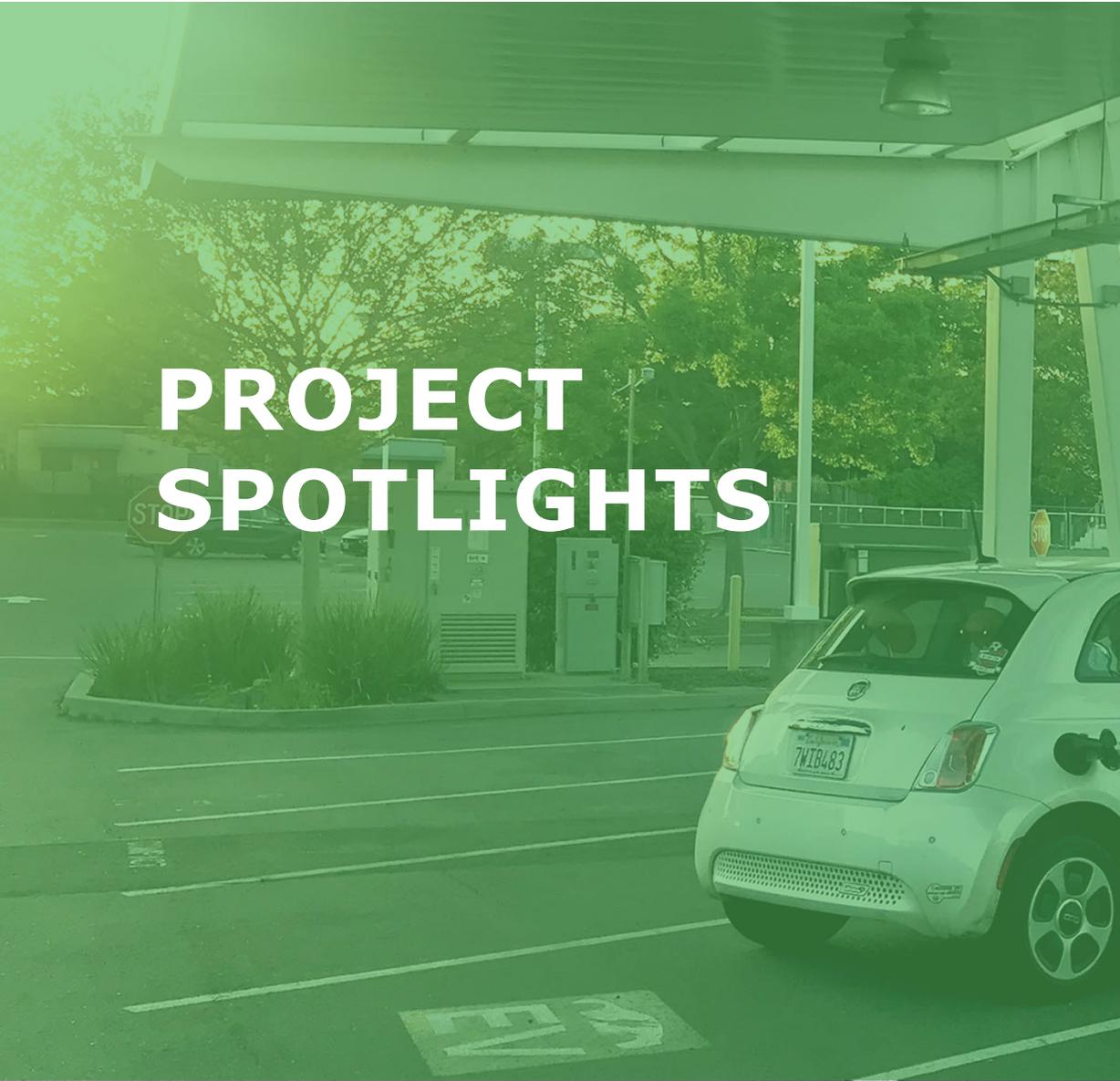


StanCOG EV Infrastructure Study

- Completed March 2022



PROJECT SPOTLIGHTS





SJCOG ALTERNATIVE FUELS VISION PLAN (AFVP)

SAN JOAQUIN COUNTY ALTERNATIVE FUELS VISION PLAN

Project Goals

- Assess Existing ZEV infrastructure
- Identify Challenges, gaps and barriers
- Identify equity issues
- Recommend infrastructure improvements, investments, policies, and implementation strategies
- Identify funding opportunities

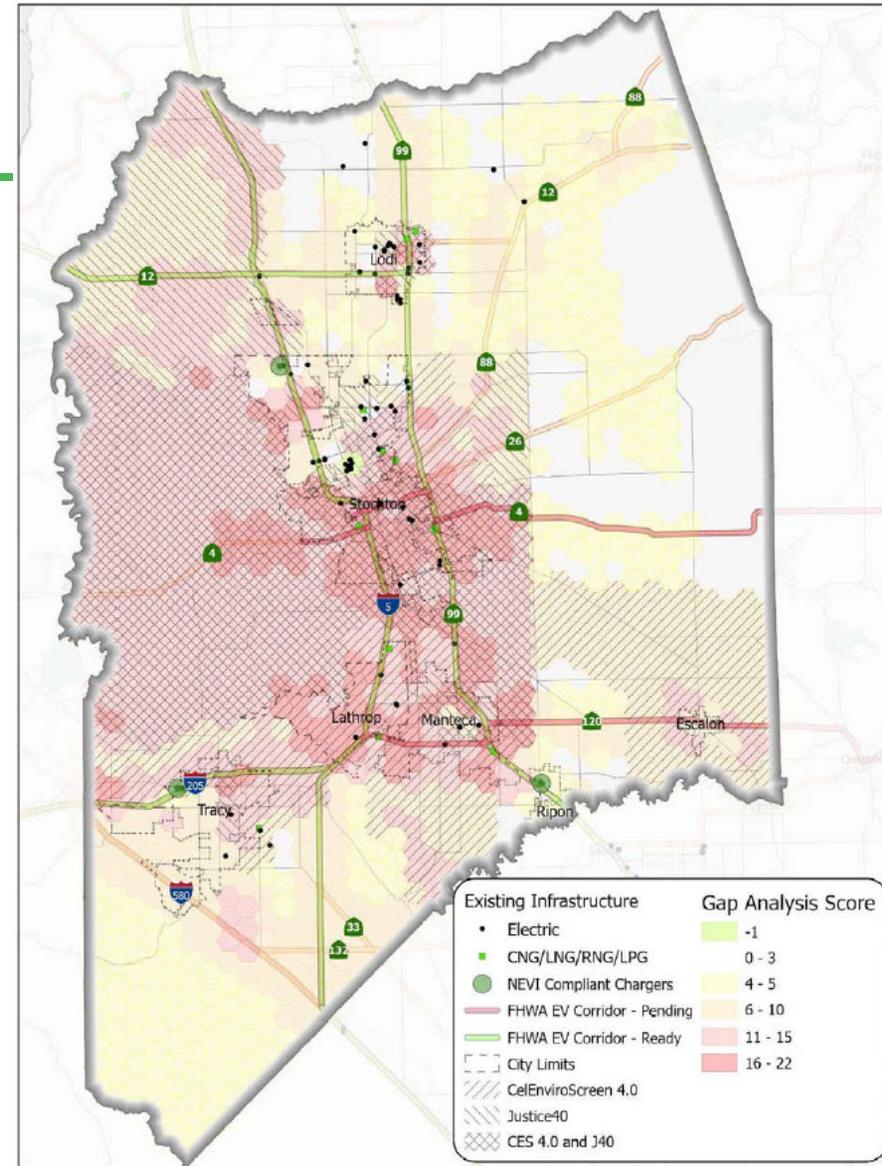


SJCOG AFVP



Gap Analysis Based On:

- Existing Infrastructure
- Disadvantaged Communities
 - Cal EnviroScreen
 - Justice40
- Existing/ potential demographics:
 - Multi-Unit Dwellings
 - Employment
- Existing/ Forecasted Traffic Volumes
- FHWA EV Corridors

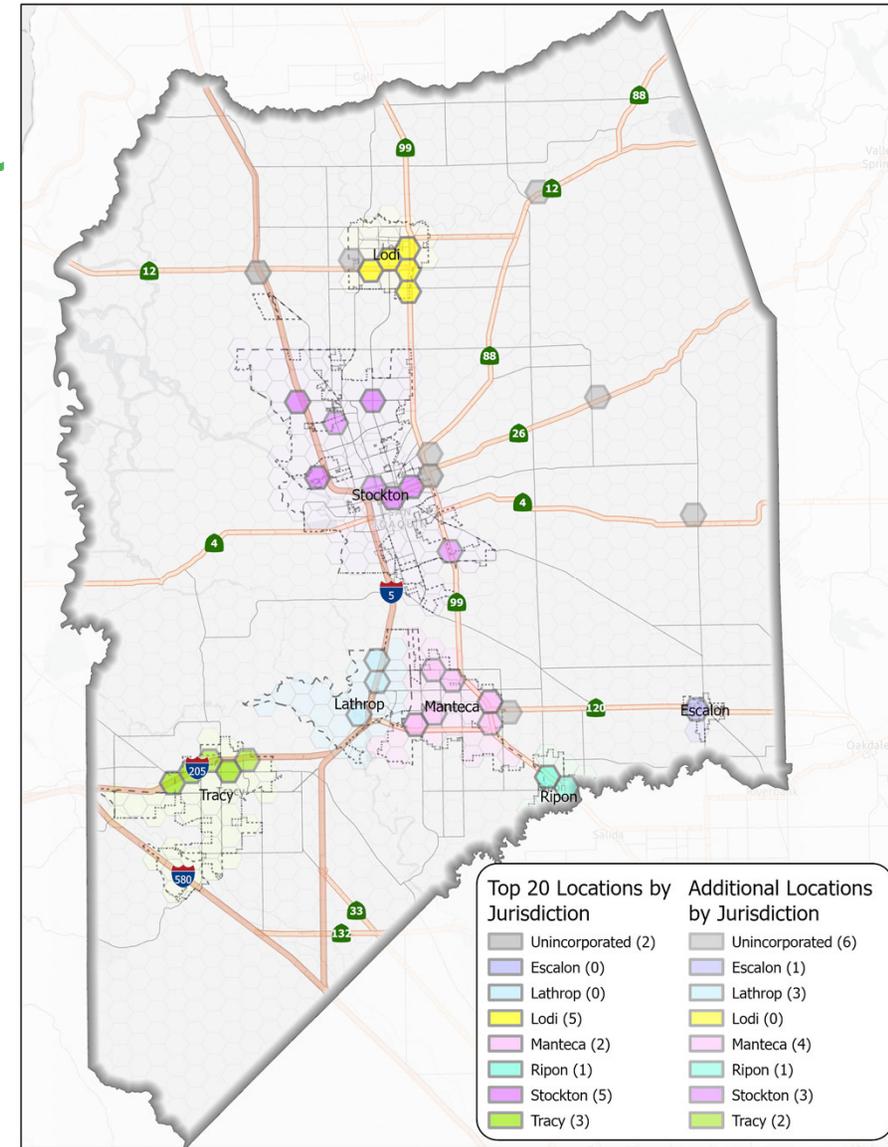


SJCOG AFVP



Recommended Areas for Chargers

- Recommended Locations by one square mile hexagon
 - 8 in Stockton
 - 6 in Manteca
 - 5 in Tracy
 - 5 in Lodi
 - 3 in Lathrop
 - 2 in Ripon
 - 1 in Escalon
 - 7 in Unincorporated County
 - > 1 in Linden
 - > 1 in Farmington
 - > 1 in Lockeford



Siting Analysis

- Scoring/ points example data sheet



County Rank	1	2	3	4	5
Grid	AA-36	R-24	T-13	S-23	R-19
City	Ripon	Stockton	Lodi	Stockton	Stockton
Total Points (Equity)	1,225	1,200	1,033	1,007	903
Total Points (Light Duty)	1,082	1,052	901	870	744
Total Points (Medium/Heavy Duty)	988	992	836	829	739
Total Daily Volume (Gas Stations)	12,537	1,544	2,795	624	12,010
Total Daily Volume (Interchanges)	139,830	252,007	223,773	195,555	0
Level 2 Chargers within 1 mile	2	0	2	22	45
DCFC Chargers within 1 mile	4	0	2	0	0
In Justice40 Area	No	Yes	Yes	Yes	Yes
In CalEnviroScreen 4.0 Area	No	Yes	No	Yes	No
Full Serve Restaurants within 1 mile	11	12	9	17	29
Fast Food Restaurants within 1 mile	8	5	5	1	7
Grocery/ Super-Center within 1 mile	1	5	0	14	7
Other Shopping within 1 mile	5	6	5	13	14
MUD Units within 1 mile	0	31	187	215	1,238
Percent of Gas Station Dwell Times Less than 20 minutes	72%	88%	82%	90%	47%
Percent of Interchange Dwell Times Less than 20 minutes	81%	86%	87%	88%	-
Percent of Gas Station Dwell Times Greater than 60 minutes	14%	7%	10%	5%	13%
Percent of Interchange Dwell Times Greater than 60 minutes	44%	46%	49%	43%	-
Percent of Drivers with income less than \$25k	14%	27%	19%	29%	20%
Percent of Drivers who live in MUD housing	8%	15%	12%	15%	11%



**MADERA COUNTY ZERO EMISSION VEHICLE
READINESS AND IMPLEMENTATION PLAN**
MADERA COUNTY TRANSPORTATION COMMISSION

MARCH 2023

**MADERA
COUNTY
ZEV
READINESS
PLAN**

MADERA ZEV READINESS PLAN

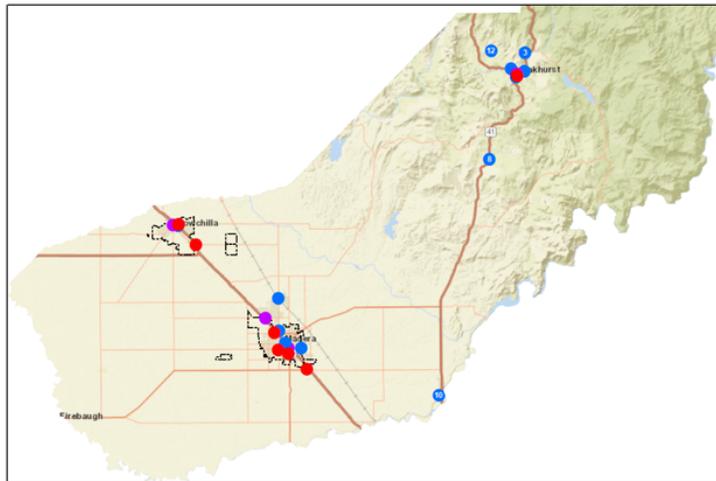


Study Objectives:

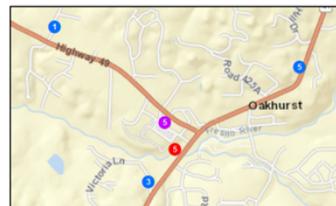
- Assess existing ZEV infrastructure
- Identify key challenges and barriers
- Recommending infrastructure improvements
- Identify implementation strategies
- Provide stakeholders with tools



MADERA ZEV READINESS PLAN



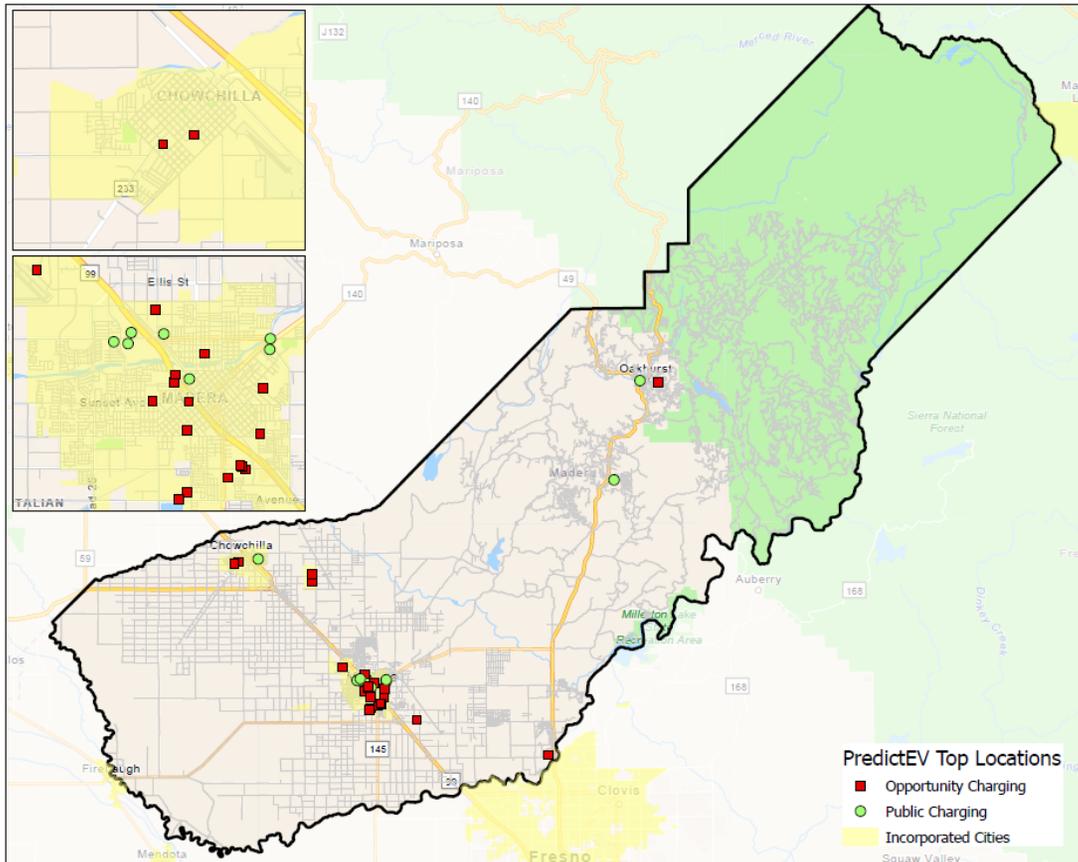
Existing Stations - Charge Level
● DCFC ● L2 ● L2 + DCFC



Existing Conditions

- 127 total EV chargers in Madera County:
 - 63 in City of Madera
 - 14 in City of Chowchilla
 - 30 in and around town of Oakhurst
 - 8 in and around town of Coarsgold
 - 12 in and around Ahwahnee
 - 300+ additional chargers within 5 miles of Madera County
 - 238 in northern Fresno County

MADERA ZEV READINESS PLAN



Future needs

- ZEV adoption
- Legislation driving the ZEV transition
- PredictEV for source of “Big Data” and predicting charging station needs
- Charging station locations requested by the public
- Gaps, barriers and how to address them

MADERA ZEV READINESS PLAN



Implementation

- Recommended actions such as:
 - Creating a regional planning group
 - Community engagement
 - Adopting ZEV building codes
- Strategies for ZEV implementation:
 - Public
 - Workplace
 - Multifamily housing
 - Charging/H2 hubs
- Summary of funding opportunities



CENTRAL COAST ZERO EMISSION VEHICLE STRATEGY



PREPARED FOR:



428 J STREET, SUITE 340 • SACRAMENTO, CA 95814 • 916.368.2000 • DKSASSOCIATES.COM

Unique Characteristics

- Multi-MPO, Multi-County,
- Focus on interregional travel in unincorporated areas along state highways
- Focus on DC Fast charging



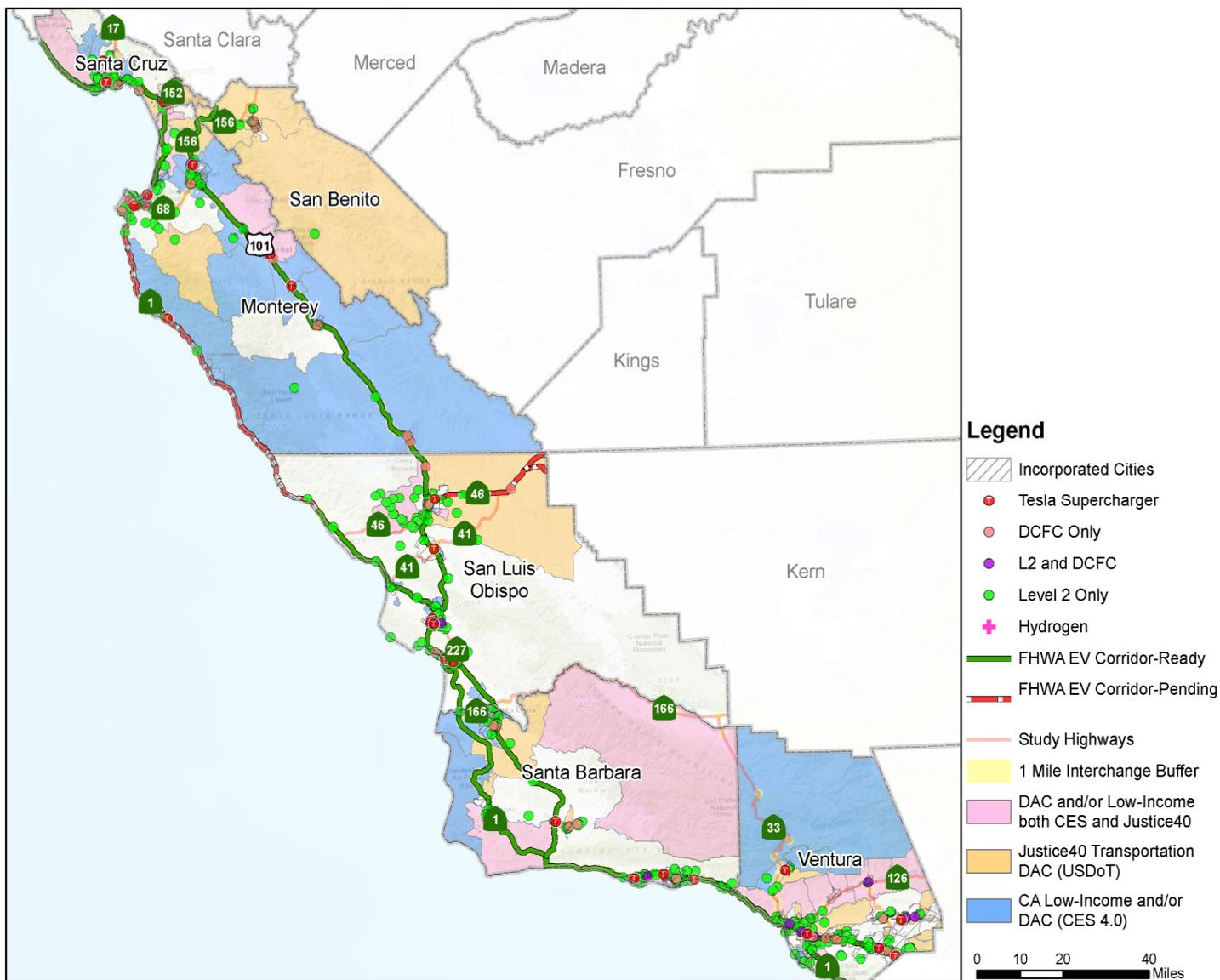
Legend

- 1 Mile Interchange Buffer
- Incorporated Cities
- Study Highways

0 10 20 40 Miles

Existing Conditions

- ~**2,095 chargers** study area wide
 - Includes cities (Incorporated areas)
 - Includes Level 2 and DC Fast Chargers
- Only **47 public DC Fast** chargers in **unincorporated areas** (the focus of this study)



Central Coast ZEV Strategy

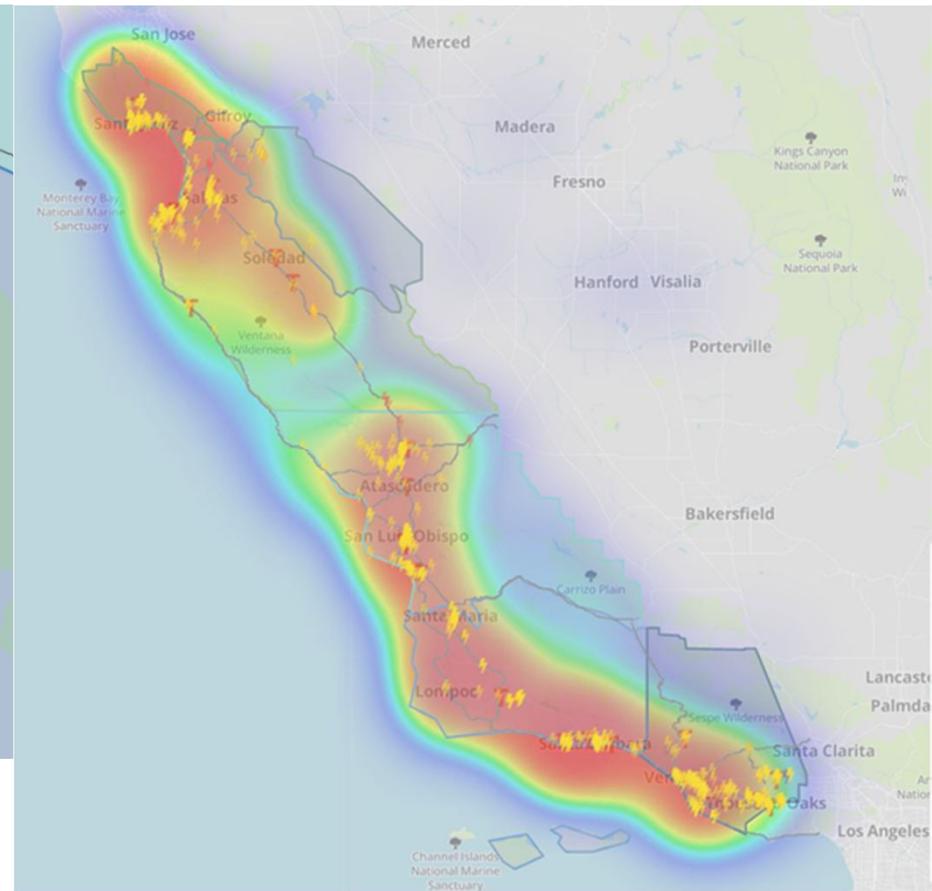


Social Pinpoint

A screenshot of a social media comment form overlaid on a map. The form is titled "Leave us your comment" and includes the following fields and options:

- Comment* (Required)**: A large text area for the comment.
- First name**: A text input field.
- Last name**: A text input field.
- Phone**: A text input field labeled "Phone Number".
- Zip code**: A text input field.
- Attach an optional photo**: A camera icon and an "Attach" button. Below it, it says "Supports png, jpg/jpeg, gif and heic".
- Your email* (Required)**: A text input field labeled "Email".
- Remember
- I agree my comment will be used as indicated in the [terms and conditions](#)* (Required)
- Add Comment**: A green button.

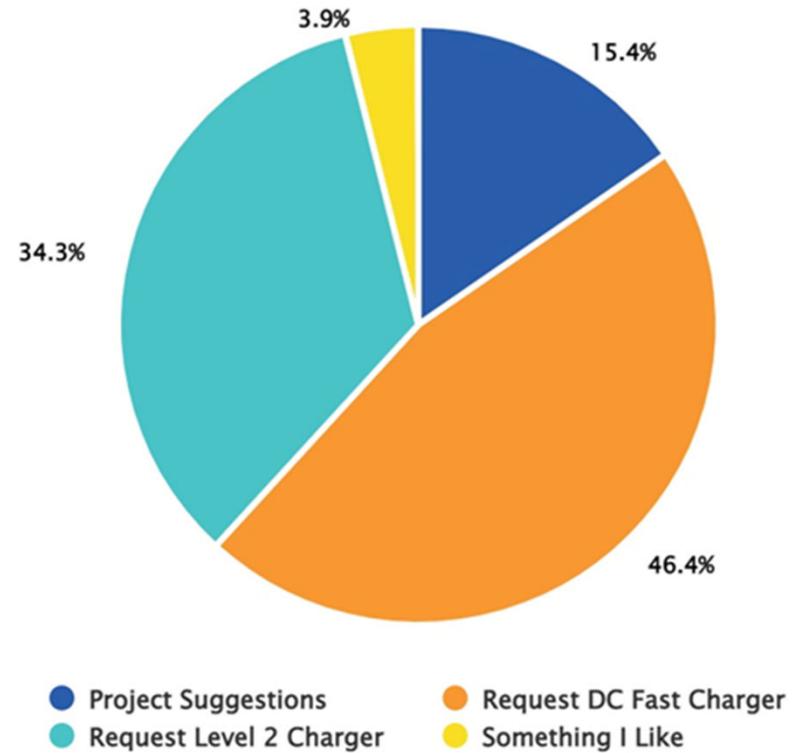
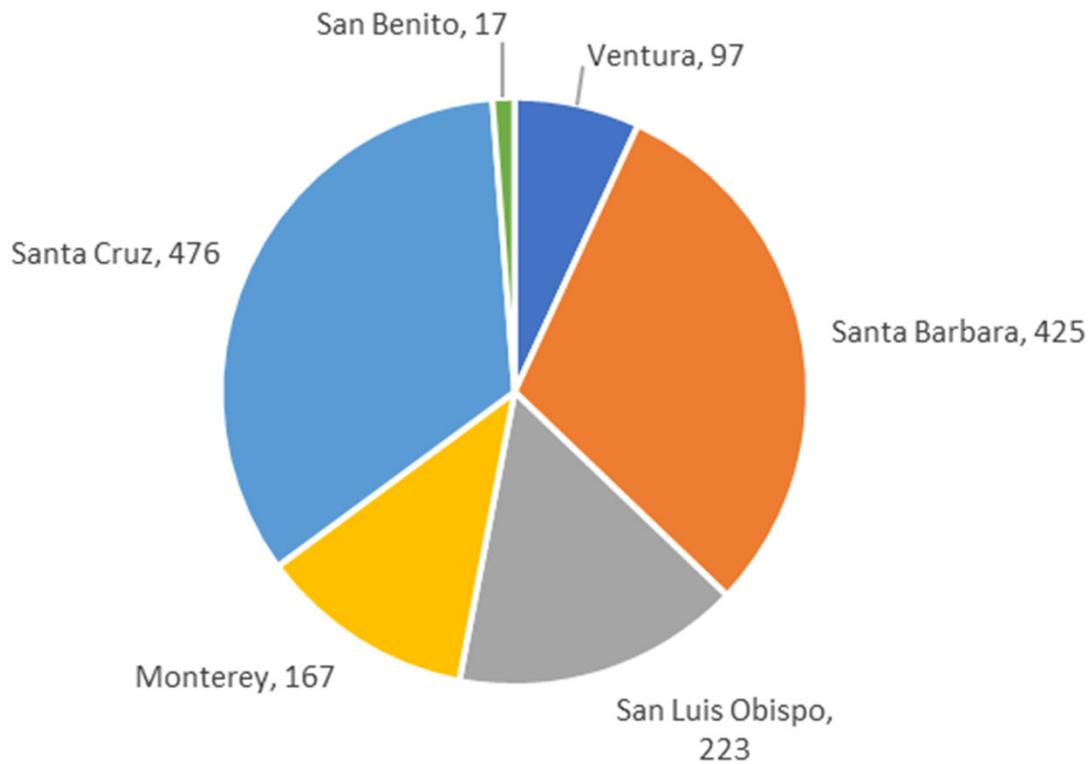
The background map shows a coastal area with labels for Pismo Beach, Arroyo Grande, Oceano, and Ocean Dunes State Vehicular Recreation Area.



Central Coast ZEV Strategy



Comments



CENTRAL COAST ZEV STRATEGY



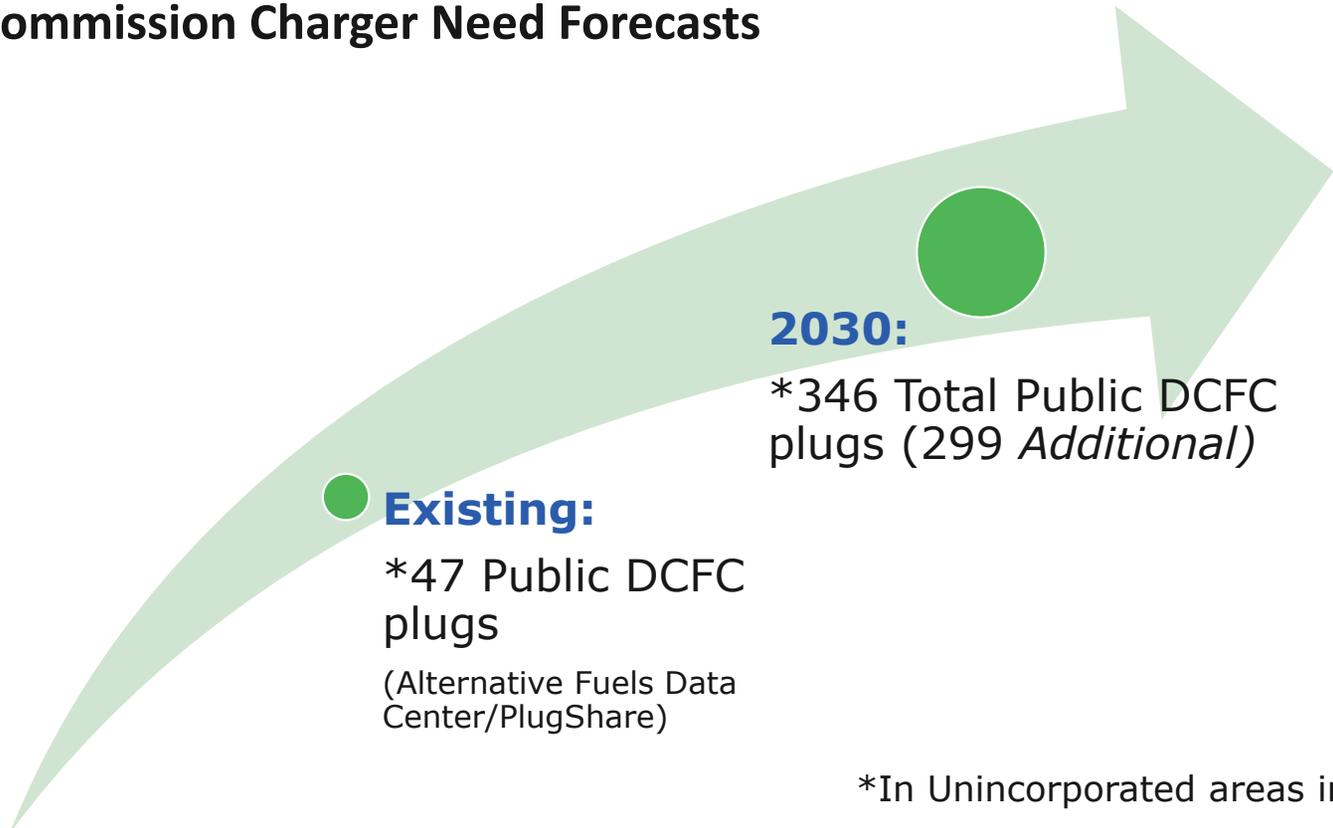
Common themes:

- Infrastructure gaps
- Concerns about electrical grid capacity
- Equity; serving Multifamily Housing and disadvantaged communities
- Permitting, regulation and incentives

Central Coast ZEV Strategy



Recommendations based on California Energy Commission Charger Need Forecasts



Santa Barbara County

San Luis Obispo County

Monterey County

Santa Cruz County

San Benito County

Ventura County

*In Unincorporated areas in the Central Coast Region



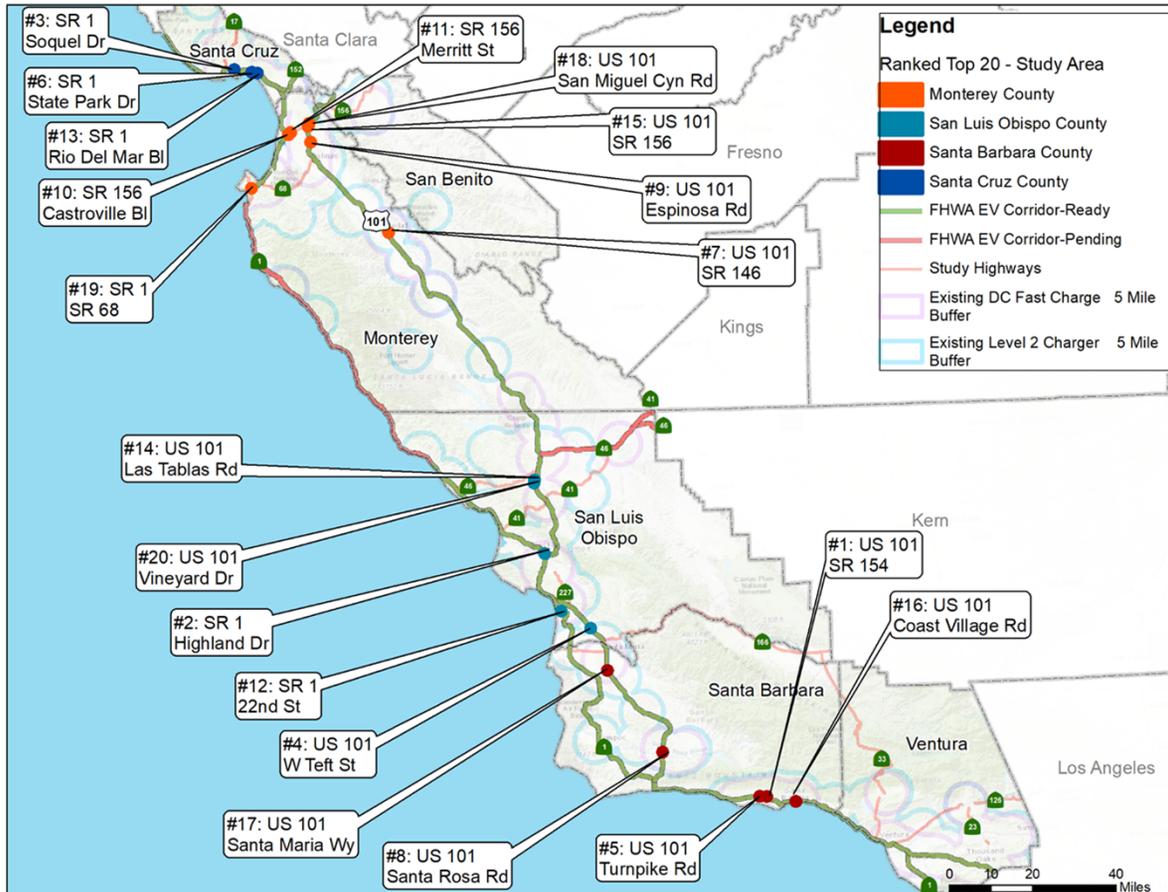
Legend

- NEVI Compliant DC Fast Chargers
 - DCFC Only
 - Tesla Supercharger
 - L2 and DCFC
 - Level 2 Only
 - Hydrogen
 - FHWA EV Corridor-Ready
 - FHWA EV Corridor-Pending
 - Study Highways
 - ▨ DAC and/or Low-Income both CES and Justice40
 - ▨ Justice40 Designated DAC
 - ▨ CA Low-Income and/or DAC
 - Existing DC Fast Charge 5 Mile Buffer
 - Existing Level 2 Charger 5 Mile Buffer
 - Existing DC Fast Charge 20 Mile Buffer
- Multi-Unit Dwellings by Census Tract
- ≤ 100
 - 101 - 500
 - 501 - 1,000
 - > 1,000
- 0 10 20 40 Miles

Gap Analysis

- Our recommendations based on
 - Gaps
 - Stakeholder Input
 - Public Input

Central Coast ZEV Strategy



Top 20 Recommendations

ROUTE	COUNTY	NUMBER IN TOP 20
US 101	Monterey	4
	San Luis Obispo	3
	Santa Barbara	5
	Total	12
	<hr/>	
STATE ROUTE 1	Santa Cruz	3
	San Luis Obispo	2
	Monterey	1
	Total	6
<hr/>		
STATE ROUTE 156	Monterey	2
	Total	2

IMPLEMENTATION & FUNDING



FUNDING

DKS

Major funding sources:

- Federal Programs (NEVI)
- California Electric Vehicle Infrastructure Project (CALeVIP)
- Low Carbon Fuel Standard (LCFS)
- California Energy Commission (CEC) Grants
- California Air Resources Board (CARB) Clean Mobility Options
- Local and Regional Funds



National Electric Vehicle Infrastructure Program

- \$7.5 Billion total in federal funding
- \$5 Billion for nationwide funding awarded to states
- Each state had to submit a plan for funding
- CA has released and ranked the first 20 corridor groups



FUNDING



Charging and Fueling Infrastructure (CFI) Discretionary Grant Program

- \$2.5 Billion for corridor and community charging grants (part of NEVI)
- Strong focus on underserved areas
- Two categories of CFI grants:
 - Identified alternative fuel corridors
 - Community charging



Resources to find funding:

- Alternative Fuels Data Center Overview of Federal and State Laws and Incentives
- California Governor's Office of Business and Economic Development (GO-Biz) ZEV Funding Resources library
- PlugStar searchable database by ZIP code
- DSIRE (database of clean energy programs)





Preparing to apply for funding:

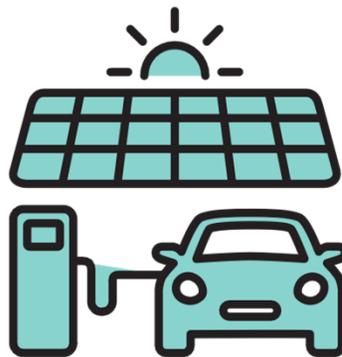
- Plan for staff to manage funding and reporting requirements, explain your plan
- Identify sites and project partners ahead of time
- Show due diligence, projects should be as close to “shovel ready” as possible
- *Carefully* review funding applications and requirements to ensure nothing is missed

GRID RESILIENCY



EV charging should be combined with grid resiliency

- Add renewable energy like solar and battery back-up
- Set up systems to “island” when the power goes out
- Use EV batteries as back-up power with bi-directional charging
- Implement policies to encourage or even require technologies to enable islanding and back-up power



WORKING WITH UTILITIES



WORKING WITH UTILITIES



- Develop a relationship and contact person FIRST and inform them of your plans
- Providing load and capacity information for a region can be a security issue, they need specific sites
- Expect the design phase to take time and for changes to be made
- Some sites will be easier, and some will be harder and more expensive, focus on the easier sites first





Questions or Comments?

DAVE TOKARSKI
DKS ASSOCIATES
DMT@DKSASSOCIATES.COM

JIM DAMKOWITCH
DKS ASSOCIATES
JIM.DAMKOWITCH@DKSASSOCIATES.COM

SARAH SWEET
DKS ASSOCIATES
SARAH.SWEET@DKSASSOCIATES.COM