April 11, 2025

Proposal 2025-172734

Siting Analysis for North State Hydrogen Fuel Station Network

Submitted to:

Humboldt County Association of Governments
Regional Transportation Planning Agency
Humboldt County Local Transportation Authority
Service Authority for Freeway Emergencies
611 I Street, Suite B
Eureka, CA 95501

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Cover Letter

April 10, 2025

Amy Eberwein, Administrative Services Officer
Humboldt County Association of Governments (HCAOG)
611 I Street, Suite B, Eureka, CA 95501

Subject: ICF Technical & Cost Proposal in Response to HCAOG Request for Proposal titled "Siting Analysis for North State Hydrogen Fuel Station Network"

ICF Incorporated, L.L.C, doing business in the State of California as ICF Consulting, L.L.C. will be the legal entity for any contract awarded in response to this request for Proposals (RFP), with participation from its corporate affiliate, ICF Resources, LLC, hereinafter collectively referred to as (ICF), along with our strategic partner DKS Associates (DKS). ICF is pleased to submit our technical and cost time and material proposal in response to the Humboldt County Association of Governments (HCAOG and the County) RFP titled *"Siting Analysis for North State Hydrogen Fuel Station Network"*. The ICF team are committed to fulfilling the entire scope of this important project and adhering to the requirements described in the County's RFP. We believe our team is well positioned to accomplish this project for the following reasons:

The ICF and DKS team offers unparalleled expertise and proven experience in zero-emission vehicle infrastructure planning across the entire state of California. ICF has led major planning initiatives for a diverse range of agencies, including Los Angeles County, the Bay Area, the San Diego Association of Governments, the Southern California Association of Governments (SCAG), Sonoma County, and numerous municipalities in both northern and southern California. DKS complements this work with its extensive experience supporting rural counties, helping ensure that zero-emission solutions reach communities of all sizes. Together, our team has conducted comprehensive assessments of both electric vehicle charging and hydrogen fueling infrastructure, with a strong focus on planning hydrogen solutions specifically for medium- and heavy-duty vehicles. This breadth of experience enables us to deliver thoughtful, practical, and future-ready infrastructure plans tailored to the unique needs of each region.

Our team is a recognized leader in hydrogen infrastructure planning, with deep experience supporting public agencies and private partners in assessing hydrogen demand, infrastructure needs and siting, and analyzing policy and market impacts on investment strategies. We have led advanced siting analyses, including the development of the *Zero Emission Truck Infrastructure (ZETI)* tool for SCAG, which models truck travel patterns and integrates land use, equity, and other key siting criteria. For Southern California Gas Company (SoCalGas), we conducted a comprehensive liquid hydrogen market and liquefaction facility siting study using census tract-based mapping and policy-aligned demand scenarios. We have also applied our hydrogen planning expertise in high-profile projects such as the Pennsylvania Zero Emission Vehicle (ZEV) Roadmap, a national medium- and heavy-duty vehicle infrastructure assessment for the Coordinating Research Council, and a statewide hydrogen demand study for the Hawai'i State Energy Office, delivering data-driven solutions to support clean transportation transitions.

Our team has a strong track record of working with rural communities, transit agencies, tribal governments, and freight operators to address the North State's unique transportation and environmental challenges. Among multiple projects in this region, we are currently leading a fleet transition project for Humboldt County that includes stakeholder engagement, infrastructure planning for EV and hydrogen fueling, and an implementation roadmap.

Our team has a deep understanding of the California policies affecting hydrogen adoption, including ZEV mandates across all vehicle classes and the Low Carbon Fuel Standard (LCFS). This expertise uniquely positions us to advise on the regulatory and incentive frameworks critical to advancing the North State 's clean energy and ZEV goals. Our team members have played key roles in shaping foundational

policies such as the LCFS, Advanced Clean Cars (ACC) II, Advanced Clean Fleets (ACF), and Innovative Clean Transit (ICT) regulations.

ICF's proposal is a firm offer and remains valid for a period of ninety (90) calendar days from the date of submission. ICF retains the right to review its submission and to extend its offer or to revise its proposal at the end of the 90-day period. ICF acknowledges receipt of HCAOG's addenda issued on 3/13/2025 and a cover letter is below on page 38 under Required Attachments.

We look forward to hearing from you regarding the status of our proposal and welcome the opportunity for further discussion. We are available to discuss contractual questions to Janine Egler, Sr Contracts Administrator, (703) 934-3269 or via email at *Janine.Egler@icf.com*. Technical questions should be directed to our proposed project manager, Dr. Theodora Konstantinou, Lead Consultant, at (213) 312-1707 or *Theodora.Konstantinou@icf.com*.

Sincerely,

Janine Egler

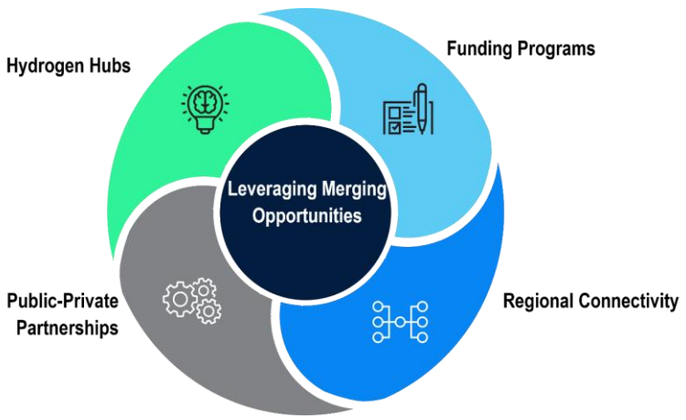
Janine Egler
Senior Contracts Administrator
ICF 1902 Reston Metro Plaza
Reston, VA 20190

Section 1: Table of Contents

Section 2: Project Understanding

The Humboldt County Association of Governments (HCAOG) is taking a crucial step toward enabling an equitable transition to zero-emission transportation in California's rural North State region. Given the geographic size, mountainous terrain, inclement weather conditions, fleet long-range needs and fast refueling requests across the region, hydrogen fuel cell electric vehicles (FCEVs) are a uniquely practical solution for decarbonizing medium- and heavy-duty fleets. However, the absence of a coordinated hydrogen fueling network severely limits the feasibility of this transition. The siting analysis under this RFP will lay the foundation for overcoming these barriers by identifying strategic fueling station locations that connect the North State with major economic hubs in Sacramento and the San Francisco Bay Area.

This project represents more than just the identification of potential hydrogen infrastructure sites. It is a critical opportunity to empower rural communities with the tools, data, and technical expertise they need to successfully compete for future public and private investment. HCAOG and its regional partners are seeking a strategy that goes beyond planning. The strategy must be actionable, grounded in previous efforts, and aligned with California's broader clean transportation vision. To truly support near term infrastructure development, the siting analysis should reflect the realities of fleet transitions, operational demands of transit and freight providers, and planning principles that prioritize equity to ensure the North State is not left behind in California's zero emission future.



The North State region currently lacks hydrogen fueling infrastructure, with no stations available across its 16 counties or neighboring areas (Exhibit 1). This absence represents a significant barrier to the adoption of FCEVs. However, this gap also presents a compelling opportunity. As the state advances its zero-emission goals, supported by initiatives such as the ARCHES hydrogen hub and Shasta Regional Hydrogen Hub, there is growing momentum and funding to support hydrogen infrastructure in underserved and rural areas. In addition, several transit agencies, such as the Humboldt Transit Authority (HTA) and Lake Transit Authority (LTA), have secured funding for hydrogen buses and infrastructure, offering real-world demand anchors to guide siting analysis toward high-priority, deployment-ready locations. The North State region is well-positioned to benefit from public-private partnerships and emerging state and federal investment programs. This siting analysis will help unlock those opportunities by equipping rural communities with the data, tools, and strategies needed to plan for and attract hydrogen infrastructure investment. It will build on existing planning efforts, consider fleet transition forecasts, and center equity to ensure the North State is not left behind in California's clean transportation future.

Our team is exceptionally well-qualified to lead this effort. Our team brings together hydrogen specialists, transportation and infrastructure planners, and stakeholder engagement experts with technical depth and practical experience to deliver a robust, actionable, and stakeholder-informed plan.

	Knowledge of ZEV regulations in California. Three of our team members have valuable first-hand experience from California Air Resources Board (CARB), where they were instrumental in shaping ZEV regulations.
	Skilled in FCEV Technology and Hydrogen Infrastructure. Beyond our leadership on EV infrastructure planning, we have conducted hydrogen demand forecasting and siting analyses throughout California and nationally, including work for SCAG and SoCalGas. These efforts combine data- and policy-driven modeling to project hydrogen fuel cell vehicle demand with GIS-based methodologies to pinpoint optimal infrastructure sites, particularly in underserved and rural communities.
	A Full-Service Leader in Hydrogen Technical Support. Our expertise spans the entire hydrogen value chain from renewable hydrogen production and storage to infrastructure siting and lifecycle emissions analysis. We have delivered major hydrogen projects including the hydrogen storage for LADWP, Hyperlaunch about aviation hydrogen, and FCEV assessment for the Ports of Los Angeles and Long Beach. With this deep technical foundation, we are uniquely equipped to support hydrogen deployment at scale.
	Partnership with Stakeholders. Our team also understands the North State's unique transportation, geographic, and environmental challenges. We have experience collaborating with rural communities, transit agencies, tribal governments, and freight operators, and are committed to helping HCAOG develop a siting analysis that meets immediate planning needs and positions the region for long-term clean transportation investment and leadership.

Our approach involves a multi-step process that ensures comprehensive coverage, efficient station placement, and scalability over time that integrates:

- **Regional Travel Pattern Assessment**: Examining existing and projecting future travel patterns to ensure refueling availability where needed most.
- **Location Suitability Assessments**: Evaluating priority areas as well as individual sites for their suitability for hydrogen refueling infrastructure based on a multicriteria decision making framework and using Geographic Information System (GIS) techniques.
- **Infrastructure and Station Footprint Requirements**: Analyzing the necessary infrastructure to support hydrogen refueling stations, including determining the appropriate station size, fuel consumption demand, and vehicle access requirements.
- **Stakeholder Input and Coordination**: Developing a hydrogen fueling network that connects this region to the Sacramento and San Francisco Bay Area requires meaningful input from stakeholders to ensure the network addresses real needs and constraints. The ongoing stakeholder engagement and information sharing will help facilitate regional dialogue, foster awareness of the evolving needs for hydrogen fueling infrastructure and support the transition of local fleets to cleaner technologies.

Exhibit 1. Existing Hydrogen Stations in Northern California by Open Retail Status and Vehicle Type Accessibility

Through this effort, our team will provide a strategic roadmap for deploying hydrogen fueling stations in a manner that maximizes accessibility, efficiency, and long-term viability. The study will also outline key actions to guide policymakers, infrastructure developers, and industry stakeholders in building a functional and sustainable hydrogen fueling network, ultimately enabling the North State region to fully participate in California's zero-emission transportation transition.

Section 3: Consultant Qualifications and Experience

Firm Description

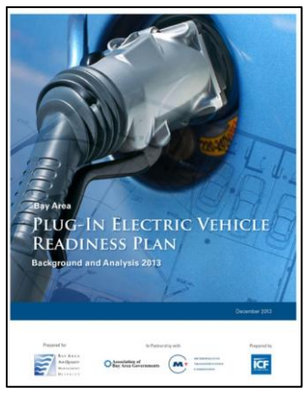
ICF Incorporated, L.L.C (ICF), doing business in the State of California as ICF Consulting, L.L.C. will be the legal entity for any contract awarded in response to this RFP, with participation from its corporate affiliate, ICF Resources, LLC, hereinafter collectively referred to as (ICF), are wholly-owned subsidiaries of parent ICF Consulting Group, Inc., with ICF Consulting Group, Inc., being under parent company ICF International (NASDAQ:ICFI). ICF is a leading global consulting firm, renowned for taking on the world's most pressing social and environmental issues with a deep understanding of transportation, energy, and climate change. Established in 1969 and for over 50 years, ICF has partnered with governments, corporations, and multilateral organizations worldwide, delivering strategic value to client programs at every stage. With a network of 75 offices, including five offices in California (Sacramento, San Francisco, San Diego, Irvine, and Los Angeles), and more than 9,000 employees, we provide unparalleled expertise and problem-solving capabilities, delivering innovative solutions to complex transportation policy, planning, and programming challenges.

DKS Associates (DKS), founded in 1979, will work as a subcontractor of this proposal. It specializes in providing transportation planning, design, and engineering services to public agencies across the United States. The firm employs over 150 professionals across multiple office locations, including Sacramento, Oakland, and Anaheim in California; Portland (headquarters) and Salem in Oregon; Seattle, Washington; and Austin, Texas. For the past 45 years, DKS has delivered both traditional transportation services and cutting-edge smart mobility solutions. One of the most impactful ways DKS helps clients reduce greenhouse gas (GHG) emissions is through its comprehensive suite of electromobility services. These services include public charging infrastructure planning, planning municipal-scale ZEV programs, designing refueling infrastructure for individual sites, and assisting clients in securing grants, rebates, and other financial incentives. DKS also supports project implementation through services such as project phasing, utility coordination, permitting, and oversight of installation processes.

Qualifications and Experience

The proposed team for this project includes technology, markets, and policy experts in alternative fuels and advanced vehicle technologies with strong expertise in planning for ZEV infrastructure deployment that are tailored around the client specific needs. ICF and DKS, collectively referred to as the ICF team, are one of the oldest consultancies in the nation to develop ZEV readiness plans, with over a decade of experience in advancing ZEV infrastructure across the country. We began this type of work more than 10 years ago in Los Angeles County and the Bay Area Air Quality Management District (AQMD), during the first wave of ZEVs entering the California market. Since then, we have expanded our expertise nationally, covering all transportation sectors, including light-, medium-, and heavy-duty vehicles. Over the years, we have continuously refined our methodologies to improve infrastructure siting, accurately forecast demand and infrastructure needs. Our extensive experience allows us to provide cutting-edge solutions that meet both current and future demands.

One of ICF's first EV Readiness Plans in 2013



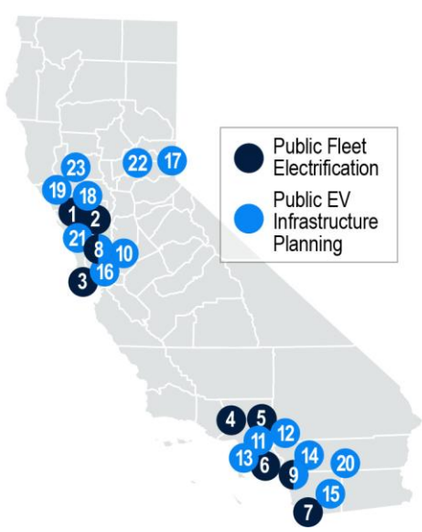
While it is easy to claim extensive capabilities, the real value lies in demonstrating them. At ICF, we back up our expertise with a proven track record of delivering results. We have supported numerous federal, state, and local agencies with their ZEV readiness and infrastructure plans at the state, regional and local levels. Our experience spans projects, including Southern California Association of Governments (SCAG), San Diego Association of Governments (SANDAG), Stanislaus County, the Bay Area, Coachella Valley, City of Moreno Valley, City of San Diego, Los Angeles Metro, Solano Transportation Authority, Pennsylvania, Metropolitan Washington Council of Governments, Fredrick County, Roanoke Valley-Alleghany Regional Commission, Eastern Iowa region, Northern New Jersey, and many others. ICF has recently been awarded by Placer County Transportation Planning Agency (PCTPA) to conduct a countywide ZEV infrastructure plan. Partnered with DKS, the team was also selected by Lake County to develop a comprehensive public charging infrastructure plan, further reinforcing our commitment to a zero-emission future.

ICF brings more than a decade of experience developing ZEV Blueprint and Infrastructure plans across the nation

ICF latest ZEV plans published in the past 12 months

The comprehensive scope of the ICF team's work in ZEV infrastructure planning across California is succinctly depicted in Exhibit 2, which highlights our extensive experience, statewide coverage, and capability in this sector.

Exhibit 2. ICF's Extensive ZEV Fleet Transition and Regional Public Infrastructure Deployment and Planning Portfolio



1. Vallejo Flood and Wastewater District
2. City of Pittsburg
3. Midpeninsula Regional Open Space District
4. Los Angeles Unified School District
5. Los Angeles County
6. City of Santa Ana
7. City of San Diego
8. City of Lodi
9. City of Laguna Beach
10. Stanislaus Council of Governments
11. Southern California Association of Governments
12. Los Angeles County Metro
13. The San Pedro Bay Ports
14. City of Moreno Valley
15. San Diego Association of Governments
16. Santa Clara County
17. Tahoe Regional Planning Agency
18. Solano Transportation Authority
19. Sonoma County Transportation Authority
20. Coachella Valley Association of Gov'ts
21. Bay Area AQMD
22. Placer County Transportation Planning Agency
23. Lake Area Planning Council

ICF has been a leading consultancy actively researching and expanding expertise in hydrogen supply and infrastructure planning. We have supported numerous investors, developers, and public agencies in understanding hydrogen economics for transportation, assessing hydrogen demand, and evaluating its role in transportation decarbonization. ICF has developed methodologies to accurately forecast hydrogen infrastructure needs and analyze impacts of policy and market scenarios on required investments, positioning us at the forefront of hydrogen planning for clean transportation. Our team has successfully applied these methodologies in several high-profile studies, including *the Pennsylvania ZEV Roadmap*, a *Coordinating Research Council* assessment of federal policy impacts on national medium- and heavy-duty charging infrastructure, and a comprehensive hydrogen demand and economic analysis for the Hawaii State Energy Office.

Leveraging our capacities as a comprehensive hydrogen consultancy, ICF is also pioneering hydrogen station siting analysis. We developed the *Zero Emission Truck Infrastructure (ZETI) tool* for SCAG to facilitate regional transitions to battery-electric and hydrogen-powered vehicles by modeling truck travel patterns, forecasting fueling demands, and engaging stakeholders for equitable and effective infrastructure development. This specialized siting tool integrates criteria such as utilization, land availability, equity, grid capacity, hydrogen storage, station capacity, and environmental factors. Furthermore, ICF conducted an extensive liquid hydrogen (LH2) market and siting analysis for SoCalGas, identifying optimal locations for liquefaction facilities through census tract-based heat mapping. This analysis considers hydrogen supply-demand dynamics, critical external influences such as California's ZEV initiatives, Advanced Clean Truck (ACT) rules, and the LCFS, alongside strategies for mitigating supply reliability risks and ensuring price stability.

Additionally, ICF supported Mendocino Forest Products (MFP) in evaluating the feasibility of a combined heat and power (CHP) and hydrogen production facility utilizing wood-waste biomass at their Ukiah sawmill. Our work included detailed engineering assessments, economic and environmental analyses, permitting evaluations, safety assessments, and FEL-2 project documentation. Furthermore, ICF provided strategic grant application support, positioning MFP to secure funding through CalFIRE. This project highlights ICF's deep expertise in hydrogen production technologies, local biomass resource utilization, regional hydrogen supply dynamics, and leveraging partnerships—critical considerations for successfully siting and deploying hydrogen infrastructure for HCAOG.

Our partner, DKS, also brings extensive experience in transportation planning. While much of ICF's work has been centered in urban environments, DKS complements our expertise by providing a deep understanding of rural transportation infrastructure challenges, including *Madera County Transportation Commission*, *San Joaquin Council of Government*, *Calaveras County Council of Governments*, *Kern Council of Governments*, *Inyo County*, *Nevada County*, Plumas County, and Humboldt County. Their experience in facilitating long-distance ZEV travel, identifying strategic alternative fuel station locations, and addressing local resistance to zero-emission transportation initiatives makes them a valuable partner in ensuring that the North State region's infrastructure expansion is both comprehensive and equitable. Their previous expertise in stakeholder engagement and infrastructure planning in rural settings will be instrumental in overcoming barriers and designing a network that effectively serves all communities across the region. To date, DKS has completed more than 50 ZEV infrastructure planning projects at regional, county, and municipal levels across California, as shown in Exhibit 3.

Exhibit 3. DKS California ZEV Infrastructure Planning Portfolio

DKS was recently selected by Humboldt County to lead the transition of local government fleets to zero or near-zero emission vehicles. The project includes stakeholder engagement, in-depth fleet analysis, infrastructure planning for EV charging and hydrogen fueling, and a detailed implementation plan with timelines, costs, roles, and funding strategies, supported by preliminary site designs. This effort aligns closely with the tasks outlined in this RFP and will offer complementary benefits. In addition, for the *Northern California Megaregion Zero Emission Medium- and Heavy-Duty Vehicle Study*, led by the Sacramento Area Council of Governments (SACOG), DKS played a pivotal role in providing detailed data analysis and geographic mapping to identify optimal locations for zero-emission vehicle fueling stations, taking into account traffic patterns, infrastructure availability, community impacts, and utility capacities. The study emphasizes equitable infrastructure deployment, proposes specific sit e action plans, and includes measurable outcomes to track progress toward achieving regional zero-emission transportation goals.

Project Examples

The RFP Scope of Work is ambitious and will require strong capabilities in a variety of elements of regional ZEV infrastructure planning. Exhibit 4 below lists examples of the work performed by the ICF team in the past few years that best characterizes the work quality and expertise that HCAOG can expect the team to apply to the tasks in the RFP. More details on certain reference projects as well as the team qualifications are provided in the next sections.

Exhibit 4. The ICF Team's Project Examples of ZEV Infrastructure Planning

Client, Project Name	Key Staff Involved	Stakeholder Engagement	Travel Analysis	Siting Analysis	Hydrogen Infrastructure Needs
Southern California Association of Government (SCAG), Zero Emission Truck Infrastructure (ZETI) Study	Sam Pournazeri, Theodora Konstantinou	●	●	●	●
Southern California Gas Company (SoCalGas), Southern California Liquid Hydrogen Market Review	Mark Robertson, Sam Pournazeri, Theodora Konstantinou	●		●	●
San Pedro Bay Ports, Class 8 Drayage Truck Feasibility Assessment	Sam Pournazeri, Theodora Konstantinou, Stephanie Kong	●		●	●
Hawaii State Energy Office (HSEO), Assessment of Future Transportation Hydrogen Demand & Economic in Hawaii	Sam Pournazeri, Fang Yan, Stephanie Kong	●			●
New Mexico Department of Transportation (NMDOT), Clean Hydrogen Hubs Strategic Guidance	Fang Yan	●		●	●
Coordinating Research Council (CRC), Battery-Recharging and Hydrogen-Refueling Infrastructure Needs, Costs and Timelines	Stephanie Kong, Fang Yan, Sam Pournazeri	●		●	●
Placer County Transportation Planning Agency: Countywide Zero Emission Vehicle Infrastructure Plan	Sam Pournazeri, Fang Yan, Theodora Konstantinou	●	●	●	●
Lake County, Lake County Zero Emission Vehicle (ZEV) Infrastructure Plan	Stephanie Kong, Duncan Crowley	●	●	●	
Tahoe Regional Planning Agency, Tahoe-Truckee Plug-in EV Readiness Plan; Vehicle Electrification Data Collection and Modeling	Sam Pournazeri, Stephanie Kong, Duncan Crowley	●	●	●	
Frederick County, Electric Vehicle Transition Plan	Theodora Konstantinou, Duncan Crowley, Sam Pournazeri	●		●	
City of Lodi, Electric Vehicle Charging Infrastructure Master Plan	Sam Pournazeri, Theodora Konstantinou	●	●	●	
City of Moreno Valley. Electric Vehicle Charging Infrastructure Master Plan	Sam Pournazeri, Stephanie Kong, Duncan Crowley,	●	●	●	
San Diego Association of Government, Medium and Heavy Duty Zero Emission Vehicle Blueprint	Sam Pournazeri, Stephanie Kong	●			●
San Diego Association of Government, Regional EV Charging Infrastructure Program Development	Stephanie Kong, Sam Pournazeri, Theodora Konstantinou	●	●		
Pennsylvania DEP, State Zero Emission Vehicle Blueprint	Sam Pournazeri, Stephanie Kong, Fang Yan, Theodora Konstantinou	●			●

Humboldt County Association of Governments (HCAOG), Humboldt County Regional Zero Emission Fleet Transition and Infrastructure Plan	Mike Usen	●		●	
Redding Area Bus Authority (RABA), Zero-Emission Bus Implementation Plan	Mike Usen, Kendall Flint, Elise Brockett, Ryan Peterson	●			●
Madera County Transportation Commission, Zero-Emission Vehicle Readiness and Implementation Plan	Mike Usen, Jim Damkowitch, Kendall Flint, Alexandra Haag	●	●	●	●
San Joaquin Council of Governments, Alternative Fuels Vision Plan	Mike Usen, Jim Damkowitch, Kendall Flint, Alexandra Haag	●	●	●	●
Santa Barbara County Association of Governments, Central Coast Zero Emission Vehicle Strategy	Mike Usen, Jim Damkowitch, Kendall Flint, Alexandra Haag	●			●
Kern Council of Governments, Electric Vehicle Charging Station Blueprint	Mike Use, Jim Damkowitch, Kendall Flint	●	●	●	
Inyo County, Electric Vehicle Charging Infrastructure Plan	Mike Usen, Elise Brockett	●	●	●	
Sacramento Area Council of Governments (SACOG), Northern California Megaregion Zero Emission Medium- and Heavy-Duty Vehicle Study	Mike Usen, Kendall Flint	●	●	●	●
Plumas County, EV Charging Infrastructure Master Plan	Mike Usen, Alexandra Haag	●	●	●	
Nevada County, ZEV Transition Plan	Mike Usen	●			
Shasta County, Fleet Transition Plan	Mike Usen	●			
Santa Barbara County Association of Governments, Central Coast Zero Emission Vehicle Strategy	Mike Usen, Jim Damkowitch, Kendall Flint, Alexandra Haag	●			●

Key Personnel and Organization

ICF is committed to maintaining clear and open communication with HCAOG to ensure all project tasks align with the agency's objectives and expectations. Our project management approach, as detailed later in Section 4: Project Approach, emphasizes proactive communication, strategic planning, and conflict resolution to keep the project on track.

To facilitate seamless coordination, we will implement the following communication structure:

- **Regular Check-Ins:** The Project Manager (PM) and Deputy Project Manager (DPM) will conduct monthly status meetings with HCAOG to review progress, address concerns, and ensure alignment with project goals.
- **Real-Time Collaboration:** We will use email, Microsoft Teams, and scheduled calls for day-to-day coordination, ensuring quick response times for any inquiries.
- **Milestone Reviews:** Key project phases will include structured milestone check-ins with HCAOG and project stakeholders to review deliverables, gather feedback, and make necessary adjustments.
- **Issue Resolution Protocol:** Should any challenges arise, our structured escalation process ensures that concerns are addressed swiftly. Initial issues will be handled at the project team level, with unresolved matters escalated to senior oversight as needed. Transparent documentation and timely discussions will help resolve potential roadblocks efficiently.

Our approach ensures that HCAOG remains fully engaged throughout the project, with ample opportunities for feedback and collaboration. For additional details on our project execution strategy, please refer to Section 4: Project Approach.

Team Organization

Our team has assembled a highly qualified team of professionals with deep expertise in ZEV infrastructure planning, stakeholder engagement, and hydrogen technology. Our proposed organizational chart and key staff are presented in Exhibit 5 and qualifications and experience are shown in Exhibit 6, with resumes attached in Section 7.

Exhibit 5. Organization and Subject Matter Expertise for Key Staff

Exhibit 6. Proposed Key Staff Qualifications

Sam Pournazeri, PhD, PE | Project Director

Sam Pournazeri is a senior director at ICF with over 15 years of experience in clean transportation and infrastructure planning. He specializes in ZEV transition strategies, with a strong focus on infrastructure siting, and ZEV policies and technologies. Sam has led major planning efforts for hydrogen refueling networks, including SCAG's Zero-Emission Truck Infrastructure (ZETI) study and SANDAG's medium/heavy-duty ZEV blueprint, and advised multiple jurisdictions on fleet electrification, infrastructure assessment, siting, feasibility, and deployment strategies. His technical leadership spans hydrogen demand forecasting, fueling infrastructure siting, and policy-driven fleet decarbonization. Previously, Sam served as the chief of the Mobile Source Analysis Branch at CARB, where he was instrumental in the development of the ACC and ACF regulations.

Theodora Konstantinou, PhD | Project Manager
Theodora Konstantinou, PhD is a Lead Transportation and Energy Consultant at ICF with eight years of experience in ZEV infrastructure planning and transportation decarbonization. She specializes in siting analysis for electric and hydrogen infrastructure, supporting public agencies in deploying medium- and heavy-duty ZEVs. Theodora has led key efforts for SCAG's ZETI study, the San Pedro Bay Ports drayage truck assessment under the Clean Air Action Plan, and the Pennsylvania Department of Environmental Protection's ZEV Roadmap. She also led siting analyses of alternative fuels for clients such as the City of Lodi and Frederick County. Her work includes developing siting tools, feasibility studies, and policy strategies for EV and hydrogen fueling infrastructure across complex public and industrial fleets.

Fang Yan, PhD, PE | Deputy Project Manager
Fang Yan is a director of transportation and energy at ICF with over 15 years of experience in emission modeling, public policy, and clean fuel technologies. Before joining ICF, she worked at CARB, led Innovative Clean Transit regulation and contributed to state-level strategies. Fang specializes in battery electric and fuel cell vehicles and in charging and hydrogen infrastructure. She has led critical analyses for the New Mexico DOT's hydrogen hub strategy, the Hawaii State Energy Office's hydrogen demand and cost study, and the CRC's evaluation of nationwide hydrogen infrastructure needs. She developed lifecycle models for hydrogen and e-fuels under the federal 45V tax credit framework.

Stephanie Kong, PhD | Siting and Infrastructure SME
Stephanie Kong is a director of transportation electrification at ICF, specializing in zero-emission policy, fleet modeling, and infrastructure assessments. With a PhD in chemical engineering from Caltech, she brings deep expertise in emissions modeling and regulatory development. Her leadership spans major projects such as the CRC's national charging and hydrogen infrastructure assessment, the Hawaii State Energy Office's hydrogen demand study, and the Pennsylvania DEP ZEV Roadmap. She has also supported regional ZEV infrastructure planning for LA County, the Tahoe region, and SANDAG. Previously, Stephanie served as a technical lead at CARB, contributing to the ACF regulation and statewide emissions modeling.

Mark Robertson, PE | Hydrogen SME
Mark Robertson is a Lead Fuels Engineer at ICF with over 30 years of experience in hydrogen, syngas, and low-carbon fuel technologies. He has led design, engineering, and technoeconomic assessments for numerous hydrogen and biofuel projects globally. Mark serves as project manager and technical lead for SoCalGas's hydrogen liquefaction market study, where he directed market reviews, cost analysis, and infrastructure assessment to support future hydrogen supply chains. He also leads the Mendocino Forest Products hydrogen and power facility scoping and design study, evaluating multiple hydrogen production pathways. His work blends deep technical expertise with practical implementation strategies for hydrogen infrastructure and clean fuel deployment.

Mike Usen, AICP | Stakeholder Engagement Lead (DKS)
Mike Usen is the Electromobility and Resiliency Lead at DKS Associates and a nationally recognized expert in ZEV infrastructure planning and siting. With nearly 30 years of experience, Mike has led ZEV infrastructure planning efforts for numerous rural and underserved communities across California and the western U.S. His work includes EV readiness and implementation plans for rural counties such as Inyo, Calaveras, and Madera, as well as regional strategies that span vast areas like the California Central Coast. Mike's expertise includes strategic site selection, infrastructure feasibility, and funding identification tailored to the unique challenges and opportunities of rural electrification.

Kendall Flint | Stakeholder Engagement SME (DKS)
Kendall Flint is a Public Engagement Lead with over 30 years of experience supporting cities, counties, and regional agencies across California. She specializes in designing and implementing inclusive outreach strategies, particularly for transportation and land use planning in underserved and rural communities. Kendall has led stakeholder engagement for high-profile initiatives including the Central Coast Zero Emission Vehicle Strategy Plan, Madera County RTP/SCS, and the Humboldt Eureka-Broadway Corridor Study. Her work emphasizes creative, accessible engagement approaches for complex and controversial projects, ensuring community voices shape sustainable transportation outcomes.

Jim Damkowitch | Transportation Planning SME (DKS)

Jim Damkowitch is a seasoned transportation planner with over 30 years of experience in multi-modal mobility, corridor planning, electromobility, and transportation equity. He has led regional ZEV infrastructure strategies, congestion management studies, and safety and operational analyses for state highways and local networks. Jim's recent work includes co-managing the Central Coast Zero-Emission Vehicle Strategy and advising on the San Joaquin County Alternative Fuels Vision Plan—both focused on identifying gaps and equity-driven infrastructure improvements. He has also supported innovative planning initiatives for TRPA, TAMC, and SCCRTC, integrating performance metrics, GHG reduction strategies, and multimodal solutions. Jim brings deep knowledge of California transportation policy, planning frameworks, and community-focused infrastructure development.

Alex Haag, AICP | Transportation Planning SME (DKS)

Alex Haag is a transportation planner and engineer at DKS with a strong focus on multimodal planning and sustainable mobility solutions. She brings expertise in ZEV infrastructure planning, community outreach, and grant strategy development. Alex has supported major regional projects including the Central Coast ZEV Strategy, Madera County's ZEV Readiness Plan, and San Joaquin's Alternative Fuels Vision Plan, with a consistent emphasis on equity, rural access, and underserved communities. Her work combines technical analysis with a deep commitment to public engagement and advancing clean transportation initiatives.

Elise Brockett | Stakeholder Engagement SME (DKS)

Elise Brockett has a robust background in strategic communications and community engagement. With over four years of experience, she has successfully developed and executed outreach plans for transportation, construction, and planning projects across Sacramento and the Northern California region. Elise is adept at crafting clear and effective messaging, facilitating workshops, and managing project budgets and milestones. Her expertise extends to graphic design, event planning, and creating engaging marketing materials.

Reference Projects for ICF

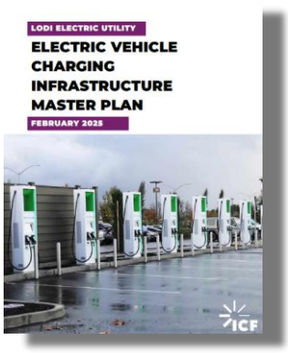
Reference 1

Customer Name: Southern California Association of Governments (SCAG)	Contact Individual: Jonathan Raspa
Address: 900 Wilshire Blvd., Ste. 1700, Los Angeles, CA 90017	Phone Number: 213.630.1551
Project Name: Zero Emission Truck Infrastructure (ZETI) Plan	Email: raspa@scag.ca.gov
Key Staff: Sam Pournazeri, Theodora Konstantinou	Year: 2023–2025

Project Description: In partnership with Cambridge Systematics and Lawrence Berkeley National Laboratory, ICF has developed a comprehensive ZEV charging and fueling network plan for medium and heavy-duty vehicles in Southern California. The project aimed to address regional air pollution and climate goals by modeling truck travel patterns and fueling needs and engaging stakeholders to create an equitable and robust infrastructure plan. This initiative seeks to streamline the transition to ZEVs, facilitating widespread adoption and contributing to environmental, mobility, and economic improvements across the region. As part of this project, ICF has also developed a tool for siting medium- and heavy-duty zero-emission vehicle infrastructure, including both charging and hydrogen refueling stations. The tool considers five primary groups of siting criteria-utilization, land, equity, grid capacity, and environmental conditions-with specified sub-criteria within each category.

Reference 2

Customer Name: City of Lodi	Contact Individual: Melissa Price
Address: 1331 S. Ham Ln., Lodi, CA 95242	Phone Number: 209.333.6811
Project Name: Electric Vehicle Charging Infrastructure Master Plan	Email: mprice@lodi.gov
Key Staff: Sam Pournazeri, Theodora Konstantinou	Year: 2023–2024



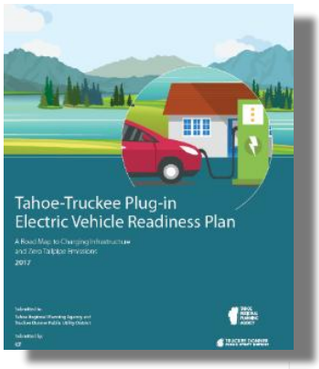
Project Description: ICF assisted the City of Lodi in developing a comprehensive EV charging infrastructure plan to build a publicly accessible network, identifying at least 10 sites for future funding opportunities through federal and state grants. The project began with an assessment of existing and projected EV infrastructure, policies, land use, and community needs, followed by a feasibility and siting analysis to determine optimal charging locations using advanced tools. The plan emphasized equitable access, particularly for disadvantaged communities, and included community outreach. ICF also led the development of a business model, managing the request for information and RFP process, drafting specifications, and assisting the city in selecting a qualified vendor for the project.

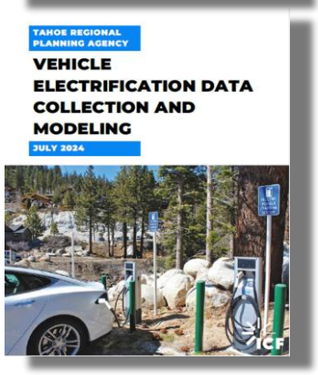
Reference 3

Customer Name: Tahoe Regional Planning Agency	Contact Individual: Devin Middlebrook
Address: 128 Market St, Stateline, NV 89410	Phone Number: 775.589.5230
Project Name: Vehicle Electrification Data Collection and Modeling	EMAIL: dmiddlebrook@trpa.gov
Key Staff: Sam Pournazeri, Stephanie Kong, Duncan Crowley	Year: 2017 - 2024

Project Description: ICF developed a comprehensive, strategic, and actionable *EV Readiness Plan* for Tahoe-Truckee region that serves as the roadmap to increasing local EV adoption and effectively deploying charging infrastructure. The plan outlines short-, medium-, and long-term readiness recommendations focusing on actions related to local policies, building and zoning codes, parking regulations, permitting and inspection, stakeholder outreach and training, regional coordination, and utility planning.

Our team initiated the project by assessing the baseline conditions of regional EV deployment – vehicle purchasing trends, inventory of existing charging infrastructure, barriers to adoption, stakeholder needs, relevant policies and programs, and available funding. To better understand where charging infrastructure is needed, ICF conducted a siting analysis and produced geographical heat maps showing the demand for residential, workplace, and opportunity charging for each Census tract within the project area.





In addition to the plan itself, ICF also created *sector-specific EV toolkits* for local governments, fleet managers, charging destinations, and utilities. For outreach and education, we developed a strategy for public education to help increase awareness and understanding of EVs. ICF designed and developed an *informational website* for regional residents and visitors that includes information on charging locations, tools to assess the best EV for varying lifestyles and transportation needs, total cost of EV ownership, available incentives, and environmental benefits. The Nevada Chapter of the American Planning Association recently recognized the plan with *awards* for most outstanding plan and public outreach.

As an update to the 2019 EV Readiness Plan, TRPA hired ICF again to conduct an EV Charging Needs Assessment to determine the current and future demand for EV charging stations, using tools like the National Renewable Energy Laboratory's Electric Vehicle Infrastructure Projection Tool (EVI-Pro) to project the number of chargers needed by 2035. Additionally, ICF performed a detailed EV Charger Siting Analysis, leveraging travel data to identify optimal locations for charging stations that would maximize usage, accessibility, and equity. ICF also prepared an E-Mobility Assessment, analyzing the current landscape of e-bikes and micromobility in the Tahoe Basin, and provided recommendations for policy changes and infrastructure improvements to support the region's transition to cleaner transportation options.

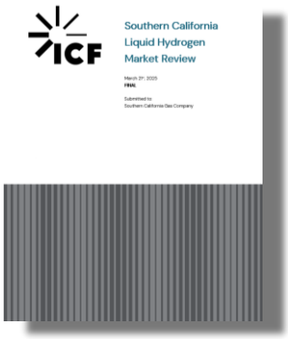
Reference 4

Customer Name: San Pedro Bay Ports	Contact Individual: Rose Szoke
Address: 415 W. Ocean Blvd., Long Beach, CA 90802	Phone Number: 562.283.7100
Project Name: Class 8 Drayage Truck Feasibility Assessment	EMAIL: rose.szoke@polb.com
Key Staff: Theodora Konstantinou, Sam Pournazeri	Year: 2024 - 2025

Project Description: ICF is supporting the Ports of Los Angeles and Long Beach by evaluating the feasibility of transitioning Class 8 drayage trucks to zero-emission (ZE) technologies as part of the San Pedro Bay Ports' Clean Air Action Plan. The 2024 assessment focuses on battery electric trucks (BETs) and hydrogen fuel cell electric trucks (FCETs), analyzing their technical capabilities, operational compatibility, commercial availability, total cost of ownership, and infrastructure needs. Drawing on operator surveys, interviews, and real-world data, ICF assessed how ZE trucks align with current drayage operations, identifying that while BETs and FCETs can meet the needs of short-haul and single-shift routes, they face challenges for longer routes, multi-shift schedules, and heavy payloads. The analysis also highlighted that significant infrastructure expansion and continued public incentives are critical to supporting widespread adoption, given the high upfront costs and limited current charging and fueling capacity. This work provides a clear roadmap for the Ports to prioritize investments, policy development, and stakeholder engagement as they work toward a 100% ZE drayage fleet by 2035.

Reference 5

Customer Name: Southern California Gas Company (SoCalGas)	Contact Individual: Errol Erin
Address: 555 W 5th St, Los Angeles, CA 90013	Phone Number: 213.244.8127
Project Name: Southern California Liquid Hydrogen Market Review	EMAIL: eerin@socalgas.com
Key Staff: Mark Robertson, Sam Pournazeri, Theodora Konstantinou	Year: 2024-2025



Project Description: ICF was engaged by SoCalGas to analyze the emerging liquid hydrogen (LH_2) market in Southern California, with a focus on market dynamics and siting strategies for hydrogen liquefaction facilities. The study assessed hydrogen supply and demand, identified key stakeholders and end-use locations, and evaluated SoCalGas's potential role in this evolving market.

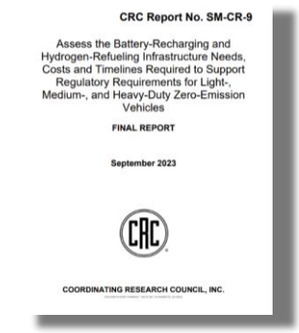
The siting analysis modeled three scenarios based on varying levels of industrial demand (10%, 20%, and 30%) alongside projected medium- and heavy-duty transportation needs. It included estimates of the number of liquefiers required within SoCalGas's service territory by 2040, accounting for logistical delivery constraints and incremental growth in demand.

To support this, a demand distribution analysis was conducted, identifying three key regions based on different end uses. Census tract–level mapping and heat maps were used to pinpoint optimal locations for future liquefaction plants needed to meet projected demand through the 2040s.

The analysis also considered key external drivers such as California's Zero Emission Vehicle (ZEV) initiatives, Advanced Clean Truck (ACT) rules, and the Low Carbon Fuel Standard (LCFS), all of which will shape the hydrogen market landscape. Additionally, risk mitigation strategies were evaluated to address supply reliability and ensure long-term availability and price stability for consumers.

Reference 6

Customer Name: Coordinating Research Council (CRC)	Contact Individual: Dr. Christopher J. Tennant
Address: 5755 North Point Parkway, Suite 265, Alpharetta, GA 30022	Phone Number: 678.795.0506 ext. 105
Project Name: Assess the Battery-Recharging and Hydrogen-Refueling Infrastructure Needs, Costs and Timelines Required to Support Regulatory Requirements for Light-, Medium-, and Heavy-Duty Zero-Emission Vehicles	Email: ctennant@crcao.org
Key Staff: Stephanie Kong, Fang Yan	Year: 2023



Project Description: In light of the anticipated surge in ZEVs on the road over the coming decades, a major expansion of electric charging and hydrogen refueling infrastructure is critical. In planning strategically and formulating policy, it is important to fully comprehend the scope, cost, and timeframes involved in developing this ZEV infrastructure. ICF supported CRC to assess the national demands and cost of charging and hydrogen fueling infrastructure in support of transitioning the light-duty, MD, and HD vehicles to ZEVs. ICF (1) developed a sales model for various types of ZEVs, including BEVs, plug-in hybrid electric vehicles, and FCEVs, through 2050 across all 50 states; (2) determined the implications on the energy supply infrastructure; (3) assessed how well our existing infrastructure can accommodate the upcoming rise in ZEVs; (4) estimated the number, location, size, costs, and timelines for creating the necessary charging and refueling stations; and (5) analyzed the role of charging infrastructure in the total grid requirements and how different methods of hydrogen production and delivery could impact quality and cost.

Reference 7

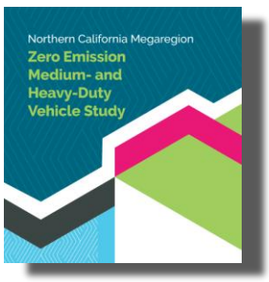
Customer Name: Hawaii State Energy Office	Contact Individual: Mark Glick
Address: 235 S. Beretania St., #502, Honolulu, HI 96813	Phone Number: 808.956.2339
Project Name: Assessment of Future Transportation Hydrogen Demand & Economics in Hawaii	EMAIL: mbglick@hawaii.edu
Key Staff: Sam Pournazeri, Fang Yan, Stephanie Kong	Year: 2023

Project Description: In April 2023, the Hawai'i State Energy Office and its partners submitted a $2.1 billion proposal to the U.S. Department of Energy's Clean Hydrogen Hub program for funding to establish the Hawai'i Pacific Hydrogen Hub (H2Hub). As part of this project, ICF conducted a comprehensive demand and economic analysis to develop estimates for the anticipated demand for hydrogen in the transportation sector and the overall cost of transitioning a fraction of the sector, most suitable for this technology, to hydrogen-powered vehicles. This assessment covered various sectors, including land transportation, marine, and aviation. ICF assessed technical capability and drivers of the adoption of hydrogen-powered technologies, such as fuel cell electric vehicles (FCEVs) as well as hydrogen internal combustion engine vehicles (HICEVs). Based on the findings of the assessment, ICF projected hydrogen demand volume and end users and estimated the cost of ownership and adoption for hydrogen-powered vehicles. ICF also worked with HSEO to select two fleets and perform case studies. ICF validated the reasonableness of the analysis through stakeholder interviews from both the private and public sectors. A final report was prepared to ensure comprehensive coverage of all project aspects.

Reference Projects for DKS

Reference 1

Customer Name: Sacramento Area Council of Governments	Contact Individual: Sam Shelton, Senior Analyst
Address: 1415 L Street, Suite 300, Sacramento, CA 95814	Phone Number: 916.340.6251
	EMAIL: sshelton@sacog.org
Project Name: Northern California Megaregion Zero Emission Medium- and Heavy-Duty Vehicle Study	Year: 2023-2024



Project Description: As part of a project team led by Frontier Energy, DKS Associates recently completed evaluation of a large number of potential sites for charging or fueling future heavy-duty battery electric and hydrogen fuel cell trucks. This included ranking and prioritizing potential sites, as well as documenting detailed characteristics for each site including surrounding area demographics, employment, and potential heavy goods vehicle fleet composition. DKS has prepared detailed data sheets for each recommended site which serves as marketing materials for further studies, including potential business plans. DKS also prepared a detailed assessment of the regulatory, technological and business context in California relevant to medium and heavy-duty truck charging and DKS prepared the final presentations for key stakeholders

Reference 2

Customer Name: Redding Area Bus Authority (RABA)	Contact Individual: John Andoh
Address: 3333 South Market Street Redding, CA 96001	Phone Number: 530.338.5091
	EMAIL: jandoh@rabaride.com
Project Name: Redding Area Bus Authority Zero Emission Implementation Plan	Year: 2024 - present

Project Description: DKS is currently assisting RABA in planning the transition of its revenue fleet to zero-emission operations by 2040, in compliance with CARB's ICT Regulation, while aiming to achieve significant GHG and other emissions reductions. This work involves evaluating the feasibility of both battery electric and hydrogen fuel cell propulsion transit systems. As we move forward, we are focusing on assessing how the conversion to clean technology will impact transit service and identifying the necessary upgrades to RABA's facilities for fueling, charging, and vehicle maintenance.

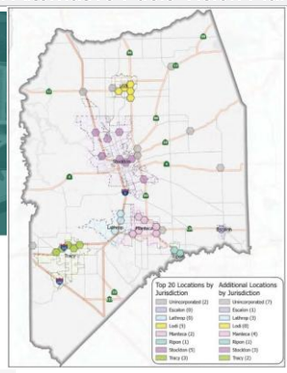
Reference 3

Customer Name: Port of Long Beach (POLB)	Contact Individual: Adel Poursharif
Address: 415 W. Ocean Blvd. Long Beach, CA 90802	Phone Number: 562 283-7891
	EMAIL adel.poursharif@polb.com
Project Name: POLB Pier J Zero Emissions Infrastructure Master Plan	Year: 2023-2025

Project Description: DKS is supporting P2S Engineers in the development of the Port of Long Beach Pier J Zero Emissions Infrastructure Master Plan. As a subconsultant, DKS is leading the evaluation of battery-electric and hydrogen fuel cell technologies to replace more than 175 diesel-powered cargo handling equipment (CHE) units at the 256-acre terminal, which handles up to 1.11 million annual lifts. DKS conducted a detailed operational analysis to model hourly and daily energy loads, evaluating the feasibility of both battery-electric and hydrogen solutions. A central component of the study is a side-by-side comparison of the two technologies to determine the most suitable zero-emission replacement based on operational demands, energy requirements, and infrastructure readiness. DKS is also supporting site selection for charging and fueling infrastructure, considering multiple variables such as electrical feeder locations, available electrical capacity, and vehicle operating patterns.

Reference 4

Customer Name: San Joaquin Council of Governments (SJCOG)	Contact Individual: Isaiah Anderson
Address: 555 E. Weber Ave., Stockton, CA 95202	Phone Number: 209.235.0452
	EMAIL: ianderson@sjcog.org
Project Name: San Joaquin Alternative Fuels Vision Plan	Year: 2022-2023



Project Description: DKS assisted the San Joaquin Council of Governments (SJCOG) in creating an *Alternative Fuels Vision Plan* (AFVP) to evaluate connection gaps for EV and alternative fueling locations within the regional transportation system. The plan assessed existing conditions and identified infrastructure needs for the region's alternative fuels network. The insights helped prioritize locations for public charging and fueling stations. SJCOG successfully leveraged the AFVP to secure a $15M federal Charging and Fueling Infrastructure (CFI) program grant, providing charging infrastructure in traditionally underserved communities.

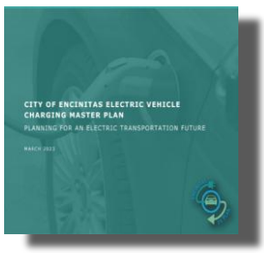
Reference 5

Customer Name: Calaveras County Council of Governments	Contact Individual: Erin E. Kelly
Address: Calaveras Transit Agency, 444 E. Saint Charles Street/Highway 49, San Andreas, CA 95249	Phone Number: 209.754.2094
	EMAIL: ekelly@calacog.org
Project Name: EV Charging Infrastructure (EVCI) Implementation Plan	Year: 2021-2024

Project Description: DKS and Frontier are collaborating to guide the deployment of EV charging stations for the City of Angels Camp, County of Calaveras, and the County's public transit system, as well as for public use. The project involves identifying charging infrastructure sites for various user groups and documenting recommendations in a roadmap to facilitate fleet electrification and mobility electrification throughout Calaveras County.

Reference 6

Customer Name: City of Encinitas	Contact Individual: Crystal Najera
Address: Infrastructure and Sustainability Department, 505 South Vulcan Avenue, Encinitas, CA 92024	Phone Number: 760.943.2285
	EMAIL: cnajera@encinitasca.gov
Project Name: Encinitas EV Charging Station Master Plan	Year: 2022-2023



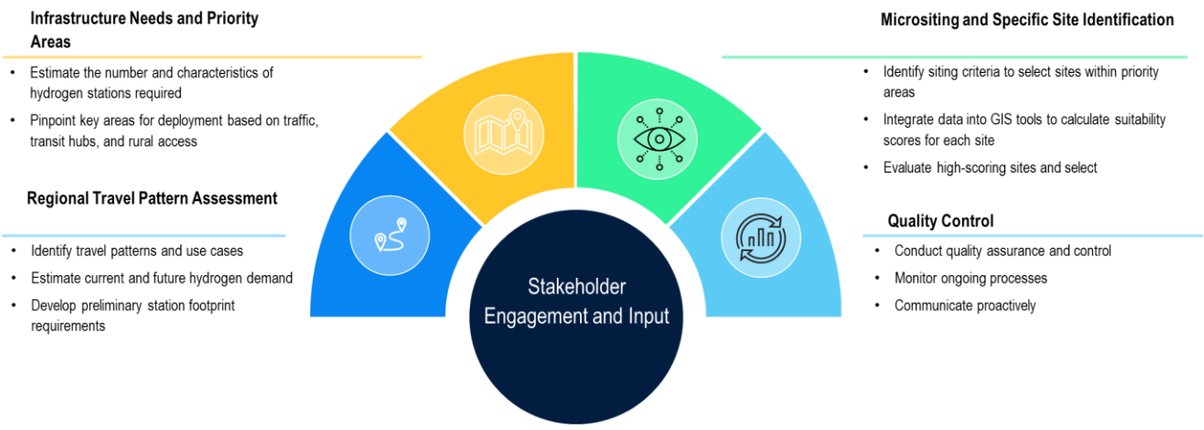
Project Description: DKS prepared an *EV Charging Station Master Plan* for the City of Encinitas to evaluate and locate charging stations within the City and up to five miles from its limits. The project included conducting a needs assessment, defining alternatives, developing a plan to install EV charging stations at nearly all City-owned worksites and public facilities, and providing recommendations to support residential transitions from fossil fuel vehicles to EVs.

Section 4: Project Approach

The ICF team has designed a data-driven work plan to support the Siting Analysis of the North State Hydrogen Fuel Station Network. As summarized in Exhibit 7, the project team will apply a comprehensive assessment process to evaluate existing and future demand, identify infrastructure needs and recommend suitable locations for hydrogen stations. Throughout this process, we will engage project stakeholders and conduct outreach to gather input, inform the analysis and build trust. This is to ensure the strategy aligns with regional needs and expectations, resulting in a user-focused infrastructure network that promotes equitable, efficient, and sustainable transportation solutions.

The following section provides a comprehensive, task-by-task approach detailing our planned methodology for successfully executing this project.

Exhibit 7. ICF's Approach to the Siting Analysis



Approach to Managing Work

ICF brings deep experience in managing complex, multi-stakeholder projects and is committed to delivering high-quality, on-time, and within-budget results. As an active member of the Global Executive Council of the Project Management Institute (PMI) and a PMI Registered Education Provider, ICF's project management practices align with PMI's Project Management Body of Knowledge (PMBOK) and ISO 9001:2015 quality standards.

Our multidisciplinary teams are led by seasoned project managers and deputy project managers with executive oversight. This leadership ensures that all project tasks are aligned with scope, schedule, and budget through regular coordination, milestone reviews, and transparent stakeholder engagement. Our team is skilled at navigating challenges through strategic planning, proactive communication, and collaborative problem-solving, particularly when balancing regulatory requirements and diverse stakeholder priorities.

We will support HCAOG with a clear communication strategy, consistent status updates, and structured feedback loops to ensure deliverables meet quality expectations and project objectives.

Key Principles of Our Management Approach

- Leadership by senior staff with proven technical and managerial expertise
- Clearly defined roles, responsibilities, and lines of authority
- Flexibility to adapt and respond to evolving project needs
- Continuous monitoring of cost, schedule, and quality
- Proactive, client-centered communication

Quality and Fiscal Oversight

Quality assurance/control (QA/QC) is central to our execution strategy. We implement peer reviews, milestone checks, and performance metrics throughout the project lifecycle. QA/QC is supported by regular stakeholder feedback, including from HCAOG and partner agencies.

Our fiscal management system ensures strong budget control through detailed planning, real-time tracking, and transparent financial reporting. We use advanced modeling tools to optimize resources and identify cost-saving opportunities, maintaining a disciplined, value-driven approach to financial stewardship.

Team Continuity and Support

To minimize turnover and maximize team engagement, we foster a collaborative culture, provide administrative and technical support, and encourage professional growth. Technical documentation will be maintained throughout the project, ensuring consistency and knowledge retention across all phases.

Task 1: Project Management and Reporting

Task 1 focuses on launching and managing the project, which will establish the foundation for its success. The approach for each element is outlined in the following sections.

Task 1.1: Project Kick-Off Meeting

The ICF team will hold a project kickoff meeting with HCAOG upon contract execution. The meeting will establish mutual agreement on the project scope, schedule, budget, service expectations, and next steps. It will also define communication protocols and preferences for shared online workspaces (e.g., Microsoft Teams or OneDrive). Any

agreed-upon adjustments to project goals, milestones, or timelines will be incorporated within two weeks. Following the meeting, ICF will provide HCAOG with detailed meeting minutes, including key decisions and action items.

Task 1.2: Project Coordination

Based on the takeaways from the kick-off meeting, the ICF team will collaborate with HCAOG staff to develop a project management plan with defined project goals and key milestones, detailed and adjusted project timeline. This plan will also establish communication procedures, clear roles and responsibilities for all stakeholders, ensuring smooth workflow and efficient resource allocation.

The ICF team will actively participate and lead virtual check-in meetings with HCAOG staff and project team. Our plan is to be proactive and lead these meetings on a regular basis, such as monthly. Draft agendas will be shared a week in advance, to ensure all attendees are prepared, and meeting summaries or notes are to be provided within a week following the meeting. The ICF team will use the meetings to update project status, address concerns, and ensure alignment with project objectives. The ICF team will maintain thorough documentation of all meetings, decisions, and project communications, serving as a central repository of information for stakeholders.

Task 1 Deliverables

Task	Deliverable ID	Description
1.1	1	Kickoff Meeting notes with action items; detailed project timeline and budget
1.2	2	Check-in Meeting notices, agendas and meeting minutes for project management meetings

Task 2: Stakeholder Engagement and Regional Project Kick-off

Planning a hydrogen fueling network across the North State region requires robust data collection and ongoing input from regional stakeholders, particularly those operating ZEVs. Spanning 16 counties, the rural North State faces unique transportation demands, economic conditions, and geographic constraints. To design a network that effectively connects the region to Sacramento and the Bay Area, it is critical to incorporate stakeholder insights that reflect real-world needs and operational realities. This task focuses on building regional consensus and gathering the input necessary to inform the technical analysis in Task 3.

Task 2.1: Stakeholder Engagement Plan

Task 2 will begin with the development of a comprehensive Stakeholder Engagement Plan, which will serve as a strategic roadmap for all outreach activities. This plan will define how we identify, engage, and collaborate with key stakeholders throughout the project lifecycle.

The first step is stakeholder identification and mapping. We will conduct a thorough assessment of the stakeholders referenced in the RFP, as well as additional stakeholders we've engaged through similar regional zero-emission medium- and heavy-duty vehicle initiatives, such as the *California Central Coast Zero Emission Vehicle Strategy*, the *San Joaquin Alternative Fuels Vision Plan*, and the *Northern California Megaregion Heavy-Duty Freight ZEV Study*. For each stakeholder, we will compile a detailed spreadsheet capturing the following information:

- Primary and secondary points of contact
- Specific interests or concerns related to hydrogen infrastructure
- Potential role in project implementation
- Relevant past projects or initiatives
- Current or planned hydrogen vehicle operations and fueling needs
- Level of decision-making authority and influence

Stakeholders will then be categorized based on their expertise, interest areas, geographic relevance, and potential contributions. We will use an influence-interest matrix to prioritize engagement, organizing stakeholders into different tiers based on their level of influence and interest in the project. The preliminary list of stakeholders is summarized in Exhibit 8.

- **Core Partners** (high influence, high interest): Will require regular, in-depth consultation
- **Advisory Stakeholders** (moderate influence or interest): Will be engaged for periodic feedback
- **Informational Stakeholders** (lower direct influence): Will receive updates at key milestones

Exhibit 8. Sample Stakeholder List and Priority Classification

Stakeholder Group	Organizations	Priority Tier
State Agencies	• Caltrans	Core Partners
	• California GO-Biz & Alliance for Renewable Clean Hydrogen Energy Systems	Core Partners
	• California Air Resources Board	Advisory
Regional Planning Agencies	• Regional Transportation Planning Agencies (RTPAs)	Core Partners
	• Metropolitan Planning Organizations in Butte and Shasta	Core Partners
	• Local county air pollution control or air quality management districts	Advisory
Transit Operators	• Public transit agencies	Core Partners
	• Tribal transit operators	Core Partners

Stakeholder Group	Organizations	Priority Tier
Tribal Organizations	• North Coast Tribal Transportation Commission	Core Partners
	• Individual Tribal governments	Advisory
Freight & Industry	• California Trucking Association	Core Partners
	• Freight haulers operating in region	Core Partners
	• North American Council for Freight Efficiency (NACFE)	Advisory
	• Hydrogen OEMs (consultative role)	Advisory
	• Hydrogen Fuel Cell Partnership	Advisory
	• California Hydrogen Business Council	Advisory
Regional Coalitions	• North State Super Region (NSSR)	Core Partners
	• NSSR Zero Emission Vehicle Working Group	Core Partners
Research Institutions	• Schatz Energy Research Center at Cal Poly Humboldt	Advisory

In alignment with Task 3 objectives, we will conduct information requirements mapping to identify the specific data needed from each stakeholder group. Key engagement milestones will be scheduled throughout the project timeline, with clearly defined roles for each stakeholder to ensure targeted and efficient outreach.

- To support this process, we will deploy standardized communication tools, including:
- Email templates for information requests
- Virtual meeting formats designed for efficient data collection
- Documentation templates to ensure consistent capture of input

A comprehensive feedback tracking system will be implemented to record stakeholder contributions and demonstrate how their input informs the analysis. This system will include:

- A centralized database to log all interactions
- A structured review process developed in collaboration with HCAOG staff
- Clear communication procedures, including personalized follow-up for stakeholders whose input meaningfully influences project direction

Task 2.2: Regional Project Kick-off

The team will organize, prepare for, and facilitate two regional project kick-off meetings. For both meetings, we will prepare presentations providing an overview of the project and objectives; preliminary approach, a clear explanation of the stakeholder engagement plan, any specific data needs from RTPAs and MPOs; an overview of project objectives, timelines, and milestones. It is assumed that these meetings will take place in-person.

North State Super Region (NSSR) Meeting

Drawing on our experience facilitating multi-agency workshops, we will prepare and lead an interactive session that introduces the project's goals, methods, and stakeholder engagement expectations. Our preparation will include:

- Coordinating with NSSR leadership to secure an optimal time slot on the meeting agenda
- Developing presentation materials that clearly outline project goals, methodology, timeline, and stakeholder roles
- Preparing engaging visual aids, including regional maps, to help contextualize the project
- Facilitating interactive discussions to gather feedback on the proposed methodology and approach
- Documenting all feedback, questions, and suggestions in a detailed meeting summary

North Coast Tribal Transportation Commission Meeting

The team brings strong experience in facilitating meaningful tribal consultation and engagement as part of regional transportation and climate planning efforts. This includes the Tahoe Regional Planning Agency's Transportation Equity Study, where the team developed equity indices to identify and address transportation barriers impacting tribal communities in the Tahoe Basin. For the Kings County Association of Governments' 2022 Regional Transportation Plan/Sustainable Communities Strategy, the team conducted demographic and revenue projections and led stakeholder engagement activities, including consultation with tribal nations and entities across the region. In the ongoing Nevada County Transportation Commission's Regional Transportation Plan, the team is conducting direct consultation with tribal nations to improve access to tribal lands and cultural resources, while also supporting long-range revenue forecasting and development of a financially constrained capital improvement program. Together, these efforts demonstrate the team's proven ability to engage tribal stakeholders and thoughtfully incorporate their priorities into transportation planning processes.

We will facilitate an engagement session focused on understanding the unique mobility needs and infrastructure challenges of Tribal transit and freight operations. This session will include:

- Collaborating with the Commission to schedule a dedicated presentation
- Developing presentation materials to address Tribal interests and concerns where possible
- Highlighting opportunities for Tribal input and collaboration throughout the planning process
- Gathering and documenting Tribal-specific perspectives and needs

For both meetings, we will use interactive techniques to maximize engagement, including polling tools, small group discussions, and structured feedback sessions. Our facilitation approach will ensure that all participants have meaningful opportunities to contribute.

Task 2.3: Post-Regional Project Kick-off Revisions

After the kickoff meetings, we will document all input and feedback received, organized by theme and stakeholder. Our team will review internally and identify implications for project methodology, engagement approach, data collection needs and if needed, any adjustments to the project timeline.

Based on this analysis, we will update the stakeholder engagement plan, incorporating new stakeholders identified during kickoff, adjust engagement methods based on feedback, modify timelines and document additional identified information needs.

Targeted Follow-up Outreach
Following the kick-off meetings, we will implement our refined outreach strategy, including one round of virtual interviews with key stakeholders (assumed 5-7 key stakeholders to be identified during Task 2.1). These interviews will follow a standardized discussion guide while allowing flexibility to address unique circumstances, such as:

- Major transit operators considering or planning transition to hydrogen buses
- Freight companies operating in the North State region operating or considering operating hydrogen fleets
- RTPAs managing major transportation corridors with potential for hydrogen infrastructure

To broaden stakeholder input, we will also distribute standardized email surveys to additional stakeholders to collect information on:

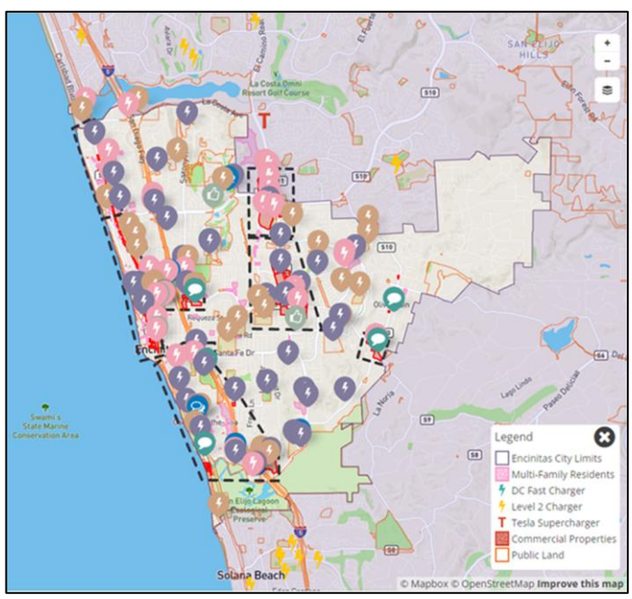
- Current and planned fleets
- Travel patterns and operational requirements
- Existing and planned fueling infrastructure
- Known constraints or concerns

Social Pinpoint Interactive Mapping and Stakeholder Feedback Platform

To support geographically-specific input on potential hydrogen station locations across the North State region, the project team will also use Social Pinpoint as an interactive online engagement tool (Exhibit 9). The platform will feature an interactive map where stakeholders can drop pins and leave comments on specific sites—identifying local constraints, opportunities, and preferences that traditional engagement methods might overlook.

Stakeholders will also be able to view and respond to each other's input, promoting a region-wide dialogue on hydrogen network development. To guide meaningful feedback, the platform will be customized with relevant GIS data layers, including transportation corridors, existing infrastructure, and key areas of hydrogen demand.

Exhibit 9. Social Pinpoint Platform Example



Input gathered through Social Pinpoint will be analyzed and summarized in reports that will directly inform the subsequent micrositing process in Task 3.3 which refers to selecting optimal fueling station locations within broader priority zones. These insights will be integrated with other engagement channels to build a comprehensive picture of regional needs and preferences.

Task 2.4: Documentation and Plan Refinement

We will maintain documentation throughout the engagement process to ensure clear communication and effective stakeholder management.

Track stakeholder communications and feedback
We will use a shared tracking system to document all stakeholder communications, including information requested and received, key feedback and concerns raised, follow-up items, and assigned responsibilities.

Send bi-monthly updates to stakeholders
Throughout the duration of the project, bi-monthly update emails will be sent to the full stakeholder list to share project progress, acknowledge input received, preview upcoming activities, and maintain stakeholder interest and commitment.

Task 2 Deliverables

Task	Deliverable ID	Description
2.1	3	Draft stakeholder engagement plan
2.2, 2.4	4	Documentation of stakeholder outreach, slide decks for regional project kick off at North State Super Region and North Coast Tribal Transportation Commission, slide decks and/or meeting notes from updates provided to stakeholders at the project milestones identified in the Stakeholder Engagement Plan, post-regional project kick-off revisions and follow-up outreach
2.3	5	Final stakeholder engagement plan document

Task 3: Siting Analysis

Building on prior efforts—including the Schatz Energy Research Center's Medium/Heavy-duty Hydrogen Blueprint, HTA's TIRCP grant, Caltrans' Freight Plan, and Shasta County's hydrogen hub initiative—Task 3 will focus on siting hydrogen fueling infrastructure for trucks and transit buses. This includes identifying suitable locations, estimating demand, and determining the optimal number and placement of stations to create an efficient network linking the North State to Sacramento and the Bay Area. Coordination with stakeholders (see Task 2) will ensure the analysis reflects regional needs and priorities.

Task 3.1: Use Cases and Station Sizes

In this phase, we will assess travel patterns, hydrogen demand, and infrastructure needs to guide strategic station siting.

REGIONAL TRAVEL PATTERN ASSESSMENT

The analysis will begin with an assessment of regional travel patterns, emphasizing medium- and heavy-duty vehicle activity along major freight corridors—such as I-5, U.S. Routes 97, 101, and 199, as well as key State Routes that support goods movement. Vehicles operating along these corridors, particularly heavy-duty and selective medium-duty fleets, are strong candidates FCEV adoption due to their long-range needs and fast refueling requirements. To estimate regional hydrogen demand, we will leverage both public and proprietary datasets based on the following approach.

Truck Travel Patterns

We will analyze medium-duty and heavy-duty vehicle travel patterns across the North State region. First, we will establish baseline truck volumes using Caltrans' published Average Annual Daily Traffic (AADT) counts to identify and prioritize corridors with high truck activity. This analysis will focus on major routes such as I-5, U.S. Routes 97, 101, and 199, as well as critical State Routes and routes identified through STAA terminal access network maps and California Legal Truck Route designations. Next, we will analyze heavy-duty truck origin-destination (OD) patterns using Replica, a big data platform, to understand specific movement patterns between economic centers in the region to develop an origin-destination flow matrix that identifies logical connection points for fueling infrastructure. DKS maintains a license for the Replica platform, and this data will be obtained at no cost. Forecasts of truck volumes will be developed for identified corridors using the California Statewide Travel Demand Model (CSTDM) to project how truck movement patterns will evolve and to help prioritize locations that will remain viable as freight patterns shifts.

This analysis will be used to develop a high-priority corridor map for infrastructure deployment and a preliminary list of areas where high-priority corridors converge, creating natural refueling hubs for regional truck operations. To support future station siting, we will also develop maps showing the effective service radius of potential fueling station locations, based on travel range patterns identified in the next subtask. This will help assess coverage along priority corridors and avoid gaps that could create range anxiety.

Transit System Assessment

Building on coordination with regional and Tribal transit operators under Task 2, we will map intercity and long-distance transit routes using General Transit Feed Specification (GTFS) data and agency-provided route information. We will also review Zero-Emission Bus Rollout Plans to identify transit agencies that have designated hydrogen as a preferred technology for specific routes. Emphasis will be placed on pinpointing key transit hubs and maintenance facilities that could benefit from hydrogen fueling infrastructure, supporting agency efforts to transition to zero-emission fleets.

Travel Range Patterns

We will analyze typical daily travel distances of medium- and heavy-duty vehicles in the region based on information provided by stakeholders and findings from the truck travel patterns assessment task. This will help inform spacing and placement of hydrogen refueling stations, ensuring infrastructure recommendations align with the real-world operational needs of regional fleets.

As part of the Task 3 deliverables, we will prepare a summary of our analysis of regional medium- and heavy-duty vehicle travel patterns. The summary will identify priority freight corridors for hydrogen infrastructure, highlight key origin-destination pairs, and recommend station siting search areas based on vehicle movement data, with additional consideration for rural access and other location-specific factors. To support this analysis, we will also develop GIS data and mapping products, including three to five maps that illustrate priority corridors, proposed

search zones for station siting, and major travel flows connecting rural and urban areas. These materials will be integrated into the monthly memos to support ongoing planning and coordination.

HYDROGEN DEMAND PROJECTION

Market and Technological Assessment

As the first step in evaluating the demand of hydrogen, ICF will assess the feasibility of using hydrogen as a fuel across various vehicle types. ICF will examine the current market of fuel cell vehicle and equipment manufacturers, identifying leading industry players and the range of products they offer, such as retrofits and replacements.

ICF Brings Key Technology Insights

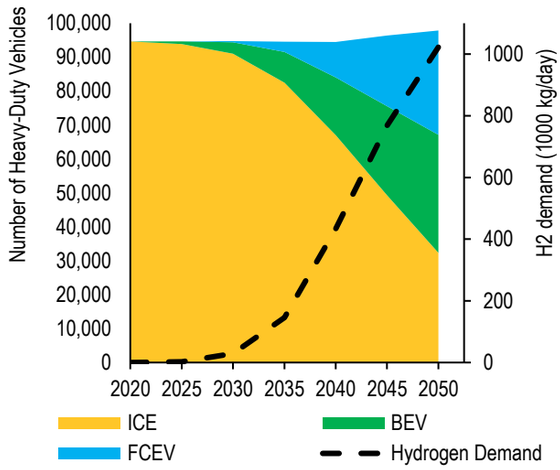
ICF is assessing the potential of **battery-electric and hydrogen fuel cell vehicles for the Ports of Los Angeles and Long Beach**. Through interviews with major OEMs, ICF has gained insights into the latest advancements in zero-emission medium-duty /heavy-duty vehicles.

Hydrogen Demand

Building on current travel patterns and market assessment, ICF will apply forecasting tools to project hydrogen demand across use cases from 2025 to 2050. We will use CARB's latest EMission FACtor model (EMFAC2021), a widely accepted tool for estimating on-road emissions and fleet composition in California. This model will support projections of future FCEV adoption by incorporating market trends and state regulatory targets. ICF will develop up to three demand scenarios, namely baseline, optimistic, and conservative, to reflect varying levels of FCEV uptake and provide a robust range of future hydrogen demand estimates.

To translate hydrogen demand from the projected number of vehicles to fuel consumption in kilograms per day, we will apply vehicle-specific hydrogen consumption rates. These rates will be based on factors such as vehicle type, and typical fuel economy in kg of hydrogen per mile. By integrating these fuel economy metrics with estimated daily travel distances derived from travel pattern analyses, we will calculate total daily hydrogen demand (kg/day) for each use case. An example is presented in Exhibit 10.

Exhibit 10. Example of Hydrogen Demand for Heavy-Duty Trucks



STATION FOOTPRINT & VEHICLE ACCESSIBILITY

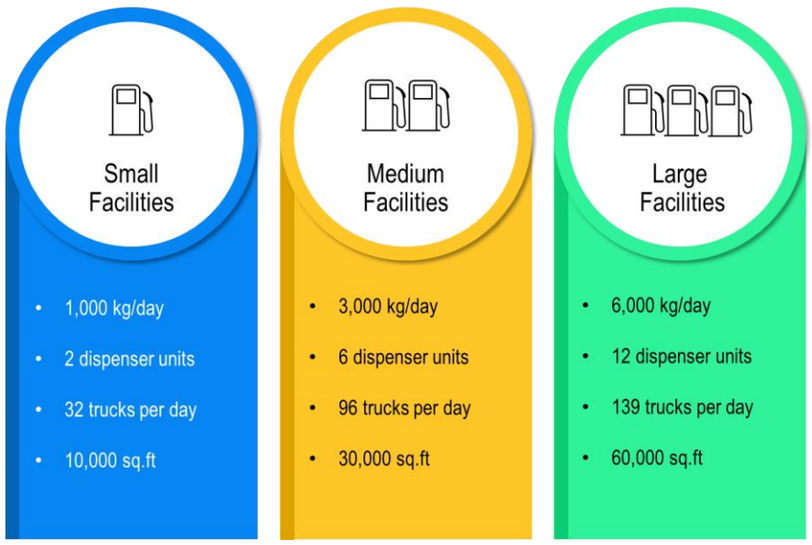
This step will inform Tasks 3.2 and 3.3 by establishing key parameters for hydrogen station footprint and vehicle accessibility. Addressing these considerations early ensures that station design aligns with operational requirements and safety standards. Specifically, this phase will:

- Define typical station footprints based on fueling infrastructure and vehicle access needs
- Identify vehicle types and maneuvering requirements, including turning radii and safety clearances
- Evaluate ingress and egress needs to support safe and efficient fueling operations

We will assess factors influencing station layout, including parking space, safety zones, and dispenser accessibility. Additional design considerations, such as hydrogen supply method (on-site production vs. delivery), storage tanks, and compression equipment will be evaluated for their impact on site size and configuration.

To inform these design parameters, we will review relevant literature, industry reports, and applicable design standards to establish baseline assumptions. Studies such as *Fulton et al. (2023)*, *Lee et al. (2023)*, *CARB, 2022* provide guidance on typical station footprints, hydrogen storage capacities, and dispenser configurations. We will also examine the layout of existing hydrogen refueling stations in California. These assumptions will be refined through ongoing stakeholder coordination and lessons learned from past projects. For example, in supporting SCAG's hydrogen station typology study, ICF worked closely with a Technical Advisory Committee to define key design elements such as facility size, storage capacity, hydrogen throughput, and the number of dispensers (Exhibit 11). These insights will directly inform our analysis to ensure station designs are grounded in real-world experience and aligned with both current standards and future operational needs.

Exhibit 11. Illustration of Hydrogen Facilities Planning in the SCAG Region



Task 3.2: Infrastructure Needs and Priority Areas

To develop a robust hydrogen fueling network, this task will determine the total number of hydrogen stations needed and identify priority placement areas at the macro level. The methodology will be based on the hydrogen demand estimates from Task 3.1, along with vehicle fueling requirements, traffic patterns, and stakeholder input.

NUMBER OF HYDROGEN STATIONS

This task will use an established robust methodology that considers vehicle types, daily fuel consumption, and growth trajectories to project the appropriate number and capacity of hydrogen stations needed across the region. As demonstrated in the projects for CRC Infrastructure Assessment and Pennsylvania ZEV Roadmap update, this approach can model future infrastructure needs by balancing hydrogen supply constraints with anticipated advancements in station throughput and vehicle technology.

Exhibit 12. An Illustration of the Process to Estimate Number and Size of Hydrogen Stations

As demonstrated in Exhibit 12,To estimate hydrogen fueling infrastructure needs, we will align projected hydrogen demand with an assumed station capacity growth schedule to determine the number and size of stations required for each identified use case. As station capacity increases, economies of scale are expected to reduce per-kilogram fueling costs. Using this framework, we will optimize the number and capacity of hydrogen stations needed to meet transportation-related demand.

Drawing on estimates of fuel cell electric truck and transit vehicle populations, we will assess both the potential for scaling up existing stations and the need for new station deployment. In early years, most stations will likely fall within the 200–600 kg/day capacity range, while larger, high-throughput stations (e.g., 2,000 kg/day) will become more viable over time.

PRIORITY AREAS FOR HYDROGEN STATIONS

The first step in identifying optimal hydrogen station locations is to define priority hubs that offer broad regional coverage. These hubs will be selected using geographic and demand data and will serve as the basis for more detailed, parcel-level micrositing. A list of factors to be considered is demonstrated in Exhibit 13.

Exhibit 13. A List of Factors Used to Identify Priority Areas

Siting Factor	Description
Freight Corridors	Prioritize locations along high-traffic trucking routes with concentrated hydrogen demand.
Transit Hubs & Maintenance Facilities	Site stations near key depots to support transit buses and municipal fleet operations.
Trip Patterns & Travel Distances	Ensure station spacing meets fueling needs of long-distance truck and bus travel.
Rural Access Considerations	Support equitable access for long-haul routes and remote operations across rural areas.
Proximity to Alternative Fuel Corridors & DACs	Target areas within federally designated corridors or disadvantaged communities to align with funding and equity goals.

To support this high-level analysis, the project team will use GIS tools to overlay key geographic datasets and identify priority areas for hydrogen station deployment across the region. The scale and resolution of the analysis will depend on data availability, using spatial units such as hexagonal grids, traffic analysis zones, or census tracts. Each area will be scored and ranked based on the siting factors outlined above.

Using these scores, the total number of hydrogen stations estimated for the region will be proportionally allocated to high-priority areas based on relative demand and need. These areas will then serve as general hubs for the next phase of analysis, which will focus on parcel-level micrositing and evaluation of site-specific characteristics.

Task 3.3: Micrositing and Specific Site Identification

In Task 3.3, we will build on the findings from Tasks 3.1 and 3.2, which defined typical station footprints, projected hydrogen demand, and identified key priority areas. We will also incorporate input gathered through the Social Pinpoint platform (Task 2). Within each priority area, up to three candidate sites will be identified for potential hydrogen fueling stations. This process will follow a structured approach.

SITING CRITERIA IDENTIFICATION

In addition to our previous experience, such as with SCAG as demonstrated in Exhibit 15, we will tailor siting criteria to local needs through stakeholder consultation and develop a preliminary list for review. The siting criteria may include, but are not limited to those presented in Exhibit 14. Because GIS data availability varies by jurisdiction, stakeholder coordination will be key to accessing the necessary datasets and mapping tools. After compiling a comprehensive bibliography of relevant documents, data, and map layers, we will work with the project team and stakeholders to establish scoring criteria and calculate a suitability index. Parcels with the highest scores will be identified as leading candidates for hydrogen fueling station development.

Exhibit 14. An Example of Micrositing Criteria

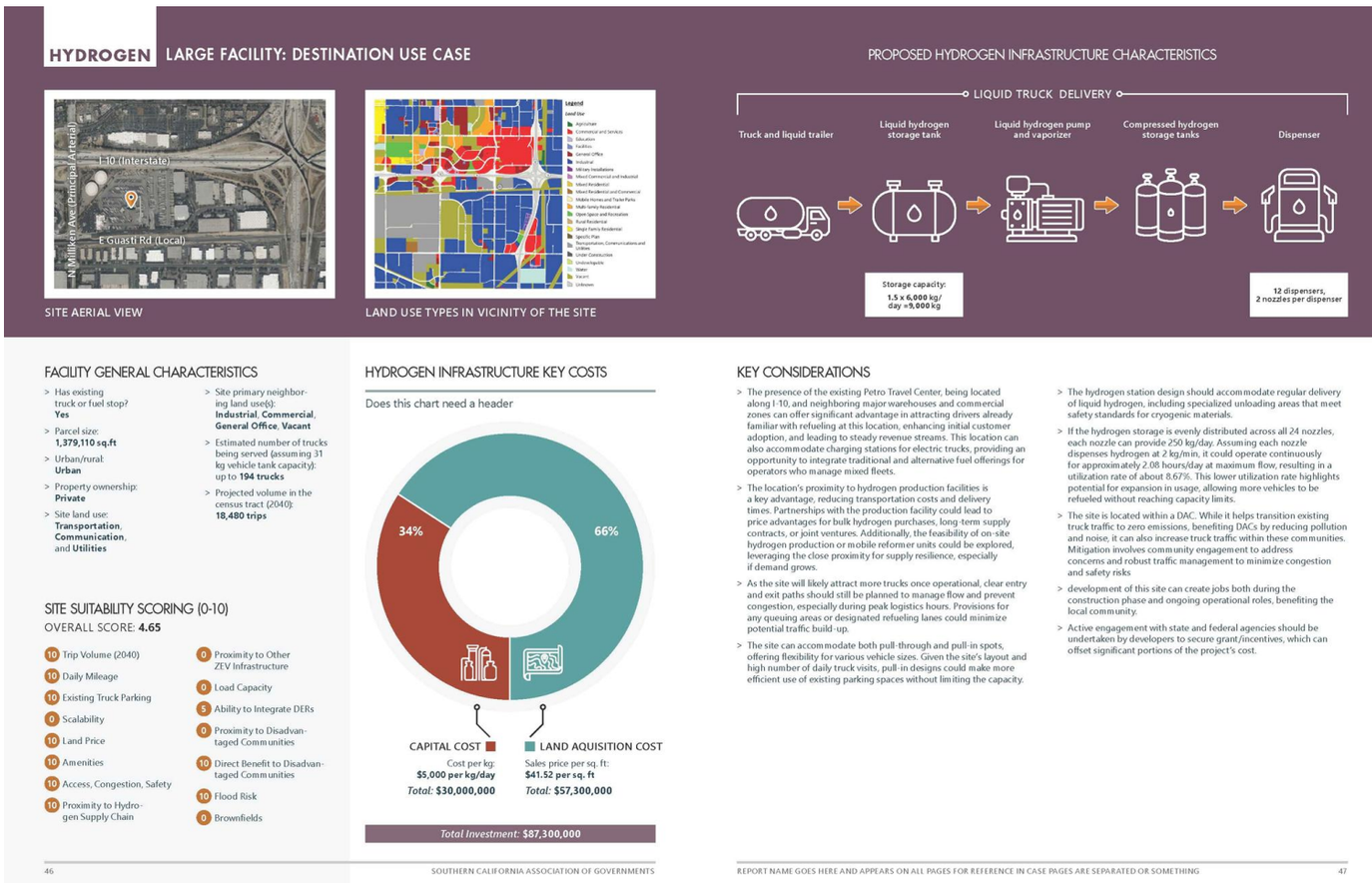
Criterion	Description
Parcel Size & Footprint	Informed by Tasks 3.1 and 3.2, considers space needed for hydrogen throughput, storage capacity, and number of dispensers.
Zoning	Assesses whether zoning allows for hydrogen fueling (e.g., industrial, commercial). Includes consideration of on-site hydrogen production (e.g., electrolysis) and related zoning or permitting needs.
Safety Clearances & Traffic Flow	Evaluates space for safe vehicle maneuvering, especially for large trucks and buses, and adherence to clearance standards.
Access to Major Highways	Prioritizes proximity to key freight corridors and ease of access for long- and short-haul routes.
Ownership Status	Focuses on sites with clear or public ownership, or feasible acquisition potential.
Flat Topography	Ensures safe and efficient installation and operation of infrastructure.
Geologic Suitability	Avoids sites with geologic hazards or constraints that could impact construction or long-term operations.
Proximity to Alternative Fuel Corridors	Aligns siting with federally designated corridors to leverage federal funding and policy alignment.
Proximity to Disadvantaged Communities (DACs)	Prioritizes sites near—but not within—DACs to deliver environmental and economic benefits without increasing traffic-related burdens.
Existing Truck or Transit Stops	Considers co-location with existing infrastructure (e.g., truck stops, depots) to leverage existing facilities.
Ingress and Egress Access	Ensures safe site entry/exit for heavy-duty vehicles, avoiding conflict with residential or high-traffic commercial zones.
Scalability	Evaluates the site's potential to accommodate future expansion based on growing hydrogen demand.
Proximity to Hydrogen Supply Chain	Assesses closeness to hydrogen supply sources (production or distribution), minimizing delivery costs and improving reliability.

Exhibit 15. An example of a Hydrogen Station Siting Analysis for SCAG

FURTHER EVALUATION

The highest-scoring parcels will undergo further evaluation using tools such as Google Earth and Google Maps to verify site suitability. This review will consider surrounding land uses, road conditions, accessibility, and potential barriers to development, including cost factors. We will also assess the feasibility of shared-use stations that serve both transit and freight vehicles to maximize utilization and cost-effectiveness. An example of ICF's parcel-level site assessment from the SCAG region is shown in Exhibit 16.

Exhibit 16. An Example of Individual Site Assessment Developed for SCAG



Task 3 Deliverables

Task	Deliverable ID	Description
3	6	Monthly status updates: brief monthly memos that succinctly indicate progress, questions and needs, notes from monthly check-in meetings

Task 4: Draft and Final Technical Memorandum

After the completion of Tasks 2 and 3, the ICF project team will develop a comprehensive technical memorandum, integrating methods, analysis, and recommendations.

Task 4.1: Administrative Draft Technical Memorandum

The ICF team will begin by drafting a detailed outline for the Administrative Draft Technical Memorandum to ensure all key topics are addressed, including the methodology for defining use cases and estimating station sizes, identifying priority regions and specific site locations, and mapping these areas. The memo will also include recommendations for implementation, such as feasibility assessments, preliminary station design, funding opportunities, regulatory streamlining, stakeholder engagement, and phased deployment. A high-level fact sheet summarizing the project's scope and findings, along with supporting materials such as stakeholder outreach documentation, calculations, and GIS data, will be included. Upon approval of the outline, ICF will submit the Administrative Draft to HCAOG and Caltrans for review, with a two-week window for feedback. ICF will remain actively engaged throughout the review process to address questions and support timely revisions.

Task 4.2: Draft Technical Memorandum

After receiving feedback, ICF will revise and submit the Draft Technical Memorandum. If significant changes are required, ICF will consult with HCAOG on potential timeline adjustments. The draft will be presented to the North State Super Region during a dedicated meeting, where ICF will share key findings, methodologies, and recommendations, and document feedback for incorporation into the final version.

Concurrently, ICF will develop a clear, visually engaging summary presentation for external audiences, highlighting key insights, maps, and recommendations in a format suitable for policymakers, funders, and stakeholders. This presentation will be drafted during the Administrative Draft review, refined with feedback, and finalized alongside the Draft Technical Memorandum for delivery to the North State Super Region.

Task 4.3: Final Technical Memorandum

ICF will thoroughly review and incorporate all feedback received from the North State Super Region to produce a clear, well-structured Final Technical Memorandum. Special attention will be given to enhancing the document's visual appeal and usability. The final product will be designed to be highly visual and engaging, using infographics,

stylized maps, callout boxes, and charts to clearly convey key findings, methodologies, and recommendations. Visual elements will be strategically placed to break up text, highlight takeaways, and improve overall readability for both technical and non-technical audiences.

The Final Technical Memorandum will be formatted to meet ADA accessibility standards, including use of accessible fonts, consistent heading styles, alternative text for all images and graphics, and compatibility with screen readers and assistive technologies.

Upon completion, ICF will submit the Final Technical Memorandum to HCAOG as a high-resolution, fully accessible PDF, ready for both digital distribution and professional printing.

Task 4 Deliverables

Task	Deliverable ID	Description
4.1	7	Administrative Draft Technical Memorandum
4.2	8	Draft Plan Technical Memorandum and Presentation to the North State Super Region
4.3	9	Final Plan Technical Memorandum

Task 5: Regional Presentations

Upon completing the Final Technical Memorandum (Task 4), ICF will deliver up to six tailored virtual presentations to share key findings and recommendations. These will be presented to the North State Super Region, North Coast Tribal Transportation Commission, HCAOG Board, and up to three additional RTPAs, MPOs, or transit agencies upon request. If interest exceeds this number, ICF may organize a joint virtual session open to multiple boards and the public.

Each presentation will be adapted from the public-facing summary developed under Task 4, with adjustments made to address the specific priorities of each audience. If scheduling permits, ICF will also provide one in-person presentation at the annual Far North Transit Symposium in Eureka or Ukiah. Additionally, ICF will recommend relevant freight industry groups—identified through Task 2 stakeholder engagement—that could benefit from a targeted briefing.

Task 5 Deliverables

Task	Deliverable ID	Description
5	10	Meetings, meeting agendas, presentation materials

Section 5: Work Plan and Schedule

The ICF team will begin work upon receiving the HCAOGs Notice to Proceed, anticipated by May, 2025. ICF proposes a fourteen (14) month period of performance to finish the required technical scope as well as accommodate the regional presentations (Task 5), including the presentation to the Far North Transit Symposium, which is anticipated to take place in June or July 2026. While ICF anticipates these presentations in June 2026, we can accommodate a July schedule if needed.

Exhibit 17 outlines the proposed project schedule and timing of major deliverables by task, measured in months from the notice to proceed. At project initiation, ICF will develop a detailed schedule that includes all tasks, subtasks, stakeholder engagement activities, meetings, client review points, milestones, and deliverables. This schedule will be reviewed with HCAOG to ensure alignment and timely delivery.

ICF has the capacity and expertise to complete the full technical scope within the proposed 14-month timeline. Key team members are committed and will remain actively engaged throughout the project. We will also coordinate closely with HCAOG to accommodate scheduling needs, including flexibility for the Far North Transit Symposium.

Exhibit 17. Proposed Project Timeline with Deliverable Numbers

Number of Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Hours
Month/Year	25-May	25-Jun	25-Jul	25-Aug	25-Sep	25-Oct	25-Nov	25-Dec	26-Jan	26-Feb	26-Mar	26-Apr	26-May	26-Jun	
Task 1. Project Management	1	2	2	2	2	2	2	2	2	2	2	2	2	2	97
Task 2. Stakeholder Engagement and Regional Project Kick-off															232
Task 2.1: Stakeholder Engagement Plan		3													44
Task 2.2: Regional Project Kick-off				4	4										71
Task 2.3: Post Regional Project Kick-off Revisions															80
Task 2.4: Documentation and Plan Refinement						5						4		4	37
Task 3: Siting Analysis		6	6	6	6	6	6	6	6	6					418
Task 3.1: Use Cases and Station Sizes															194
Task 3.2: Infrastructure Needs and Priority Areas															100
Task 3.3: Micrositing and Specific Site Identification															124
Task 4. Draft and Final Technical Memorandum															205
Task 4.1: Administrative Draft Technical Memorandum											7				72
Task 4.2: Draft Memorandum												8			82
Task 4.3: Final Technical Memorandum													9		51
Task 5. Regional Presentations														10	43

Section 6: Cost Proposal

Contract Type

ICF Incorporated, L.L.C. (ICF) has prepared this submission on a Time & Material (T&M) basis.

Allocation of Hours

ICF is proposing a not-to-exceed budget of $221,886 for this project, as shown in Exhibit 18. Exhibit 19 provides additional details on the budget and hours per task and labor category. Our subcontractor (DKS)'s hourly rates are fully burdened and have been applied at cost. Minor discrepancies in subtotals and totals may be due to rounding.

Exhibit 18. Price Estimate by Task

Tasks	ICF		DKS		Total	
	Hours	Cost ($)	Hours	Cost ($)	Hours	Cost ($)
Task 1: Project Management and Reporting	74	$18,712	23	$5,476	97	$24,188
Task 2: Stakeholder Engagement and Regional Project Kick-off	11	$2,888	221	$48,895	232	$51,783
Task 3: Siting Analysis	249	$51,781	169	$38,178	418	$89,958
Task 4: Draft and Final Technical Memorandum	205	$41,447	0	$0	205	$41,447
Task 5: Regional Presentations	43	$10,297	0	$0	43	$10,297
Total Labor	**582**	$125,124	**413**	$92,549	**995**	$217,673
Travel Costs		$2,178		$2,036		$4,214
Total Proposed T&M Budget		**$127,302**		**$94,584**		**$221,886**

Exhibit 19. Hourly Rates, Hours per Task, and Budget per Task

Firm	Staff Classification	Hourly Rate	Task 1: Project Management and Reporting	Task 2: Stakeholder Engagement and Regional Project Kickoff	Task 3: Siting Analysis	Task 4: Draft and Final Technical Memorandum	Task 5: Regional Presentations	Cost ($)
ICF	Project Director	$276.70	6	5	15	9	8	$11,898
	Project Manager	$250.76	68	6	74	56	25	$57,424
	Senior Consultant	$261.84	0	0	20	15	0	$9,164
	Consultant II	$181.40	0	0	80	60	10	$27,210
	Consultant I	$155.42	0	0	60	65	0	$19,428
	Total Labor Costs		**$18,712**	**$2,888**	**$51,781**	**$41,447**	**$10,297**	**$125,124**
	Travel Costs		**$1,089**	**$0**	**$0**	**$0**	**$1,089**	**$2,178**
DKS	Principal In Charge	$325.70	2	6	5	0	0	$4,234
	Sr. Advisor, Regional Mobility	$330.79	0	0	26	0	0	$8,600
	Project Manager	$234.09	20	28	74	0	0	$28,559
	Engagement Lead	$320.61	0	16	0	0	0	$5,130
	Engagement Specialist	$223.92	0	140	0	0	0	$31,348
	GIS Specialist	$167.94	0	0	40	0	0	$6,717
	Electromobility Engineer	$162.85	0	0	24	0	0	$3,908
	Engagement Support/Proj. Admin	$142.49	1	11	0	0	0	$1,710
	Creative Services	$117.05	0	20	0	0	0	$2,341
	Total Labor Costs		**$5,476**	**$48,895**	**$38,178**	**$0**	**$0**	**$92,549**
	Travel Costs		**$0**	**$2,036**	**$0**	**$0**	**$0**	**$2,036**
Total Proposed T&M Cost by Task Budget			**$25,277**	**$53,819**	**$89,958**	**$41,447**	**$11,386**	**$221,886**

ICF's estimate is based on experience in performing similar work for HCAOG and reflects the results of the detailed analysis of the different activities to be performed under each task and the total estimated number of deliverables (including drafts and final versions) that will be required. If ICF's proposed price exceeds the available budget for this project, we are open to discussing how our approach could be modified and the price reduced to match the available budget. Additionally, ICF's distribution of hours by labor categories reflects the staffing mix that ICF believes will be most cost effective in completing this work.

Allocation of Other Direct Costs (ODCs)

It is ICF's disclosed accounting practice to recover contract specific ODCs as a direct charge to any specific contract. Such ODCs include but are not limited to data license purchase, courier/messenger, computer related, material/supplies, postage/express mail, printing, reproduction and telephone. ICF has proposed no ODCs in the proposal. Should ODCs be required, ICF will invoice at cost inclusive of applicable general and administrative (G&A) expense.

Allocation of Travel Costs

It is ICF's disclosed accounting practice to recover contract specific travel costs as a direct charge to any specific contract. Per Diem, meals and incidental costs will be in accordance with published per diem rates via the U.S. General Services Administration (G&A) website. Travel and per diem reimbursement costs are consistent with the California Department of Transportation's Travel Guide policies for consultants, contractors, and subcontractors (non-state employees). ICF has provided travel in the amount of $2,178. ICF will invoice at cost inclusive of applicable G&A expense. DKS has proposed travel in the amount of $2,036, which is inclusive of applicable subcontractor administration cost. The total travel cost is $4,214.

Period of Performance

The period of performance is assumed to be May 19, 2025 – June 30, 2026, after contract execution.

Validity Period

ICF's proposal remains valid for a period of 90 calendar days from the date of submission ICF retains the right to review its submission and to extend its offer or to revise its proposal at the end of the 90-day period.

Price & General Assumptions

ICF's proposal is predicated on the following assumptions and clarifications. These items are intended to help HCAOG understand how ICF's solution, timing, resources, roles, and responsibilities formed the parameters of our estimates. Although these assumptions and clarifications frame our proposal response, it is ICF's practice to partner with our clients and resolve issues promptly and in a beneficial manner to both parties. We welcome the opportunity to work with HCAOG to address any questions or concerns that may arise before, during, or after the delivery of our proposed services.

- ICF assumes this proposal shall be incorporated by reference into the contract resulting from this RFP.
- ICF's allocation of effort by task and labor category reflects our best estimate for completing the scope of work. ICF reserves the right to reallocate the hours across tasks and labor categories as we see fit to complete the scope in the most efficient manner within the overall contract ceiling.
- All project deliverables will be provided in an electronic format, Microsoft Office Suite or PDF, unless agreed upon by the ICF and the HCAOG project manager.
- If a delivery date falls on a non-working day, the delivery date will be the following business day.
- All days are presumed to be "business days" unless otherwise specified.
- Should any unforeseen or unknown site conditions at the time of proposal submittal be discovered during the execution of the project, ICF shall not be held responsible for any delays, additional costs, or modifications required to address these conditions.
- HCAOG and ICF shall retain ownership of its respective pre-existing intellectual property.

Payment Terms/Proposed Invoicing

ICF will invoice on a monthly basis for hours and costs incurred. The payment term is net 30 days from invoice date.

Remittance Information and Additional Information

Electronic Funds Transfer Information Only (not for mailed checks)	
Payee	ICF Incorporated, L.L.C.
Account Name	ICF Consulting Group, Inc. Reston, VA
Bank	PNC Bank, 800 17th Street NW, Washington, DC 20006
ABA Number	031207607
Account Number	80-2637-4453

Company Information

Company Name	ICF Incorporated, L.L.C.
DUNS Number	07-264-8579
sam.gov UEI Number	QHBLBNKKV4U3
CAGE Code	5M571
EIN	95-2565362
Size Status	Large Business

Section 7: Required Attachments

ICF Affirmative Action Policy Page 1

Equal Employment Opportunity and Affirmative Action

ICF considers the attainment of equal employment for all a major corporate objective and is committed to providing Equal Employment Opportunity (EEO) to all qualified persons. As an equal opportunity employer, the Company does not discriminate in employment opportunities or practices on the basis of race, color, creed, religion, sex, ancestry, age, physical and mental disability, medical conditions, marital status, citizenship status, national origin, genetic information, covered veteran's or military status, sexual orientation, gender identity, participation in a protected activity (as defined in Section 2000e-3(a) of Title VII of the Civil Rights Act of 1964), or any other characteristic protected by federal, state, or local law including on the basis of traits historically associated with race such as hair texture, hair type, and protective hair styles. All qualified applicants and employees must meet the minimum job requirements established by the Company.

All qualified applicants and employees must meet the minimum job requirements established by the Company. ICF will, once on notice, reasonably accommodate an employee who sincerely held religious belief, practice, or observance conflicts with a job requirement, unless providing the accommodation would create an undue hardship.

This EEO policy applies to all policies and procedures relating to the terms and conditions of employment. Equal opportunity and consideration will be given to all qualified applicants and employees in human resources actions that include, but are not limited to, recruiting and hiring, selection for training, placement, promotion, adjustments in rates of pay or other compensation, benefits, disciplinary actions, transfers, layoffs, or terminations.

Managers shall base employment decisions on the principles of EEO and with the intent to further ICF's commitment to affirmative action and EEO. At no time will any covered employee, or covered applicant for employment, who exercises their rights pursuant to ICF's Affirmative Action Plan (AAP) be subject to discipline or have their opportunities for employment adversely affected.

ICF believes that employee diversity is an excellent way to live the Company's core values and achieve a competitive advantage to accomplish its mission. ICF commits in practice and in its AAP to dedicate resources and take specific actions that result in equal employment opportunities and outreach to minorities, females, covered veterans, and individuals with disabilities. The Executive Vice President and Chief Human Resources Officer serves as ICF's Affirmative Action Officer with responsibility to administer policies and programs to ensure the success of the Company's affirmative action program.

Managers should take action to ensure that all qualified employees, including minorities, females, disabled persons, and protected veterans, are introduced into the workforce, encouraged to aspire to career advancement, and considered as promotional opportunities arise.

ICF's AAP details the Company's affirmative action objectives, measure results, and comply with Executive Order 11246, as amended. Individuals covered by the Rehabilitation Act of 1973, as amended, who want to use the Company's AAP for Individuals with Disabilities, are encouraged to notify an ICF recruiter, their manager, or Human Resources. Submission of this information is voluntary, and refusal

ICF Affirmative Action Policy Page 2

to provide it will not subject individuals to adverse treatment. Information submitted will be kept confidential in accordance with the provisions of the Rehabilitation Act of 1973, as amended.

Employees and applicants shall not be subjected to any form of harassment, including sexual harassment, intimidation, threats, coercion, or discrimination because they have filed or may file a complaint; assist or participate in an investigation, compliance review, or hearing; or otherwise seek to obtain their legal rights related to any federal, state, or local law regarding equal opportunity for qualified individuals with disabilities or qualified covered veterans.

ICF invites any employee or applicant for employment to review the Company's written AAP during regular business hours. Individuals interested in a review of ICF's AAP should contact Human Resources so arrangements can be made to accommodate the request. Questions about the AAP should be directed to ICF's Executive Vice President and Chief Human Resources Officer, ICF's Affirmative Action Officer.

Discrimination and Harassment-Free Workplace

ICF is committed to providing a work environment free from discrimination and harassment, or any form of abusive conduct and strictly prohibits actions that are contrary to this commitment. ICF has zero tolerance for discrimination and harassment and takes affirmative steps to prevent, address, and end such behavior. For further information, please refer to the Workplace Harassment and Sexual Harassment policies in this Employee Handbook.

Reporting Concerns

Employees share ICF's responsibility to prevent discrimination and promote a harassment-free work environment. Employees who believe they have experienced discrimination, workplace, or sexual harassment or have knowledge of such behavior in ICF's work environment are expected to inform a member of ICF management. ICF provides multiple ways employees can bring forth their concerns. Employees can report concerns or questions by contacting any member of management, an ICF Officer, Human Resources, or the anonymous ICF Ethics Hotline. Employees' concerns will be treated confidentially to the fullest extent possible. ICF will promptly take action to inquire, investigate, and resolve employee concerns.

ICF will not tolerate any acts of retaliation against employees who, in good faith, ask questions or raise concerns about behaviors they perceive to be discriminatory or harassing. ICF will not tolerate any acts of retaliation against employees who participate in any investigation of such concerns. Employees who believe they have experienced retaliation should immediately discuss their concerns with their manager, an ICF Officer, or Human Resources.

For further information, please refer to the Workplace Harassment and Sexual Harassment policies in this Employee Handbook.

Disciplinary Action

Violations of this policy may lead to corrective action up to and including termination of employment.

ICF Acknowledgement of HCOAG Addendum Issued 3/13/2025

Cover Sheet

ICF Incorporated, LLC doing business in the State of Californias as ICF Consulting, LLC acknowledges receipt of the HCAOG Addendum issued on 3/13/2025 has been incorporated into this proposal.

Dated: 4/10/2025

By: Janine Egler, Sr Contracts Administrator

Signed: Janine Egler

ICF Minor Sample Consultant Services Agreement Exceptions Request

RFP, Page 11, Section H, Exceptions, Objections and Requested Changes: Each proposer should carefully review the terms and conditions of this RFP and the sample Consultant Services Agreement, Attachment A. Any exceptions, objections or requested changes to this RFP or the sample Consultant Services Agreement shall be clearly identified and explained in the Proposal. Descriptions of any exceptions, objections or requested changes should include the page and paragraph number of the referenced portion of this RFP or the sample Consultant Services Agreement.

ICF requests the following edits to be considered by HCAOG, deletion of the red text and addition of green text:

Page & Clause #	Suggested Change to Clause	Explanation or Justification
Sample Contract, Page 3, Section 3, General Conditions, A. Time.	~~Time is of the essence of in this Agreement.~~ Consultant shall complete all work under this contract on or before subject to, as set forth above, to a Force Majeure Event. A written amendment to extend the completion date may be executed upon agreement from both parties.	This Time provision presents an unreasonable risk to the Consultant due to unforeseen circumstances which may occur in the performance of this contract and are outside of the Consultant's control as well as sequencing and other changes that may be necessary as we work through the scope throughout the period of performance. As "time is of the essence" is a legal term which means any change to any element in the contract schedule could lead to HCAOG having grounds for terminating our agreement, we request this sentence be removed and we work with a mutual understanding that we have an obligation to meet the overall schedule and time requirements in the contract, but that all elements of this schedule are not necessarily as critical to meet the overall objective of the Contract.
Sample Contract, Page 5, Section J, Ownership of Work Product:	Add to the end of the sentence: Each party shall retain ownership of its respective pre-existing Intellectual Property.	ICF would like to discuss adding language that addresses ICF & HCAOG pre-existing intellectual property added as green text.
Sample Contract, Page 5, Section K, Indemnity:	When the law establishes a professional standard of care for Consultant's services, to the fullest extent permitted by law, Consultant shall, indemnify, defend and hold harmless HCAOG, its officials, employees and agents (collectively, "Indemnified Parties") from and against any and all third party losses, liabilities, damages, costs and expenses, including reasonable attorney's fees and costs to the extent same are caused ~~in whole or in part~~ by any negligent or wrongful act, error or omission of Consultant, its officers, agents, employees or sub-Consultants or any entity or individual for which	This indemnification is uncapped with the Consultant solely responsible for any claims and liability. This presents an unreasonable burden to ICF, therefore we are requesting HCAOG to consider adding our reasonable revisions shown in red text to remove and green text to add.

	Consultant shall bear legal liability in the performance of professional services under this Agreement. Other than in the performance of professional services and to the fullest extent permitted by law, Consultant shall, indemnify, defend and hold harmless HCAOG, and any all of the Indemnified Parties from and against any third party liability (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, including reasonable attorney's fees and costs, court costs, interest, defense costs, and expert witness fees), ~~where the same arise out of, are a consequence of, or are in any way attributable to, in whole or in part~~ in the negligent performance of this contract by Consultant or by any individual or entity for which Consultant is legally liable, including but not limited to officers, agents, employees or sub-Consultants of Consultant. Notwithstanding any other provision of this agreement, no Party shall be liable or responsible for any consequential, special, incidental, or punitive damages arising from this agreement.	

Subconsultant List

SUBCONSULTANT LIST – RFP EXHIBIT C

SUBCONSULTANT LIST – RFP EXHIBIT C

The proposal shall include a complete list of all proposed subconsultants. All subconsultants listed must be provided a meaningfu element of work within the defined scope of work. Changes to this Subconsultant List will not be allowed without prior writte approval from RTPA.

Proposed Subconsultants

Subconsultant Firm Name and Address	Scope of Work	Dollar Amount of Work
Name DKS Associates Address 1970 Broadway, Suite 740 | Oakland, CA 94612	Task 1. Project Management and Reporting Task 2. Stakeholder Engagement and Regional Project Kick-off Task 3. Siting Analysis (Travel Pattern Assessment)	$94,584
Name Address		$
Name Address		$
Name Address		$
Name Address		$
Name Address		$

ICF Consulting, LLC

Name of Lead Firm

Lisa M. Williamson Dir, Procurement Compliance & SBLO

Printed Name and Title of Signatory

Lisa M. Williamson

Signature

Digitally signed by Lisa M. Williamson
Date: 2025.04.10 17:08:45 -04'00'

04/10/2025

Date

Staff Resumes

Sam Pournazeri, PhD, PE

Senior Director, Transportation and Energy

Dr. Sam Pournazeri is the Senior Director of Clean Transportation and Energy at ICF, recognized nationally as an expert with over 15 years of experience in advanced transportation technologies, data analytics, emissions and energy modeling, and the development of sustainable transportation strategies. At ICF, Sam is currently assisting a dozen state and local governments with their transportation decarbonization and fleet electrification needs. He collaborates closely with a diverse range of clients, aiding in the design and development of strategies to accelerate the adoption of zero-emission and low-carbon alternatives in the transportation sector. In California, Sam's expertise and leadership have been particularly impactful in the area of municipal fleet electrification. His focused efforts on helping municipalities across the state electrify their vehicle fleets and deploy the necessary charging infrastructure demonstrate his deep industry knowledge and practical experience. This involves a comprehensive assessment of each municipality's current fleet composition, usage patterns, and energy requirements, setting the stage for a smooth transition to electric vehicles (EVs). Before his current role at ICF, Sam made significant contributions at the California Air Resources Board (CARB), playing a key role in shaping the Mobile Source Strategy, a detailed plan outlining the state's future freight and passenger transportation policies for the next three decades.

Years of Experience
Professional start date: 09/2008
ICF start date: 11/2021

Education
PhD, Mechanical Engineering, University of California Riverside, 2012

MS, Mechanical Engineering, University of California Riverside, 2009

BSc, Mechanical Engineering, Sharif University of Technology, 2008

Certifications and Registrations
California Certified Professional Mechanical Engineer (PE), License No. M36830

PROJECT EXPERIENCE

EV Readiness Plan - Tahoe Regional Planning Agency, 1/2024 – 7/2024

Project Manager. Sam managed a project for the Tahoe Regional Planning Agency (TRPA) to update their 2019 EV Readiness Plan. As part of this effort, Sam assisted with EV projections, conducted an EV infrastructure needs assessment, and developed a siting analysis for public and workplace EV charging stations.

Development of Passenger Travel Models – California Energy Commission, 9/2022 – 6/2024

Project Manager. Sam managed a project for the California Energy Commission (CEC) to develop a suite of travel and energy forecast models for passenger transportation, which were incorporated into the CEC's Transportation Energy Demand Forecast. In this role, Sam was responsible for leading a team of modelers and programmers. Together, they worked diligently to create accurate models for various transportation modes, including passenger vehicles, buses, rail, marine, aviation, and microtransit. The objective was to estimate both passenger miles traveled and the corresponding energy demand associated with these modes of transportation. Sam's leadership, expertise, and coordination skills were vital in ensuring the successful implementation of this project.

Medium and Heavy-Duty Vehicle ZEV Blueprint - SANDAG, 06/2022 – 3/2024

Project Manager – Sam led an effort with the San Diego Association of Government (SANDAG) to develop a medium- and heavy-duty (MD/HD) zero-emission vehicle blueprint that guided the transition of freight and transit vehicles to zero-emission technology and highlighted the challenges related to technology readiness, infrastructure availability, and cost. As part of this work, Sam forecasted the MD/HD ZEV adoption in the region along with the charging and fueling infrastructure needed to support them. The blueprint also identified key implementation strategies that the region could take to accelerate the adoption of zero-emission MD/HD vehicles.

Southern California Zero Emission Truck Infrastructure (ZETI) Study, Southern California Association of Governments (SCAG), 11/2023-12/2024

Project Manager. As the project manager on the ICF side for the Southern California Association of Governments' (SCAG) Zero Emission Truck Infrastructure (ZETI) project, Sam plays a crucial role in developing a pioneering and comprehensive plan for a zero-emission vehicle (ZEV) charging and fueling network for medium and heavy-duty vehicles across Southern California. His responsibilities include overseeing assessment of fueling infrastructure needs, siting of zero emission infrastructure, craft strategies for deployment of these infrastructure throughout the region.

Pennsylvania Zero Emission Vehicle Roadmap, Pennsylvania Department of Environmental Protection, 10/2023– 07/2024

Project Manager. As the project manager for the Pennsylvania Zero-Emission Vehicle (ZEV) Roadmap update, Sam led efforts to support the Pennsylvania Department of Environmental Protection (PA DEP) in advancing the state's climate action goals. Sam's role involved overseeing the development of strategies to accelerate the adoption of light-, medium-, and heavy-duty electric and hydrogen fuel-cell vehicles. A key focus was on expanding the necessary charging and hydrogen refueling infrastructure to accommodate the growing ZEV fleet. Sam also ensured the optimization of federal and state funding, while coordinating with the DEP's Energy Programs Office and the Drive Electric PA Coalition to align the roadmap with the state's long-term goals.

Statewide Carbon Reduction Strategy, Washington State Department of Transportation (WSDOT), 2022 - 2024

Project Director. Sam led the development of a statewide carbon reduction strategy for WSDOT. As part of this project, Sam worked closely with WSDOT to identify existing strategies, planned public outreach and stakeholder engagement, assessed the strategies' impacts, and created a Federal Highway Administration-compliant carbon reduction strategy document outlining recommended strategies and policies for meeting the state's 2030 and 2050 greenhouse gas (GHG) emissions goals.

Quantifying the Environmental Justice Impacts of Zero-Emission Vehicles – International Council on Clean Transportation, 4/2022 – 1/2023

Project Lead. Sam led a team of technical and policy analysts across three different firms (ICF, Forth, and Cenex) to assess the disparity in ZEV ownership and usage across various markets. They evaluated current metrics and approaches adopted by different jurisdictions to quantify ZEV equity impacts and examined existing government strategies to enhance equity and promote environmental justice within their ZEV policies. The outcome of this research was to provide the International ZEV Alliance with recommendations on additional strategies and mechanisms that could be employed to strengthen the equity aspects of ZEV policies.

Moreno Valley Electric Vehicle Charging Infrastructure Master Plan, City of Moreno Valley, 05/2023-6/2024

Project Manager. Sam helped the City of Moreno Valley develop an EV charging infrastructure master plan that aimed to provide a systematic approach for the City to build a publicly accessible EV infrastructure network to safely facilitate the movement of electric vehicles within the City and surrounding areas. Sam led all aspects of the project, including evaluating the existing conditions, conducting feasibility assessments, siting analysis, public outreach and engagement, and working with a diverse array of stakeholders in developing the plan. Additionally, Sam helped the city identify opportunities and apply for future capital grants through federal and state grant programs.

Zero Emission Vehicle Strategy, City of San Diego, 08/2023-02/2024

Project Manager. Sam managed a project for the City of San Diego to develop a comprehensive ZEV strategy aimed at achieving the city's ambitious 2035 net-zero emissions goal. The strategy focuses on transforming the transportation sector by accelerating ZEV adoption and ensuring equitable access to charging infrastructure. It addresses key areas such as vehicle affordability, infrastructure availability, and consumer awareness, while outlining actionable steps in policy development, infrastructure deployment, and long-term transportation planning, positioning San Diego as a leader in sustainable mobility and climate action.

Evaluation of the National Health Benefits from the Transition to Zero-Emission Transportation Technologies – American Lung Association, 12/2021 – 3/2022

Senior Consultant - As part of this project, ICF conducted a comprehensive analysis for the American Lung Association (ALA) of the potential health and climate benefits of a scenario for increasing on-road vehicle electrification across the United States. ICF's analysis was the basis for ALA's Road to Clean Air report. As part of this updated assessment, Sam conducted a thorough assessment of EV markets in the U.S. for light, medium, and heavy-duty vehicles, and developed EV adoption rates considering federal and state policies, technology and infrastructure readiness, and industry announcement.

Clean Technology Compendium – Southern California Association of Governments, 1/2023 – 6/2024

Project Manager. Sam led a project for the Southern California Association of Governments (SCAG) focused on developing a Clean Technology Compendium spanning multiple transportation sectors, including passenger vehicles, medium and heavy-duty vehicles, buses, and rail. As part of this initiative, Sam's team conducted comprehensive desk research and a vendor survey, gathering information on various commercially available technologies in the market. They diligently evaluated these technologies based on factors such as the pace of commercialization, environmental impact, cost, and other relevant criteria. The project's objective was to create a technology compendium that not only showcased the available clean technologies but also provided specific recommendations to SCAG and its regional partners on how to expedite the adoption of these technologies in the area.

Fleet Electrification Planning—City of Pittsburg, 1/2023–6/2024

Project Manager. Sam spearheaded the formulation of a comprehensive Fleet Electrification Plan for the City of Pittsburg, CA. The main aim was to shift the city's fleet from reliance on fossil fuels to EVs and to establish the essential charging framework to power these EVs. Sam's role in this pivotal project encompassed several key tasks. He assessed the City of Pittsburg's current fleet and proposed feasible ways to transition the fleet from ICE vehicles to EVs. He led the team in formulating effective strategies for the installation and operation of the necessary EV charging infrastructure. Additionally, Sam estimated the financial implications of both transitioning to EVs and setting up the requisite charging network. He also helped the City identify potential roadblocks to the fleet's transition and proposed viable solutions to navigate these challenges. Lastly, Sam developed a strategy to capitalize on incentive funding opportunities and explored various financing options and innovative business models.

Fleet Electrification Planning—Midpeninsula Regional Open Space District, 6/2023–Present

Project Manager. As the project manager for the two-phase project at the Midpeninsula Regional Open Space District (Midpen), Sam is leading the development of a master plan, focusing on evaluating Midpen's fleet, transportation needs, staffing, and budgetary constraints, along with current operating and maintenance costs. His goal is to strategize the transition of Midpen's fleet to clean transportation options, including zero emission and fossil fuel–free technologies, by 2030. This involves assessing the need for charging and fueling infrastructure, providing guidance on data management tools for efficient fleet operations, conducting cost-benefit analyses, developing a decision-making tool for future vehicle replacements, and identifying potential funding sources for the green fleet transition. Following the successful completion of Phase 1 and upon Midpen's approval, Sam will lead Phase 2, which entails performing a market assessment of available fleet management systems and evaluating their compatibility with Midpen's operational needs. Once a system is selected, he will collaborate with the chosen vendors

and Midpen staff to configure the system, preparing training materials and providing guidance to ensure a seamless transition and efficient operation of the new green fleet.

Fleet Electrification Implementation Rollout Strategy—City of Raleigh, 06/2022–6/2024

Technical Lead. This project is intended to develop a Fleet Electrification Implementation Rollout Strategy for the City of Raleigh, NC. The strategy aims to evaluate the City's fleet and provide recommendations for transitioning from fossil fuel vehicles to clean transportation options, identify potential funding sources and procurement strategies, develop a sustainable EV charging infrastructure plan for City fleet vehicles, provide a training plan and educational guidelines for City staff who will operate EVs, review the City's EV charging software system solution and recommend best practices for aligning software, and provide recommendations to improve accessibility and address equity issues through electrification and charging infrastructure deployment. This plan will serve as a blueprint for how the City can transition its fleet to electric and alternative-fueled technologies and deploy the charging infrastructure needed to power them.

EV Fleet and Charging Master Plan—City of Laguna Beach, 06/2022–06/2023

Project Manager. Sam led the development of an EV Fleet and Charging Station Assessment Master Plan for the City of Laguna Beach, CA. The plan aimed to evaluate the City's fleet and provide recommendations for transitioning from fossil fuel vehicles to clean transportation options, deploy EV charging stations for City fleet vehicles, provide guidance on decommissioning unnecessary propane and fossil fuel City infrastructure, install EV charging stations throughout the community for public use, and identify potential funding sources to facilitate the transition to an all-electric fleet. Through these initiatives, Sam ensured a comprehensive approach to modernizing the city's transportation infrastructure and promoting sustainable practices.

Citywide Fleet Electrification—City of Lodi, 08/2022–05/2023

Project Manager. Sam led the development of a Citywide Fleet Electrification Plan for the City of Lodi, CA, transitioning their fleet away from fossil fuels and deploying the necessary charging infrastructure to power their EVs. The primary objective of this project was to develop a plan enabling the City to meet the compliance requirements of the Advanced Clean Fleet regulation in the most cost-effective manner possible. As part of this project, Sam helped the City of Lodi to (1) evaluate the City's fleet and provide recommendations to transition from ICE vehicles to EVs; (2) develop recommended charging infrastructure implementation strategies; (3) estimate the costs to transition from ICE vehicles to EVs and to develop and deploy charging infrastructure; (4) discuss the barriers to fleet transition and describe strategies to overcome them; and (5) develop a plan to leverage incentive funding and evaluate options for financing and innovative business models.

Fleet Electrification Planning—City of Iowa City, 4/2023–6/2024

Project Manager. As the project manager, Sam assisted the City of Iowa City with the development of a fleet electrification and EV infrastructure plan. This ambitious project aimed to transition the city's fleet of nearly 200 vehicles to electric vehicles (EVs). In this capacity, Sam was responsible for designing a tailored EV replacement plan, which involved a detailed analysis of each vehicle's usage, lifecycle, and the appropriate timing for replacement. Alongside this, he developed a comprehensive EV infrastructure plan, ensuring that the necessary charging stations and support systems were in place to facilitate this transition. A key aspect of Sam's role involved conducting an in-depth grid and facility capacity analysis. This task was particularly challenging, as it required coordination and collaboration with half a dozen utilities serving the city's facilities, necessitating a nuanced understanding of the local energy infrastructure and its capabilities. Through these efforts, Sam crafted a blueprint that would guide the City of Iowa City in transitioning its fleet to EVs over the next 15 years.

Transportation Modeling Options – California Energy Commission, 11/2021 – 03/2022

Project lead. Sam led a team at ICF to evaluate the existing travel demand models utilized by CEC within the Dynasim – the software system that CEC use to project and estimate transportation energy demand under various scenarios and identify the limitation of the existing models. Sam also reviewed a dozen of various travel demand

models and VMT forecasting frameworks and provided CEC with recommendations on the VMT forecasting tools that the agency can use.

Clean Truck Technology Comparative Report – LA Metro, 05/2022 – 09/2022

Deputy Project Manager – Sam co-managed a project with LA Metro to provide an objective assessment of four types of vehicle technologies (i.e., diesel, hydrogen, battery electric, and natural gas) over immediate, short-, medium-, and long-terms, focusing on market maturity, infrastructure and energy supply readiness and needs, cost of ownership, emissions and public health impacts, and barriers to adoption. As part of this report, Sam provided insights on the level of technology transformation needed for LA Metro to meet its public health and climate goals, as well as the scale of fueling and charging infrastructure build-out to support this transition. The report served as a technology and infrastructure roadmap to inform decision-making among policymakers and Metro staff.

Carbon Reduction Strategy, Georgia Department of Transportation (GDOT), 2022–2023

Project Director. Sam led the development of a carbon reduction strategy for GDOT. This plan satisfied the requirements of the 2021 Infrastructure Investment and Jobs Act. In coordination with the metropolitan planning organization, Sam and the team identified key strategies that the state was currently implementing and those that could be adopted to reduce emissions from the state's transportation system.

Development of Baseline Emissions Inventory for Transportation Network Companies (TNC) —California Air Resources Board, Sacramento, 01/2019–12/2019

Program Lead. Senate Bill 1014 (SB 10141), enacted in 2018, directed the California Air Resources Board (CARB) and the California Public Utilities Commission (CPUC) to develop and implement measures to reduce GHG emissions from transportation network companies (TNC). As the first step through this process, Dr. Pournazeri led a technical team within CARB to analyze over approximately 1.4 billion trip records provided by the TNC companies such as Uber and Lyft to determine the Greenhouse Gas (GHG) emissions associated with TNC operation in California. This metric was used to determine the regulatory stringencies as part of the California's Clean Mile Standard (CMS) regulation.

California's Mobile Source Emissions Inventory—California Air Resources Board, 01/2012–10/2021

Program Lead. Development of sophisticated modeling platforms to assess the environmental impact of transportation policies in California. As part this effort, Sam led a team of 35 scientists and engineer focused on developing and implementing data analytics and emissions modeling platforms to inform design and structure of various transportation policies implemented by the California Air Resources Board.

2020 Mobile Source Strategy—California Air Resources Board, 01/2020–10/2021

Program Lead. The mobile source strategy serves as the blueprint for the next generation of transportation policies that California needs to tackle over the next three decades. It defines the technology mixes needed in the transportation sector for California to achieve its clean air goals including near term air quality and longer-term climate targets. Within these efforts, Dr. Pournazeri had the opportunity to work directly with almost all the mobile source and fuel programs within the California Air Resources Board and provide an integrated planning perspective and common vision for transforming the transportation sector. He utilized his extensive knowledge and experience in transportation and freight system technologies to navigate the team through challenging and politically sensitive policy issues during the development of the plan.

EMPLOYMENT HISTORY

ICF. Senior Director of Clean Transportation & Energy. San Francisco. 3/2023–Present
ICF. Director of Clean Transportation & Energy. San Francisco. 11/2021–3/2023.
California Air Resources Board. Branch Chief. Sacramento. 02/2012–10/2021.

Theodora Konstantinou, PhD

Lead Consultant, Transportation and Energy

Theodora Konstantinou is a lead transportation and energy consultant at ICF with eight years of experience in transportation electrification and decarbonization. Her work at ICF focuses on developing zero-emission vehicle (ZEV) roadmaps and charging infrastructure plans at the state and local levels. Prior to joining ICF, Theodora gained experience at the electric vehicle (EV) Research Center of the Institute of Transportation Studies at the University of California, Davis, where she led and oversaw research projects related to the used vehicle market and its implications for EVs, equity concerns regarding the impact of incentives on EV adoption, and EV adoption in rural areas. Theodora holds a PhD in Transportation and Infrastructure Systems Engineering from Purdue University, specializing in medium and heavy-duty vehicle electrification by examining the barriers to adoption and determining optimal locations for charging infrastructure deployment.

Years of Experience
Professional start date: 08/2017
ICF start date: 10/2023

Education

PhD, Civil Engineering, Purdue University, 2022

MS, Civil Engineering, Purdue University, 2018

BS, Rural & Surveying Engineering, National Technical University of Athens, 2016

Technical Skillset:

Microsoft Office, ArcGIS, NLOGIT, Python

PROJECT EXPERIENCE

Climate and Energy Action Plan, City of Frederick and County of Frederick, 10/2024-Present

Task Lead. Theodora is leading the development of strategies to accelerate EV adoption and charging infrastructure deployment in Frederick County, as part of the county's Climate and Energy Action Plan. Data collection and siting analysis are conducted to identify residents with challenging charging needs, assess barriers to EV adoption, and identify sites for EV charging infrastructure. Additionally, the task involves research on EV-related codes, ordinances, and permitting processes and providing policy recommendations for the county to facilitate EV charging. The task also includes designing public engagement strategies to gather stakeholder input and support the implementation of best practices for equitable EV adoption.

City of Santa Ana Fleet Electrification & EV Master Plan, City of Santa Ana, 08/2024-Present

Project Manager. Theodora is leading the development of a Fleet Electrification & EV Master Plan for the City of Santa Ana, aligned with the Advanced Clean Fleets (ACF) regulation. The project includes assessing the city's current fleet and infrastructure, identifying electric vehicle replacement options, evaluating site-specific fleet and public charging needs, assessing grid capacity, coordinating with utilities for potential upgrades, developing strategies for cost-effective infrastructure deployment and crafting city-specific policies and workforce training programs to support the transition to EVs.

City of Lodi Electric Vehicle Charging Infrastructure Master Plan, City of Lodi, 10/2023–Present

Technical Lead. Theodora is overseeing the project funded by the City of Lodi to develop a comprehensive and thoroughly considered EV Charging Infrastructure Plan for the City of Lodi. This Plan provides a systematic approach to building a publicly accessible EV infrastructure network to safely facilitate the operation of EVs within the City and surrounding areas. It includes an assessment of current and anticipated EV and charging infrastructure conditions, feasibility analysis, siting and cost analysis for EV charging infrastructure investment, as well as support for public

outreach and engagement efforts. Additionally, the plan will identify various available business models for the City to consider and assist in the selection of potential contractors to deploy public charging infrastructure.

Southern California Zero Emission Truck Infrastructure (ZETI) Study, Southern California Association of Governments (SCAG), 11/2023-12/2024

Technical Lead. Theodora led the development of a tool for siting medium- and heavy-duty zero-emission vehicle infrastructure in the SCAG region. This tool will assist local jurisdictions in assessing sites for their suitability and potential for electric charging and hydrogen infrastructure dedicated to zero-emission trucks. The tool considers five primary groups of siting criteria: utilization, land, equity, grid capacity, and environmental conditions, with specified sub-criteria to consider within each category.

Advanced Clean Energy Fleet (ACF) Transition Assessment, Vallejo Flood and Wastewater District, 04/2024-Present

Deputy Project Manager. Theodora assists in developing a comprehensive Zero-Emission Vehicle (ZEV) Transition Plan for the Vallejo Flood and Wastewater District. She contributes to assessing the District's current fleet and infrastructure, ensuring alignment with CARB's ZEV mandates and the Advanced Clean Fleets (ACF) rule. This involves helping to determine electric vehicle replacement recommendations as well as the optimal number, type, and placement of refueling stations, and analyzing the costs and timeline for deployment. Theodora also supports the evaluation of site and grid upgrades needed to meet the increased power demand for ZEVs.

2024 Feasibility Assessments for the Clean Air Action Plan (CAAP) – Class 8 Trucks, Ports of Los Angeles and Long Beach, 06/2024-Present

Technical Lead. Given the Port's commitment and the state's mandate to transition drayage trucks to zero-emission technology, Theodora is leading the feasibility assessment of zero-emission technologies. Theodora is evaluating the technical, operational, and economic feasibility, as well as the commercial availability and supporting infrastructure for Class 8 battery electric and hydrogen trucks. This includes coordinating data collection, stakeholder interviews, and applying methodologies to assess technology readiness levels and total cost of ownership, aiming to align with CAAP's objectives and timelines.

Avangrid Medium/Heavy Duty Electric Vehicle (EV) Adoption and Forecast, Avangrid, 04/2024-Present

Task Lead. Theodora supports Avangrid in preparing for the grid impact of fleet electrification within its service territory. Her work includes forecasting EV adoption rates, determining charging infrastructure needs, and estimating load requirements for both public and depot EV charging stations at the fleet premise level. This analysis will inform the development of a mapping tool that provides detailed insights into EV adoption, anticipated load, and the number of chargers needed at each potential depot and public charging location.

LA County Zero-Emission Mobility Plan, LA County, 05/2024-Present

Task Lead. Theodora is leading the development of a funding and inventory plan for LA County for EV acquisition and EV charging infrastructure. This plan recommends specific grants, rebates, and utility programs to minimize costs for member agencies transitioning to an electric fleet. This plan includes details on eligibility criteria, opportunities to stack funding, and public-private partnerships to further reduce the transition costs to an all-electric fleet.

Pennsylvania Zero-Emission Vehicle (ZEV) Roadmap, **Pennsylvania Department of Environmental Protection, 10/2023-06/2024**

Technical Lead. Theodora supported the Pennsylvania Department of Environmental Protection to update its 2018 EV Roadmap. Given her experience in medium- and heavy-duty vehicle electrification, Theodora bridged a gap in the current EV roadmap by undertaking a thorough assessment of Pennsylvania's current medium- and heavy-duty zero-emission vehicle (ZEV) landscape, and aiding in the development of near-, mid-, and long-term strategies for the accelerated adoption of ZEVs and their associated infrastructure in Pennsylvania.

Evaluating the Potential of Truck Electrification and its Implementation from User and Agency Perspectives, National Science Foundation & Indiana Department of Transportation (INDOT), 01/2019-08/2022

Project Manager. Theodora organized and directed this research project from inception to completion. Theodora designed the research methodology, managed resources effectively, setting objectives, and ensuring the project's successful outcomes. In this project, Theodora developed a framework to inform policy making and enhance electric vehicle (EV) preparedness in the trucking industry in the United States through the study of two interrelated elements: (a) the adoption of electric trucks and (b) the appropriate implementation of electric truck technology, which included developing a model to identify candidate locations for electric truck charging infrastructure.

EMPLOYMENT HISTORY

ICF. Lead Transportation and Energy Consultant. Los Angeles, CA. 10/2023–Present.
University of California, Davis-Electric Vehicle (EV) Research Center. Researcher. Davis, CA. 09/2023–09/2024.
Purdue University. Research Assistant. West Lafayette, IN. 08/2017-08/2022.

PUBLICATIONS

Google scholar

Fang Yan, PhD, PE

Director, Clean Transportation and Energy

Fang is a Direct of Clean Transportation and Energy who brings in over 15 years of experience in emission modeling, public polices, and clean fuel and vehicle technologies to support clients in navigating the technical, economic, and regulatory challenges in decarbonization. Before her current role, she oversaw ICF's Lifecycle Assessment (LCA) for low carbon fuels transactions under various state and federal programs. She focuses on zero-emission vehicles related regulatory and strategy assessment, and transportation modeling, while maintaining a broad expertise in Low Carbon Fuel Standards (LCFS). She led California Air Resources Board (CARB)'s Innovative Clean Transit Regulation development and brought rich experiences in battery electric and fuel cell electric vehicle technologies, charging and hydrogen infrastructure, as well as total cost ownership of zero-emission vehicles. She managed Mobile Source Strategy and layout of the land of California's future transportation system to zero-emission technologies. She also worked closely and collaborated with California Energy Commission and Public Utilities Commission to forecast infrastructure needs to accommodate California's fleet transition to meet air quality and climate goals.

Fang has extensive tool development and data analytics experience using Python and MySQL. Prior to joining ICF, she was a manager of CARB's mobile source emission modeling, led scenario analyses and technical assessment of various regulations and policies, and oversaw the on-road emission inventory, also known as EMFAC, which has been used worldwide by over thousands of modelers from government, industry, and academia.

Years of Experience
Professional start date: 2006
ICF start date: 02/2022

Education
PhD, Environmental Engineering,
University of Illinois at Urbana and Champaign, 2012

MS, Environmental Engineering,
University of Illinois at Urbana and Champaign, 2008

BA, Environmental Engineering,
Tsinghua University, China, 2006

Certifications
Professional Engineer in Chemical Engineering in

PROJECT EXPERIENCE

EV Fleet Feasibility Study – Prince William Couty Public Schools (PWCS), 11/2024- Present

Project Manager. Fang is working with PWCS to first perform fleet transition planning to develop a vehicle replacement schedule, identify pilot EV replacements, and detail necessary charging requirements. She leads the design and evaluation of charging infrastructure scenarios, followed by an assessment of load capacity and needed electrical upgrades. Building on these insights, Fang also helps to estimate infrastructure costs and create a roll-out schedule. Finally, she will synthesize all findings into a comprehensive 10-year phased Master Plan, including actionable strategies for PWCS to effectively transition to a zero-emission fleet.

Master Phased Plan for Zero Emission Fleet Transition – City of San Diego, 06/2024 – Present

Project Manager. Fang helps the City of San Diego to develop a zero-emission fleet transition plan for both light and heavy-duty vehicles operating in the City. Fang provides technical led in several aspects: (1) evaluation of the City's Geotab data to assess fleet operation and replacement needs, (2) scenario analysis of charging infrastructure needs and electrical load capacity, and (3) cost estimates of ZEV and infrastructure rollout. Fang also helps with the coordinates with the City and local utility to review the existing capacity and identify potential upgrade needs.

Logistics Net Zero Study– Molson Coors, 06/2024 – Present

Deputy Project Manager. Fang leads the development of scenario analysis tool to explore different decarbonization levers, including mode or fuel shifts, Smartway or other technology improvement, optimization of routes and deadhead reduction, and other logistics and operational changes. Fang also distinguishes the strategies by tiers of logistics, such as inbound of materials, outbound from facilities to distribution centers as well as distribution centers to retail stores, and on-site trucks.

Greenhouse Gas and Carbon Emissions Reduction Program – Hawaii Department of Transportation (HDOT), 06/2024 – Present

Technical Lead. The purpose of this project is to develop a greenhouse gas & carbon emissions reduction program to support Hawaii's Clean Energy Vision and Climate Change Policies, and comply with federal regulations. Fang leads the existing policies and GHG reduction strategies assessment and develops quantitative methods to evaluate emission reductions at project and program level. In addition, Fang coordinates with the client and helps with a series of stakeholder interviews to identify activities that each functional units at HDOT has been planned and will be implemented to reduce GHG emissions.

Clean Hydrogen Hubs Strategic Plan and Deployment Guide – New Mexico Department of Transportation (NMDOT), 03/2024 - Present

Project Manager. Fang leads the technical supports of listening sessions to gather information from key stakeholders (e.g. state agencies, local governments and utilities, adjacent states, private sectors, and nonprofits) about needs, opportunities, and risks to inform the development of a work plan. Fang also develops two guidance documents to help NMDOT establish hydrogen strategic and deployment plans: (1) Clean Hydrogen Hubs Strategic Plan; and (2) Clean Hydrogen Hubs Deployment Guide.

Assessment of Future Transportation Hydrogen Demand & Economics in Hawaii – Hawai'i State Energy Office (HSEO), 08/2023 -03/2024

Technical Expert. Fang provides comprehensive demand and economic analysis to develop estimates for the anticipated demand for hydrogen in the transportation sector and the overall cost of transitioning a fraction of the sector, most suitable for this technology, to hydrogen-powered vehicles. This assessment covers various sectors, including land transportation, marine, and aviation. Fang assesses fuel cell technologies feasibility and market availability of on-road cars and trucks as well as marine and aviation sectors. Fang develops models to evaluate hydrogen demand from marine and aviation sectors, both directly by applying hydrogen as a use and indirectly using hydrogen as feedstock for other low carbon fuel productions. She also evaluates the cost of hydrogen power technologies and fuel productions where clean hydrogen is involved.

Zero-Emission Bus Rollout Plan – City of Lodi, 12/2022 – 06/2023

Project Manager. Fang led zero-emission bus (ZEB) rollout plan projects to help clients meet the requirements of Innovative Clean Transit (ICT) regulations. She was a project manager for ZEB rollout plan for City of Lodi. She worked with the client to analyze the fleet operation and vehicle characteristics, evaluate potential ZEB technologies, such as battery electric and fuel cell electric buses, that can be used by the clients to make full transition to zero-emission, estimated charging or hydrogen refueling station needs, and also made analysis of total cost of ownership to estimate the financial impact of ZEB transition. The final report was submitted to California Air Resources Board (CARB).

Assess the Battery-Recharging and Hydrogen-Refueling Infrastructure Needs, Costs and Timelines Required to Support Regulatory Requirements for Zero-Emission Vehicles - Coordinating Research Council (CRC), 06/2023 – 10/2023

Technical Expert. Fang leads ICF's support to CRC and assesses the national demands and cost of charging and hydrogen fueling infrastructure in support of transition the light-, medium-, and heavy-duty vehicles to ZEVs. Based on the transition to FCEVs and hydrogen demand, Fang estimates the number, location, size, costs, and timelines for creating the necessary hydrogen refueling stations by capacity. Fang also makes analysis of total capital costs of hydrogen station installation with the consideration of market scaling up and technology advancement. Fang assesses the gaps of hydrogen infrastructure in its supply chain, including production, storage, delivery and transportation.

Development of Transportation Travel Demand Model, CEC, 09/2022- 06/2024

Technical Expert. Fang leads the development of passenger rail and microtransit modules of the statewide travel demand model for the CEC Transportation Energy Forecasting Unit to project and estimate transportation energy demand. This tool will be crucial for CEC's energy demand forecasting and California's overall clean transportation planning efforts.

Lifecycle Assessment of Hydrogen and E-Methane for Evaluation of 45V Credits and Marine Fuel Use – Confidential Client, 11/2023 – 06/2024

Technical Expert. Fang leads the lifecycle assessment of green hydrogen production with the consideration of hourly temporal matching, deliverability and increment ability requirements under Section 45V of Inflation Reduction Act (IRA). Fang also develops a marine fuel LCA model for e-methane produced from green hydrogen and biomass-based carbon dioxide (CO2) under the framework of Maersk Mc-Kinney Moller Center for Zero Carbon Shipping (MMMCZCS).

LCA of Hydrogen via Autothermal Reforming and Assistance in Hydrogen Hub Applications—Confidential Client, 2022–2023

Technical Expert. Dr. Yan acted as the technical lead in the LCA of a hydrogen hub application. She developed an LCA with the flexibility to turn on and off carbon capture and a sequestration option, optimization of the mixing ratio of renewable natural gas (RNG) as feedstock, and several other decarbonization strategies to show ranges of carbon intensities.

Evaluation of Hydrogen Carbon Intensity and Assessment of 45V Credits—Confidential Client, 2022–2023 and 2024

Technical Expert and Project Manager. Dr. Yan managed and led an evaluation of carbon intensity for green hydrogen generated by wind and solar renewable power via electrolysis. A grid connection was considered to export renewable electricity if excessive electricity was generated or import grid electricity if insufficient renewable electricity was made for hydrogen production. To accommodate the client's requests and potential directions by the IRA, scenarios with different temporal resolutions (hourly, monthly, quarterly, and annually) were created to match renewable electricity certificates and assess values of 45V credits based on estimated carbon intensities.

Market and Incentive Review of Hydrogen and RNG—Various Clients, 2022–2024

Technical Expert. Dr. Yan explores the anticipated short- and long-term evolution of the U.S. Environmental Protection Agency's Renewable Fuel Standard program and California's LCFS program and forecasts the interactions and merging of future energy markets with upcoming low-carbon fuel programs and ZEV standards in California and the United States and internationally. The clients include Global Common Energy, H Cycle, and Leyline Renewable Capital.

Analyzing Future California Low Carbon Fuel Targets – Low Carbon Fuel Coalition et al, 10/2022 – 12/2023

Technical Expert. To support an analysis of the greenhouse gas benefits of various scenarios for the California's Low Carbon Fuel Standard (LCFS), Fang developed a model to estimate potential demand of fuels by California's on-road transportation sector, including gasoline, diesel, natural gas, electricity and hydrogen, by considering zero-emission regulations, such as Advanced Clean Car II (ACCII), Advanced Clean Truck (ACT)/Advanced Clean Fleet (ACF), Innovative Clean Transit (ICT), all of which introduces electricity and hydrogen as alternative fuels.

Growth Energy, Grön Fuel, California Bioenergy, and Allotrope.

Mobile Source Emission Modeling - CARB, California, 2019 – 2022

Team Manager. Fang led and managed a technical and data driven team of 10+ scientists and engineers with PhD degrees to develop the next version of EMFAC, CARB's official on-road mobile source emission inventory, promoted innovate approaches to improve emission inventories, such as big data of transportation analytics. In addition, with hands-on experience in programming, particularly in Python, R, and MySQL, she led several data analysis projects

based on granular vehicle activity and emission data. She worked with multiple stakeholders including U.S. EPA, CEC, Caltrans, air districts and MPOs to meet their requests and data needs. ‘

Infrastructure Demand and Needs to Support ZEV Deployment – CARB, California, 2021 – 2022

Project Manager and Technical Expert. Fang collaborated with CEC and CPUC to address the infrastructure demand and needs due to California’s current and upcoming ZEV policies which are used to meet stringent air quality goals. She led and organized multi-agency discussions and identified issues, challenges, and opportunities for state agencies to plan charging and refueling infrastructure to support ZEV deployment. She provided fleet turnover scenarios and made independent reviews of infrastructure modeling. The outcomes were incorporated as a chapter of California’s 2022 State Strategy for the State Implementation Plan.

Technology Assessment and Cost and Benefit Analysis of Transit Fleet Turnover – CARB, California, 2016 – 2018

Technical Expert. Fang Led the development of Innovative Clean Transit regulation, the first zero-emission technology focused regulation for the heavy-duty sector. She collected data and integrated various information into cost and benefits modeling. She also proposed rule concepts, developed basic principles, designed compliance milestones, and wrote regulation orders. She designed measures to incorporate mobility options into the regulation.

EMPLOYMENT HISTORY

ICF. Director of Clean Transportation and Energy. Sacramento, CA. 2022 – present
California Air Resources Board. Manager. Sacramento, CA. 2016 –2022.
Argonne National Laboratory. Environmental Engineer. Argonne, IL. 2011 –2015

Stephanie Kong, PhD

Director, Transportation & Energy

Dr. Stephanie Kong is a director of transportation and energy at ICF and has nine years of experience in air pollution measurement, vehicle activity and emissions modeling, GHG and criteria pollutant emissions analysis, and clean transportation policies. Stephanie received her Ph.D. from California Institute of Technology, where she focused on air quality modeling using complex statistical and data analytical tools. During her time at the California Air Resources Board (CARB), she led the development of California's transportation emission modeling tools and was the technical lead behind CARB's medium and heavy-duty zero emission fleet regulations. Upon joining ICF, she has been leading multiple projects to help state and local governments, such as the Los Angeles Unified School District, the County of Los Angeles, and the San Diego Association Of Governments to develop zero emission vehicles (ZEV) strategies and ZEV infrastructure deployment planning. Her experience with clean transportation strategies, EV regulations and programs, and infrastructure planning will be crucial to the success of this project.

Years of Experience

Professional start date: 09/2015
ICF start date: 02/2023

Education

PhD, Chemical Engineering, California Institute of Technology, 2020

MS, Chemical Engineering, California Institute of Technology, 2018

BS, Chemistry, Harvey Mudd College, 2015

Certifications and Trainings

Certificate of Practice in University Teaching, California Institute of Technology, 2020

Certificate of Project Management, Caltech Center for Technology and Management Education, 2020

PROJECT EXPERIENCE

Los Angeles County Shared and Zero-Emission Vehicle Mobility Plan, 04/2024–Present

Project Manager. Stephanie is leading the development of a Countywide Plan for the County of Los Angeles to reduce GHG emissions from municipal transportation activities. The plan has two components: fleet and employee commute. On the fleet side, Stephanie is overseeing the County's strategic plan to transition fleet from County's internal services, public works, Sherrif, and Fire departments to zero-emission vehicles and establishing funding mechanism for the County to support this transition. In addition, the project also evaluates the feasibility of a County employee ridesharing programs.

Washington Utility-Side Charging Infrastructure Assessment, Commerce, 01/2024–Present

Project Manager. Stephanie is working with the Washington State Department of Commerce (Commerce) to estimate projected costs for electric utility infrastructure, down to the point of service delivery, needed to power all electric vehicle charging in Washington as modeled by the state's Transportation Electrification Strategy (TES) through 2035. This project will help to determine the range of potential financial impacts of such costs on ratepayers, EVSPs, and EVSP customers from the large-scale EV adoption, and to support participation and increased EVSE-related grid upgrade planning efforts by Washington state utilities.

Energy White Fleet Electrification Assessment, LAUSD, 12/2023–Present

Project Manager. Stephanie is leading the white fleet electrification plan for the Los Angeles Unified School District (LAUSD), the second largest school district in the country. The project includes evaluating the current fleet characteristics, provide cost-effective and technologically feasible recommendations for electric vehicle (EV) and equipment replacement, and conduct a comprehensive analysis to inform the number, type, and location of electric vehicle supply equipment (EVSE) needed to support full fleet electrification along with their associated cost and

schedule for deployment. The project is also intended to provide comprehensive funding and financing strategies tailored around LAUSD's needs to overcome the cost barriers for transitioning the fleet to EVs and building out the needed charging infrastructure to support them.

Assess the Battery-Recharging and Hydrogen-Refueling Infrastructure Needs, Costs and Timelines Required to Support Regulatory Requirements for Zero-Emission Vehicles – CRC, 06/2023–Present, 06/2023 - Present

Project Manager. Dr. Kong is overseeing the project funded by the Coordinating Research Council (CRC) to assess the national demands and cost of charging and hydrogen fueling infrastructure in support of transition the light-, medium-, and heavy-duty vehicles to zero emission technologies. The project aims to thoroughly evaluate the infrastructural needs in light of the anticipated surge in ZEVs across the U.S and determine its implications on the energy supply infrastructure.

San Diego Regional Zero-Emission Vehicle Incentive Program Strategy, SANDAG, 06/2023-Present

Project Manager. Stephanie is leading the establishment of a zero-emission vehicle incentive program (ZEVIP) for the San Diego region. The ZEVIP aims to support the purchase of over 100,000 ZEV passenger vehicles between 2025-2035, while enabling significantly more ZEV purchases by residents in low- and moderate-income (LMI) households and/or people residing in Disadvantaged and Low-Income Communities. In addition, Stephanie is also helping SANDAG to establish inter-regional coordination on ZEV incentive programs with other MPOs and air districts and support local jurisdictions to meet their Climate Action Plan and clean transportation goals.

Moreno Valley Electric Vehicle Charging Infrastructure Master Plan, City of Moreno Valley, 05/2023-05/2024

Deputy Project Manager. Stephanie is helping the City of Moreno Valley to develop an EV charging infrastructure master plan that aims to provide a systematic approach for the City to build a public accessible EV infrastructure network to safely facilitate the movement of electric vehicles within the City and surrounding areas. Stephanie is leading the efforts to evaluate EV adoption trends within the City, as well as identify locations and communities where public charging infrastructure will be needed. In addition, Stephanie is also helping the city to identify opportunities and apply for future capital grants through federal and state grant programs.

Minnesota Carbon Reduction Strategy – MnDOT, 04/2023–01/2024

Task Lead. Dr. Kong is working with the Minnesota Department of Transportation (MnDOT) to develop and apply methods for quantifying GHG emission reductions associated with various projects and strategies considered by MnDOT. The strategy analysis methods will be applied to a sample of the projects listed in the 2023-2026 State Transportation Improvement Program (STIP) as an illustrative example on how these methodologies could be used to quantify GHG emissions from similar projects.

Energy and Emission Reduction Plan for Transportation, City and County of Honolulu, 03/2023-04/2024

Task Lead. Stephanie is working with the City and County of Honolulu to develop the Transportation Energy and Emission Reduction Plan that builds on the foundation of the Climate Action Plan (CAP) to support the City to move forward with climate mitigation strategies during the 2020–2025 CAP timeframe and beyond. Specifically, Stephanie has provided strategic support to the City in planning for deployment of charging infrastructure to support electrification of the City fleet and building understanding among City departments on electrification needs and barriers.

Development of Transportation Travel Demand Model – California Energy Commission (CEC), 03/2023 – 06/2024

Deputy Project Manager. Dr. Kong is leading the development of the statewide travel demand model for CEC's Transportation Energy Forecasting Unit to project and estimate transportation energy demand from various travel modes (passenger vehicles, transit, aviation, rail, marine, and microtransit). This tool will be crucial for CEC's energy demand forecasting and California's overall clean transportation planning efforts.

Understanding the Business Case for Electric Vehicle (EV) Charging Infrastructure, ZEV Alliance, 04/2023–01/2024

Project Manager. Dr. Kong is leading to efforts by ZEV Alliance to evaluate opportunities to foster private-sector leadership in future EV charging infrastructure deployment. She is overseeing the assessment of current international markets to determine key factors that drive the costs and profitability for public charging infrastructure deployment. The outcome of this project also includes an interactive, user-friendly tool to estimate the costs and revenues of public chargers for heavy-duty trucks.

California's Advanced Clean Fleets Regulation (ACF) —California Air Resources Board (CARB), 07/2020–02/2023

Technical Lead. The Advanced Clean Fleets (ACF) regulation is part of a comprehensive strategy that accelerates the adoption of zero-emission vehicles (ZEVs) in the medium and heavy-duty truck sector. The regulation requires State and Local government fleets, drayage trucks, high priority and federal fleets to phase in ZEVs over time starting 2024. Dr. Kong oversaw the development of emission benefits analysis and technology mix projection for this regulation. She worked closely with stakeholders from different regulated sectors and conducted numerous research and analyses to quantify the overall emissions, health, and economic benefits of the proposed regulation.

California's Mobile Source Emissions Inventory—CARB, 07/2020–02/2023

Technical Lead. EMFAC is the official statewide emission inventory model that CARB uses to assess emissions from on-road motor vehicles including cars, trucks, and buses in California, and to support CARB's planning and policy development. Dr. Kong was the technical lead behind the latest EMFAC model updates, where she analyzed and incorporated substantial information on vehicle population, activity, and criteria pollutants and GHG emissions into the model. In addition, Dr. Kong also initiated the efforts to improve the spatial resolution of the existing model using transportation big data.

California's Clean Freight Corridor Efficiency Assessment — California Transportation Commission (CTC), 02/2022–02/2023

Technical Advisor. Senate Bill (SB) 671 requires that CTC, in collaboration with other state agencies, prepare a Clean Freight Corridor Efficiency Assessment to identify freight corridors, or segments of corridors, and the infrastructure needed to support the deployment of zero-emission medium and heavy-duty vehicles. Dr. Kong served as the CARB's representative on the SB 671 interagency workgroup to provide technical expertise in freight corridor identification and infrastructure needs assessment.

Improvements to the California-Mexico Border Emission Inventory — US EPA, 09/2021–09/2022

Project Manager. MOVES-Mexico, an adaptation of US EPA's MOVES model, estimates emissions from on-road vehicles in Mexico at the nation, state, and municipality levels. MOVES-Mexico was designed with Mexico national default vehicle population and activity databases and no regional specific vehicle characteristics were considered in previous versions of MOVES-Mexico. Dr. Kong led an effort to improve the MOVES-Mexico model by incorporating real-world fleet characteristics in Northern Baja California to the input databases. This project was crucial to quantify the actual impact of mobile source emissions in Northern Baja California and provided key insights in addressing environmental justice concerns in the California border communities.

EMPLOYMENT HISTORY

ICF. Director, Transportation & Energy. Los Angeles. 02/2023–Present.
California Air Resources Board. Air Pollution Specialist. Sacramento. 07/2020–02/2023

Mark Robertson, PE

Lead Fuels Engineer

Mark Robertson is a lead fuels engineer within ICF's Technical Advisory group. Mr. Robertson has extensive experience in conceptual design, engineering, the construction and operation of plants producing biodiesel, sustainable aviation fuel (SAF), methanol, and ethanol, as well as several waste to energy and biomass to energy projects. He has specialist technical knowledge in the areas of biomass gasification, power generation, synthesis gas and hydrogen technologies, gas conditioning and cleanup, biofuel and chemical synthesis, Fischer–Tropsch fuel synthesis, fluidization, and process design. Mr. Robertson has worked for multiple bioenergy and biofuels startup companies, engineering firms, and commercial operating companies.

Years of Experience
Professional Start Date: 1988

ICF Start Date: 05/2022

Education
BE, Chemical Engineering, The University of Sydney, 1987

Certification/Awards
Licensed Professional Engineer (PE), State of Colorado

Engineering Excellence Award, DuPont, 2008

PROJECT EXPERIENCE

Owner's Engineering—Mendocino Forest Products, 2022–Present

Technical Lead. Mr. Robertson led an FEL 1 scoping study and reviewed the potential of six different hydrogen, biofuels, and power technologies. Each project includes tasks such as AACE Class V cost estimate, financial proforma, and risk analysis. The scoping study included the development of flow diagrams, steam balances, utility summaries, and other FEL 1 deliverables. Mr. Robertson is currently developing an FEL 2 package for a biomass to hydrogen and power facility.

Hydrogen Liquefaction Study—SoCalGas, 2024–Present

Project Manager and Technical Lead. Mr. Robertson is project manager and technical lead for a SoCalGas hydrogen liquefaction market and technical report.

European Bank for Reconstruction and Development (EBRD), Kazakhstan, 2023–2024

Technical Lead. Mr. Robertson led the TEA work required to assess multiple pathways for SAF production, including for e-fuels production via green hydrogen, in Kazakhstan, using local feedstock resources.

AVAPCO, 2023–Present

Independent Engineer. Mr. Robertson provided independent engineering services for the Department of Energy on a grant recipient planning on building a demonstration-scale biomass to SAF and renewable diesel plant utilizing the recipient's own biomass fractionation technology and commercially available ethanol to jet technologies.

Aer Lingus, Ireland, 2023

Technical Lead.. Mr. Robertson led the TEA work required to assess multiple pathways for power-to-liquid SAF production in Ireland, including e-fuels production via green hydrogen, using an existing source of biogenic carbon dioxide.

Qantas, Australia, 2023

Technical Lead. Mr. Robertson led the TEA work required to assess multiple pathways for SAF production, including for e-fuels production via green hydrogen, required to recommend policy and programs that would be most effective in establishing a domestic SAF industry in Australia.

Oil Refiner (Confidential), 2023

Technical Lead. Mr. Robertson provided modeling required to assess the lifecycle assessment for a number of gasoline and jet fuel production pathways for a United States–based refiner, including for co-processing of vegetable oils in existing refinery assets.

Technical Due Diligence—Sumitomo Corporation, Brazil, 2023

Technical Lead. Mr. Robertson provided owner's advisory services on a scoping study analysis for a biomass to SAF project based in Brazil. The technical diligence covered both biochemical and thermochemical pathways and incorporated specific challenges related to the South America location such as taxation policy and construction costs. Mr. Robertson led the development of preliminary block flow diagrams, HMBs, and other initial design documents.

Electric Power Research Institute (EPRI), 2022–2023

Technical Lead. Mr. Robertson led a study conducting a TEA for the conversion of an existing biodiesel plant into a renewable diesel plant.

Technical Due Diligence—Grön Fuels, 2022

Technical Lead. Mr. Robertson provided a technical review of the process that takes fats, oils, and greases and thermally converts them to renewable diesel. Mr. Robertson reviewed the catalyst vendor's development history as well as the overall design and its relationship to the business plans.

Aemetis, 2022

Technical Lead. Mr. Robertson reviewed the operations and maintenance costs of a series of three anerobic digester facilities. The review included the operations and maintenance procedures, the warranty terms and conditions, and the bid tab evaluation of several bidders. The anerobic digestion facilities included the digester, gas clean-up, and an associated pipeline. The review was used for a U.S. Department of Agriculture application.

OTHER WORK EXPERIENCES

Biosolids Gasification, Combined Heat and Power (CHP) Design, Construction, and Commissioning—Aries Clean Technologies, 2019–2022

Process Manager. Mr. Robertson oversaw the detailed design at the contractor's office, monitored construction at the site, and coordinated the startup activities for this CHP project. Mr. Robertson was lead engineer for multiple waste to heat and power project feasibility studies and provided support for project permitting.

Gasification Demonstration Plant—RES Kaidi, 2015–2019

Director of Process Engineering. Mr. Robertson served as director of process engineering for multiple process design packages (PDPs) developed for demonstration scale biomass gasification, chemical looping reforming, syngas cleanup, and Fischer–Tropsch fuel synthesis plants. Other duties included participating in due diligence for corporate technology acquisitions, developing engineering plans and standards, leading the company's Carbon XPRIZE team, and conducting multiple technoeconomic analyses (TEAs).

Integrated Biorefinery Demonstration project—Renaissance Technologies, 2010–2014

Senior Lead Process Engineer. Mr. Robertson served as senior lead process engineer. He was involved in multiple project design reviews and monitored the plant during the construction, commissioning, and startup of a biomass to jet fuel (SAF) and renewable diesel demonstration plant. Mr. Robertson also developed PDPs for several projects employing the company's own gasification and fuel synthesis proprietary technologies and worked with engineering contractors to incorporate these PDPs into front-end engineering design (FEED) engineering packages.

Wood to Ethanol Demonstration Project—Range Fuels, 2008–2010

Lead Process Engineer. Mr. Robertson served as lead process engineer responsible for conceptual design through to detailed engineering for the first phase (semi-commercial scale) ethanol plant**.** He participated in all of the major project design reviews and oversaw the detailed design at the contractor's office. He also participated in field walkdowns and commissioning activities. Mr. Robertson led the design and costing for several other commercial biomass to fuels projects.

Aker Solutions, 2007–2008

Process Director. Mr. Robertson had technical responsibility for all of Aker's syngas and gasification related projects, proposals, and development activities. His duties also included having input on and reviewing commercial and licensing proposals and controlling a development budget. Mr. Robertson also led a number of coal to fuel, ammonia, and methanol feasibility studies.

Aker Kvaerner, 2004–2007

Process Manager. Mr. Robertson led multiple syngas-related feasibility and FEED studies, including an ammonia plant retrofit project.

Kvaerner, 2000–2004

Principal Process Engineer. Mr. Robertson participated in multiple methanol and syngas projects and studies, including FEED for Methanex Train IV methanol plant in Chile and FEED and detailed engineering for a proposed Methanex methanol plant in Australia.

EMPLOYMENT HISTORY

ICF. Lead Fuels Engineer. 2022–Present.
Aries Clean Technologies. Process Manager. 2019–2022.
RES Kaidi. Director of Process Engineering. 2015–2019.
Renaissance Technologies. Senior Lead Process Engineer. 2010–2014.
Range Fuels. Lead Process Engineer. 2008–2010.
Aker Solutions. Process Director. 2007–2008.
Aker Kvaerner. Process Manager. 2004–2007.
Kvaerner. Principal Process Engineer. 2000–2004.
Kvaerner John Brown. Senior Process Engineer. 1995–2000.
Mobil Oil, Altona Refinery. Senior Process Engineer. 1992–1994.
Shell, Clyde Refinery. Technologist. 1988–1991.

Duncan Crowley, MS, EIT

Senior Transportation Specialist

Duncan Crowley is a Senior Transportation Specialist with the Clean Transportation team at ICF, where he leverages a diverse set of systems engineering skills developed working with Toyota, NASA's Jet Propulsion Laboratory and at Birdi Systems. A recent graduate of the Transportation Technology and Policy master's program at UC Davis, Duncan has experience with modeling, policy analysis and research across multiple transportation disciplines with strong expertise in urban freight, freight electrification, ports, electric vehicles and transportation equity. Currently, at ICF, Duncan focuses mainly on projects related to decarbonization of the transportation sector, especially those related to the adoption of zero emission vehicles (ZEV). Prior to working at ICF, Duncan developed his professional engineering skills as a consultant and project engineer working for public clients at Birdi Systems. This experience with infrastructure projects and project estimation makes him well suited to understanding the complex infrastructure challenges in transportation decarbonization.

Years of Experience
Professional start date: 08/2018
ICF start date: 07/2023

Education
MS, Transportation Technology & Policy, University of California Davis, 2023
BS, Engineering, Harvey Mudd College, 2018

Certifications and Registrations
Engineer in Training (EIT)
Lic#: EIT 178466

PROJECT EXPERIENCE

EV Charging Infrastructure Master Plan, City of Lodi, 11/2023 – 05/2024

Infrastructure Lead – Duncan led the implementation of the ICF charger siting model for the City of Lodi for both light-duty and heavy-duty public charger siting. In addition to considering things like vehicle parking times, proximity to existing chargers and proximity to DACs, the heavy-duty model considered factors like zoning for warehousing, distribution or manufacturing, and proximity to truck stops. Duncan then used the scoring to identify ideal sites for LD and HD public charging, and led site visits of these locations with participants from the utility to identify upstream utility limitations. Finally, he developed the maps for sharing this data with the city and the public to solicit feedback on the proposed sites. This feedback was later incorporated into the master plan. ICF is currently working with the City to submit grant applications for funding for each of these locations to help implement as many as possible.

EV Data Collection and Plan Update, Tahoe Regional Planning Agency, 04/2024 – 07/2024

Task Lead – Duncan served as the main developer of a GIS tool to identify possible sites for EV charging in the Tahoe Basin. This tool used a variety of trip data and other GIS information to quantify the potential usage of EV charging for both workplace and public EV charging. He also wrote a report analyzing the micromobility programs in South Lake Tahoe and provided recommendations on how to improve their existing program through changes to operations and city policy.

EV Charging Infrastructure Master Plan, City of Moreno Valley, 08/2023 – 03/2024

Siting Lead – Duncan worked with the city to develop a novel model for quantifying the utility of each parcel within for public EV charging. This model considered the amount of automotive travel to each location, the parking time at each site, the site's access to transit, proximity to existing EV chargers, proximity to apartments and location within a disadvantaged community. He then used this scoring used to identify 30 candidate sites for EV charging. Each of these sites were then visited to understand questions around site access, ADA compliance and connection to the utility to produce a prioritized list of site recommendations. These site recommendations and the scoring were packaged into a webmap tool to communicate project results with the public and to solicit comments and feedback on

proposed locations. Duncan then incorporated this feedback into the recommendations for EV charger sites in the master plan.

ZEV Mobility Plan, Los Angeles County, 05/2024 – present

ISD Fleet Lead – Duncan is leading the evaluation of LA County's largest fleet of over 4000 vehicles to electric to meet the requirements set out in California's ACF rule and meet the county's targets. He led data gathering efforts in collaboration with the Internal Services Division and all the fleets it oversees to understand vehicle characteristics, parking locations and operations. Using ICF's Powerguide model, he has identified vehicle recommendations and a timeline for replacing each vehicle in the fleet in a manner which complies with the ZEV milestone option. He has also produced an estimate of the total cost of ownership of each vehicle and how it compares with the ICE alternative. Duncan is continuing to work with the County to refine the proposed electrification plan to best meet goals around operations and total cost.

Medium and Heavy-Duty EV Adoption and Load Forecasting, Avangrid 06/2024 – 11/2024

Technical Lead – Duncan worked with the utility to quantify EV charging needs and load imposed from MHD vehicles in their NY and CT service territories. This technique used publically available vehicle datasets and satellite imagery to identify the dwelling locations of all MHD trucks in the region, and then estimated the EV adoption for those trucks across three scenarios and 4 analysis years. These EV counts then informed the depot charging needs at each site, which was aggregated by circuit and transformer. Similarly, a novel technique was used to identify the best locations for MHD chargers (considering over a dozen factors), which was then used to site chargers across these scenarios and analysis years as well as estimate their charging demand.

Utility-Side Charging Infrastructure Assessment, Washington Commerce, 04/2024 – 08/2024

Technical Lead – Duncan developed a methodology and analysis pipeline to quantify EV charging load across all Census Block groups in Washington state for medium and heavy-duty vehicles. He also developed different load scenarios in collaboration with Washington utilities to ensure the quantification matches existing utility planning practices. This load was then combined with an estimated load from light-duty vehicles and used to quantify the cost of utility infrastructure upgrades needed to support expected vehicle electrification in the coming decade.

Emissions Benefit Estimate Tool Development, Virginia Department of Transportation (VDOT), 06/2024 – present

Tool Developer – Duncan developed an Excel-based tool to quantify the emission reductions from 24 different types of projects which may be funded by VDOT through the CMAQ and Carbon Reduction programs. He led the gathering of local emission factors and defaults to be used in the tool for both greenhouse gases and criteria pollutants. He also led trainings for VDOT staff and wrote the user guide.

Fuel Conversion Tools, Washington Joint Transportation Committee, 05/2024 – 09/2024

Methodology Lead – Duncan led the development of quantification methodologies for 9 different tools to quantify emissions reductions from fuel conversion projects funded by Washington State's Cap and Trade program. He also led the gathering of regional calculation defaults, efficiencies and lifecycle emission factors across hundreds of different vehicle and equipment types in Washington from today through 2055. He also played a major role in the testing and quality control for the tool, verifying the formulas used to match the proposed methodology and testing several methodologies with over a dozen test projects.

White Fleet Electrification, Los Angeles Unified School District, 01/2024 – present

Consultant – Duncan met with stakeholders across the school district to collect data on their fleets and to understand the unique operations of each fleet. He then used ICF's Powerguide tool to come up with replacement vehicle recommendations for each vehicle in the fleet as well as a vehicle replacement timeline. He also estimated the total cost of ownership associated with the new EVs in comparison with gas or diesel alternatives. In addition, he worked with the district to amend recommended vehicles to work with vendors and manufuacturers preferred by

them. These recommendations were then used to identify charging needs across the district and its properties and the estimated costs associated with the necessary infrastructure for them.

Plan Bay Area Off Model Strategies, Metropolitan Transportation Commission (MTC), 07/2023 – present

Task Lead – Duncan is a lead consultant for the analysis of transportation emissions reduction strategies which cannot be analyzed using MTC's regional travel model. These "off-model" strategies consist of activities which do not cross multiple TAZs like walking and biking as well as techniques that affect the composition of the Bay Area vehicle fleet like incentives to increase vehicle electrification. For this work, Duncan is reviewing a broad set of literature on emissions reduction strategies and designing calculator tools to allow MTC to measure the effect that these measures have on the Bay Area's transportation emissions.

Project Level Emissions Estimation Tool, Puget Sound Regional Council (PSRC), 09/2023 – 02/2024

Task Lead – Duncan led a project to develop an updated emissions reduction calculator tool for project evaluation for a range of different project types. He conducted a comprehensive review of existing emissions reduction calculators and their methodologies and compiled this into a set of recommendations to use in the PSRC tool. Duncan then built these new calculator methodologies into an Excel-based calculator with multiple rounds of comments and review with the client. Additionally, he used MOVES to gather up-to-date emission factors across vehicle types, fuel types and model years and worked with the client to get local parameters for calculators based on travel survey data. Finally, he conducted a comparison of the estimated emission reductions with other tools to understand the differences and evaluate the magnitude of effects across different project types.

Carbon Reduction Strategy and CRS Toolkit, Minnesota Department of Transportation (MnDOT), 08/2023 – 02/2024

Consultant – Duncan served as the technical expert for the development of several project-level emissions estimation methodologies used by MnDOT to assess the impacts of proposed projects under the Carbon Reduction Strategy program and allocate funding. These methodologies covered a wide range of transportation topics such as EV charging, fleet electrification, EV carsharing, intersection improvements, signal synchronization, low-carbon roadway materials, pavement recycling, LED streetlighting and solar installed at transportation facilities. He incorporated these methodologies into the new Carbon Emissions Tool (CET), an Excel-based calculator to be used by MnDOT and their applicant agencies in estimating the emissions impacts of their projects.

CalEEMOD Strategies Revision, Sacramento Metropolitan AQMD (SMAQMD), 09/2023 – 02/2024

Consultant – Duncan developed methodologies for several new emissions reduction methodologies to be included in the updated version of the CAPCOA Handbook for Analyzing Greenhouse Gas Emissions Reductions. These methodologies focused on the transportation and energy sector, including those around ebikeshare, infill development, active transportation for youth, transit shelters, biomass energy, and school bus programs. This included estimation of GHG benefits and other co-benefits such as energy or VMT if relevant. For vehicle types not included in the previous version of the calculator, new MOVES emissions factors were included for the state of California, with region-specific constants used throughout the calculations whenever possible.

EMPLOYMENT HISTORY

ICF. Senior Transportation Specialist. Sacramento. 7/2023– Present.
UC Davis Sustainable Freight Program. Graduate Student Researcher. Davis. 1/2022–6/2023.
Birdi Systems Inc. Systems Engineer. Pasadena. 08/2018–6/2021.

Ramon Molina Garcia

Senior Transportation Specialist

Senior Transportation Specialist

Ramon is a Transportation Specialist in the Climate, Energy and Transportation group at ICF. His expertise is in fleet electrification assessments, creating vehicle and infrastructure rollout timelines, cost analyses, emissions inventorying, and energy demand modeling. He also has extensive experience reflecting state- and federal-level vehicle and emissions regulations in vehicle and infrastructure studies to reflect likely ZEV adoption rates and funding opportunities to accelerate charging and fueling infrastructure deployment.

Years of Experience
Professional start date: 2022
ICF start date: 04/2022

Education
MS, Mechanical and Aerospace Engineering, University of California, Irvine, 2021

Bachelor of Arts, Physics, Macalester College, 2019

PROJECT EXPERIENCE

Economic Impact of Analysis of Electrifying California's Government Fleet, California Department of Government Services, 06/24 – Present

Task Lead. Ramon is co-leading fleet modeling for the California Department of Government Services. Ramon is using the CA DGS vehicle inventory to determine equivalent EV make/model recommendations, number of charging stations, and strategies for meeting electrification goals.

Electric and Shared Mobility Plan Part I, Los Angeles County, 04/24 – Present

Task Lead. Ramon is co-leading fleet electrification planning for Los Angeles County. LA County, which oversees four major managing areas—Internal Services Department, Department of Power and Water, Fire Department, and Sheriff's Department—is seeking to electrify vehicles in their fleet of more than 10,000 vehicles. Ramon is developing recommendations for Sheriff's Department vehicle replacements and supporting the overall plan for LA County.

Energy White Fleet Electrification, Los Angeles Unified School District, 01/24 – Present

Deputy Project Manager. Ramon is co-leading the White Fleet electrification plan for the Los Angeles Unified School District (LAUSD), the second largest school district in the country. The project includes evaluating the current fleet characteristics, provide cost-effective and technologically feasible recommendations for electric vehicle (EV) and equipment replacement, and conduct a comprehensive analysis to inform the number, type, and location of electric vehicle supply equipment (EVSE) needed to support full fleet electrification along with their associated cost and schedule for deployment. The project is also intended to provide comprehensive funding and financing strategies tailored around LAUSD's needs to overcome the cost barriers for transitioning the fleet to EVs and building out the needed charging infrastructure to support them. Additionally, Ramon will conduct a mentorship program to engage students in disadvantaged communities.

Zero-Emission Vehicle Roadmap, Pennsylvania Department of Environmental Protection, 10/23 – 07/24

Analyst. Ramon developed a state-level battery re-charging and hydrogen-refueling network study for the Pennsylvania Department of Environmental Protection (PADEP). Ramon managed a computer server to run the U.S. EPA MOVES application for county-level fleet projections and leveraged NREL's EVI-Pro model to determine the charging port distribution required to meet LDV charging needs. Additionally, a cost-analysis was conducted to determine the prospective infrastructure costs for light-, medium- and heavy-duty charging infrastructure requirements.

Electric Vehicle Charging Infrastructure Master Plan, City of Moreno Valley, 05/23 – 05/24

Analyst. Ramon contributed to the development of a municipal electric vehicle charging infrastructure master plan for the City of Moreno Valley in Riverside County, California. The study assessed the likely regional EV adoption rate and projected the number of EVs the City of Moreno Valley may expect to see on the roads by 2050. Ramon co-led a

team that assessed potential EV charging station sites and was part of the team that physically visited sites to quantify the most optimal sites for the City of Moreno Valley to build out infrastructure.

Battery-Recharging and Hydrogen-Refueling Infrastructure Needs for LD/MD/HD ZEVs, Coordinating Research Council Inc., 06/23 – 09/23

Analyst. Ramon worked with CRC to develop a national battery-recharging and hydrogen-refueling network study in support of the EPA proposed regulatory requirements for light-, medium- and heavy-duty GHG standards. The strategy to meet these stringent GHG and criterial pollutant emission standards centers around increased ZEV penetration through ZEV sales requirements. Ramon co-led the research of EPA's and California's ZEV sales fractions used in this study to project fleet technology mix by state. Ramon also developed a tool to rapidly query NREL's EVI-Pro model to determine the charging port distribution required to meet LDV charging needs by state to illustrate number of charging ports by type (e.g., L2 through DCFC 350+kW) to deploy per year and associated infrastructure costs.

EV Fleet and Charging Master Plan, City of Laguna Beach, 03/2023 –06/2023.

Analyst. Ramon assisted the development an Electric Vehicle Fleet and Charging Station Assessment Master Plan for the City of Laguna Beach in California that a) evaluates the City's fleet and provide recommendations to transition from fossil fuel vehicles to clean transportation options; 2) deploy EV charging stations for City fleet vehicles; 3) provide guidance on how to decommission unnecessary propane and fossil fuel City infrastructure; 4) install EV charging stations throughout the community for public use; and 5) identify potential funding sources to facilitate transition to an all-electric fleet.

Citywide Fleet Electrification, City of Lodi, 08/2022 – 05/2023.

Analyst. Ramon assisted the development of a Citywide Fleet Electrification Plan for the City of Lodi to transition their fleet away from fossil fuels and to deploy the necessary charging infrastructure to power their electric vehicles. The main objective of this project is to develop a plan for the City to meet the compliance requirements of the Advanced Clean Fleet regulation in the most cost-effective manner possible. As part of this project Ramon is helping the City of Lodi to: 1) evaluate the City's fleet and provide recommendations to transition from ICE vehicles to electric vehicles; 2) develop recommended charging infrastructure implementation strategies, 3) estimate the costs to transition from ICE vehicles to EVs and to develop and deploy charging infrastructure, 4) discuss the barriers to fleet transition and describe strategies to overcome them, and 5) develop a plan to leverage incentive funding and evaluate options for financing and innovative business models.

Fleet Electrification Implementation Rollout Strategy, City of Raleigh, 06/2022 – 06/23.

Analyst. This project is intended to develop a Fleet Electrification Implementation Rollout Strategy for the City of Raleigh to: a) evaluate the City's fleet and provide recommendations to transition from fossil fuel vehicles to clean transportation options; 2) identify potential funding sources and procurement strategies; 3) develop a sustainable EV charging infrastructure plan for City fleet vehicles; 4) provide a training plan and educational guidelines for City staff who will operate EVs; 5) review the City's EV charging software system solution and recommend best practices for aligning software; and 6) provide recommendation to improve accessibility and address equity issues through electrification and charging infrastructure deployment. This plan will serve as a blueprint for how the City can transition its fleet to electric and alternative fueled technologies and deploy the charging infrastructure needed to power them.

EMPLOYMENT HISTORY

ICF, Transportation Specialist, 04/2022 – Present

University of California, Irvine. Graduate Student Researcher. Irvine, CA. 06/2019 – 09/2021.

PUBLICATIONS

Diaz, A., Molina Garcia, R., Morley, B., Pournazeri, S., (2023). Environmental Justice Impacts of Zero-Emission Vehicles. *ZEV Alliance Publications*. https://zevalliance.org/ej-zevs-jan23/

Hong Yang, PhD

Senior Clean Transportation Specialist

Hong Yang, PhD, brings nearly 9 years of experience in research and project management in transportation decarbonization, road transportation electrification, charging infrastructure, and alternative fuel and vehicle technologies. Before joining ICF, she served as the project manager at the Renewable Energy Policy Network for the 21st Century (REN21) from 2021 to 2024, leading the production of the *Global Futures Report: Renewables for Sustainable Transport—Bridging Perspectives*. Previously, she worked at the World Bank Group (WBG) on several transportation and clean energy projects, including her contribution to an energy open-data platform (energydata.info) and several WBG flagship reports, such as the *Global Roadmap of Action Toward Sustainability* and *Regulatory Indicators for Sustainable Energy—Sustaining the Momentum.*

Education

PhD, Energy Systems, University of California, Davis, 2024

MPP, Public Policy, Georgetown University, 2018

BS, Economics, Peking University, China, 2016

PROJECT EXPERIENCE

Zero-emission Vehicle Master Plan—LA County, 2024–Present

Research Support. Hong conducts research to help LA county monitor regional infrastructure development progress, and estimate the number of chargers deployed by 2024 in comparison to the 2019 sustainability plan goals.

Fleet Electrification Master Plan—Prince William County Public School, 2024–Present

Research and Modeling Support. Hong conducts research, data analysis, fleet assessment modeling, and report writing for the Prince William County Public School's master fleet transition plan.

2024 Feasibility Assessments for the Clean Air Action Plan: Class 8 Trucks—Port of Long Beach and Los Angeles, CA, 2024–Present

Senior Air Quality Scientist. Hong conducts desk research to assess the commercial availability and technical availability of zero-emission Class 8 trucks. She supports interviews and surveys to understand the operational feasibility of zero-emission drayage trucks, providing other support as required for the feasibility report.

White Fleet Electrification Assessment—Los Angeles Unified School District (LAUSD), 2024–Present

Research Support. Hong conducts desk research to identify suitable funding opportunities and financing mechanisms for LAUSD's white fleet electrification.

Logistics Net Zero Study—Molson Coors, 2024–Present

Research Support. Hong provides research analysis to understand potential decarbonization levers categorized by transportation mode and assists relevant scenario analysis for emission reduction and lane-specific opportunity analysis.

Charging and Fueling Infrastructure (CFI) Grant application, Two Clients, 2024

Subject Matter Expert. Hong supported siting assessments for two clients' applications to the CFI grant. Hong helped put together site assessment analysis two-pagers for selected sites, including identifying key trip characteristics in selected sites, identifying and summarizing reasonings for the suggested number of chargers and their charging powers, and estimating charging infrastructure cost associated with the suggested type and number of chargers.

Invest Green to Drive Green: Investigating Requirements and Investment Needs for Road Transportation Electrification in the United States, and Policy Recommendations to Consider—Energy Futures program and STEPS+ program at UC Davis ITS, 2021–2024

Principal Investigator. In Hong's doctoral dissertation, she investigated the requirements and upfront capital investment cost needs of the road transportation electrification transition in the United States toward 2030, in relation to different electric vehicle (EV) sales scenarios. Her dissertation covers road transportation electrification from light-duty to medium- and heavy-duty vehicles, including downstream battery production, vehicle assembly, and charging infrastructure buildout. The chapters on charging infrastructure add the infrastructure part to an existing model, U.S. Transportation Transition Model, which currently allows users to investigate scenarios of market penetration by new vehicle technologies and transportation fuels as well as impacts on economic costs and GHG emission reductions. Hong also explored the impacts of international trade of EVs.

A Review of Charging Infrastructure Requirements for U.S. Electric Light-Duty Vehicles—Energy Futures program and STEPS+ program at UC Davis ITS, 2023

Principal Investigator. Hong conducted a systematic literature review and meta-analysis of charging infrastructure assessment and associated investment needs in the United States to 2030. She assessed 17 studies that were published after 2018 with notably different scopes and modeling assumptions, including treatment of charger type, home charging accessibility, and charging behavior. Hong also analyzed the charger-to-vehicle ratio that appeared in each study and identified recommended measures, incentives, and business strategies in reviewed studies to accelerate the charging infrastructure buildout. Hong was invited to present this work at the Transportation Research Board committee meeting for the Alternative Fuels and Technologies Committee (AMS40) in 2024 in Washington, DC.

Decoding U.S. Investments for Future Battery and Electric Vehicle Production—Energy Futures program and STEPS+ program at UC Davis ITS, 2021–2022

Principal Investigator. Hong led the research of understanding the implications behind a surge of manufacturing plans for producing EV and related batteries in the United States. Hong related these announcements (or investment plans) to four EV sales scenarios toward 2035 in the UC Davis TTM, with different EV penetration levels and EV sales share. By comparing announced capacities to EV sales targets in each scenario, Hong identified the capacity shortfall and investment gaps and provided recommendations to meet ambitious EV sales targets in the United States.

EMPLOYMENT HISTORY

ICF. Senior Clean Transportation Consultant. 2024–Present.

REN21. Project Manager and Analyst. 2021–2024.

University of California, Davis. Graduate Student Researcher. 2021–2024.

WBG. Energy Data Analyst. 2019–2021.

WBG. Transportation Research Consultant. 2017–2019.

Marianne Saglam
Senior Communications Manager

Ms. Saglam is a marketing and communications leader with over 20 years of experience in the transportation communications field, with a strong background in editing and content development. She has developed marketing plans and managed communications deliverables for numerous federal contracts administered through USDOT and FHWA. Her expertise includes editing and producing a wide range of communications deliverables, including factsheets, infographics, presentations, and exhibit materials. Her work also involves stakeholder outreach and engagement efforts through the planning and facilitation of workshops, webinars, and meetings, ensuring that content is clear, compelling, and accessible to diverse audiences.

Experience Highlights

Over 20 years of experience

Expert in transportation marketing and communications

Subject Matter Expertise

Transportation marketing, communications strategy, and campaign management

Education

B.S., Marketing, Bentley University, 1994

Awards

Telly Award for FHWA Build A Better Mousetrap Writing

APEX Award of Excellence (Magazines, Journals, and Tabloids—Most Improved)

EXPERIENCE OVERVIEW

Communication and Outreach Support for the Road Weather Management Program (RWMP), FHWA, Senior Communications Manager, 2020–2023, 2023–present

Ms. Saglam manages the marketing roadmap, which includes managing deadlines and workflow for the production/ marketing team, and gathering information from key stakeholders to include in the plan, as well as various supporting materials (e.g., presentations, factsheets, case studies, 508 remediations of presentations). Ms. Saglam oversees activities associated with hybrid meeting planning for. Planning for these events involves hotel selection, contract negotiations, A/V needs, fielding attendee and speaker inquiries, reimbursement of invitational travelers, agenda and run of show development, and outreach and marketing materials.

EDC-7 Rethinking DBE Program for Design Build (DB), FHWA Office of Civil Rights, Senior Communications Manager, 2023–Present

In her role, Ms. Saglam serves as project manager and marketing lead, developing an outreach and engagement strategy for a new EDC-7 initiative to advance open ended performance plans to foster increased DBE success in DB projects. Ms. Saglam leads the development of a series of in-person and virtual webinars, events, and peer exchanges and the development of supporting marketing and communications materials, including presentations, best practices, factsheets, case studies, and 508 remediation and review processes both internally and with FHWA.

STEPC BPA, USDOT, Technical Lead, 2023–2025

Ms. Saglam supports ICF's partnership with Aptive Resources, on an $80M BPA to provide technical writing, editing, communications, and presentation support to USDOT and its agencies. Working closely with Aptive technical leads, Ms. Saglam oversees creative staff, SMEs, and staffing for developing compelling materials.

Workforce Development Communications Outreach, FHWA, Senior Communications Manager, 2021–Present

For the EDC Rounds 6 and 7 programs, Ms. Saglam manages the overall communications strategy that includes marketing materials development, webinars, workshops, peer exchanges, best practices, case studies, technical visits, video production, and 508 remediation of all materials. Development of these materials helps identify, train, place, and retain individuals into the workforce, filling the construction jobs that support the nation's highway system.

Communications and Outreach Support for the Work Zone Data Initiative and Work Zone Management Program, FHWA, Senior Communications Manager, 2020–Present

Ms. Saglam oversees the creative strategy, design, and branding for the Work Zone Management Program. In this role, Ms. Saglam leads the development of a suite of communications materials, including infographics, factsheets, case studies, and newsletters. This outreach helps to develop and deploy solutions and strategies that enable agencies to continuously improve work zone management to minimize traffic delays and maintain the safety of all road users.

Office of Innovative Program Delivery (OIPD), FHWA, Marketing Manager, 2020–2022

Ms. Saglam led the development and implementation of communications to support outreach and stakeholder engagement for various centers under OIPD, including the FHWA Resource Center. Outreach included creation of exhibit materials, infographics, presentations, factsheets, case studies, articles, short profiles, email content, newsletters, technical briefs, primers, videos, signature graphics, social media, and flyers. Ms. Saglam worked with various FHWA contacts to provide education, awareness, and outreach on value capture programs, the highway construction workforce partnership, and local aid support.

ITS JPO, USDOT, Technical Editor, 2011–2019

While at the Institute of Transportation Engineers (ITE), Ms. Saglam was the technical editor for the ITS Professional Capacity Building Program Standards Training Modules through the USDOT ITS Joint Program office. Ms. Saglam facilitated development of training modules working with authors, technical staff, government contractors, and USDOT staff and created PowerPoint templates and edited and updated author content.

ITE, Senior Director, Communications & Media, 2011–2019

Managed production, editing, layout, transfer of copyright, publishing, printing, and 508-compliance for publications such as the *ITS ePrimer*, *Trip Generation,* and *Traffic Control Devices Handbook* and technical editor for the *Traffic Management Data Dictionary* and *Advanced Transportation Controller* standard. Ms. Saglam coordinated public relations activities for a nationwide media campaign for the *National Traffic Signal Report Card* funded by FHWA. She directed the exhibition space for 11 Annual Meetings and Exhibits and 10 Technical Conference Exhibits. She directed and managed sales of exhibit space for an average of 150 exhibit booths and 1,500 attendees and visitors was in charge of , which included using list and market research, lead retrieval, exposition service oversight, and database management, as well as writing, editing, and design of promotional materials.

EMPLOYMENT HISTORY

ICF Next, Senior Communications Manager, Marketing, 2020–Present
Institute of Transportation Engineers, Communications and Media Senior Director, 1998–2019

Jeffrey Ang-Olson

Vice President, Transportation

Jeffrey Ang-Olson is a transportation planner and engineer with expertise in vehicle activity analysis, alternative fuels, GHG and criteria pollutant emissions analysis, land use, freight transportation, and transportation economics. He has worked extensively in Southern California on emission reduction strategy identification and evaluation projects. For SCAG and SBCTA, Jeff recently led the Pathways to Clean Vehicles and Fuels in San Bernardino County study. He is currently supporting the Port of San Diego's Clean Air Strategy. Previously Jeff led the environmental analysis and mitigation strategy development as part of SCAG's Comprehensive Regional Goods Movement Plan team. He also led the emissions mitigation tasks for the Gateway Cities Air Quality Action Plan and served as technical lead for RCTC's Goods Movement Environmental Justice Guidebook. He has worked extensively on freight transportation and emission reduction strategies for the U.S. EPA. Jeff is a member of TRB's Urban Freight Transportation Committee and a former member of TRB's Air Quality Committee.

Years of Experience:
Professional start date: 1998

Education

Master of City Planning, University of California, Berkeley

Master of Science, Transportation Engineering, University of California, Berkeley

Bachelor of Science, Electrical Engineering, Rice University

Certifications and Memberships

Certified Project Management Professional

Certified National Highway Institute Instructor

Member, Urban Freight Committee, Transportation Research Board

PROJECT EXPERIENCE

Electric Vehicle Infrastructure Study, Stanislaus Council of Governments, 2020-2022.

Project Manager. Managed a study of EV charging infrastructure needs in Stanislaus County, California. The study used a three-stage process to identify locations to be prioritized for installation of new public EV charging stations. The first stage involved a screening analysis of all census tracts within the county using a variety of data sources to estimate potential charging demand. High scoring census tracts advanced to the next stage, which involved a parcel-level analysis. In the last stage, each high priority parcel was evaluated using data sources that indicate parcel size, land use, and roadway access, as well as visual inspection of sites. For each site, ICF estimated charging infrastructure costs as well as potential utility grid upgrades. The study also included an extensive review of local and utility EV-related policies and developed a recommended sequence of implementation steps for local governments and other stakeholders seeking to install EV charging infrastructure.

Regional Transportation Plan GHG Emission Reduction Strategies, Metropolitan Transportation Commission, 2019-2021.

Project Manager. Led the analysis of GHG emission reduction strategies for the *Plan Bay Area 2050*, the regional transportation plan for the San Francisco Bay Area. Jeff managed a team that first conducted a scan of potential new emission reduction strategies, based on the latest research and information on transportation demand management practices. He then developed Excel-based calculators to estimate the emission reduction benefits of selected strategies, including bikeshare, bicycle infrastructure expansion, vanpools, employer shuttles, a personalized travel demand marketing program, electric vehicle charging infrastructure, and a clean vehicle rebate program. He also helped prepare documentation of the strategies for inclusion in the Plan and supported reviews by the California Air Resources Board.

Paths to Clean Vehicle Technology and Alternative Fuels in San Bernardino County, SCAG, 2018-2020.

Project Manager. Led a study to explore ways that local and regional agencies and the private sector can accelerate the penetration of clean vehicle and fuel technologies, with a focus on San Bernardino County, California. The study considered improved vehicle fuel efficiency, electric and fuel cell vehicles, natural gas vehicles, and several types of biofuels. Jeff directed the creation of a sophisticated modeling framework to enable analysis of various clean vehicle and fuel scenarios, calculating criteria and GHG emissions impacts and costs. Costs included vehicle purchase price, fueling costs, vehicle maintenance costs, and fueling infrastructure costs. The study also identified and assessed strategies to support implementation of the most promising scenarios, culminating in an Action Plan for local governments.

Zero Emission Bus Master Plan, Los Angeles County Metropolitan Transportation Authority, 2017.

Technical Assistance. Assisted Los Angeles Metro with development of a master plan for electrification of Metro's bus fleet. With more than 2,200 buses, Metro operates the nation's second largest bus fleet. Metro has adopted a goal of transitioning to a full zero emission bus fleet by 2030. To support this transition, ICF developed a plan that includes: a review of current electric bus technology and expected future progress, a short-term plan for bus route electrification using current technologies, a plan for route energy intensity calculations and future bus deployments, an analysis of electricity supply costs, rates, and utility engagement, facility planning, including consideration of on-site charging infrastructure and evaluation of overhead charging, and battery lifecycle maintenance.

NCHRP 25-46: Deploying Clean Truck Freight Strategies, TRB, 2015-2017.

Technical Assistance. Supported the development of a Guide and analytical Tool to help public agencies determine the viability and feasibility of deploying clean truck freight strategies. The Tool enables users to quickly view the potential emission reductions, fuel savings, and cost impacts of strategies including advanced vehicle technologies, alternative fuels, operational strategies, and supporting infrastructure.

National Assessment for Reducing Air Pollution and Greenhouse Gases at U.S. Ports, EPA, 2014-2016.

Task Lead. Task lead for a major study of port-related emissions and control strategies. The study estimated current and future emissions at 19 U.S. ports, considering drayage trucks, railroads, cargo handling equipment, harbor craft and ocean-going vessels. Jeff led the evaluation of emission reduction strategies. This involved a screening assessment to identify the most promising control strategies for 2020, 2030, and 2050. He then led calculations of emission reduction effectiveness for approximately 20 strategies and assessed the combined impacts of two strategy packages.

Gateway Cities Air Quality` Action Plan, Los Angeles County Metropolitan Transportation Authority, 2011-2013.

Task Lead. Task lead in this major study of air quality and health risk in the Gateway Cities sub-region, which includes 23 cities in southeastern Los Angeles County. Jeff led a screening analysis to select 17 new emission control measures for detailed evaluation. These included measures targeting area sources, on-road vehicles, and off-road equipment and marine vessels. Jeff analyzed each of these measures to estimate the potential emission reduction, cost, and cost-effectiveness. For each measure, Jeff also assessed implementation steps and timing.

Solano County Alternative Fuels and Infrastructure Plan, Solano Transportation Authority, 2012-2013

Project Manager. Led development of an Alternative Fuels and Infrastructure Plan for Solano County, California. As part of this project, he worked with a variety of fleet managers representing diverse interests and needs (with more than 120 service buses and another 4,000 government fleet vehicles), reviewed the regulatory framework that affects their respective fleets, provided an overview of alternative fuels (e.g., vehicle and fuel costs and availability), developed an inventory of buses and infrastructure for Solano County, and developed recommendations for strategies to pursue as part of the County's efforts to increase use of alternative transportation fuels.

Mike Usen, AICP
NATIONAL DIRECTOR FOR ELECTROMOBILITY

Mike leads DKS's company-wide electric vehicle charging infrastructure planning and design practice. Mike is a nationally recognized subject matter expert in multiple aspects of charging infrastructure master planning for light-, medium-, and heavy-duty electric vehicles. With support from DKS's rapidly growing electromobility team, Mike assists sustainability directors, and fleet and facility managers in planning smart electric vehicle charging infrastructure for transit systems and electric vehicle fleets as well as public, workplace, and residential applications. Clients include vehicle fleets, regional transportation planning agencies, utilities, ports, school districts, universities, and other organizations. For much of the past three decades, Mike has worked at the intersection of transportation and sustainability for market-leading consulting firms and large public agencies, including King County Metro Transit, where he developed the agency's award-winning Sustainability Program.

PROFESSIONAL HIGHLIGHTS

EDUCATION

Master of Urban Planning, University of Washington

BA, Environmental Studies, University of Vermont

YEARS OF EXPERIENCE

31 Total

8 with DKS

SELECT RELEVANT PROJECT EXPERIENCE

Northern California Megaregion Heavy-Duty Freight ZEV Study, 15 Northern California Counties. Mike served as technical lead overseeing this study for SACOG to plan charging and hydrogen fueling infrastructure for freight trucks between Bay area ports and inland CA destinations. The scope of this project, which includes an assessment of study locations and the opportunities and challenges of each, prioritizing charging and fueling sites for selection including conducting site inspections of priority sites, stakeholder engagement, identification of funding and operational models, and research and assessment of opportunities with emerging technologies.

Redding Area Bus Authority (RABA) Zero-Emission Bus Implementation Plan | Redding, CA. RABA plans to transition its fleet of more than 40 transit buses, commuter coaches, and cutaway buses to zero emissions by 2040 in compliance with the California Air Resource Board's (CARB) Innovative Clean Transit (ICT) regulation. As Principal in Charge, Mike oversees all aspects of the project including existing conditions assessment, stakeholder engagement, technical analysis of operations, energy needs modeling of all routes/blocks.

City of Redding Fleet Electrification | Redding, CA. As Principal in Charge, Mike supervised the development of a fleet and infrastructure transition plan toward zero-emission vehicles. The plan includes a phased implementation strategy for battery-electric and hydrogen fuel cell vehicles at over a dozen City facilities including EV charging and hydrogen refueling infrastructure.

Shasta County Fleet Transition Plan | Shasta County, CA. As Principal in Charge, Mike oversaw planning the transition of Shasta County's 500+ vehicle fleet to zero emissions. Challenging aspects of this project include the provision of large amounts of power at currently undeveloped sites and facilities without sufficient electrical infrastructure as well as optimizing locations of and charging stations at charging hubs that will serve multiple dozens of vehicles each.

Humboldt County Regional Zero Emission Fleet Transition and Infrastructure Plan | Humboldt County CA. Mike is Principal in Charge of this planning effort to provide recommendations for the County of Humboldt, seven incorporated Cities, and participating Tribal Governments based on a review of fleet duty cycles and master vehicle inventory replacement schedules. Mike will oversee this technical feasibility analysis for alternative fueling station siting and installation including preliminary design and planning level cost estimates. The Plan will clearly define

implementation steps for local agencies to acquire capital funding, obtain necessary approvals and permits, and install fueling equipment.

Port of Long Beach Pier J Zero Emission Plan | Long Beach, CA. As DKS' Project Manager Mike is assisting the Port in preparing the Zero Emission Plan to transition the fleet by identifying zero emissions options to replace existing ICE-powered cargo handling equipment. This work includes a comparative analysis of both battery electric and Fuel Cell electric container handling equipment including yard tractors, forklifts, top-picks and rubber tired gantries. In addition, he is determining their daily energy loads and evaluating charging control options to minimize demand charges and ensure sufficient state of charge.

Madera County Zero Emission Vehicle Readiness and Implementation Plan, Madera County CA. Mike led planning efforts to assess the existing Zero Emission Vehicle (ZEV) infrastructure environment, recommend infrastructure improvements and investments and identify implementation strategies and policies to promote ZEV infrastructure adoption for Madera County communities in both the short- and long-terms. The planning process identified key community challenges and barriers to ZEV advancement and provided tools to procure, site, and install battery electric vehicles and hydrogen fuel cell electric vehicle infrastructure.

San Joaquin COG Alternative Fuels Vision Plan, San Joaquin County, CA. Mike served as electric vehicle subject matter expert on this county-wide planning effort to site hydrogen fueling stations serving light, medium and heavy-duty vehicles. Mike's role was to lead the development and implementation of siting methodologies, including the development of charging and fueling facilities accessible to all users, including traditionally underserved populations.

Inyo County Public Works, Electric Vehicle Charging Infrastructure Network Plan, Inyo County, CA. As Principal-in-Charge, Mike oversees a plan to establish an EV charging network in Inyo County, including transitioning the County-owned vehicle fleet to electric. The plan involves strategically locating charging facilities, conducting site analyses, and evaluating hydrogen fueling feasibility. It aims to enhance the EV charging infrastructure on US 395 and throughout the county to benefit travelers and the local economy.

2024 Kern Electric Vehicle Charging Station Blueprint Update, Kern County, CA. Mike is serving as senior technical lead on this update to Kern County's 2019 plan, providing technical oversight and QA review of all project deliverables. This project addresses charging infrastructure gaps for light-duty EVs consistent with NEVI-mandated charging requirements, as well as charging needs specific to medium- and heavy-duty vehicles. It also assesses key access challenges to ensure recommended infrastructure improvements and investments are equitable and accessible to all users, identifying potential grants, rebates, and other available and anticipated opportunities from local, state, and federal sources.

California Central Coast Zero Emission Vehicle Strategy, CA. Mike was project manager and electromobility subject matter expert, helping develop a regional strategy to improve EV charging infrastructure to support interregional travelers, freight and transit throughout Ventura, Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, and San Benito counties. Key goals included ensuring access to EV charging for low-income households, multi-family dwellings, and rental properties as well as other disadvantaged communities, including Native American Tribal Governments and rural communities.

Nevada County ZEV Transition Plan, CA. Mike served as DKS' technical lead for the Nevada County Zero Emission Vehicle Transition Plan, which provides a roadmap for supporting required fleet modifications to meet State requirements over the next 20 years. It will also provide efficient implementation of necessary alternative fuel solutions at County facilities for the County's fleet, as well as providing charging infrastructure for use by staff and the public.

Calaveras COG EV Charging Infrastructure Implementation Plan, CA. Mike oversaw the development of an electric vehicle transition plan for the County's and City of Angels Camp's fleets across multiple facilities. The project involved prioritizing charging infrastructure installation locations and specifying the quantity and types of charging stations for both the County and City fleets' vehicle energy and operational needs.

PROFESSIONAL HIGHLIGHTS

EDUCATION

English Major, University of California, Los Angeles

YEARS OF EXPERIENCE

33 Total

3 with DKS

Kendall Flint

REGIONAL DIRECTOR OF COMMUNITY ENGAGEMENT, ENGAGEMENT LEAD

Kendall is an industry professional with more than 30 years of government experience. She has developed and implemented a broad range of communications efforts for cities, counties, special districts, and regional planning agencies throughout California. She brings extensive experience with outreach in support of transportation and land use planning and overall public information. Kendall specializes in reaching out to underserved populations and managing controversial projects and issues.

SELECT RELEVANT PROJECT EXPERIENCE

Humboldt County Association of Governments, Eureka-Broadway Corridor Study, CA. The Humboldt County Association of Governments (HCAOG), the City of Eureka, and the California Department of Transportation (CALTRANS), District developed the Eureka Broadway Comprehensive Multimodal Corridor Plan to improve multimodal options and reduce congestion on the most highly traveled corridor in the City of Eureka. Kendall developed and implemented a comprehensive outreach program for residents, commuters, and visitors to the area of the corridor.

Central Coast Zero Emissions Vehicle Strategy Plan, Santa Barbara County Association of Governments (SBCAG), CA. SBCAG and San Luis Obispo Council of Governments are partnering to identify electric charging infrastructure needs in Santa Barbara and San Luis Obispo Counties. DKS is developing a Zero Emissions Vehicle Strategy Plan for California's Central Coast with the goal of better serving future demand for charging electric vehicles, specifically for interregional motorists and regional transit services.

San Joaquin County Council of Governments, Valley Visions San Joaquin County Regional Transportation Plan & Sustainable Communities Strategy, Community Outreach 2014, CA. Kendall assisted the San Joaquin County Council of Governments with its outreach program for its Valley Visions effort. She worked closely with staff to develop meeting structure, materials, and strategies, as well as meeting facilitation.

Madera County Transportation Commission, 2022 Regional Transportation Plan & Sustainable Communities Strategy, Madera County, CA. Kendall is leading MCTC's outreach effort. The County has an exceptionally diverse population and several rural communities with limited access to the Internet, which requires a more creative approach to outreach and engagement.

San Luis Obispo County Council of Governments US 101 Mobility Study / 2035 Regional Transportation Plan & Sustainable Communities Strategy, Community Outreach, CA. One of the most critical elements contributing to quality of life in San Luis Obispo County is how they move people and goods through the County. The first phase of this effort took a closer look at US 101, identifying specific areas that should be improved or enhanced. The outreach effort was largely focused on anecdotal, qualitative views and opinions expressed by the public. This program was managed simultaneously with SLOCOG's RTP/SCS effort.

Kings County Association of Governments, Kings Regional Vision, Regional Transportation Plan & Sustainable Communities Strategy, Community Outreach 2014, 2018, and 2022 Kings Climate Action Plan (Cities of Avenal and Hanford), Community Outreach 2013-2014, CA. Kendall led two separate outreach efforts for KCAG; one for its RTP/SCS effort and the other as part of the agency's coordination of Climate Action Plan development for the cities of Avenal and Hanford. Both projects include a series of workshops, presentations, collateral development, media relations, website development, and bilingual outreach efforts throughout the County. She is currently managing the 2022 RTP/SCS effort.

Big Bear Lake Community Vision, CA. DKS along with the City of Big Bear Lake are collaboratively working to define a Community Vision. Kendall oversaw the development of the social pinpoint site and was involved with Big Bear Lake focus group activities, surveys, and meetings to gain as much public insight as possible.

El Dorado County Transportation Commission, American River Confluence Study, CA. Kendall managed a unique public engagement program to identify safety, evacuation and traffic issues along SR49 in the Sierras connecting Placer and El Dorado Counties.

Transportation Agency of Monterey County, SR68 Corridor Study, CA. Kendall managed a comprehensive outreach program in support of TAMC's SR68 Scenic Corridor Study. This included evaluating current travel patterns and demands and identifying appropriate solutions to increase safety, protect wildlife, and retain the route's natural beauty.

Jim Damkowitch

PRINCIPAL, REGIONAL MOBILITY ANALYSIS LEAD

Jim has over 30 years of experience in regional multi-modal transportation planning, congestion management, multidisciplinary corridor studies, safety studies, transit studies, active transportation studies, operational analyses, transportation and air quality modeling, and performance measure applications. He has managed regional electromobility plans, regional transportation plan/sustainable community strategy updates and general plan circulation element updates; operational and safety studies for state highway infrastructure improvement projects; corridor studies; active transportation studies; traffic impact fee programs; travel demand modeling; air quality modeling; and transportation operational studies for a variety of clients including Caltrans, MPOs, and various cities and counties in California.

PROFESSIONAL HIGHLIGHTS

EDUCATION

MS, Geography, University of California, Santa Barbara

BA, Geography (Honors), University of California, Santa Barbara

YEARS OF EXPERIENCE

34 Total

4 with DKS

SELECT RELEVANT PROJECT EXPERIENCE

Central Coast Zero-Emission Vehicle Strategy (CCZEVS) CA. Jim co-managed the CCZEVS that identified EV charging infrastructure needs, challenges, and opportunities in the counties of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, San Benito, and Ventura. Key objectives of the CCZEVS were: assess existing EV infrastructure – with a specific focus on unincorporated rural areas between cities; identify key challenges, gaps, and barriers to EV travel for interregional travelers; identify where equity issues currently exist with access to EV charging; and, recommend infrastructure improvements and related investments, policies and implementation strategies. The CCZEV was collectively adopted in June 2023 by SBCAG, SLOCOG and AMBAG.

San Joaquin County Alternative Fuels Vision Plan (AFVP), San Joaquin County, CA. Jim served as senior technical advisor for the San Joaquin County AFVP. The AFVP included an inventory of alternative fueling infrastructure including EV charging opportunities along major freight corridors and other regionally significant roadways in San Joaquin County. The objectives of the AFVP were to assess existing alternative fuel infrastructure; identify key challenges, gaps, and barriers to travel for interregional travelers; identify where equity issues currently exist with access to alternative fueling; and, recommend infrastructure improvements and related investments, policies and implementation strategies. The AFVP was approved by the SJCOG Board in 2023.

TRPA/TMPO Transportation Equity Study for the Tahoe Region, CA. Jim was technical lead for several elements of the Transportation Equity Plan for the Tahoe Region. As part of the study, input from stakeholders was summarized to identify key criteria and inform the development of an Equity Index (EI) and a Resiliency Index (RI). The EI and RI scores are to be used to evaluate existing and proposed transportation infrastructure assets (including electric vehicle charging infrastructure), projects, and programs relative to social equity, environmental justice, and climate change resiliency. The TRPA Equity Study was adopted by TRPA/TMPO in 2023.

PCTPA Safety Analysis for SR 65 Phase 1 (from I-80 to Pleasant Grove Boulevard), Placer County, CA. Before joining DKS, Jim conducted a predictive crash analysis on the SR 65 project corridor, including affected portions of I-80. The aim was to quantify the anticipated safety impacts of proposed improvements and establish a crash reduction factor. The analysis applied principles from the Highway Safety Manual (HSM) to forecast future crashes based on current and proposed freeway conditions. The Enhanced Interchange Safety Analysis Tool (ISATe) for freeways and interchanges was utilized to apply the HSM Predictive Method accurately. The analysis also calculated the anticipated crash reduction benefits over the 20-year design life of the project.

TRPA/TMPO GHG Reduction 2017 RTP/SCS Technical Support, CA. Jim managed the peer review of the TMPO's RTP/SCS update GHG reduction control strategy and develop additional strategies to satisfy GHG targets established for the Tahoe Basin per SB-375. Two additional strategies were analyzed for VMT reductions. The methodology and assumptions used to develop the VMT reductions for two GHG reduction control strategies were documented and the results presented as technical memorandums to TRPA/TMPO.

TRPA/TMPO Bicycle and Pedestrian Data Collection Protocol, CA. Jim managed the development of a bicycle and pedestrian data collection protocol for the Lake Tahoe Region. This included a review of best practices in bicycle and pedestrian data collection, compiling all historic bicycle and pedestrian count data into a count database consistent with the FHWA Traffic Monitoring Guide, documenting existing bicycle and pedestrian data collection technologies, developing a count protocol to conduct and adjust counts, and a methodology to prioritize new data collection sites. Jim's team also developed documented historic count data and mapped historic count locations. Jim's team assisted TRPA/TMPO in establishing a recommended set of locations and count technologies to establish an initial set of permanent and short-term count locations, as well as estimated costs for equipment, staff time and installation.

Transportation Agency for Monterey County (TAMC) SR-68 Scenic Highway Plan Study, Monterey County, CA. Prior to joining DKS, Jim managed a multi-disciplinary corridor study to identify a preferred SR 68 roundabout corridor concept and associated infrastructure improvements, while provided the highest return on investment of limited regional transportation funding for the next 20 years. The plan was developed consistent with the Comprehensive Multimodal Corridor Plan Guidelines. The SR 68 Scenic Highway Plan was approved by the TAMC Board in August 2017. It subsequently won a 2018 APA Planning Award. SR 1 Unified Corridor Investment Study (SCCRTC) Prior to joining DKS, Jim co-managed the evaluation of four scenarios to identify multimodal transportation investments on SR 1, Soquel Avenue/Soquel Drive/Freedom Boulevard, and the Santa Cruz Branch Rail Line. The project informed Santa Cruz RTC on preferred corridor concept which positioned the Santa Cruz RTC to be awarded an SB-1 Solution for Congested Corridors grant (Cycle II).

Alexandra (Alex) Haag, AICP

PROJECT MANAGER, TRANSPORTATION ENGINEER/PLANNER

Alex is a transportation planning and engineering professional specializing in multimodal planning, electromobility, and sustainable transportation solutions. She is currently leading and supporting numerous EV charging infrastructure planning and implementation projects across California. Originally from Canada, Alex brings a strong technical background combined with a deep commitment to outreach and meaningful stakeholder engagement to her projects.

PROFESSIONAL HIGHLIGHTS

EDUCATION

Master of Science in Community and Regional Planning, University of Toronto

Bachelor of Applied Science in Civil Engineering, University of British Columbia

REGISTRATION

AICP No. 401821

EIT (BC, CAN) No. 178177

YEARS OF EXPERIENCE

6 Total

2 with DKS

SELECT RELEVANT PROJECT EXPERIENCE

Lake County Zero Emission Vehicle Infrastructure Plan, CA. DKS is helping examine the Lake County region's existing zero emission vehicle (ZEV) charging/fueling infrastructure and develop a plan to guide future expansion in this area. Alex is serving as the DKS project manager and community engagement lead, ensuring equitable stakeholder involvement and alignment with regional connectivity goals.

Plumas County Electric Vehicle Charging Infrastructure Master Plan, CA. DKS is part of the team helping develop the County's plan to establish a county-wide network of EV charging stations through a data-driven and equitable approach. As the DKS PM, Alex is leading GIS-based charging station site analyses, addressing rural connectivity, equitable distribution, and detailed feasibility assessments, including zoning, accessibility, land use compatibility, and stakeholder engagement to strategically inform infrastructure placement.

Pleasant Hill Climate Action Plan, CA. DKS is part of the team developing the Climate Action Plan for Pleasant Hill. As the DKS PM, Alex is leading the development of transportation related carbon neutrality strategies and EV infrastructure expansion and travel demand modelling in support of GHG emissions inventories.

Association of Monterey Bay Area Governments (AMBAG) Electric Vehicle Climate Adaptation and Resiliency Framework, CA. DKS is part of the team assisting AMBAG with developing a Monterey Bay Electric Vehicle Climate Adaptation and Resiliency Framework. The project involves analyzing existing EV charging infrastructure, assessing vulnerabilities, and creating climate adaptation strategies. Alex is serving as the DKS PM and leading infrastructure analysis and vulnerability assessments, coordinating stakeholder groups including transit agencies, tribal entities, local governments, and private sector partners.

Central Coast Zero Emissions Vehicle Strategy Plan (CCZEV), Santa Barbara County Association of Governments (SBCAG), CA. Alex supported outreach and engagement for the SBCAG CCZEV Strategy, which developed a plan for ZEV infrastructure across Ventura, Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, and San Benito counties.

Madera County Zero Emission Vehicle Readiness and Implementation Plan, Madera County Transportation Commission, CA. Alex supported outreach and engagement for Madera County's ZEV Readiness and Implementation Plan, aimed at expanding ZEV infrastructure to meet the growing demand for electric vehicles. The

plan involved assessing current infrastructure, identifying challenges, recommending targeted improvements, and proposing strategies to ensure equitable access to ZEV infrastructure across the county, particularly addressing rural community connectivity and equitable regional deployment strategies.

Alternative Fuels Vision Plan (AFVP), San Joaquin Council of Governments (SJCOG), CA. Alex supported outreach and engagement efforts for the SJCOG AFVP, an effort focusing on enhancing alternative fuel infrastructure across San Joaquin County. The plan involved inventorying existing charging and fueling stations, identifying gaps and equity issues, and recommending improvements to support alternative fuel adoption and reduce greenhouse gas emissions.

Olympia Fleet Electrification Services, City of Olympia, WA. DKS is developing Olympia's fleet electrification plan to meet City and State carbon and vehicle targets. The plan identifies and evaluates City-owned facilities for public charging accessibility, with a focus on supporting disadvantaged communities and residents in multifamily housing. As part of this effort, Alexandra is identifying, assessing, and financing zero-emission vehicle (ZEV) infrastructure purchases and charging/fueling solutions.

East Bay Municipal Utility District Fleet Electrification Planning, CA. DKS is undertaking a comprehensive fleet electrification plan for the East Bay Municipal Utility District, which manages 971 vehicles across 28 facilities in the Bay Area and surrounding counties. DKS's responsibilities include assessing current conditions, analyzing industry trends and project needs, estimating costs, identifying barriers, assisting with financing strategies, and contributing to the development of a phased fleet electrification master plan. As part of this effort, Alexandra is identifying, assessing, and financing zero-emission vehicle ZEV infrastructure purchases and charging/fueling solutions.

Grant and Funding Support/Strategy (SS4A, RAISE, TIRCP, ATIIP, ATP, RCP, Measure A/W), CA. Alex specializes in supporting clients in securing funding through regional, state, and federal grant programs, with a particular focus on advancing multimodal and transit projects in disadvantaged communities. She assists clients at every stage of the grant process, from strategy development and preparation to project definition, ensuring that their applications are both compelling and competitive.

Elise Brockett

COMMUNITY ENGAGEMENT PROJECT MANAGER

Elise Brockett is a skilled Project Manager with a robust background in strategic communications and community engagement. With over four years of experience, she has successfully developed and executed outreach plans for transportation, construction, and planning projects across Sacramento and the Northern California region. Elise is adept at crafting clear and effective messaging, facilitating workshops, and managing project budgets and milestones. Her expertise extends to graphic design, event planning, and creating engaging marketing materials. A graduate of the University of California, Davis, with a B.S. in International Agricultural Development, Elise brings a unique perspective and passion for public engagement and facilitation to her work.

PROFESSIONAL HIGHLIGHTS

EDUCATION

B.S International Agricultural Development,

University of California, Davis

YEARS OF EXPERIENCE

Total: 4

Hire Date with DKS: 1/21/25

SELECT RELEVANT PROJECT EXPERIENCE

City of Sacramento Howe Avenue Transportation and Vision Zero Plan, CA. The goal of the project is to eliminate fatal and severe injury crashes on Howe Avenue between Fair Oaks Blvd and the Power Inn light rail station south of Folsom Blvd by identifying needs and recommendations to make it safer and more multimodal. The project, funded by Caltrans grant money, is focused on improving access and connectivity for all users, especially to nearby Sac State University and the American River Bicycle Trail. The analysis aims to identify and evaluate alternatives through balancing mobility, safety, and equity considerations, all in concert with a robust public outreach process to increase community buy-in. As Community Engagement Project Manager, Elise is currently planning an in-person and a virtual open house to present findings from the first phase of work and solicit community feedback to help refine the plan. To effectively promote and advertise this round of engagement, Elise is developing marketing materials such as a flyer, social media graphic, content for the project website, and email content to increase awareness.

City of Sacramento Norwood Avenue Complete Streets Transportation Plan, CA. The goal of the project is to provide increased multimodal connectivity and safety along Norwood Avenue from Main Avenue to Arcade Creek by identifying needs and project recommendations for increasing user safety and mobility. The project, funded by Caltrans grant money, is focused on improving access and connectivity for all users. The analysis aims to identify and evaluate alternatives through balancing mobility, safety, and equity considerations, all in concert with a robust public outreach process to increase community buy-in. As Community Engagement Project Manager, Elise is currently planning an in-person and a virtual open house to present findings from the first phase of work and solicit community feedback to help refine the plan. To effectively promote and advertise this round of engagement, Elise is developing marketing materials such as a flyer, social media graphic, content for the project website, and email content to increase awareness.

County of Inyo Electric Vehicle Charging Infrastructure Network Plan, CA. Inyo County and the Inyo County Local Transportation Commission are developing a plan to determine the best potential sites for building charging stations for electric vehicles (EVs). The Plan will provide detailed implementation guidance for installing these and other strategically-located stations throughout Inyo County to support the travel needs of residents and visitors. As Community Engagement Project Manager, Elise helped plan and facilitate a virtual Stakeholder Focus Group meeting with representatives from local agencies, tribal governments, utility providers, and community organizations to present project information and gather feedback from them about the EV plan. Additionally, Elise planned and facilitated a Virtual Public Workshop to inform community members about the project and encourage them to share

any input on potential locations for EV chargers through the online interactive map. Elise also developed an informational project fact sheet that includes a broad overview of the planning process and how stakeholders and members of the public can continue to participate in the project.

Transportation Agency for Monterey County Regional Vision Zero Action Plan, CA. The Monterey County Regional Vision Zero Action Plan is a transformative initiative intended to eliminate fatalities and serious injuries on Monterey County roadways. This plan will outline the strategies needed for achieving safer roads, safer speeds, safer people, safer vehicles, and post-crash care. The Transportation Agency for Monterey County (TAMC) is leading the plan in close collaboration with staff from each city and the county. Throughout the plan each community will be engaged to ensure the plan reflects the diverse needs of populations throughout Monterey County. As Community Engagement Project Manager, Elise is planning a series of workshops taking place in each jurisdiction throughout the County to educate community members about the initiative and encourage their feedback and participation. Additionally, Elise is developing an informational project fact sheet to be shared with community partners and through the project website to increase public awareness of the plan.

Section 8: Conflict of Interest

ICF Incorporated, LLC warrants and covenants that ICF has no conflict of interest as stated in the RFP.