Proposal for Professional Engineering Services


City Project No. PW1522

Prepared by: Kimley-Horn
1 COVER LETTER

June 29, 2020

Jeffrey Aube
Miguel Mendoza
City of Stockton
Public Works Department
22 E. Weber Avenue, Room 301
Stockton, CA 95202


To Jeffrey Aube, Miguel Mendoza, and Members of the Selection Committee:

Kimley-Horn is pleased to present our proposal to provide professional services for the updates of the City of Stockton’s Traffic Management System (TMS) Configuration Report and Traffic Signal Design and Operations Guide. We are very excited for the opportunity to continue providing these services as we have successfully served the City in the past for more than 15 years. This is an exciting time for the City—and the Kimley-Horn team is very enthusiastic to partner with the City to help take this very important step toward planning and implementing an updated Traffic Management System. This work requires a design consultant who combines the needed technical expertise with vision and creativity; a partner with a proven track record of bringing multiple interests together to generate consensus; developing collaborative operations strategies that improve network performance; and a team with the best knowledge of Intelligent Transportation Systems (ITS) and traffic operations. These highlights of our team and our approach are emphasized by the following:

Extensive Local and Relevant Experience. Our team has worked closely with the City for more than a decade on projects, including the Bus Rapid Transit (BRT) Phases IV, V, and 1-B; two of the City’s adaptive signal system deployments; converting Pedestal-Mounted Poles to Mast-Arms on Martin Luther King, Jr. Boulevard; and the West Lane Traffic Responsive System. Kevin Aguiigui, P.E., T.E., E.E., CSEP, your project manager, has served the City of Stockton for over 15 years on various ITS and traffic operations and design projects. Kevin helped develop the current version of the Traffic Signal Design and Operation Guide, and he and others on the team have worked with the City on several cutting edge traffic signal operations and communications network design projects over the years. They know the City’s ITS and Traffic Signal System inside and out. Supported by Kevin will be Randy Durrenberger, P.E., your principal-in-charge, who brings an exemplary combination of local and national experience to guide the City into the next successful phase. Randy is well known for his strategic work in managing large, regional programs; analyzing transportation technology feasibility and benefits; and building consensus among stakeholders in a coordinated, responsive fashion, as demonstrated by the recent Caltrans District 10 Integrated Corridor Management Plan. We have also included Siegfried Engineering, Inc., an established Stockton firm, to assist with the Traffic Signal Design and Operation Guide. Kimley-Horn and Siegfried’s extensive history with the City creates a strong synergy to continue your success.

Responsiveness. We know that a strong commitment to client satisfaction is the foundation of our service to you. We pride ourselves in our ability to deliver technical excellence that is built around timely service, practical feasibility, and innovative solutions. The proximity of our local offices in Oakland, Pleasanton, and Sacramento enable us to provide an enhanced level of responsiveness that you expect, utilizing a readily available team that is very enthusiastic to work with you.
Proposal for Professional Engineering Services

Updates of the Stockton
Traffic Management System Configuration Report and
Traffic Signal Design and Operations Guide

On the following pages of this proposal, you will notice our thoughtful approach, our professional passion, and our thorough understanding that makes Kimley-Horn best suited for this project. We sincerely want to continue to serve as your consultant and we look forward to working with you on this important project that will advance the City’s operational performance. For additional information or questions regarding our proposal, please contact me at 510.350.0217 (office), 510.393.6232 (cell), or at kevin.aguigui@kimley-horn.com.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Kevin Aguigui, P.E., T.E., E.E., CSEP
Project Manager

Randy Durrenberger, P.E.
Principal-in-Charge

Randy Durrenberger has the authority to negotiate and contractually bind the Firm. His contact information is: 1300 Clay Street, Suite 325; Oakland, CA. 94612, 510-350-0230, randy.durrenberger@kimley-horn.com

Kimley-Horn possesses a City of Stockton business license. To the best of our knowledge we believe our firm has no potential conflicts of interest (or appearances thereof) for this contract.
Proposal for Professional Engineering Services

2 TABLE OF CONTENTS

1 Cover Letter ..............................................................................................................................i
2 Table of Contents ..................................................................................................................iii
3 Executive Summary ...............................................................................................................1
4 Project Team ...........................................................................................................................2
5 Project Understanding and Approach ....................................................................................5
6 Examples of Experience with Similar Types of Work ...............................................................8
7 Detailed Work Plan ................................................................................................................10
8 References ................................................................................................................................15
9 Project Work Matrix ...............................................................................................................16
10 Schedule ................................................................................................................................17
11 Local Preference ....................................................................................................................18
12 Cost Proposal ........................................................................................................................19

Attachments .............................................................................................................................20
EXECUTIVE SUMMARY

Kimley-Horn is a full-service engineering, planning, and environmental consulting firm providing services to both public and private sector clients nationwide. Founded in 1967, Kimley-Horn has grown from a small group of engineers and planners to a firm of more than 4,200 employees in 90 offices nationwide, 11 of which are in California. Our growth over the last 53 years is the result of the firm’s commitment to integrity and dedication to providing quality services.

Our team’s significant experience with the City, our intimate knowledge of the existing TMS and our team’s unmatched experience with advance and emerging technologies will enable us to “hit the ground running” and conduct all the necessary steps to effectively update the key documents within the City’s required timeline of five months. We will not have a learning curve. Our extensive experience with similar projects is provided in Section 6.6, Examples of Experience with Similar Types of Work.

Project Understanding
The City of Stockton has been a leader in the San Joaquin Valley with their Traffic Management System (TMS) which was initially deployed over 20 years ago. However, the existing TMS is reaching a point where the City needs to consider its replacement/upgrade. As part of this process, the City wishes to update two key documents including the Traffic Management System Configuration Report and the Traffic Signal Design and Operations Guide. The key documents will provide the roadmap for the upgrading and eventual replacement of the City’s TMS to meet the current and future technological, operational and maintenance needs.

Our proposed team includes Siegfried Engineering, Inc., a local firm in the City of Stockton who will be assisting Kimley-Horn in the preparation of the Traffic Signal Design and Operations Guide.

Project Approach
Our approach includes a single Concept of Operations and Needs Assessment for the Traffic Signal System, Communications System Architecture and the TMC. This Concept of Operations will be crucial in identifying what each of these subsystems will look like in the future. The Concept of Operations will set the groundwork for integrating local City partners (Caltrans, County, SJCOG, and SJRTD) as well as help us to facilitate demonstrations of equipment to be incorporated into the future TMC. This approach has been effective on other similar projects that we have conducted for many other agencies and will enable our team to meet the City’s required timeline. We will also conduct several tasks in parallel which will form the framework for the TMS Configuration Report and the Signal Design and Operations Guide. We will prepare the Testing, Verification and Validation Plans once we begin work on the 95% draft of the TMC Configuration Report. A high level representation of our approach is shown in the figure below. A more detailed version is provided in Section 7, Detailed Work Plan.

Schedule
We will complete the initial Systems Engineering documents (ConOps and Needs Assessment) and the Traffic Signal System evaluation and demonstrations within the first three months of the project. We will accomplish this by conducting a single one-day workshop with the City and the stakeholders in the first month and will conduct a monthly meetings (at a minimum) to keep the process moving. The drafts of the TMC Configuration Report and Signal Design and Operations Guide will be submitted within three months and the final within five months.
4 PROJECT TEAM

Our proposed team consists of individuals who have extensive experience providing professional engineering services to the City. Our team has worked with City staff on over a dozen projects in the last 15 years. The combination of our experience with the City and experience completing similar design projects will allow us to provide the successful delivery of this project for the City of Stockton.

The members of our project team were selected using two criteria: their experience with similar projects, and their availability to assume major technical and project management responsibilities for this contract. Based upon a review of our current and projected staffing assignments, we know that the staff members selected for this team are available immediately to serve you and are in an excellent position to handle the workload required to complete the project. We have included a key staff availability table below.

CITY OF STOCKTON

Public Works Department

Jeffrey Aube

Principal-in-Charge

Randy Durrenberger, P.E.*

Project Manager

Kevin Aguigui, P.E., T.E., E.E., CSEP*

QC/QA

Jean Fares, P.E.

Stakeholders

Caltrans District 10
County of San Joaquin
SJCOG
FHWA
SJRTD

Traffic Management System Configuration Report

Alyssa Phaneuf, P.E.*
Doug Gettman, Ph.D.*
Lisa Burgess, PMP
Darya Shtykalo, EIT

System Communication Network Architecture

Kevin Aguigui, P.E., T.E., E.E., CSEP*
Frank Nguyen, CCNA, CCNP*
Melissa Hewitt, P.E.

TMC and City Facilities

Kevin Aguigui, P.E., T.E., E.E., CSEP*
Elbert Chang, P.E., T.E.
Robert Paderna, P.E.

Traffic Signal Design and Operations Guide

Kwasi Akawbi, P.E.*
Brian Sowers, P.E.*
Joe Arroyo, P.E.
Tanya Welch, P.E.

Siegfried Engineering (Subconsultant)**

Key Staff

Kevin Aguigui
Randy Durrenberger
Alyssa Phaneuf
Kwasi Akawbi
Brian Sowers
Frank Nguyen
Doug Gettman

Role Responsibility
Project Manager
Principal-in-Charge
Signal System Evaluation Lead
Signal Design Guide Lead
Signal Operations Guide Lead
Communication Network Support
C/AV and Smart Cities Lead

Availability
30%
40%
40%
40%
30%
25%
25%

*Key Staff
**Local Business
Kevin is a Senior Traffic, Systems, and Electrical Engineer with over 20 years of extensive hands-on experience in Transportation Systems Planning, Design and Integration, Traffic Engineering and Electrical Systems Design. His main focus is in the areas of Intelligent Transportation Systems (ITS), Transportation Management Systems, Security and Surveillance Systems, Electrical Systems, Communications Networks, Traffic Engineering and Design, and Adaptive Control Systems. His wide range of skills focuses on the utilization of systems engineering for the planning, design, deployment and integration of advanced transportation and electrical systems. Kevin has been working closely with the City of Stockton for well over 20 years. He was one of the original authors of the City’s System Configuration Report. He is intimately familiar with your traffic signal system and has been successfully delivering projects and systems for the City over that time.

**RELEVANT EXPERIENCE**

- **City of Stockton Advanced Traffic Management System - System Configuration and Evaluation** – Project Engineer
- **BRT Phases I-B, II, III, IV and V (5 separate projects), Stockton, CA** – Project Manager
- **Wilson Way Adaptive Traffic Control System, Stockton, CA** – Project Manager
- **March Lane Adaptive Traffic Control System, Stockton, CA** – Project Manager
- **Installation of Emergency Vehicle Pre-Emption (EVP) at Various Locations, Stockton, CA** – Project Manager
- **Convert Signals to Mast Arms on Martin Luther King, Jr. Boulevard, Stockton, CA** – Project Manager
- **ITS Strategic Plan, Visalia, CA** – Project Manager
- **ITS Master Plan, San Ramon, CA** – Project Manager
- **Traffic Signal Evaluation and Demonstration, Santa Clara, CA** – Project Manager
- **Communications System Master Plan, Walnut Creek, CA** – Project Manager
- **Kern County ITS Master Plan** – Principal-in-Charge
- **Modesto Link Fiber Master Plan, Modesto, CA** – Principal-in-Charge
- **TMC Design and Implementation, Visalia, CA** – Project Manager
- **Tulare County ITS Strategic Plan** – Principal-in-Charge
- **Regional Managed Lanes Feasibility Study, Caltrans District 3** – Project Manager
- **TMC and IT Network Strategic and Implementation Plan, Pasadena, CA** – Principal-in-Charge
- **Advanced Traffic Management System, Santa Clarita, CA** – Principal-in-Charge
- **Innovative Deployment to Enhance Arterials (IDEA), Automated Traffic Signal Performance Measures (ATSPM) Systems Engineering, San Francisco Bay Area** – Project Manager
- **I-80 Integrated Corridor Mobility (ICM) Project, Alameda County Transportation Commission** – Systems and Electrical Engineer
- **Regional Communication Investment Plan, Bay Area, CA** – QA/QC
- **Vehicle Infrastructure Integration (VII) California Evaluation** – Project Manager
- **Fiber Optic Design and Standards Development, Tracy, CA** – Project Manager.

**Professional Credentials**

- Bachelor of Science, Civil Engineering, University of Hawaii at Manoa
- Certificate with Distinction, Telecommunications and Network Engineering, University of California, Berkeley Extension
- Professional Traffic Engineer in CA, #1781
- Professional Electrical Engineer in CA, #19888
- Professional Civil Engineer in CA, #48732
- Certified Systems Engineering Professional, #00156
- Internetworking with TCP/IP, Internetworking Routers and Switches and CCNAxv3 Routing and Switching Boot Camp, Global Knowledge
- Institute of Transportation Engineers, Member
- International Council on Systems Engineering (INCOSE), Member
Resumes continued...

- Silicon Valley ITS Wide Area Network Re-Design, Installation and Integration, Santa Clara County, CA – Project Manager.
- Variable Message Sign System Design and Procurement, Abu Dhabi, UAE – Lead Technical Engineer
- Technology Transfer Seminars, San Francisco, CA – Task Manager
- Bay Area Video Upgrade (BAVU), San Francisco Bay Area, CA – Lead Project Engineer
- Video Security and Surveillance System, Sacramento, CA – Project Manager
- Regional Real-Time Transit Information System, San Francisco Bay Area, CA – Project Manager
- Integrated Transportation Management System (SFgo), City and County of San Francisco, CA – Project Manager
- ITS Master Plan, Livermore, CA – Project Manager
- US 50 Recreation Travel Hot Spot Study, Caltrans District 3 – Project Manager
- Integrated Security System, Porterville, CA – Project Manager
- Four Corridors Signal and Communications Assessment, Sacramento, CA – Project Manager
- Lighthouse Adaptive Traffic Control System, Monterey, CA – Project Manager
- Adaptive Control System (Santa Clara County), Sunnyvale, CA – Project Manager
- Ocean Street Adaptive Traffic Control System Implementation, Santa Cruz, CA – Project Manager
- San Francisco Bay Bridge Metering Lights Upgrade, Bay Area Toll Authority (BATA) – Project Manager
- Regional Transportation System Enhancements Project (RTSEP), San Rafael, CA – Project Manager
- Andersen Drive At-Grade Crossing and Intersection Improvements, San Rafael, CA – Project Engineer
- Oakland Airport ITS and Traffic Responsive Timing, Oakland, CA – Principal-in-Charge
- Blackstone/Ventura-Kings Canyon BRT, (Civil, traffic, BRT/TSP system, electrical and shelter designs), Fresno, CA – Project Manager
Randy Durrenberger, P.E.

Principal-in-Charge

Randy is a senior transportation engineer with 25 years of experience in the planning, design, testing, and implementation of freeway and arterial-based ITS projects. He has managed the development and delivery of several major freeway management systems and arterial improvement projects involving all facets of a project from planning to implementation. His experience includes planning (ITS strategic plans, system architecture, communications master plans, implementation plans), design (communications, conduit and cable, plan sets, general traffic, and field device locations), specifications (signal system, ITS devices), and field coordination of multiple contractors on various phases of implementation. Randy has managed arterial projects including traffic signal interconnect, transit signal priority, bus stop enhancements, queue jump lanes, and corridor surveillance.

RELEVANT EXPERIENCE

- Install Left-Turn Lanes at Airport Way and Hazelton Avenue, Stockton, CA – Principal-in-Charge
- Alameda CTC, I-80 Integrated Corridor Mobility (ICM) Project (also known as I-80 SMART Corridor), Alameda/Contra Costa Counties, CA – Project Manager
- AC Transit, Line 51 Corridor Delay Reduction Study and Design – Project Manager
- MTC, ITS/511 Technical Advisor, Bay Area, CA – Project Manager
- Regional Express Lane Network Phase 1, I-880/SR-84/SR-92 Design – Project Manager
- MTC/BAIFA Express Lane Backhaul Design – QC/QA Manager
- East Bay Bus Rapid Transit, Program Management and Construction Management Support Services, Oakland, CA – QC/QA Reviewer
- Monterey-Salinas Transit, Fremont-Lighthouse Bus Rapid Transit (BRT) Design, Monterey, Salinas, Seaside, CA – Project Manager
- Monterey On-Call Civil and Traffic Engineering Services, Monterey, CA – Project Manager
- Milpitas Traffic Signal Interconnect PS&E, Milpitas, CA – Project Manager
- Monterey Signal System Procurement, Monterey, CA – Project Manager
- Oakland Intelligent Transportation System (ITS) Strategic Plan Update, Oakland, CA – QC/QA Reviewer
- Silicon Valley West Smart Corridor (San Jose/Cupertino) Design, Cupertino, CA – Project Manager
- Rancho Cordova, Technical Design Services for ITS Infrastructure Improvements, Rancho Cordova, CA – QC/QA Manager

Professional Credentials

- Master of Science, Civil Engineering, University of Texas, Austin
- Bachelor of Science, Civil Engineering, University of Minnesota
- Professional Civil Engineer in CA, #65157 and NV, #13989
- Institute of Transportation Engineers (ITE), Member
Proposal for Professional Engineering Services

Jean Fares, P.E.
QC/QA

Jean is a project manager with 30 years of traffic and transportation engineering experience, including traffic signal design (over 2,000 locations), interconnect design, signal system design (over 1,500 locations), traffic operations, signing and marking plans, traffic signal timing (over 2,500 locations), and traffic control plans. In addition to signal design and corridor signal operations, Jean has extensive experience with ATMS, TMC, fiber-optic, video detection station, CCTV, CMS, and other ITS technologies. He is also extremely experienced in PS&E for installation, central hardware procurement and installation, and field hardware procurement and installation support.

RELEVANT EXPERIENCE

- ITS Phase II, IIA, III, IV, V, VII, and VI, Santa Clarita, CA – Project Manager
- Dynamic Lane at Soledad Canyon Road and Sierra Highway, Santa Clarita, CA – QA/QC Reviewer
- Transit Priority System Phase II/ATMS Phase III, Santa Monica, CA – Project Manager
- Real Time Motorist Information System, Culver City, CA – Project Director
- Real Time Beach Parking and DMS, Santa Monica, CA – Project Manager
- SAFETEA-LU - Systems Integrator/Manager and Design, Pasadena, CA – QC/QA
- Paramount Blvd Fiber-Optic Communication System, Downey, CA – Project Manager
- Fiber-Optic Communication and Traffic Signal Design, Burbank, CA – Project Manager
- Pomona Valley Advanced Traffic Management and ITS Project, Pomona Valley, CA – Project Manager
- VCTC: Fiber-Optic Communications Conduit Along Santa Paula Branch Rail Line, Ventura County, CA – Project Manager
- Master Signal Management Plan, Palmdale, CA – Project Manager
- Traffic Signal System Projects (TSSP, 18 Projects), Los Angeles County, CA – Project Manager
- Strategic Plan for Traffic Signal Improvements and ITS Deployment for the Arroyo-Verdugo Traffic Forum, Pasadena, CA – Project Engineer
- Conduit Hardwire Connections - Master Signal Coordination System Expansion, Thousand Oaks, CA – Project Manager
- Civil and Traffic Engineering Firms, Transit Consultants, and Security Design Consultants On-Call, Porterville, CA – Project Manager
- Traffic Management Center Needs Assessment, Downey, CA – Project Manager
- Citywide Traffic Signal Equipment and Infrastructure Assessment Study, Rancho Mirage, CA – Project Manager
- ITS Planning and Computerized Traffic Signal Synchronization, Agoura Hills, CA – Project Manager

Professional Credentials

- Bachelor of Science, California State Polytechnic University, Pomona
- Professional Engineer in CA #TR2097
- Institute of Transportation Engineers
Alyssa Phaneuf, P.E.
Traffic Signal System Needs Evaluation Lead

Alyssa has over 20 years of experience in a wide range of transportation and transit projects including regional ITS planning and systems engineering. She has experience writing technical specifications for a variety of technologies including video walls, traffic signal systems, and ITS field equipment. Through her work on regional and local ITS projects, she has experience working with a variety of stakeholders such as the Federal Highway Administration, local police departments, regional planning agencies, and FEMA. She is adept at assessing the needs of the stakeholders and translating those needs into on-the-ground solutions. She has worked with the cities of Downey, Santa Clarita, and Pasadena, as well as Los Angeles County in the assessment of their operational and physical TMC needs. She has worked with multiple agencies to define their requirements for traffic signal systems and assisted with procurement and integration.

RELEVANT EXPERIENCE

- Anaheim Traffic Management Center, Anaheim, CA – Project Engineer
- Pasadena SAFETEA-LU - Systems Integrator/Manager and Design (TMC), Pasadena, CA – Project Engineer
- SCAG, Regional ITS Architecture Update, Los Angeles, CA – Project Engineer
- OCTA, Traffic Signal Synchronization Master Plan, Orange, CA – Project Engineer
- MATIS 511 Technical Support, LA SAFE (aka So Cal 511 ), Los Angeles, CA – Project Engineer
- LA Metro, Highway Programs - Intelligent Transportation Systems (ITS) On-Call Services, Los Angeles County, CA – Project Engineer
- ITS Integration Plan for Goods Movement, Gateway Cities Area, CA – Project Manager
- Fundamentals of Systems Engineering for ITS Projects - Developing and Teaching a Two-Day Short Course (TE-21), Berkeley, CA – Deputy Project Manager
- Caltrain, Operations Communications Plan, San Carlos, CA – QC/QA Reviewer
- California ITS Architecture and System Plan, Statewide, CA – Project Engineer
- ACTC, I-80 Integrated Corridor Mobility (ICM) Project, Alameda/Contra Costa Counties, CA – Project Engineer
- Kern County (Cog) 2018 ITS Plan for the Kern Region, Kern County, CA – Project Manager
- Fresno COG, ITS Strategic Deployment (ITSSD) Plan Update, Fresno, CA – Project Engineer
- Visalia ITS Strategic Plan, Visalia, CA – Project Manager
- LA Metro, Arterial ITS Inventory Tool Expansion (ITS First) – Project Manager
- LA County ITS Architecture Update – Project Engineer
- Westlake Village ITS, Westlake, CA – Project Engineer

Professional Credentials

- Master of Science, Civil Engineering (Transportation), Georgia Institute of Technology
- Master of City and Regional Planning, Civil Engineering (Transportation), Georgia Institute of Technology
- Bachelor of Science, Civil and Environmental Engineering, University of California, Berkeley
Douglas Gettman, PhD

Traffic Signal System Needs Evaluation

Douglas has 26 years of experience in adaptive traffic control, intelligent transportation systems management software (central and field controller), and transportation system modeling & simulation. He has developed, deployed, integrated, and supported ASCT and ATMS systems for Cities, Counties, and State DOTs across North America including Florida, Texas, California, Michigan, Arizona, Ontario, Ohio, and Nevada. Douglas has been the principal investigator on significant FHWA and NCHRP programs related to arterial operations and traffic signal including ACSLITE, NCHRP 03-90 operation of traffic signal systems in oversaturated conditions, and Next Generation TMS Concept of Operations. He is the author or co-author of over forty peer-reviewed research papers, FHWA reports, and USDOT and NCHRP Guidance documents.

RELEVANT EXPERIENCE

- **Caltrans District 4, Adaptive Control Project, Oakland, CA** — Subject Matter Expert
- **Traffic Management Systems, Rohnert Park, CA** — Subject Matter Expert
- **Federal Highway Administration (FHWA) Framing the Capabilities of the Next Generation of Traffic Management Systems and Centers, Nationwide** — Subject Matter Expert
- **USDOT Raising Awareness of Artificial Intelligence for Transportation Systems Management and Operations** — Principal Author
- **City of Mesa Adaptive Traffic Control System, Mesa, AZ** — Project Manager
- **Federal Highway Administration (FHWA) Adaptive Control to Balance Safety and Efficiency: Phase II, Nationwide** — Co-Principal Investigator
- **Federal Highway Administration (FHWA) Measures of Effectiveness and Performance Evaluation to Validate Traffic Signal Operational Objectives, Nationwide** — Principal Investigator
- **Deployment of the Congestion Manager Component for Spring Training, Surprise, AZ** — Project Engineer
- **Deployment of System Encompassing over 100 traffic signals and additional ITS devices, Maricopa County, AZ** — Project Engineer
- **E-IntelliDrive Dynamic Routing and Situational Awareness Concept of Operations, Statewide, AZ** — Project Manager
- **NCHRP 03-103: Update to the Traffic Signal Timing Manual, Texas Transportation Institute, College Station, TX** — Contributor
- **NCHRP 03-90: Operation of Traffic Control Systems in Oversaturated Conditions, Minneapolis, MN** — Principal Investigator
- **Oversaturated Intersection Management Software Deployment, City of Windsor, Ontario** — Project Manager
- **Federal Highway Administration (FHWA) Adaptive Control System, Nationwide** — Principal Investigator
- **Miami-Dade County Transit Priority System (TSP) Concept of Operations, Miami-Dade, Florida** — Project Engineer
- **City of Tallahassee, Advanced Traffic Management System (ATMS) (KITS), Tallahassee, FL** — Project Engineer
- **City of Austin, Mobile Application/Advanced Traffic Management System (ATMS), Austin, TX** — Team Member

Professional Credentials

- Ph.D. Systems and Industrial Engineering (Transportation Engineering Minor), University of Arizona
- Master of Science, Systems Engineering, University of Arizona
- Bachelor of Science, Systems Engineering, University of Arizona
Proposal for Professional Engineering Services


Lisa Burgess, PMP

Traffic Signal System Needs Evaluation

Lisa works throughout the U.S. on multi-jurisdictional transportation operations and planning projects, with a specific emphasis on Traffic Management Centers (TMCs) planning, regional system planning, Transportation Systems Management and Operations (TSMO) program planning and implementation, and freeway/arterial operations. She focuses on system operations, including operational processes and policies, business processes, and alignment of operations with other functional areas (including incident management, traveler information, safety, and freeway/arterial operations). Lisa’s experience includes TMC plans, concepts, and operations plans for local, regional, and state TMC facilities throughout the western United States.

RELEVANT EXPERIENCE

- Iowa DOT, TMC Service Layer Plan, Statewide, IA – Project Manager
- AZTech Workforce Development and TSMO Job Description Templates, Phoenix, AZ – Project Manager
- TMC Pooled Fund Study, TMC Business Planning and Plans Handbook, Statewide, AZ – Task Manager
- Wisconsin DOT (WisDOT) ITS Program Integration Review and Statewide Transportation Operations Center (STOC) Operations Model Assessment – Project Manager
- MCDOT Traffic Management Center Implementation Plan & Update, Maricopa County, AZ – Project Manager
- Idaho Interagency Regional Operations Center, (IROC) Phase II, Boise, ID – Lead for Concept of Operations Development
- TMC for Freeway and Arterial System of Transportation (FAST) and Nevada Highway Patrol (NHP), Las Vegas, NV – Project Planner
- CalTrans, Rural/Interregional Traveler Information Systems, Statewide, CA – Project Manager
- Regional ITS Architectures and Deployment Plans/Idaho Statewide ITS Strategic Plan Update Project, Statewide, ID – Project Manager
- KDOT, US 75 Potawatomi Band ITS, 75-43 KA-1500-01, Mayetta, KS – Project Planner
- Virginia DOT, I-66 Active Traffic Management (ATM) from Route 15 to the D.C. Line, Fairfax/Prince William/Arling, VA – Project Planner
- MAG, I-10 TSOP ConOps IGA, Phoenix, AZ – Project Manager
- Federal Highway Administration (FHWA), Real-Time Traveler Information Market Assessment, Herndon, VA – Project Manager
- Federal Highway Administration (FHWA), Freeway Management and Operations Handbook Update (Phase I), Nationwide – Project Manager
- Michigan DOT, Best Practices for Emergency Rerouting, Statewide, MI – Project Manager

Professional Credentials

- Bachelor of Arts in English, Arizona State University
- Project Management Professional #1513021
Darya Shtykalo, EIT
Traffic Signal System Needs Evaluation

Darya is a transportation analyst with two years of experience in ITS planning and design. She has experience working with traffic studies, design of traffic signals, and comparative technology studies. Additionally, Darya has experience working on ITS Master plans, ranging from city to statewide. Darya also has experience with planning and design of communications networks.

RELEVANT EXPERIENCE

- MTC, Clipper Consultant Assistance, San Francisco, CA – Analyst
- MTC, I-880 Contractor Oversight/Quality Control of Traffic Operation Devices Field Work, Alameda County, CA – Analyst
- MTC, Regional Communications Strategic Investment Plan III, Bay Area, CA – Analyst
- Caltrans, Traffic Operations Statewide TMS Communication Plan, Sacramento, CA – Analyst
- Caltrans District 4, Dumbarton - San Mateo Bridge Metering, Bay Area, CA – Analyst
- Caltrans District 4, Dana Bowers Operation and Management Plan, San Francisco, CA – Analyst
- Caltrans District 3, Recreation Hot Spot Study, Sacramento, CA – Analyst
- Caltrans District 3, Ramp Metering Traffic Management Studies, Sacramento, CA – Analyst
- City of Oakland, Fiber Network Master Plan Update, Oakland, CA – Analyst
- Port of Oakland, GoPort FITS: Freight Intelligent Transportation System, Oakland, CA – Analyst
- City of Hayward, Hayward High-Speed Fiber Design, City of Hayward, CA – Analyst
- City of Santa Clara, Bowers Avenue Traffic Signal Interconnect, Santa Clara, CA – Analyst
- City of San Rafael, Third and Hetherton Traffic Study, City of San Rafael, CA – Analyst
- City of Stockton, Bus Rapid Transit Phase 1-B, City of Stockton, CA – Analyst
- LAVTA, Transit Signal Priority Upgrade and Expansion, Bay Area, CA – Analyst
- IKE, IKE Smart City Kiosk, Berkeley, CA – Analyst

Professional Credentials

- Bachelor of Science, Civil Engineering, California Polytechnic State University, San Luis Obispo
- Engineer-in-Training #166129
- Engineers Without Borders, Student Chapter
Frank Nguyen, CCNA, CCNP

Traffic Signal System Needs Evaluation

Frank Nguyen has over 15 years of experience supporting product integration activities of multiple software components as well as experience in the field of Enterprise LAN and WAN IP Networks. Application development and services include custom MSI packaging from development to deployment and application virtualization with web-based process management. His experience includes writing programs to streamline and automate application deployment and maintenance. Frank has used the Microsoft and Cisco standards to create an optimal network infrastructure and implemented it on an enterprise level.

RELEVANT EXPERIENCE

• Bayfront Expressway (SR 84)/Willow Road/Marsh Road Kadence Adaptive System Deployment, Menlo Park, CA – Systems Engineer
• AC Transit, Line 51 Corridor Delay Reduction and Sustainability Project, Alameda/Berkeley/Oakland, CA – Systems Engineer
• AC Transit, Line 97 - South County Corridors Transit Performance Initiative (TPI) Project Adaptive Traffic Control System (ATCS), Hayward to San Leandro, CA – Systems Engineer
• Alameda Corridor East Construction Authority, Phase II Grade Separations PS&E, Fullerton Road Grade Separation, City of Industry, CA – Systems Engineer
• City of Oakland, Signal Timing System Programming, Oakland, CA – Network Engineer
• Santa Clara Traffic Video Management System, Santa Clara, CA – Technical Support
• City of Culver City, Traffic Control Systems (KITS®), Culver City, CA – Systems Engineer
• SANDAG, East County Bus Maintenance Facility Master Plan and Construction Documents, San Diego, CA – Team Member
• FHWA, Manual on Uniform Traffic Control Devices Rulemaking Process, Federal Highway Administration, Nationwide – Team Member
• Hawthorne Airport Improvements, Hawthorne, CA – Field Representative
• LA Metro, Express Lanes - Roadside Toll Collection System, Los Angeles, CA – Systems Engineer
• MCC, Scottsdale Community College Campus Xeriscape Transition, Scottsdale, AZ – Team Member
• San Mateo County, KITS Smart Corridor ATMS, San Mateo, CA – Systems Engineer
• City of Santa Clara, Traffic Monitoring Camera System, Santa Clara, CA – Systems Engineer
• SR 91 Project Report and Environmental Document, Various Counties, CA – Systems Engineer

Professional Credentials

• Bachelor of Science, Computer Engineering, University of California, Irvine
Melissa Hewitt, P.E.

System Communication Network Architecture

Melissa Hewitt is a seasoned project manager with 20 years of experience. She is a talented transportation systems engineer and planner with specialized expertise in a wide range of ITS applications, programs, and technologies. Melissa has managed large-scale multimodal transportation plans, goods movement integration plans, ITS strategic plans, and other advanced technologies and regional expertise/training for systems engineering (SE) and regional architecture development. She has extensive experience providing federal grant funding and SE support for clients around the country.

RELEVANT EXPERIENCE

- ITS Integration Plan for Goods Movement, Gateway Cities Area, CA – Project Manager
- MTC, ITS/511 Technical Advisor, Bay Area, CA – Project Engineer
- LAWA LAMP ITS Improvements; Inglewood, Los Angeles, Culver City, LAX, CA – Project Manager
- LAWA Innovative Traffic Technology Summit, Los Angeles, CA – Project Manager
- Caltrans District 7 Arroyo Seco ITS Systems Engineering, Los Angeles, CA – Project Manager
- Caltrans District 12 North Orange County Triangle ICM – Project Manager
- LA Metro, Intelligent Transportation Systems (ITS) On-Call Services, Los Angeles County, CA – Project Manager
- SANDAG, San Diego Region Intelligent Transportation Systems (ITS) Strategic Plan, San Diego, CA – Project Engineer
- USDOT, I-15 Integrated Corridor Management (ICM) Project Stage III, San Diego County, CA – Project Engineer
- ACTC, I-80 Integrated Corridor Mobility (ICM) Project, Alameda/Contra Costa Counties, CA – Project Manager
- SBCAG, South Coast ITS Implementation Plan, Santa Barbara County, CA – Project Manager
- Fundamentals of Systems Engineering for ITS Projects - Developing and Teaching a Two-Day Short Course (TE-21), Berkeley, CA – Project Manager
- Caltrans, Connected Corridors Program and Corridor System Management/Operations Pilot Project, Statewide, CA – Project Engineer
- City of Anaheim, ITS Master Plan, Anaheim, CA – Project Manager
- SHRP2 Integrating Business Processes to Improve Travel Time Reliability, Washington, DC – Project Engineer
- OCTA, Traffic Signal Synchronization Master Plan, Orange, CA – Project Manager
- Advanced Transportation Management and Information and Security System (ATMIS), Port of Long Beach, CA – Project Engineer

Professional Credentials

- Bachelor of Science, Civil Engineering, Arizona State University
- Professional Engineer in California #63402
- Intelligent Transportation Society (ITS), President and Chair of the Board
- Orange County Traffic Engineering Council, Past President
Elbert Chang, P.E., T.E.
TMC and City Facilities

Elbert has extensive engineering and project management experience in a variety of ITS, network design, and technology and fiber master planning projects over the course of his 26-year career. He is a hands-on project manager that has prepared conceptual design, system requirements and PS&E documents for the implementation of communication networks for interconnecting central, field, and building hubs; data networks; and end equipment utilizing wireless, copper, and optical fiber media. The benefits in which Elbert brings to this project are his experience in field surveys, utility, and building coordination; new conduit systems into building telecommunication rooms and data centers; build out of field and building hubs; technology evaluation; communication network design; and fiber-optic testing and termination.

RELEVANT EXPERIENCE

- Fiber-Optic Network Master Plan and Update, Oakland, CA – Project Manager
- ITS Strategic Plan Update, Oakland, CA – Project Manager
- Broadband Infrastructure Master Plan, Berkeley, CA – Project Manager
- Signal System Evaluation and Upgrade Analysis, San Mateo, CA – Project Manager
- West Hollywood Sunset/Santa Monica Fiber Loop Project, West Hollywood, CA – Project Engineer
- Oakland Airport Fiber-Optic Interconnect and Signal Coordination, Oakland, CA – Project Manager
- Port of Oakland Security Camera Evaluation (Freight ITS Project), Oakland, CA – Project Manager
- Port of Oakland Security System Expansion to Seaport Logistics Complex, Oakland, CA – Project Manager
- City-wide Fiber-Optic Network for Municipal and Community Center connections, Cupertino, CA – Project Manager
- AC Transit East Bay Bus Rapid Transit (EBBRT) Controller Upgrade and Communications Design Review, Oakland/San Leandro, CA – Project Engineer
- Silicon Valley ITS Wide Area Network Re-Design, Installation and Integration, Santa Clara County, CA – Project Engineer
- Fiber-optic Network Designs, Santa Clara, CA – Lead Design Engineer
- I-80 Integrated Corridor Mobility (ICM) Project, Alameda and Contra Costa County, CA – Lead Design Engineer (Local Agency Improvements)
- Port of Oakland Security Fiber-Optic Network Expansion and Redundancy, Oakland, CA – Project Manager
- Homestead Road Traffic Signal Interconnect, Santa Clara, CA – Project Manager
- 12th Street Reconstruction Project: ITS System Integration, Oakland, CA – Project Manager

Professional Credentials

- Master of Science, Transportation Engineering, University of California, Berkeley
- Master of City Planning and Transportation Planning, University of California, Berkeley
- Bachelor of Science, Civil Engineering, University of California, Berkeley
- Professional Engineer in CA # C61548
- Professional Traffic Engineer in CA # TR2244
Robert Paderna, P.E.
TMC and City Facilities

Robert has more than 14 years of experience in transportation/traffic engineering. His experience includes engineering and traffic surveys, safety studies, signal warrant analysis, signing and striping, traffic impact studies, signal timing, traffic signal design, street lighting, ITS design, and traffic control. Robert is skilled in the application of California Manual on Uniform Traffic Control Devices (CA MUTCD) guidelines. He has managed various types of projects for both public and private sector clients throughout Northern California.

RELEVANT EXPERIENCE

- Sacramento Area Council of Governments (SACOG) Smart Region Sacramento Plan, Sacramento, CA – Project Engineer
- Alameda CTC, I-80 Integrated Corridor Mobility (ICM) Project, Alameda County, CA – Project Engineer
- I-880 Integrated Corridor Management (ICM) North Alameda Project, Alameda County, CA – Project Engineer/Design Lead
- MTC, I-880 Express Lanes, Oakland, CA – Project Engineer
- I-880 Traffic Operations Devices Maintenance Contractor Oversight, Alameda and Santa Clara County, CA – Project Engineer
- Regional Express Lane Network Phase 1- I-880/I-680/SR 84/SR 92 On-Call PS&E Design Services, San Francisco County, CA – Project Engineer
- Santa Clara County Expressway Traffic Responsive Signal Synchronization Program, Santa Clara County, CA – Project Engineer
- SR 65 Lincoln Corridor Signal Analysis, Lincoln, CA – Project Analyst
- City of Emeryville, Engineering and Traffic Surveys, Emeryville, CA – Project Manager
- City of Fremont, Citywide Speed Surveys and Flow Map, Fremont, CA – Project Engineer
- City of Palo Alto, Engineering and Traffic Survey for Speed Limits, Palo Alto – Project Engineer
- City of Vallejo, Engineering and Traffic Survey for Speed Limits, Vallejo, CA – Project Engineer
- Smart Region Sacramento: ITS Architecture and Future Technology Master and Implementation Plan, Sacramento Area Council of Governments (SACOG), Sacramento Region, CA – Project Engineer
- City of Emeryville, On-Call Engineering Services (2001 - Present), Emeryville, CA – Deputy Project Manager
- The Railyards (Sacramento Railyards), Sacramento, CA – Analyst
- TDOT, Traffic Engineering Study Services On-Call, Statewide, TN – Project Engineer
- City of Fremont, Citywide Speed Surveys and Flow Map (Fremont Engineering and Traffic Survey for Speed Limits Update Study), Fremont, CA – Project Engineer

Professional Credentials
- Bachelor of Science, Civil Engineering, San Jose State University
- Professional Engineer in CA #73262
Kwasi is a senior traffic engineer specializing in traffic signal design, BRT/TSP, and freeway/arterial ITS systems. He has detailed experience in adaptive traffic control system design, traffic operations, signal design and modification, signal interconnect design, and ITS design throughout various municipalities and jurisdictions in and around the San Francisco Bay Area. Kwasi is proficient in AutoCAD, MicroStation, and Synchro. Kwasi has been involved in several of Stockton’s BRT and adaptive traffic control projects, where he has become intimately familiar with the City and the successful delivery of projects.

RELEVANT EXPERIENCE

- **Stockton BRT IV Design, Stockton, CA** — Project Engineer
- **Airport Way and Sonora Street Pedestrian Signal Installation, Stockton, CA** — Project Manager
- **Davis Road and Wagner Heights Road Traffic Signal Installation, Stockton, CA** — Project Manager
- **Davis Street and Carpentier Street HAWK Signal Project, San Leandro, CA** — Project Manager
- **El Monte and Marich Way Pedestrian Improvements, Mountain View, CA** — Project Manager
- **El Camino Real HAWK Signal Installations, Santa Clara, CA** — Project Manager
- **North Fremont Street Bike and Pedestrian Access and Safety Improvements, Monterey, CA** — Project Engineer
- **Shoreline Boulevard and Villa Street Traffic Signal and Pedestrian Crossing Enhancements, Mountain View, CA** — Project Manager
- **Install Left-turn Lanes at Airport Way and Hazelton Avenue, Stockton, CA** — Project Engineer
- **Stockton West Lane Traffic Responsive System, Stockton, CA** — Project Engineer
- **AC Transit (East Bay) BRT Program, Alameda County, CA** — Project Engineer
- **AC Transit Line 51 BRT Design, Alameda County, CA** — Project Engineer
- **Wilson Way Adaptive Traffic Control System, Stockton, CA** — Project Engineer
- **Blackstone/Ventura-Kings Canyon BRT, Fresno, CA** — Project Engineer
- **Porterville Transit TSP Implementation, Porterville, CA** — Project Engineer
- **Hammer Lane BRT III, Stockton, CA** — Project Engineer
- **LAVTA BRT, Tri-Valley, Alameda and Contra Costa Counties, CA** — Project Engineer

**Professional Credentials**

- Bachelor of Science, Civil Engineering, University of California, Davis
- Professional Engineer in CA # 73863
Brian Sowers, P.E.

Traffic Signal Design and Operation Guide

Brian is a professional civil engineer and project manager who specializes in signal timing (over 4,000 signals), signal design, signal interconnect design, signal system design and evaluation, signing and striping design, street lighting design, traffic impact studies, and analysis and design for Intelligent Transportation Systems (ITS). Brian’s signal timing experience in the past 23 years is unmatched. Brian has experience with numerous traffic signal systems including KITS, Transuite, ATMS. Now, MaxView, TACTICS, Centracs, and QuicNet and adaptive systems including Kadence, SCATS, and In Sync. Brian has managed a full range of projects ranging in size from small intersection studies to large multi-agency analysis and design projects. His long track record of delivering quality and on-time services has resulted in a significant amount of repeat services to his clients.

RELEVANT EXPERIENCE

- AC Transit, Line 97 Hesperian Boulevard ATMS (KITS) and Kadence ATCS Deployment (34 signals), Hayward, San Leandro, Alameda County, and Caltrans – Project Manager
- City of Rohnert Park, KITS ATMS, Kadence Adaptive, and ATSPM Deploymen, Rohnert Park, CA – Task Leader for Traffic Operations
- C/CAG, San Mateo County Smart Corridor KITS ATMS, San Mateo County, CA – Project Engineer
- City of South San Francisco, Citywide KITS ATMS and Kadence Adaptive System Deployment – Task Leader for Traffic Operations
- City of San Jose Kadence Adaptive System Deployment, City of San Jose, CA – Task Leader for Signal Timing/Kadence Tuning
- City of Menlo Park, Sand Hill Road Kadence Adaptive Traffic Control System Deployment, Menlo Park, CA – QC/QA Reviewer
- Caltrans District 4 Kadence, Pacifica, American Canyon, CA – Task Leader for Signal Timing/Kadence Tuning
- City of Menlo Park/El Camino Real Kadence Adaptive System, San Mateo County, CA – Project Engineer for Kadence Adaptive Deployment
- City of Menlo Park & Caltrans, Bayfront Expressway/Willow Road/Marsh Road Kadence Adaptive Traffic Control System (ATCS) Deployment, Menlo Park, CA – Project Manager
- MTC, Program for Arterial System Synchronization (PASS) 2010-2019/20 cycles, Bay Area, CA – Project Manager
- AC Transit, District Line 51 Corridor Delay Reduction and Sustainability Project, Alameda/Berkeley/Oakland, CA – Project Engineer/Signal Timing Task Lead
- I-80 ICM Signal Re-Timing (166 signals), Alameda CTC, Various Agencies, CA – Project Manager
- C/CAG San Mateo County Smart Corridors Project Incident Response and Arterial Traffic Signal Coordination (250 Signals), San Mateo County, CA – Project Manager
- Santa Clara County Expressways Traffic Responsive Signal Timing Deployment (10 corridors), 2010-2013/2014, Santa Clara County, CA – Project Manager
- 2018-19 TFCA Signal Timing Project, San Jose, CA – Project Manager
- 2017-18 TFCA Signal Coordination Project, Sunnyvale, CA – Project Manager
- TFCA Funded Traffic Light Synchronization Project Phase II, San Jose, CA (277 signals) – Project Manager
- 2017 Re-timing Project (121 signals), San Jose, CA – Project Manager
- 2015-2016 Signal Retiming Study (108 signals), San Jose, CA – Project Manager
- 2013/14 VRF Signal Retiming (123 signals), San Jose, CA – Project Manager

Professional Credentials

- Bachelor of Science, Civil Engineering, California State Polytechnic University, San Luis Obispo
- Registered Professional Engineer in CA #CE0296
- Former Instructor for UC Berkeley’s Institute of Transportation Studies “Advanced Traffic Operations” Course
- Former Chair of MTC’s Arterial Operations Committee
Proposal for Professional Engineering Services
Updates of the Stockton
Traffic Management System Configuration Report and
Traffic Signal Design and Operations Guide

Joe Arroyo, P.E.
Traffic Signal Design and Operation Guide

Joseph has more than five years of experience in various elements of ITS design and planning. He has worked on projects including design of traffic signals, communications networks, and lighting analysis. Additionally, Joseph has worked on planning projects including ITS strategic plans, communications master plans, and implementation plans. He also has experience with the management and maintenance of traffic operations devices on freeways. Joseph also has experience working on managed lanes projects ranging from planning studies to design of express lanes systems.

RELEVANT EXPERIENCE

• Install Left-Turn Lanes at Airport Way and Hazelton Avenue, Stockton, CA – Project Engineer
• Covert Signals to Mast Arms on Martin Luther King, Jr. Boulevard, Stockton, CA – Project Engineer
• Stockton West Lane Traffic Responsive System, Stockton, CA – Project Engineer
• Stockton Phase 1B BRT, Stockton, CA – Project Engineer
• Stockton Phase V BRT, Stockton, CA – Project Engineer
• Stockton Phase IV BRT, Stockton, CA – Analyst
• Sand Hill Road Traffic Signal Interconnect Adaptive Coordination Project Design Services, Menlo Park, CA – Analyst
• Bowers Avenue Traffic Signal Interconnect, Santa Clara, CA – Project Engineer
• Los Angeles Metro I-10/I-110 Express Lanes System Design, Los Angeles, CA – Project Engineer
• 2nd and 3rd Street Traffic Signal Queue Cutters, San Rafael, CA – Project Engineer
• I-880 Express Lanes System Design, Alameda County, CA – Project Engineer
• 3rd Street Corridor Safety Improvements, San Rafael, CA – Project Engineer

Professional Credentials

• Bachelor of Science, Civil Engineering, Northeastern University
• Professional Engineer in CA #88456
Tanya Welch, P.E.

Traffic Signal Design and Operation Guide

Tanya Welch has more than three years of experience in traffic signal, video detection, and conduit plans, as well as wireless communication design, signal timing, and traffic operations. She is proficient in the use of AutoCAD, MicroStation, TrafficTrak, and Synchro. Tanya has participated in performance monitoring for the MTC 511 program. She has performed trip generation and signal warrant analysis for Traffic Impact Analysis reports, performed over 35 miles of field investigations along major corridors in the Bay Area, and has experience applying guidelines from the Manual of Uniform Traffic Control Devices (MUTCD) and Highway Capacity Manual (HCM).

RELEVANT EXPERIENCE

- Port of Oakland, Security Fiber-Optic Network Expansion and Redundancy Project Design, Port of Oakland, CA – Analyst
- Alameda CTC, I-80 Integrated Corridor Mobility (ICM) Project, Alameda/Contra Costa Counties, CA – Analyst
- Port of Oakland Design of Maritime Security System Expansion to Oakland Army Base, Oakland, CA – Analyst
- MTC, Regional Express Lane Network Electronic Toll Services System Manager, San Francisco Bay Area, CA – Analyst
- Lake Havasu City, Lake Havasu Avenue Reconstruction from Mesquite Avenue to Swanson Avenue, Lake Havasu City, AZ – Analyst
- Metropolitan Transportation Commission (MTC), ITS/511 Program Technical Advisor Services, Oakland, CA – Analyst
- BAIFA, Regional Express Lane Network Phase 1- I-880/I-680/SR 84/SR 92 On-Call PS&E Design Services, San Francisco County, CA – Analyst
- Hines Centene Campus Natomas, Sacramento, CA – Analyst
- City of Peoria, Paloma Community Park (formerly Northern Community Park), Peoria, AZ – Analyst
- City of Anaheim, Anaheim Rapid Connection (ARC) Streetcar, Anaheim, CA – Analyst
- East Bay Bus Rapid Transit, Program Management and Construction Management Support Services, Oakland, CA – Analyst
- ADOT, I-10 from SR 85 to Verrado Way General Purpose Lanes (GPL), Buckeye, AZ – Analyst
- City of Glendale, 95th Avenue, Camelback Road to Bethany Home Road, Glendale, AZ – Analyst
- City of Berkeley, Broadband Infrastructure Master Plan, Berkeley, CA – Analyst
- MTC, I-880 Contractor Oversight/Quality Control of Traffic Operation Devices Field Work (TO from Technical Advisor Service Bench), Alameda County, CA – Analyst
- City of San Ramon, Fiber-Optic Master Plan, San Ramon, CA – Analyst
- CCAG San Mateo County Smart Corridors Phase 4 Project, San Mateo, CA – Project Engineer
- City of Oakland, 2017 Striping for Citywide Pavement Rehabilitation Project, Oakland, CA – Analyst
- City of San Rafael, Tamalpais Avenue Grade Crossing Queue Cutters, San Rafael, CA – Analyst
- Metropolitan Transportation Commission, I-880 Express Lanes, Oakland, CA – Analyst
- City of Sacramento, Stockton Boulevard Corridor ITS Enhancements Assessment and Design, Sacramento, CA – Analyst
- City of Concord, Fiber-Optic Communications System Infrastructure Inventory, Concord, CA – Analyst
- City of Sunnyvale, Mary Avenue/Evelyn Avenue Intersection Safety Improvements and Advance Signal Preemption, Sunnyvale, CA – Analyst
- Grant Road Adaptive Traffic Signal System, Mountain View, CA – Analyst

Professional Credentials

- Bachelor of Science, Civil Engineering, Northeastern University, Boston, MA
- Professional Engineer in CA #91192
Kimley-Horn Firm Overview

Kimley-Horn has become one of the most respected full-service transportation and civil engineering firms in the country. Our proposed team consists of individuals who have extensive experience providing professional engineering services to the City of Stockton. In the past year alone, our team has worked with City staff on numerous projects where we have gained intimate knowledge of the City’s transportation systems. The combination of our experience with, and detailed knowledge of the City and with very similar projects will allow us to successfully deliver of this project for the City of Stockton.

Kimley-Horn’s extensive experience in the planning, design, implementation, integration, and testing of a wide variety of ITS and Traffic Management Systems, as well as our intimate knowledge of the City’s TMS make us ideally suited to assist the City as it embarks on the planning, development and implementation of the next generation of its TMS. Our team has demonstrated its ability to develop ITS Strategic and Master Plans for similar cities throughout the Central Valley, and other parts of California. We are a full-service firm providing many services that the City is looking for including, but not limited to:

- ITS Strategic and Master Planning
- Assessment/Evaluation of Traffic Signal Systems
- System Architecture, including compatibility with national standards
- Systems Engineering
- System Integration and Interoperability Testing
- Traffic Management Center
- Feasibility and Design
- Connected and Automated Vehicle Technologies
- Smart Cities Initiative
- Arterial Performance Measurements
- Traffic Signal Systems
- Planning, design, and evaluation of Advanced Traveler Information Systems (ATIS)

Intelligent Transportation Systems/Traffic Management Systems/Systems Engineering

Kimley-Horn is recognized both nationally and locally for ITS planning, design, implementation, and integration expertise. Our experience includes utilizing the Systems Engineering approach for transportation management centers; citywide computerized traffic control and management systems to plan, design and integrate regional, freeway, and arterial management programs; and multimodal traveler information programs. Our systems and traffic engineering practice is enhanced by a systems practice comprised of the nation’s most talented traffic engineering, software, and communications professionals. Our engineers have worked with state departments of transportation throughout the country to develop some of the most sophisticated freeway management, traffic management, and traveler information systems in the United States.

Communications Network Planning and Design

Kimley-Horn offers the City of Stockton specialized experience in telecommunications systems and network design, including LAN, WAN, ITS, and specialized systems planning, design, and post-design services. Our team’s experience includes all facets of communications planning and design, including needs assessments to cultivate future build-out visions; identifying operational and functional requirements; developing communications architecture solutions; conducting technology reviews; performing constructability reviews; electrical and telecommunications utility coordination; and cost estimating. Kimley-Horn has designed communications systems that involved multiple jurisdictions, networks and system for ITS, and non-ITS applications. Staff have been responsible for communications network design and network equipment specifications including Ethernet (Layers 1/2), routers (Layer 3), frame relay, FM analog video, and serial interfaces. We have also implemented all types of networks including wireless (microwave, spread spectrum—all frequency bands, and packet radio), copper (twisted pair, category 5, coaxial), and optical fiber.

Connected and Autonomous Vehicles

C/AV technologies are influencing the surface transportation infrastructure and, by extension, traveler behavior. Many automobile manufacturers are already providing connected vehicle technologies in their vehicle fleets. Autonomous vehicles are under active tests in many states, including several in California, and there are numerous investors in this technology, including auto makers, software developers, transportation service companies, and political regions who are offering lower regulatory barriers to attract researchers and manufacturers to boost local economies. There are still many hurdles remaining before manually driving one’s car will be equated to riding a horse. Connected Vehicle features, which were the focus of Kimley-Horn’s work for the USDOT in the Report on Connected Vehicle Impacts on Transportation Planning and our research on Traffic Management Centers in a Connected Vehicle Environment, bring about physical impacts to our transportation networks. Kimley-Horn’s effort in developing connected and automated vehicle roadmaps and policies across the country and internationally puts us at the lead of getting agencies ready for these future demands.
Traffic Signal Design

Our professionals have designed hundreds of traffic signals for Northern California municipalities and Caltrans. We are in-tune with current Caltrans traffic signal design methodology and requirements, and have vast experience adapting this expertise to City of Stockton’s standards. Kimley-Horn’s traffic signal design efforts include solid, fundamental traffic engineering design principles to not only provide the minimum required operational characteristics, but also to guarantee the appropriate level of future flexibility, as well as balance with the competing users at these critical points of intersection. Our resident engineers also provide us with a unique view into the software component of the signal designs and, most often, enable us to provide connectivity and incorporate varying levels of intelligent transportation system components.

Traffic Signal Timing and Traffic Signal Systems

Signal timing and signal system design and operations are the cornerstones of Kimley-Horn’s professional practice. Over the past four decades, we have completed signal system and timing studies for hundreds of projects. Kimley-Horn has participated in small projects with just a few traffic signals—to extremely large projects with over 500 signals. Within the past five years we have completed, in the Bay Area alone, signal timing and operations analysis for over 3,000 signals, making us a leader in signal timing and operations studies. Kimley-Horn’s excellent reputation in planning, analysis, design, and implementation of traffic signal control and management systems is well known throughout California. Firmwide, Kimley-Horn has been responsible for virtually every aspect of traffic systems, including operational feasibility, communication architecture, system design, software development, and implementation. In addition to evaluating and designing systems, our staff has developed timing plans for every system in the Bay Area, involving single, or multiple jurisdictions. Our in-house Bay Area staff is proficient in the application of a broad range of traffic controllers and communications technologies, including the Trafficware signal system, controllers, and local firmware.

Subconsultant Team Member

Founded in 1955, Siegfried Engineering, Inc. is one of the largest multidisciplinary design firms headquartered in Northern California, providing design and engineering services. Having offices in Stockton, Sacramento, and San Jose, Siegfried is recognized as one of the foremost professional services firms in Northern and Central California, as measured by their clients, their employees, and their community. Their innovative, problem-solving approach and technical expertise continues to shape the success of communities and businesses in each of their practice areas and beyond. Their development as a multidisciplinary firm is a direct response to their clients’ needs. They provide professional expertise in a wide variety of practice areas without the overhead and complexity of communicating and coordinating between multiple organizations. This allows them to meet a wide variety of project needs, whether anticipated or not, in a cost-effective and efficient manner.

Kimley-Horn Team Experience with Relevant Projects

We have provided relevant projects below. We have also provided a comprehensive set of relevant projects in Section 6, Examples of Experience with Similar Types of Work.

City of Rancho Cordova, Technical Design Services for ITS Infrastructure Improvements

Kimley-Horn was responsible for assisting the City with the Systems Engineering process for a Traffic Management Center (TMC)—central control system—and associated ITS field elements and communication. We also prepared the materials for the procurement of a central control system. Finally, Kimley-Horn prepared contract documents (plans, technical specifications, and opinion of probable construction costs (OPCC)) for the design of traffic signal, TMC, and communications infrastructure. The project included the replacement of 27 controller cabinets, 66 controllers, and the installation of 40 pan-tilt-zoom CCTV cameras. Over 10 miles of fiber-optic signal interconnect installation was also included to improve the connectivity and functionality of the City’s ITS.

Staff: Randy Durrenberger, Robert Paderna, and Alyssa Phaneuf
Reference: Kathy Garcia, City of Rancho Cordova, 2729 Prospect Park Drive, Rancho Cordova, CA, 95670, 916.851.8700

Caltrans District 10 ICM Plan, Stockton, CA

Kimley-Horn prepared a strategic implementation plan for deploying an integrated corridor management project in Caltrans District 10 along a 25-mile corridor on I-205, SR 120, and SR 99 from I-580 to Ripon. This was a follow-up to the previous Regional Concept of Transportation Operations (RCTO) and included an evaluation of various ITS and operational strategies to help Caltrans and local agencies manage recurring and non-recurring congestion. Strategies included ramp metering, managed lanes, traffic signal improvements, trailblazer signs, signal coordination, freight management, advanced traveler information, transit information, park-and-ride strategies, and connected vehicle technology.

Staff: Randy Durrenberger and Alyssa Phaneuf
Statewide Communications Plan for Caltrans

Kimley-Horn’s responsibilities for this project included managing assignments that provided project management resources to Department planning and operations personnel in every District for technology-based solutions for transportation. Resources included guidance for consistency with regional and statewide plans, federal requirements, carrying out the Department’s mission and goals, and mainstreaming ITS into traditional planning processes. Recommendations facilitated current and future funding opportunities.

Staff: Melissa Hewitt and Randy Durrenberger

Pasadena ITS Integration Master Plan, Pasadena, CA

Kimley-Horn performed information technology (IT) and planning services for the City of Pasadena to develop a plan to establish clear management of ITS functions and devices by the City’s IT department. The systems engineering process was followed, beginning with review and documentation of the existing ITS inventory and the City’s master plan. The needs assessment was performed with input from stakeholders, and the final System Architecture and Implementation Plan was drafted to include the IT System Architecture, Concept of Operations, and the Implementation Plan. With input from City staff, the team provided a communication infrastructure plan with built-in redundancy and room for growth.

Staff: Kevin Aguigui, Alyssa Phaneuf, and Jean Fares

Quality Control

The objective of our quality control/quality assurance (QC/QA) program is to monitor deliverables, confirm your scope, and meet your quality expectations. To assist our project managers in efficient administration of projects, Kimley-Horn maintains a detailed, integrated management information system (MIS). This system, designed primarily to focus on schedule adherence and cost control, has proved to be a valuable tool. Our project manager will plan, direct, and coordinate our team’s work and provide progress updates throughout each phase. We will prepare monthly project schedule updates for review and approval by the City. Our proactive project management and automated accounting system will allow us to track team hours worked and provide invoices to the City in a timely manner.

Project Management

A strong focus on scheduling and project management is fundamental to delivering this project on time and on budget. It requires not only a strong project management plan, but also immediate buy-in from team members (including the City), a singular focus on delivering the project by meeting a series of milestones, and a strong kick-off plan so that no time is wasted during project start up. As we further describe our approach and understanding of the project through this proposal, we are confident you will agree that we are the best suited team to deliver this project to the City.

Our project manager, Kevin Aguigui, will plan, direct, and coordinate the project team’s work and provide progress updates throughout each phase. The administration of the project will include supervising and monitoring the effort and deliverables for conformance to the City of Stockton's standard plans, master specifications, policies, and expectations. We will prepare monthly project schedule updates for review and approval by the City. Our proactive project management and automated accounting system will allow us to track team hours worked and provide invoices to the City in a timely manner.

5 PROJECT UNDERSTANDING AND APPROACH

Project Understanding

The City of Stockton has been a leader in the San Joaquin Valley with their Traffic Management System (TMS), which was initially deployed over 20 years ago. The existing TMS has reached a point in its lifecycle where the City needs to consider its replacement and update. Part of this update includes the design of a new Traffic Management Center (TMC). In addition to preparing for a future TMC redesign, the City is looking to leverage its robust fiber communications network to support future ITS technologies.

To prepare for this major update and TMC redesign, the City is looking to update two documents that currently inform the existing TMS. These two documents are the Traffic Management System Configuration Report and the Traffic Signal Design and Operations Guide. The Traffic Signal Design and Operations Guide is currently used to provide guidance on signal upgrades, replacements, and installations including but not limited to, equipment, communications setups, and signal timing parameters. This document is informed by the TMS Configuration Report, which aims to provide the framework for the interaction of City of Stockton ITS elements and its TMC.

Existing System

The City currently operates and maintains four traffic control systems, 303 traffic signals, nearly 300 CCTV cameras, EVP/TSP components, an EVP/TSP Central Management System and a comprehensive fiber optic network. The table below summarizes the various systems and subsystems that form the City's overall Traffic Management System.

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City of Stockton • TTF85007.2020
The deployment of four different types of traffic control systems is one of the key reasons for updating the TMS Configuration Report as well as the Traffic Signal Design and Operations Guide. The variety of traffic control systems installed at traffic signals throughout the City makes upgrading the TMC complex because all of the different systems must be integrated together. Careful consideration must be taken for the eventual migration from and transition to the City’s upgraded Traffic Management System particularly since any new system needs to be compatible with neighboring signals and other stakeholder systems.

The CCTV cameras are mainly analog cameras with a few IP cameras all connected to a Bosch and a Verint video system. The Verint system is predominantly utilized by the City PD for surveillance – analog cameras are encoded within the Central Equipment Room for the Verint system. The City currently has a single strand of fiber that is separate from the two strands used to connect traffic signals. As part of recent traffic signal projects, the City has been replacing analog-based CCTV cameras with IP-based CCTV cameras whenever possible. The IP-based CCTV cameras are connected to the TMC using the same fiber strands as the traffic signal controllers.

The City of Stockton operates and maintains a robust fiber optic network which was established through an agreement with PacBell (AT&T today) and evolved to complete ownership by the City. The City fiber network allows a variety of users in the Stockton area to connect to ITS devices as well including Caltrans District 10 and the County of San Joaquin. The San Joaquin Regional Transit District (SJRTD) uses the City’s communications network to connect to its CCTV cameras at BRT shelters and Transit/Transfer Centers.

**Project Approach**

Our approach will employ a combination of strong, local knowledge, industry leaders in future ITS technology and deployments, substantial experience in the upgrade and implementation of TMCs as well as deep knowledge of industry standards. Our team’s significant experience with numerous projects in the City has given us the opportunity to program, convert, implement, and fine tune City traffic signals and TSP timings. We are one of the very few consultants who have been able to do this specific work for the City. Our local expertise has also allowed us to become familiar with the City’s existing ITS equipment and connections and traffic signal configurations, some of which have already been standardized. We know that the City has existing traffic signal standards which is reflected in the City’s current Standard Specifications.

As part of previous projects in the City, we have gained experience with the upgrade, replacement, and integration of new and existing traffic signal systems. This experience will allow us to provide the City with a comprehensive transition and cutover plan as the City looks to consolidate traffic signal systems in the future. It is important to note that the City has an opportunity to repurpose fiber strands through the replacement of analog-based CCTV cameras. Additional fiber capacity will be important as the City looks to implement ITS technologies of the future.

Our approach includes a single Concept of Operations and Needs Assessment for the Traffic Signal System, Communications System Architecture and the TMC. This Concept of Operations will be crucial in identifying what each of these subsystems will look like in the future. The Concept of Operations will set the groundwork for integrating local City partners (Caltrans, County, SJCOG and SJRTD) as well as help us to facilitate demonstrations of equipment to be incorporated into the future TMC. This is a similar approach that we have performed for many other agency systems.

As part of the TMS Configuration Report update, we will need to address the transition and integration of new and innovative technologies into the city’s base infrastructure, and identify any necessary modifications to that infrastructure for the deployment of these future technologies including the incorporation of Smart City and Connected Autonomous Vehicle (C/AV) initiatives. However, it will be very important to ensure that any new technologies and innovations need to provide direct benefits to the City – it should not be the implementation of technology for technology’s sake.

It is important to understand the existing system and infrastructure landscape and to properly identify the needed upgrades and upgrade path(s). To that effect, some of the current and emerging strategies and technologies that we will explore and evaluate will include, but not be limited to, ATSPM, Cloud-based TSP, GPS-based EVP/TSP, V2X, DSRC/5G, hybrid detection systems, Peer-to-Peer communications, Waze integration (Connected Citizen Program), and Blyncsy integration.

Traffic Management System Elements
EXAMPLES OF EXPERIENCE WITH SIMILAR TYPES OF WORK

City of Stockton Adaptive Traffic Signal Control at Various Locations, Stockton, CA
Kimley-Horn worked with the City on two adaptive traffic control system projects along two corridors in the City, the Wilson Way Corridor and March Lane Corridor. The Wilson Way project followed the systems engineering process which included development of a Concept-of-Operations, System Requirements, and a Verification and Validation Plan. Kimley-Horn conducted an adaptive system evaluation which resulted in selection of the InSync adaptive system by Rhythm Engineering. Kimley-Horn completed design of the infrastructure elements including traffic signal controller and cabinet upgrades, CCTV traffic-monitoring cameras, communications network upgrades, traffic signal modifications, and the adaptive signal system deployment on 10 intersections (including two Caltrans intersections) on the Wilson Way Corridor. Kimley-Horn also helped the City conduct an adaptive traffic signal system evaluation for the 18 intersections (including two Caltrans intersections) along the March Lane corridor. The City selected the SCOOT adaptive system by Siemens for March Lane. Kimley-Horn developed construction documents for design of traffic signal controller and cabinet upgrades, CCTV traffic-monitoring cameras, communications network upgrades, and the adaptive traffic signal system deployment along the corridor.

City of Stockton BRT Program at Various Locations, Stockton, CA
Kimley-Horn has worked with the City of Stockton to complete a number of phases of the City’s, and San Joaquin Regional Transit District’s, BRT program. The projects include BRT I-B, II, III, IV, and V along various corridors throughout the City including Weber/Miner Avenue, Wilson Way, Fremont/Filbert/Main Streets, Charter Way/MLK Jr. Way/Mariposa, Airport Way and Hammer Lane. The goal of these project has been to implement transit signal priority (TSP) and traffic signal controller/cabinet upgrades to provide more reliable transit service for residents and users. These projects also entail updates to (or creation of) traffic signal coordination timing plans; implementation and integration of new pan-tilt-zoom (PTZ) traffic monitoring cameras; and implementation of updated fiber communications infrastructure. In addition, Kimley-Horn’s services included preparation of construction documents; environmental clearance; City and stakeholder coordination; design support during construction; systems integration; and preparation of TSP timings and traffic signal timing plans.

Traffic Signal System Evaluation and Selection, Santa Clara, CA
Kimley-Horn conducted a detailed and comprehensive evaluation and demonstration for a new traffic signal system for the City of Santa Clara. This included a detailed gathering of available features and functions from commercial traffic management systems, a Concept of Operations, Needs Assessment, evaluation criteria, vendor presentations and detailed field demonstrations for shortlisted systems. This included the installation of the vendor’s systems both at the City’s TMC and field controllers for a few months. Kimley-Horn evaluated eight systems and made recommendations to the City for the preferred system.

City of Visalia, Intelligent Transportation Systems Strategic Plan, Visalia, CA
Kimley-Horn prepared the City of Visalia’s first ITS Strategic Plan. Building off our effort on the planning and design efforts for the City’s Traffic Management Center (TMC), the ITS Strategic Plan provided for future ITS deployments based on the City’s need for both current and future transportation conditions and operations within the City and its stakeholders. The ITS Strategic Plan provided the overall guidance for the development of a traffic management system that will allow for the creation of a traffic network system to facilitate the management of the traffic signals, special events, alternative transportation modes, parking, incident detection, field communications, the Traffic Management Center operations, emergency action coordination, and advanced traveler information. The Plan also included performance metrics to regularly assess progress toward each of the plan goals and objectives for each functional service area.

Folsom ITS Master Plan, Folsom, CA
Kimley-Horn prepared an updated ITS Master Plan with a focus on sustainability and on operations of existing ITS assets. The preparation of the plan involved the development of an ITS specific vision, goals, and objectives; a thorough inventory of existing ITS infrastructure; and development of implementation strategies to achieve the identified goals and objectives. Kimley-Horn led the stakeholder outreach to develop consensus on the vision, goals, and objectives. The ITS Master Plan has since been adopted by the City and will guide the technology implementation for the next several years.

ITS Master Plan Update, Roseville, CA
Kimley-Horn has been assisting the City of Roseville for over 15 years as they implement their vision to be on the leading edge of the Sacramento region with its comprehensive and thorough traffic management system. Kimley-Horn developed the City’s first ITS master plan, which was adopted in 2005. This plan strategically examined new traffic and ITS technologies, expanding City boundaries, and increasing population demand on its transportation systems.
system. The project included multiple tasks in which Kimley-Horn staff documented existing conditions and system functionality, evaluated and recommended ITS technologies/devices and participated in stakeholder workshops. After nearly a decade of successful ITS implementation, the Kimley-Horn team reviewed and updated the ITS Master Plan to confirm its current course, to assess emerging technologies, and to guarantee an appropriate vision for expansion (both geographically and technologically).

Rancho Cordova ITS Master Plan, Rancho Cordova, CA
Kimley-Horn completed the design and implementation of ITS infrastructure improvements to enhance signal coordination on City arterials, reduce congestion, improve emergency response and system safety through increased monitoring capabilities, and provided coordinated incident response and traveler information with other regional ITS efforts. Kimley-Horn was responsible for assisting the City with the Systems Engineering process for a Traffic Management Center, central control system, and associated ITS field elements and communication. We also prepared the materials for the procurement of a central control system. Finally, Kimley-Horn prepared contract documents (plans, technical specifications, and opinion of probable construction costs (OPCC) for the design of traffic signals, Traffic Management Center (TMC), and communications infrastructure.

City of Modesto, Link Modesto Fiber Infrastructure Master Plan, Modesto, CA
Kimley-Horn assisted the City of Modesto in developing a Fiber Infrastructure Master Plan that evaluated the City’s existing fiber infrastructure and envisioned an ultimate network that will benefit the City and its residents by serving as the foundation for new programs such as City sponsored Wi-Fi, Smart City initiatives, and possible private-public partnership serving local business. Kimley-Horn worked with the City to develop a robust fiber network, identifying field hubs, POP connections at local data centers, carrier-affiliate connections, and viable options for the build-out. Kimley-Horn developed proposed guidelines for network deployment and service expansion and proposed a demonstration/pilot project that will provide an opportunity for the City to work out implementation details.

Caltrans Connected and Automated Vehicle Implementation Plan, Statewide, CA
Kimley-Horn is working with Caltrans to develop a Statewide C/AV Implementation Plan that includes investment strategies, project development actions, organizational arrangements, workforce capability needs, collaborative relationships, and overall requirements. Kimley-Horn will be reviewing existing regional and national plans to help guide development of the various sections of the implementation plan. This project will involve extensive stakeholder outreach and coordination. Kimley-Horn will conduct meetings and interviews with Caltrans Divisions and Districts to solicit feedback on CAV application needs and focus areas. Following development of these needs, Kimley-Horn will develop statewide CAV standards and staffing criteria that will be rolled out to each District in the state.

Connected Vehicle Pilot Deployment Concept of Operations for Gateway Cities Region, Los Angeles County, CA
Kimley-Horn developed a concept of operations white paper and summary of existing CV technologies, programs, and activities for Los Angeles County response to the USDOT CV Pilot program solicitation. The white paper discusses the readiness of CV technology applications across the 55 areas identified in the CV Reference Implementation Architecture (CVRIA) and relevance of specific applications to the Gateway Cities region of Los Angeles. The Gateway Cities region experiences some of the most significant freight congestion in the world given the level of freight commerce at the Port of Long Beach. Transit is also a critical component of mobility in Los Angeles due to severe congestion on the region’s freeway system. CV transit applications were identified for the pilot deployment. Cost-benefit and state, regional, and local agency responsibilities were identified.

SACOG, Smart Region Sacramento: ITS Architecture and Future Technology Master and Implementation Plan, Sacramento, CA
Kimley-Horn was selected by the Sacramento Area Council of Governments (SACOG) to develop a Regional Technology and Mobility Master Plan and individual agency Technology Implementation Plans. Contributing to the region’s challenges is the fact that some local agencies lack basic transportation communications and technology infrastructure while others are far more advanced and more appropriately positioned for evolving and disruptive technologies. As part of this project, Kimley-Horn developed a new Regional Architecture identifying technologies and how the various Intelligent Transportation Systems (ITS) in the region coordinate and communicate with each other; planned and prioritized ITS projects that during the short-, mid-, and long-term that will improve transportation system performance, safety, sustainability, and reliability; recommended ITS strategies applicable in urban, suburban, and rural settings; and develop a plan for the region to improve ITS coordination in case of emergencies and natural disasters.

Pasadena TMC and IT Networking Strategic Plan
Kimley-Horn completed several projects under this overall System Manager contract including a Transportation Management Center (TMC) upgrade, a new Parking Guidance System (PGS) for the City’s nine parking garages, PS&E documents for a new fiber-optic connection, detailed designs for the
integration of video detection cameras from the field to the TMC, and the conversion of traffic signal timings to a new controller firmware. The TMC upgrades included the preparation of new electrical and mechanical plans for a new HVAC system to accommodate existing and new equipment loads including a new video wall.

Santa Clarita ITS Master Plan Update, Santa Clarita, CA
Kimley-Horn completed the update to the City of Santa Clarita’s ITS Master Plan. As part of the plan, Kimley-Horn conduct a complete assessment of the traffic signal controllers, communication facilities and other traffic signal support systems throughout the City. The purpose of the analysis was to gain a full understanding of the existing system and establish a foundation for the recommendation of any potential future signal system upgrades or replacements for the City. Kimley-Horn met with internal and external stakeholders, conducted a needs assessment, identified opportunities and recommended solutions as they relate to the traffic signal system, traffic management, ITS, communications and performance monitoring. The strategies identified in the Master Plan included industry best practices and the impacts on maintenance and operations such as those with the City’s existing staff.

ITS Master Plan, Rocklin, CA
Kimley-Horn has been working with the City of Rocklin to develop their ITS Master Plan. The primary goal of the plan will be to establish a clear roadmap for systematic ITS implementation, outline opportunities for utilizing new, advanced technology, and to equip the City with the tools to be a forward-thinking partner in the region. This effort includes assisting the City with identifying new signal equipment, communications infrastructure, traffic signal controller hardware and firmware, video system, traveler information components, central control software and hardware, as well as developing an overall data management strategy. The developing of the ITS Master Plan will prepare and position the City when competing for local, regional, and state funding grants.

Intelligent Transportation System Strategic Deployment (ITSSD) Plan Update, Fresno, CA
Kimley-Horn has updated the Fresno County ITS Plan, which was last updated in 1999. Kimley-Horn led a series of stakeholder outreach meetings to identify needs and regional ITS projects. The Plan has an emphasis on federal funding to assist local agencies in the federal process for ITS technology projects for agencies that have currently adopted ITS and for those agencies that may implement technology solutions in the short or mid-term. As part of the ITS Strategic Deployment Plan, we developed the County’s ITS Architecture in conformance with FHWA’s Final Rule. We populated the Turbo Architecture database, and added significant regional projects to the ITS Architecture. We developed requirements, documented ITS standards, and collected stakeholder agreements. The plan is user friendly, and includes elements important to rural technology applications.

Citywide Traffic Signal Equipment and Infrastructure Assessment Study, Rancho Mirage, CA
The City of Rancho Mirage (City) was interested in leveraging advanced technologies to benefit traffic operations throughout its jurisdiction, with an eye on improving operations, performance measurement, and data sharing. To guarantee that it set off in the right direction, Rancho Mirage needed a consultant who could successfully perform an assessment study of the City’s current operations and infrastructure and provide a clear set of options for the future. Kimley-Horn knew the ins and outs of traffic signal systems and communications networks; had the technical savvy to develop creative, low-cost solutions to traffic operations challenges; brought a wealth of experience working with a toolbox of different types of technologies and programs across the nation; and was passionate about taking their system to the next level of performance.

7 DETAILED WORK PLAN

Tasks 1 through 3 will happen concurrently, but will incorporate key elements from the other tasks. The TMS Configuration Report in Task 5 will be a cohesive and comprehensive document that will include the key outcomes of Tasks 1 through 4. Our team will progress with the early stages of Task 6 shortly after completing the Concept of Operations and Needs Assessment for Tasks 1 through 4. This approach will allow for the project to be completed within the City’s required schedule. The Project Workflow Diagram on the following page provides a graphical representation of the input and information that will go into each task, as well as how the tasks correspond to each other.

The following detailed work plan discusses what each task entails.

Task 1: Traffic Signal Control System Needs and Evaluation
Task 1-3 Project Needs Assessment and Concept of Operations Workshop. Within two weeks of the project kick-off meeting, Kimley-Horn will develop a Needs Assessment and Concept of Operations (ConOps) for the Traffic Signal System, Communications Network Architecture, and Traffic Management Center (TMC). This initial document will be based on discussions with the City during the project kick-off meeting, along with our extensive knowledge of the City’s existing systems. Kimley-Horn will submit the initial Needs Assessment and Concept of Operations document to the City for review and distribution to project stakeholders.
Proposal for Professional Engineering Services


- ConOps
- Needs Assessment
- Four Systems
- Key Factors for Evaluation

- Central/Field Elements
- Demonstrations

Task 1: Traffic Signal System Needs and Evaluation

- ConOps
- Operations & Maintenance Center
- Equipment Room Relocation

- System Cutovers
- Satellite Stations
- Video and Data System

Task 2: Communications Network Architecture

- ConOps
- SAE J2735 (DSRC Message Sets)
- SAE J2945/1 (V2V On-Board)

Task 3: Traffic Management Center Plan

- ConOps
- SAE J2735 (DSRC Message Sets)
- SAE J2945/1 (V2V On-Board)

- SJCOG Regional ITS Plan
- FHWA ITS Strategic Plan
- Integrated Systems
- Field Readiness

Task 4: Smart Cities and Connected Vehicles

- ConOps
- IEEE/IT Standards
- ITS Guidelines/Best Practices
- Regional Architecture
- Cisco Components
- Central/Field Elements

Task 5: TMS Configuration Report

- Overall Concept of Operations and Needs Assessment
- System Evaluation (Central and Field)
- Communications System Architecture
- TMC Components
- Smart Cities/Connected Vehicles
- Overall Transition Plan

- Unit/Device Test Plan
- System Validation Plan
- System Verification/Acceptance Plan
- Subsystem Verification/Acceptance Plan

Task 6: Traffic Signal Design and Operations Guide

- Standard traffic signal controller layout
- Standard signal timing parameters
- Required field communications hardware
- Standard detection setup
- Process for signal timing review and updates
- Data management strategy for signal data

Coordination with Local and Regional Stakeholders
Caltrans District 10; County of San Joaquin; SJCOG; FHWA; SJRTD

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Project Work Flow
Kimley-Horn will arrange and attend a stakeholder workshop to discuss the initial needs assessment and ConOps for tasks 1 through 3. The intended outcome of this workshop will be to solicit stakeholder feedback on the initial document, refine stakeholder needs, and develop a set of more detailed functional needs for the traffic control signal system, communications network, and TMC. Kimley-Horn will arrange and attend monthly follow-up meetings after the workshop to discuss progress on Task 1-3 deliverables and solicit feedback and input from stakeholders.

Following development of the Traffic Signal Control System Needs Assessment and Concept of Operations, Kimley-Horn will develop evaluation criteria, and work with the City and stakeholders to refine the criteria. The intent of this effort is to breakdown and assess the criteria to the point where the final evaluation criteria are representative of exactly what the City needs. The criteria for evaluating the system will be fundamentally based on the detailed functional needs, operational needs, and the City’s user needs. Similar to evaluations for other ITS elements, the traffic signal control system evaluation can be broken down into the following four categories:

- **User interface** – Determine how intuitive the system is, and whether users can identify and manipulate system parameters with relative ease
- **Functionality** – Determine how capable the system is to responding to critical situations and typical situations the City faces.
- **Reliability** – Determine how consistent and dependable the performance of the central system software, and any system hardware is. In addition, review dependability and reliability of vendor support.
- **Cost** – Review cost of all system elements including software, hardware, licensing, and warranty.

Starting with our extensive database of the City’s existing TMS assets, the Kimley-Horn Team will conduct an inventory of the City’s existing traffic signal control system, including field elements such as controller cabinet types, traffic signal controller types, signal timing configurations, communications, and operations. This will set the baseline for the existing system.

Kimley-Horn will then develop a list of traffic signal control system vendors to evaluate and begin gathering specific information and data from those vendors. Based on recent evaluations conducted by Kimley-Horn, we propose to evaluate the following vendors (and corresponding traffic management systems):

- Siemens (Tactics) – existing City of Stockton traffic signal control system
- Transcore (TransSuite) – existing City of Stockton traffic signal control system
- Intellight (MaxView ATMS)
- Econolite (Centracs)
- McCain (Transparity)
- Cubic/Trafficware (ATMS.now)

This initial list of vendors/systems will be refined and adjusted based on discussions with the City, and system needs.

In addition, because the City operates two adaptive traffic signal control systems, Kimley-Horn will consider adaptive traffic signal control systems and system vendors in this evaluation to guarantee corridors with unique traffic operations needs are not overlooked.

Once a shortlist of viable traffic signal control systems has been approved by the City, the shortlisted system vendors will be invited to conduct live testing (system demonstrations) to test the signal system operations, ease of use and functionality, and field component compatibility. The duration of the demonstration period will be determined by the City prior to shortlisting the systems. In addition, prior to the start of live demonstrations, Kimley-Horn will develop a set of testing guidelines.

Using the system evaluations and the live test results, Kimley-Horn will prepare a Traffic Signal Control System Recommendations Report that will outline the system evaluation process, system testing results, recommended system, and a transition plan. The traffic signal control system transition plan will outline necessary steps for the City to decommission existing traffic signal control system elements (if necessary) and migrate to using the new traffic signal control system components over a specified period.

**DELIBERABLES:**
- Concept of Operations and Needs Assessment (Included with Tasks 2 and 3)
- Traffic Signal Control System Recommendations Report (Draft and Final)
- Traffic Signal Control System Testing Guidelines

**Task 2: Communications Network Architecture**

We understand that one of the main issues for this architecture is the relocation and re-routing of the fiber optic network to move the central equipment room to the City’s current offices or potentially a new location for City offices. Knowing this, Kimley-Horn will work with the City to develop a future communications network architecture based on the City’s goals for center-to-field communications to support monitoring of traffic signal system operations and devices, including necessary transitions/migrations and cutovers.
In this task, Kimley-Horn will confirm the existing communications network infrastructure using the current information we have in our files, and work with the City to identify key challenges, future expansion objectives, and milestones for closing gaps in the existing and future communications network. We will use their extensive knowledge of the City’s existing network to develop initial network overview documents to begin discussions with the City.

Kimley-Horn will develop existing and future communications network architecture based on ITS guidelines and IEEE standards. The network architecture will be documented in Microsoft Visio diagrams for City review. The diagrams will include relevant central and field communications network elements such as edge switches, aggregation switches, traffic signal system servers, video management system equipment, device configurations and protocols, etc. Our review and documentation will also include relevant City enterprise network appliances, and network security elements.

The Communications Network Architecture Plan will include the communications network needs and requirements and a communications network transition/cutover plan.

**DELIVERABLES:**
- Concept of Operations and Needs Assessment (Included with Tasks 1 and 3)
- Communications Network Architecture Plan (Draft and Final)

### Task 3: Traffic Management Center Plan

Following the initial stakeholder workshop, and development of the TMC Needs Assessment and ConOps, Kimley-Horn will work with the City and stakeholders to identify key components of the new TMC. This task will include identifying desired TMC functionality, operational roles and responsibilities, and critical facility needs and considerations that will be addressed during a future design phase. Kimley-Horn will work with the City traffic group and other key stakeholders (determined by the City’s Project Manager) to outline specific system requirements for the TMC from which high-level design concepts and space planning approaches will be based. The TMC Plan will include general recommendations, such as staffing and hours of operations; facility recommendations such as video wall, workstations, and system configurations; and operational recommendations such as video/data distribution and center-to-center connections.

Similar to Tasks 1 and 2, a key component of the TMC Plan will be a transition plan outlining an approach for transitioning from the City’s current TMC operation to the future TMC operation. The TMC transition plan will outline the migration steps discussing which systems will be abandoned and when, as well as which new systems will be integrated and when over the course of the transition.

**DELIVERABLES:**
- Concept of Operations and Needs Assessment (Included with Tasks 1 and 2)
- Traffic Management Center Plan (Draft and Final)

### Task 4: Smart Cities and Connected Vehicles

The outcome of the Needs Assessment and ConOps for Tasks 1 through 3 will inform the Needs Assessment and ConOps for this task so Kimley-Horn proposes to stagger the start of this task to follow the completion of those documents. Kimley-Horn will solicit input from the City and stakeholders regarding potential smart cities and connected vehicle needs. Kimley-Horn anticipates the needs will be based on FHWA’s ITS Strategic Plan and San Joaquin County Council of Government’s Regional ITS plan, among other relevant documents. Kimley-Horn will also review FHWA’s JO-18-629 which outlines a readiness assessment framework based on the Capability Maturity Model (CMM). Based on the City’s needs, and review of existing studies, strategies, and guidelines, Kimley-Horn will develop a brief set of policies and guidance that could be implemented to facilitate readiness.

Kimley-Horn will also develop a list of C/AV applications and methodologies for phasing and implementation. Some applications may be part of near-term deployments, and considered for incorporation into the Traffic Signal Design and Operation Guide, while others may be longer-term deployments. These elements will be presented in the Smart Cities and Connected Vehicles Implementation Plan.

**DELIVERABLES:**
- Local and regional stakeholder meetings
- Concept of Operations and Needs Assessment
- Recommendations and Implementation Plan (Draft and Final)

### Task 5: TMS Configuration Report

The TMS Configuration Report will be based on the various reports developed in Tasks 1 through 4. Kimley-Horn will begin work on the 65% Draft TMS Configuration Report before completion of Tasks 1 through 4. The completed 65% Draft TMS Configuration Report will be based on the final Traffic Signal Control System Evaluation, Communications Network Architecture, Traffic Management Center Plan, and Smart Cities and Connected Vehicles Plan. The
TMS Configuration Report will discuss the proposed Traffic Signal Control System Evaluation outcome and recommendations. Any proposed changes to the City’s Communications Network Architecture will also be discussed. The TMS Configuration Report will also include details on recommended TMC modifications and upgrades. Smart Cities and Connected Vehicle accommodations that the City should consider will be included in the report.

Kimley-Horn will also prepare systems engineering documents based on the “V” model, similar to the systems engineering management plan documents Kimley-Horn developed for the City on the Wilson Way Adaptive Traffic Signal Control Project. Kimley-Horn will develop a System Validation Report, System Verification and Acceptance Report, and the Unit and Device Test Report for the traffic signal control system, communications network, TMC, and smart cities and connected vehicles.

**DELIVERABLES:**
- Prepare 65% draft TMS Configuration Report
- Prepare 95% draft TMS Configuration Report
- Prepare 100% Final TMS Configuration Report
- System Validation Plan (draft/final)
- Subsystem Verification/Acceptance Plan (draft/final)
- Unit/device Test Plan (draft/final)

**Task 6: Traffic Signal Design and Operation Guide**

Kimley-Horn will review the City’s existing Traffic Signal Design and Operations Guide and meet with the City to discuss what portions of the existing guide the City still uses, and what additional needs the City has that the existing guide does not satisfy. The traffic signal system, communications network architecture, and TMC will inform the design and operations guide, as will any possible smart cities and connected vehicle roadside equipment needs. Kimley-Horn will document the City’s existing inventory of traffic signal equipment, including traffic signal cabinets, field communications network equipment, detectors, controllers, adaptive system hardware, CCTV cameras, and EVP/TSP equipment, among others.

Based on the outcome of Tasks 1-4, Kimley-Horn will work with the City to develop design standards for City’s traffic signal equipment installations. The standards may include cabinet type, controller type, field communications hardware, CCTV camera type and placement, EVP/TSP equipment. This information may be represented visually in a report (e.g., figure showing cabinet elevation detail showing where equipment is placed within the cabinet).

In addition to traffic signal design recommendations, Kimley-Horn will develop recommendations for traffic operations. Kimley-Horn will research the City’s existing process and procedures for developing and implementing traffic signal timing plans. Kimley-Horn will work with the City to develop consistent documentation standards (for example, develop consistent timing sheets for record keeping and field implementation), establish standard traffic signal timing parameters where appropriate, and come up with a standard process for managing the City’s traffic signal timing database.

Kimley-Horn will use all relevant standards and guidance to develop the Traffic Signal Design and Operation Guide, including the California MUTCD 2014, Caltrans Standard Plans and Specifications, City’s Standard Plans and Specifications, in addition to other similar documents Kimley-Horn has developed for other projects.

Kimley-Horn will prepare the 65% draft of the Traffic Signal Design and Operations Guide and submit to the City for review. Upon receipt of comments on the 65% draft, we will prepare a comments response matrix, incorporate the City’s comments and prepare the 95% draft. Upon receipt of comments on the 95% draft, we will prepare a comments response matrix, incorporate the City’s comments and prepare the 100% Final of the Traffic Signal Design and Operations Guide.

**DELIVERABLES:**
- City Stakeholder Meetings
- Concept of Operations and Needs Assessment (Draft and Final)
- Prepare 65% Draft Traffic Signal Design and Operations Guide
- Prepare 95% Draft Traffic Signal Design and Operations Guide
- Prepare 100% Final Traffic Signal Design and Operations Guide

**Task 7: Project Management**

Project management activities will include the following:

- Attend project kick-off meeting and prepare meeting minutes and agenda
- Arrange and attend monthly progress meetings with the City (assuming up to six (6) meetings)
- Prepare and complete updates to the project schedule, as needed (Microsoft Project)
- Prepare up to six (6) monthly progress reports, schedule updates and invoices, and participate in monthly conference calls with City staff to discuss internal action items and schedule impacts

**DELIVERABLES:**
- Project schedule (monthly, at minimum)
- Monthly progress meetings
REFERENCES

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Project: Folsom ITS Master Plan
### PROJECT WORK MATRIX

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As mentioned previously, Kimley-Horn is pleased to present our proposal to provide professional services to the City of Stockton. We have worked on numerous projects with the City, including the previous BRT phases (Airport Way BRT Phase II, Hammer Lane BRT Phase III, and Charter Way/MLK Blvd/ Mariposa Road BRT Phase IV). Based on this experience, we have and will continue to work closely with City staff, assisting in developing the TMS Configuration Report and the Traffic Signal Design and Operations Guide.

Our proposed project manager, Kevin Aguigui, P.E., T.E., E.E., CSEP, has served the City of Stockton for over 18 years on various ITS and BRT projects. He knows the City’s ITS and Traffic Signal System inside out and has provided detailed support during both the design and construction stages of all the projects he has worked on with the City. He is supported by a highly qualified and experienced team of traffic engineering, ITS, and BRT specialists who have been involved in numerous projects involving BRT and transit signal priority systems throughout California. As mentioned previously, we have also included Siegfried Engineering, Inc., an established Stockton firm, to assist with the Traffic Signal Design and Operation Guide.

As you can see from the projects outlined in Section 6 of this Statement of Qualifications, Kimley-Horn has also had extensive experience with Traffic Signal Timing and Traffic Signal Systems and Transportation Planning and Traffic Engineering, including ITS Master Plans, Intelligent Transportation System Strategic Deployment, Fiber Infrastructure Master Plans, as well as TMC and IT Networking Strategic Plans. Our team is more than well equipped to help the City establish standard traffic signal designs for and enable staff to maintain and operate the traffic signals to ensure the safety of the public.
12 COST PROPOSAL

The Cost Proposal will be emailed, separate from the proposal, to Miguel Mendoza.
DEPARTMENT OF INDUSTRIAL RELATIONS
LABOR COMPLIANCE
SELF-CERTIFICATION

We, the undersigned, self-certify that we will comply with all California Department of Industrial Relations (DIR) laws, rules and regulations that apply to Public Work as defined in Labor Code Section 1720(a)(1), as well as Senate Bill 854 (2014), and all other related statutes.

In addition, we acknowledge that to be eligible to bid on City of Stockton Public Works projects, we and all subcontractors under us are registered, and will remain registered with the DIR until project completion; otherwise, we will be disqualified from consideration as a bidder for the subject project.

CONTRACTOR: Kimley-Horn and Associates, Inc.

BY: Randal R. Durrenberger, P.E.

TITLE: Senior Vice President

DATE: June 29, 2020
Proposal for Professional Engineering Services


City of Stockton

TTTF85007.2020

21

7/26/2019

https://cadir.secure.force.com/ContractorSearch/PrintRegDetails

Contractor Information

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<tr>
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<td>ENDA MELVIN</td>
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<td>DAVID MCENTEE</td>
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<td>RICHARD COOK</td>
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<td>JOHN ATZ</td>
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Workers Compensation

Do you lease employees  No
through Professional Employer Organization (PEO)?:
Please provide your current workers compensation insurance information below:

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Insured by Carrier

**Policy Holder Name:** KIMLEY-HORN AND ASSOCIATES, INC. **Insurance Carrier:** New Hampshire Insurance Company

**Policy Number:** 23841 **Inception date:** 3/31/2019

**Expiration Date:** 3/31/2020
## Contractor Information

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## Registration History

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Legal Entity Information

**Corporation Number:**
94-1648794

**Federal Employment Identification Number:**

**President Name:**
PAUL SCHNEIDER

**Vice President Name:**

**Treasurer Name:**
ADAM MERRILL

**Secretary Name:**

**CEO Name:**
PAUL SCHNEIDER

**Agent of Service Name:**
PAUL SCHNEIDER

**Agent of Service Mailing Address:**
3428 BROOKSIDE ROAD  STOCKTON 95219 CA United States of America

Workers Compensation

**Do you lease employees through Professional Employer Organization (PEO)?:** No

**Please provide your current workers compensation insurance information below:**

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**Insured by Carrier**

**Policy Holder Name:** SIEGFRIED ENGINEERING, INC

**Insurance Carrier:** FIREMAN'S FUND INSURANCE COMPANY

**Policy Number:** SCW0040581801

**Inception date:** 8/31/2019

**Expiration Date:** 8/31/2020
TITLE VI VIOLATION SELF-CERTIFICATION

We, the undersigned, self-certify that pursuant to Federal Code of Regulations (CFR), 23 CFR 200.9, 633 and 49 CFR 21.7, we do not have any unresolved violations under Title VI of the Civil Rights Act of 1964 and related statutes, including Americans with Disabilities Act (ADA). In addition, we acknowledge that an unresolved Title VI violation will disqualify us for consideration as a bidder for the subject project.

CONTRACTOR: Kimley-Horn and Associates, Inc.

BY: Randal R. Durrenberger, P.E.

Senior Vice President
TITL

DATE: June 29, 2020
CONTACT

Kevin Aguigui, C.E., T.E., E.E., CSEP
kevin.aguigui@kimley-horn.com

Kimley-Horn
1300 Clay Street, Suite 325
Oakland, CA 94612
P: 510.350.0217

www.kimley-horn.com