ITERIS Innovation for better mobility

RECEIVED
City of Rancho Palos Verdes
JUN 15 2015
PUBLIC WORKS DEPARTMENT

June 15, 2015

Mr. Ron Dragoo, Principal Engineer
Public Works Department
City of Rancho Palos Verdes
30940 Hawthorne Boulevard
Rancho Palos Verdes, CA 90275-5391

Re: Statement of Qualifications (SOQ) for On-Call Traffic Engineering Services

P16-0054.16

Dear Mr. Dragoo:

Iteris, Inc. (Iteris) is pleased to submit this Statement of Qualifications (SOQ) to provide On-Call Services to the City of Rancho Palos Verdes.

Iteris is the largest transportation engineering firm specializing in the fields of traffic engineering, Traffic Signal Systems, Intelligent Transportation Systems (ITS) and transportation planning, headquartered in southern California. The firm's knowledge of traffic engineering and operations enables staff to design and implement transportation solutions that help public agencies reduce traffic congestion, enhance system reliability and improve mobility.

Iteris proposes Mr. Bernard K. Li, EE, TE, PTOE as the Project Manager for this project. He will be the principal contact with the City and other entities per the City's direction. As Project Manager, Mr. Li will oversee work from project inception to completion and will be responsible for coordinating staff activities and meetings. Mr. Li will be supported by an excellent team of experienced professionals that will assist in various disciplines as required by the City.

Thank you very much for the opportunity to SOQ. Iteris looks forward to this new opportunity to continue assisting the City of Rancho Palos Verdes on important and successful ITS planning, design and deployment projects. Please feel free to call me at 949-270-9578, or the designated Project Manager, Mr. Li, at 949-270-9633, should you have any questions.

Sincerely,

Iteris, Inc.

Scott Carlson

Scott Carlson, PE
Vice President / Assistant General Manager, Western Region
Transportation Systems

TABLE OF CONTENTS

1.0 | About Iteris / Introduction 1

2.0 | Organization Chart 10

3.0 | Relevant Experience 15

4.0 | Project Approach 21

5.0 | Fee Schedule 27

TABLES AND FIGURES

Table 1 – Ongoing On-Call Contracts 4
Table 2 – Project Manager's Contact Information 10
Figure 1 – Project Team Organizational Chart 10
Table 3 – Key Personnel Skills Matrix 11
Table 4 – Relevant Project Experience Matrix 15
Table 5 – Hourly Fee Schedule 27
Table 6 – Standard Fee Schedule 27

APPENDICES

Appendix – Resumes

1.0 | ABOUT ITERIS / INTRODUCTION

The City of Rancho Palos Verdes has requested qualifications to provide a wide range of professional engineering services spanning many disciplines on an "as-needed" basis for Public Works and Engineering projects. This Statement of Qualifications (SOQ) focuses on our firm's core areas of expertise – Traffic Engineering. For the area mentioned above, the City of Rancho Palos Verdes will require the expertise of a mix of transportation and engineering professionals that are best suited to successfully complete a different variety of projects. Iteris has the staff expertise and availability to achieve success for the City of Rancho Palos Verdes on these types of projects.

Company Background

Iteris, Inc. is the market leader in providing Traffic Information Management Solutions to the Intelligent Traffic Management Industry. Our decades of expertise in traffic management, along with superior services and patented products help: detect, measure, and manage traffic and vehicular performance; minimize traffic congestion; and empower our clients with solutions to better manage their transportation networks. The firm is headquartered in Santa Ana, California with offices nationwide.

Iteris staff members are experts in the fields of transportation planning, traffic engineering, and Intelligent Transportation Systems (ITS). Our knowledge of these practice areas enable us to provide comprehensive services ranging from initial traffic impact studies, transportation modeling, planning, systems engineering, and detailed design, through implementation and performance monitoring. We combine the talents of transportation engineers, systems engineers, system integrators, software engineers, and transportation planners to bring to the industry an unmatched combination of talents and experience. The innovative solutions we develop and apply assist public agencies reduce traffic congestion, enhance transit use, monitor and manage their transportation networks, and provide greater access to reliable traveler information.

Iteris was founded based on the principle of providing quality solutions to clients — on time and within budget. Iteris staff is committed to the transportation industry, striving to apply their professional talents to solving the challenging problems of the movement of people and goods to enhance a growing economy. Quantification and validation of the inter-relationships of land-use, mobility/congestion and air quality is a technical area in which Iteris excels. Iteris promises principal-level commitment to all projects.

Iteris takes a disciplined approach to each system and software project based on ISO 9001 standards which starts with understanding the end-users' needs. Iteris delivers precise solutions that meet customers' needs and expectations based on our core competencies;

- Traffic Signal Timing & Synchronization
- Planning & Design
  - Traffic Engineering & Transportation Planning
  - Transit
  - ITS Planning & Design
  - Goods Movement
- System Integration
- Performance Analytics
- Performance Monitoring & Management
- Research & Education
- Traveler Information
  - Road Maintenance Weather Services
  - Traveler Information / 511

Relevant Services

Iteris has extensive relevant experience with City of Rancho Palos Verdes and other agencies throughout California from planning to design to implementation including all modes of transportation, as noted below.

TRANSPORTATION PLANNING

Every successful project begins with thorough planning. From a site access study for a neighborhood commercial center to a route alignment study for a new rail corridor, Iteris has applied its planning expertise to a wide variety of transportation projects around the world. The technical expertise that Iteris brings to a project is the foundation of its success in Transportation Planning. Understanding of the project development process and its ability to build public consensus helps clients implement transportation solutions for the future.

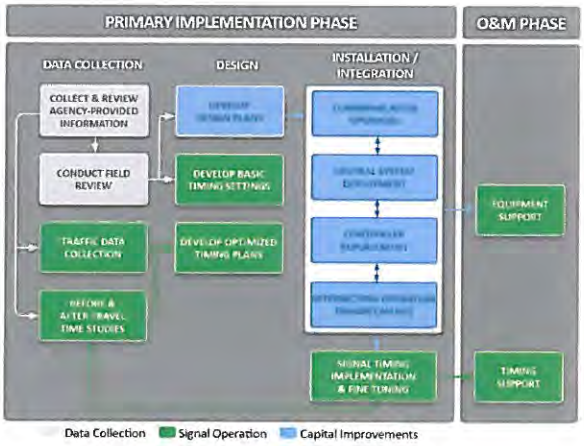
Iteris brings significant experience to any Transportation Planning project and is an innovator in multimodal travel demand modeling. Experts within the company have applied travel demand modeling to prepare transportation master plans for cities and counties, as well as for large private development projects. Iteris' expertise in goods movement analysis and forecasting makes the team a leader in traffic analysis, circulation and master planning for ports and airports. In addition, expertise in traffic operations analysis has established the company as a key partner with agencies proposing roadway and freeway improvements. Iteris has been involved in every facet of transit planning from conceptual route alignment studies to environmental clearance of light rail, heavy rail, and commuter rail and bus rapid transit. Iteris is also at the leading edge of climate change analysis related to transportation and can assist clients with VMT analysis, climate action plans and transportation system sustainability planning.

Iteris offers expertise in;

- Travel Demand Forecasting
- Corridor Studies
- Strategic Transportation Plans
- System Performance Monitoring
- Traffic Impact Fee Analysis
- Traffic Operations Analysis
- Climate Change/VMT Analysis
- Transit Planning
- Traffic Impact Analysis
- Micro-Simulation
- Neighborhood Traffic Impacts
- Parking Studies
- Goods Movement
- Non-Motorized Planning
- Area-wide Circulation Plans
- Environmental Studies
- Master Plan Development
- Transportation Finance
- Rail Transit
- Airport Ground Access
- Policy Analysis

TRAFFIC ENGINEERING AND OPERATIONS

Iteris specializes in the design, evaluation and operation of intersections and arterials to improve the efficiency and safety of vehicular traffic flow, pedestrian mobility, transit operations and bicycle traffic. Services range from intersection layout; traffic signal design; re-striping plans; lighting plans; pedestrian safety studies; traffic control plans; development of arterial traffic calming measures; area-wide street network analysis; on-street parking improvements; inter-jurisdictional agreements; "before" and "after" evaluation studies; transit signal priority timing; and signal timing/ coordination analysis.



Iteris has co-authored the industry standard FHWA Traffic Control Systems Handbook and has assisted multiple agencies throughout the United States in developing signal operation standards.

Iteris offers expertise in;

- Traffic Engineering & Operations
- Traffic Simulation
- Signal System Selection
- Signal System Deployment
- Warrant Studies
- Parking Design
- Road Widening/ Realignment
- Pedestrian Crosswalk Enhancement
- Bicycle Lane Design
- Signal Design
- Signal Operation/ Coordination
- Lighting Design
- Traffic Control Plans
- Training & Research
- Intersection Modifications
- Traffic Circles Planning/ Design
- Bulb-outs Design

ON-CALL SERVICES

The City of Rancho Palos Verdes is looking for an on-call consultant that can not only serve any technical need that arises, but also a consultant that can quickly respond to task orders with an accelerated schedule without sacrificing quality of work. Iteris has extensive on-call transportation engineering and planning experience with a wide variety of public agencies and can meet the City of Rancho Palos Verdes' needs. We have successfully managed hundreds of on-call task orders in our history.

The blend of our Iteris' local knowledge and vast transportation agency experience provides the City of Rancho Palos Verdes with fresh resources to tackle any technical needs that arise. Iteris' past on-call engagements have involved tasks that evaluate impacts to traffic, transit, and safety as a result of new developments including residential, retail, and commercial, trip/parking generation, traffic control warrants, queuing analysis, travel demand forecasting, capacity analysis/ simulation, pedestrian/bicycle/transit access studies, origin/destination analysis (using models, license surveys and MacID addresses), and circulation analysis and traffic engineering design tasks (signals, signing, striping, lighting, temporary traffic control, ITS).

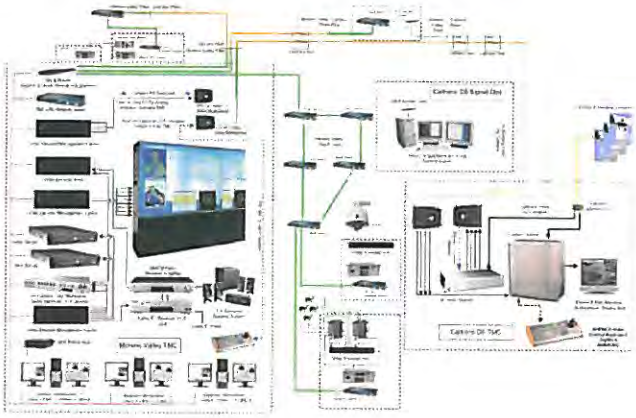
Table 1 provides a sample of the agencies Iteris has served on-call in the past five years.

Table 1 – Ongoing On-Call Contracts

AGENCY	ON-CALL ASSIGNMENT
Caltrans District 7	On-Call Environmental Desert Areas
Caltrans District 8	Civil Projects On-Call (Small projects)
City of Anaheim	On-Call Transportation Planning
City of Irvine	On-Call Signal Design, Planning & Modeling
City of Irwindale	On-Call Traffic Engineering
City of Laguna Woods	On-Call Traffic Engineering and Operations
City of Rancho Palos Verdes	On-Call Traffic Engineering
City of San Diego	On-Call Traffic Engineering
City of Santa Rosa	Planning & Engineering On-Call
City/County of San Francisco	Transit Consulting Services
Clark County, Nevada	Public Works On-Call
County of Riverside	On-Call Transportation Planning
County of Ventura	On-Call Travel Demand Forecasting
CRA, City of Los Angeles	On-Call Transportation Planning
El Dorado County	On-Call Traffic Engineering
Idaho Transportation Dept.	On-Call Traffic Engineering
LA Metro	On-Call Bench; Traffic Engineering; Transportation Planning, ITS Engineering
LAUSD	On-Call Environmental
OCTA	On-Call Transportation Modeling
OCTA	On-Call Traffic Engineering/Regional Signal Timing
Port of Los Angeles	On-Call Environmental Documentation
Port of Long Beach	On-Call Transportation Planning/On Call Traffic Engineering
RCTC	On-Call Goods Movement Consulting
RTC Southern Nevada	Annual Work Program On-Call
SANDAG	General Transportation Planning
UCLA	On-Call Environmental
Utah DOT	ITS Support On-Call
Westside Cities Sub-region	On-Call Transportation Planning

ITS PLANNING

Intelligent Transportation Systems (ITS) embrace complex multimodal surface transportation improvement solutions at a regional level; sub-regional level; corridor basis; and small area level. ITS employ various communications networks and technologies that are networked together to exchange information; support coordinated cross-modal applications; and enhance interagency coordination. Careful planning for the deployment of such systems requires a comprehensive understanding of local and regional ITS components, their interaction and their operation.

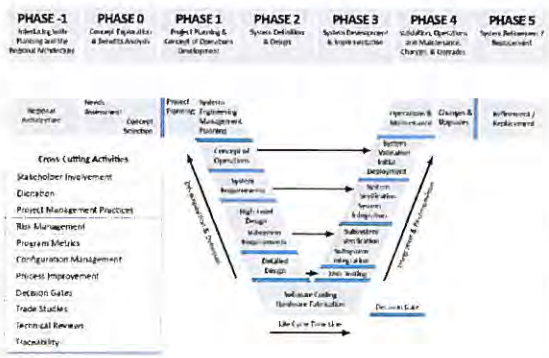


Iteris' multi-disciplinary team has completed many ITS Planning projects, paving the way for ITS systems architecture, design and deployment. Iteris staff members have a wealth of experience in effectively working in large and small regions and with a wide variety of ITS stakeholders. These include cities, counties, regional agencies, states, transit agencies, public safety agencies, emergency management agencies and the private sector.

Iteris offers expertise in;

- Regional ITS Architecture Development & Maintenance
- Communications Master Plan Development
- Traffic Signal System Planning & Design
- ITS Master Plan Development

ITS SYSTEMS ENGINEERING AND ARCHITECTURE



ITS have tremendous potential for improving regional mobility, safety, environmental quality and economic competitiveness. To gain the most benefit from these technologies, a regional ITS framework or architecture should be developed to ensure decisions concerning ITS investments are made in a coordinated, coherent and efficient manner. In addition, ITS components should be deployed maximizing the use of industry standards.

Iteris offers expertise in;

- National ITS Architecture Development
- Regional Architecture Development

Iteris, under contract to the FHWA, developed the National ITS Architecture and the tools to aid its use in defining Regional ITS architectures. Since the definition of the original National ITS Architecture was released in 1996, Iteris has continuously updated the National ITS Architecture including the latest version which incorporates VII elements and concepts. This architecture knowledge combined with ITS development and deployment experience makes Iteris uniquely qualified to provide the expert services needed to help clients develop their regional ITS architecture. Iteris works with clients to generate a customized regional ITS architecture for their region or state that is responsive to regional needs; institutional structures; and economic, environmental and fiscal priorities. While providing a focused guideline for ITS investments, Iteris ensures that regional ITS architecture supports other long-range multimodal planning and implementation activities. While locally specific, Iteris helps clients craft a regional ITS architecture that is consistent with the National ITS Architecture and Federal policy.

Iteris understands that effective metropolitan and statewide planning results from a process in which public and private sector transportation organizations, service providers, technical specialists and other regional stakeholders cooperate to define the optimal mix of facilities and services for the future. Iteris leverages its in-depth knowledge of the National ITS Architecture and broad experiences to determine ITS services are consistent with client's regional needs, policies and goals. Candidate services are drawn from the following categories: traffic management, traveler information, public transportation management, commercial vehicle operations, electronic payment, emergency management, and advanced vehicle control and safety systems.

ITS DESIGN

Iteris provides agencies worldwide with innovative and cost-effective approaches to the design and implementation of Intelligent Transportation Systems (ITS) field elements, communications networks, traffic management systems and Traffic Management Centers (TMC).

Iteris produces complete Plans, Specifications and Estimates (PS&E) packages for CCTV cameras, Dynamic/Changeable Message Signs (DMS/CMS), detection, information distribution (e.g. HAR), and Traffic Management Centers and communications networks. Iteris' communication designs include numerous corridor and agency-wide Gigabit Ethernet networks for traffic management and agency-wide area networks (WAN), as well as SONET, ATM and serial networks. Iteris has designed communication networks comprised of fiber optics, twisted pair cable, spread spectrum and up to 1.4GB microwave wireless communications. Additionally, several of Iteris' communication network projects have included the procurement, integration and installation of Ethernet and Gigabit Ethernet hardware, providing agencies with a turnkey solution to implementing a Gigabit Ethernet network. Iteris' TMC design services include feasibility analysis; functional operations and maintenance requirements; staffing analysis; conceptual layout; and final design. A state-of-the-art TMC must incorporate flexibility and expandability to allow for the integration of future technologies and growth. Iteris not only designs each TMC in concert with clients' current requirements, but also with accommodation for future needs and expansion.

Iteris offers expertise in;

- Communication Systems
- Detection Systems
- Surveillance Systems (CCTV)
- Information Delivery Systems
- Traffic Management Centers

SYSTEMS INTEGRATION

Systems integration is the key to success in today's multimodal, multi-agency complex operating environments, where engineering expertise and the skills needed to overcome institutional challenges are equally important. Whether deploying a new system, expanding a legacy system, or aggregating subsystems so that the system is able to deliver over-arching functionality, Iteris integrates hardware, software and the user-interface into a fully functional system that delivers the most cost-effective turnkey solution. Iteris has extensive experience in complex system engineering; design; product development; systems integration; and implementation, including system acceptance testing. Iteris is committed to providing high-quality product and integration solutions to meet the client's needs during the entire life cycle of the program. Iteris understands customer relationships and what it takes to facilitate agreements among departments and agencies, as well as implementing and operating multi-jurisdictional or intermodal systems.

When it comes to understanding the connection between the subsystems, program phasing, interagency communications and integration, Iteris has the experience to deliver superior results. With backgrounds in systems engineering, object-oriented development and hardware/

Iteris offers expertise in;

- Systems Management
- Systems Engineering
- Systems Installation
- Systems Design
- Systems & Software Development

software development, Iteris provides integrated solutions to solve current and future transportation challenges. The Iteris Team develops and documents system requirements as well as performs system acceptance testing to ensure the results have met system requirements.

OPERATIONS AND MAINTENANCE

Iteris strives to provide the most efficient, cost effective services to clients, including assisting with operations and maintenance of signal operations/timing, traffic signal control system monitoring, Ethernet network monitoring and supervision, and hardware maintenance and replacement. Iteris' corporate headquarters has a fully functional Traffic Management Center (TMC), complete with workstation, console, and video wall, numerous traffic signal controllers, test equipment, CCTV cameras and video detection systems. To date, Iteris' TMC is equipped with systems to support QuicNet, Cohu, Vantage, ATCS, and EtherWAN; the capabilities will soon be expanded to offer additional systems. Through VPNs, the Iteris TMC allows staff to quickly and efficiently respond to agency requests without the need to leave Iteris' office.

This allows Iteris to more efficiently do the initial troubleshooting within minutes of any agency request, and potentially prevent the need for a trip to the field, an additional savings to the agency. The Iteris TMC is another tool that is available to clients for improved operations and efficiencies in order to enhance the mobility of travelers throughout the agency.

Iteris offers expertise in;

- Signal Operations
- Remote TMC Staffing
- Emergency Support Services
- Network Management
- Preventative and Routine ITS Maintenance

DESIGN-BUILD CONTRACTING

One of Iteris' core strengths is the ability to take projects from concept to completion in a design/build framework. Iteris has outstanding credentials serving as part of design-build teams with a focus on the planning, design and deployment of real-time intelligent transportation system elements for arterials and freeways, the use of performance measures to improve work zone traffic management, and the provision for real-time traveler information. Iteris offers solutions that can enhance any project, ultimately resulting in innovative and cost saving project deployments. The Iteris performance measurement software, iPeMS™, is a focal part of Iteris' planning, design and deployment tool kit, providing multi-modal performance measurement analytics to increase safety and improve operations. Systems integration, which is the key to success in today's multi-modal, multi-jurisdictional environment, is a distinguishing factor when selecting your design-build partners and one in which Iteris staff members excel.

Whether expanding a legacy system or deploying a new one, Iteris integrates hardware, software and the user-interface into a fully functional system that delivers a cost-effective turnkey solution.

CONSTRUCTION ASSISTANCE

Iteris helps keep traffic moving during project construction. The company's ITS, traffic engineers and transportation planning experts provide the combination of skills to anticipate traffic management challenges and implement traffic control plans and design. Iteris has significant experience in building consensus on construction period traffic patterns among public agencies, business owners and the public. Iteris also designs temporary installations of traffic control devices such as video/radar detectors, variable message signs and ramp meters that can be relocated during various stages of construction. Traffic Management Plans (TMP) also frequently utilize portable variable message signs and highway advisory radio. Iteris experts prepare plans for temporary parking, temporary access to adjoining properties, and transit service and mitigation measures on detour routes. Iteris is fully acquainted with many local agency and Department of Transportation guidelines and requirements for TMP. Iteris also provides program and project management assistance to agencies during project construction by serving as an extension of agency staff, and directly interfacing with third party contractors. The company will ensure that the project is deployed according to plans and specifications on schedule and within budget.

Iteris offers expertise in;

- ITS Surveillance Elements
- Communications Infrastructure
- Traffic Management Planning
- Traffic Maintenance During Construction
- Staged Construction Analysis
- Community Outreach / Consensus Building
- Traffic Signals
- Traffic Management Centers
- Signing and Striping Plans
- Detour Plans
- Pre-construction Planning

TRANSIT

Iteris has been involved in many facets of transit planning, design and operations. Projects have included conceptual route alignment studies; traffic engineering studies; impact analysis; bus rapid transit and light rail priority systems; and Intelligent Transportation Systems for transit. Iteris has participated in the study, design and deployment of numerous transit enhancements; BRT- and LRT-related projects; and utilized various technologies in the detection of the transit vehicle, transit priority request generation and priority logic implementation. Iteris' operational experience includes the development of transit operation strategies and web-based trip planning tools. Services provided have also included ridership forecasting; grade crossing analysis; bus-rail interface planning; planning and design of park-and-ride facilities; and non-motorized transit access plans. Iteris has also been involved in station location studies and environmental clearance for urban subway and commuter rail systems.

Iteris offers expertise in;

- BRT/LRT Planning, Design and Deployment
- Transit Signal Priority Design and Deployment
- Transit-oriented Development
- Planning Web-based Trip Planning
- Environmental Clearance of Transit Facilities

PERFORMANCE ANALYTICS

For more than 20 years, Iteris has provided market-leading analytics application services for traffic and weather information systems. Our analytics application solutions provide customers with innovative methods for turning data into actionable information through complex algorithmic processing and state-of-the-art visualization tools, available in both web and mobile environments. Traditionally, transportation system performance and congestion monitoring has been limited to conventional methods, such as using floating car surveys and traffic count data, which provide a limited number of observations. Technological advancements, such as massive traffic data from infrastructure sensors and vehicle probes, have become increasingly available. This new, and rich data has provided a foundation for Big Data analytics as an emerging method of performing state of the system monitoring.

Iteris is a trusted leader in the development of Big Data approaches that provide a better understanding of system performance, especially when transitioning regional and county agencies to a more comprehensive monitoring system using commercial speed and transit data.

Iteris offers expertise in;

- Big Data performance monitoring
- Traffic data fusion
- Transit route visualization
- Probe vehicle data visualization
- Visual analytics services

2.0 | ORGANIZATION CHART

Project Management

Mr. Bernard Li will serve as the Project Manager for this project. He will be the principal contact with the City and other entities per the City's direction. As Project Manager, Mr. Li will be responsible for coordinating the staff activities, coordinating meetings, project strategy, and will oversee work from project inception to completion. Mr. Li is a registered Professional Electrical and Traffic Engineer with over 27 years of professional engineering experience in public and private sectors. With his extensive background and experience on other projects similar to this one, Mr. Li is the ideal Project Manager for the City of Rancho Palos Verdes. Mr. Li's contact information is provided in **Table 2** below:

Table 2 – Project Manager's Contact Information

PROJECT MANAGER
Bernard K. Li, EE, TE, PTOE Iteris, Inc. 1700 Carnegie Avenue, Suite 100 Santa Ana, CA 92705-5551 **Phone:** 949-270-9633 **Fax:** 949-270-9401 **Email:** bkl@iteris.com

KEY PERSONNEL ORGANIZATION CHART

With offices in Santa Ana (headquarters), Los Angeles, and Long Beach, Iteris has the resources of over 75 staff in southern California dedicated to Traffic Engineering, Transportation Planning, and ITS, and available to meet all the needs of the City of Rancho Palos Verdes. Iteris' project team organization of the proposed key staff is listed below in **Figure 1**, followed by key personnel and availability in **Table 3,** and brief capsule resumes for each team member. Full resumes of the Iteris Team are located in the **Appendix.**

Figure 1 – Project Team Organizational Chart

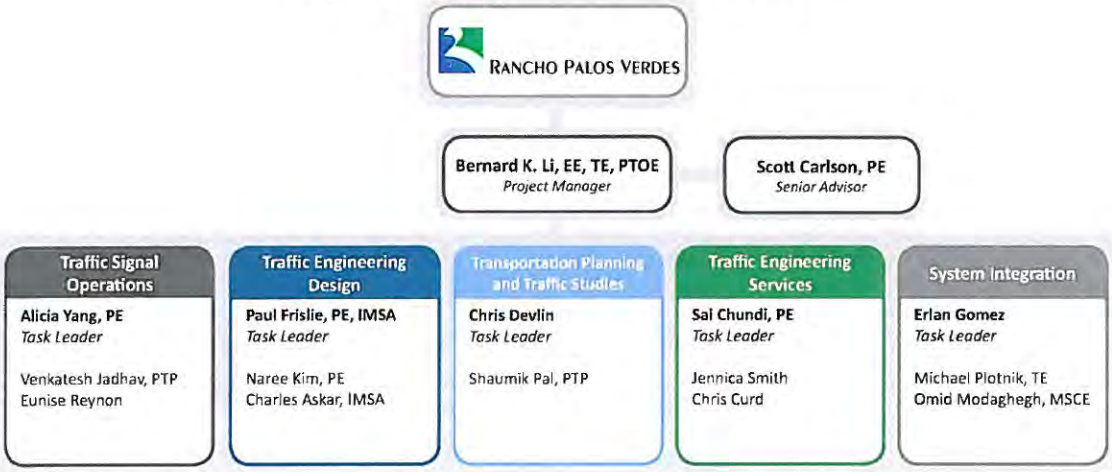


Table 3 – Key Personnel Skills Matrix

KEY PERSONNEL	Traffic Signal Design	Signing And Striping Design	Traffic Control Plans	Interconnect & ITS Plans	Signal Timing & Operations	System Integration	Warrant Studies	Parking Studies	Neighborhood & School Traffic Mgmt	Traffic Modeling	Inspect & Construction Mgmt.	Meeting & Public Outreach
Iteris, Inc.												
Bernard K. Li, EE, TE, PTOE *Project Manager*	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
Scott Carlson, PE *Senior Advisor*	✓	✓	✓	✓	✓						✓	✓
Alicia Yang, PE *Task Leader-Traffic Signal Ops*	✓	✓	✓	✓	✓							✓
Paul Frislie, PE *Task Leader-Traffic Engineering Design*	✓	✓	✓	✓							✓	✓
Chris Devlin *Task Leader-Transportation Planning*							✓	✓		✓		✓
Sai Chundi, PE *Task Leader-Traffic Engineering Services*	✓	✓	✓	✓	✓	✓			✓		✓	✓
Erlan Gomez *Task Leader-System Integration*				✓		✓						✓
Venkatesh Jadhav, PTP *Project Engineer*					✓	✓			✓		✓	✓
Eunise Reynon *Project Engineer*	✓	✓	✓	✓	✓							✓
Naree Kim, PE *Project Engineer*	✓	✓	✓	✓	✓						✓	✓
Charles Askar, IMSA *Project Engineer*	✓	✓	✓	✓	✓							✓
Shaumik Pal, PTP *Transporation Planner*							✓	✓		✓		✓
Jennica Smith *Project Engineer*	✓	✓	✓	✓	✓							✓
Chris Curd *Project Engineer*	✓	✓	✓	✓	✓							✓
Michael Plotnik, TE *Project Engineer*	✓	✓		✓		✓					✓	✓
Omid Modaghegh, MSCE *Project Engineer*	✓	✓	✓	✓	✓	✓						✓

CAPSULE RESUMES

Bernard K. Li, EE, TE, PTOE – *Project Manager*

Education | BS, Electrical Engineering, University of Southern California, 1988
Affiliations | Technical Coordinator-Institute of Transportation Engineers (ITE) So Cal, Member-Orange County Traffic Engineering Council (OCTEC)

Mr. Li has over 27 years of experience in the planning, design and implementation of electrical and traffic engineering projects. He has served as Project Manager or Principal-in-Charge on numerous design/construction projects, operational analysis and feasibility studies. His traffic engineering design expertise includes traffic signal installation, signal modification, roadway signage/striping, street lighting, worksite traffic control and neighborhood traffic management (i.e. traffic calming). Mr. Li's ITS experience comprises fiber optic communications, closed-circuit television (CCTV), video-detection system (VDS), dynamic message signs (DMS) and highway advisory radio (HAR). He also has vast expertise in traffic signal operations, having assisted many agencies in analysis, retiming and synchronization of traffic signals, both corridor and network wide; and he is very familiar with different traffic signal systems, including McCain QuicNet, Transcore Transuite and Econolite Aries. His transportation planning expertise includes traffic impact studies, parking studies, transportation master plans, signal warrant analysis and stop warrant analysis. He has also served as City's Traffic Engineering Consultant for many agencies, in resolving numerous day-to-day traffic engineering issues, including residents' inquiries, plan checking and safety evaluation.

Scott Carlson, PE – *Senior Advisor*

Education | BS, Electrical Engineering, University of Wisconsin, Madison, 1994
Affiliations | International Council on Systems Engineering (INCOSE); Institute of Transportation Engineers (ITE)

Mr. Carlson serves as Vice President and Assistant General Manager of the Systems division with Iteris. In this role, Mr. Carlson manages Iteris' Western Region of Systems that includes over 60 transportation planners, traffic engineers and software engineers in offices throughout the western United States. Mr. Carlson has 22 years of experience in transportation engineering, traffic control and management. Mr. Carlson has been involved in numerous traffic signal management systems, ITS, transit signal priority and traffic engineering projects. He has supported projects in a variety of roles including serving as Project Manager, Task Manager, Quality Control Advisory and Principal-in-Charge to provide ITS-based traffic, transportation, transit and communications consulting systems engineering services to public agencies and transit operators. He is experienced in a wide range of ITS applications, including the development of coordinated advanced traffic management systems, and the design and implementation of systems for arterial, highway, and transit. These ITS applications include the use of systems engineering practices to plan, design, deploy and integrate ITS elements; advanced transportation management systems and advanced traveler information systems; transit signal priority systems and bus rapid transit systems; traffic operations/management center design; and communication networks that employ fiber optic, microwave, IP wireless and spread spectrum radio for Ethernet/Gigabit Ethernet communication systems; as well as traditional analog/serial fiber optic transmissions. Mr. Carlson has recently served as Project Manager and Senior Advisor for large-scale ITS projects in College Station (Texas), Oxnard, San Mateo, Corona, Fountain Valley and Newport Beach (California), all of which encompassed ITS planning, design, integration and operations. All projects were completed on schedule and within budget.

Alicia Yang, PE – *Task Leader-Traffic Signal Operartions*

Education | BS, Civil Engineering, University of California, Irvine, 2005
Affiliations | Institute of Transportation Engineers (ITE), Orange County Traffic Engineering Council (OCTEC), American Society of Civil Engineers (ASCE)

Ms. Yang has over nine years of experience working in traffic operations and engineering, transportation planning, transportation design, and various transportation software. Ms. Yang has experience in various aspects of transportation engineering, but specializes in traffic operations having worked on a number of regional (multi-agency) signal synchronization and special events timing projects. Ms. Yang has been involved in all tasks in signal synchronization projects, from field reviews and travel time studies to implementation (locally or centrally) and field fine-tuning. Ms. Yang has also led signal timing implementation and fine-tuning training courses to City staff operating Actra and Centracs central traffic control systems. Ms. Yang's software knowledge includes Synchro, AutoCAD, MicroStation, PC-Travel, ArcGIS, Tru-Traffic and Vissim. She has worked with signal controllers such as 170, 2070, M52, Econolite and Multisonics; controller firmware including BI Tran, C8, Econolite, NextPhase, Naztec and SEPAC; and traffic control systems such as Actra, Aries, ATMS.now, Centracs, i2, icons, QuicNet, Tactics and VMS.

Paul Frislie, PE – *Task Leader-Traffic Engineering Design*

Education | MA, Business Administration, University of Phoenix, 2011; BS, Civil Engineering, University of California, Irvine, 2000
Affiliations | Orange County Traffic Engineering Council (OCTEC)

Mr. Frislie is currently serving as Senior Transportation Engineer of Transportation Systems division of Iteris and has been with firm since January 2001. For over fourteen years, Mr. Frislie has been involved in several transportation and traffic engineering projects that include both planning as well as design and deployment of ITS, and traffic signal design. Recently, he has served as the Project Manager for the Cypress Phase 1, 2 and 3 ITS Projects, the Newport Beach ITS Phase 5 Project, the Santa Monica ATMS Phase 4c project and the Agua Mansa, Western University and Franzman Ranch Land Development Projects. He has also been the Lead Design Engineer for the development of design plans for the Oxnard ITS Master Plan Design Project, the Santa Monica ATMS 4a/4b Project, SR-710 ITS Design Project, Newport Beach ITS Phase 1, 2, 3, 4 and 7 Projects and the Fountain Valley Phase IV project, as well as the Project Manager for completion of the Inglewood, Corona and Fontana communication design tasks.

Chris Devin – *Task Leader-Transportation Planning and Traffic Studies*

Education | MSc, Engineering, University of Leeds, UK, 1991; BA, Economics, Durham University, UK, 1987

Mr. Devlin has served as Senior Transportation Planner of Transportation Systems division of Iteris since November 2013. Mr. Devlin has 23 years of experience in transportation planning and has managed and participated in a wide variety of transportation studies including travel demand forecasting studies, travel surveys, traffic impact studies, parking studies, and corridor studies. He is an experienced travel demand forecaster having developed and worked on over twenty different traffic models throughout the world. He is proficient in several modeling packages including TransCAD, Cube and emme2 and in the use of micro-simulation packages.

He has developed model outputs to support the economic, financial and environmental analysis of major highway, transit and aviation projects. He is proficient in the use of Geographic Information Systems (GIS) for problem-solving, analysis and the effective presentation of results. He has designed and run GIS training courses specifically for Transportation Planners including the design and coding of GIS utilities and scripts. He has performed several large-scale transportation surveys from the survey design stage, through implementation, data cleaning, database population and reporting.

Sai Chundi, PE – *Task Leader-Traffic Engineering Services*

Education | MBA Candidate, UCLA Anderson, Los Angeles, 2016 (Expected); MS, Civil Engineering, University of Central Florida, 2005; BE, Civil Engineering, India, 2002
Affiliations | Orange County Traffic Engineering Council (OCTEC)

Mr. Chundi has over nine years of experience in the Intelligent Transportation Systems (ITS) Design and Traffic Engineering areas and has served as a Transportation Engineer with Iteris since June 2006. His traffic engineering design experience includes the design of traffic signals, signing and striping, traffic control, stage construction and street lighting projects. His ITS design experience includes fiber optic communications, CCTV, VDS and traffic signal system upgrades. Mr. Chundi also worked with multi-jurisdictional agencies on numerous signal timing and synchronization projects. Prior to joining Iteris, Mr. Chundi worked for Dyer, Riddle, Mills and Precourt, Inc., Consultants and Engineers, located in Orlando, Florida. He was actively involved in numerous ITS design and device laying projects involving Florida DOT, Florida's Turnpike and the Orlando-Orange County Expressway Authority. Mr. Chundi's software knowledge includes Synchro, Tru-Traffic, AutoCAD, MicroStation, GEOPAK, SAS, ArcView and MS Office tools.

Erlan Gomez, PE – *Task Leader-System Integration*

Education | MS, Civil Engineering, Loyola Marymount University, Los Angeles, CA, 2010; BS, Electrical Engineering, Loyola Marymount University, Los Angeles, CA, 2002
Affiliations | Institute of Transportation Engineers (ITE)

Mr. Gomez has served as Senior Systems Engineer of Transportation Systems division with Iteris since May 2014. Mr. Gomez brings over 12 years of experience to the Iteris team of experts. Mr. Gomez has worked for both public and private sectors in the field of Transportation. He has extensive experience in Intelligent Transportation systems (ITS); Traffic Control Systems (TCS), Fiber Optic Communications, Wireless Communications, TWP Copper Communications, Transit Priority Systems, Photo Red Light Enforcement Systems and Traffic Signal Design. Mr. Gomez' is skilled in the integration of TransSuite and SCATS, the design and integration of ITS devices and any associated communication networks required to support both TCS and ITS integrations. Mr. Gomez is proficient in the design and integration of TCS servers and network equipment, communication networks (fiber, copper and wireless), CCTVs, video encoders and battery backup systems.

3.0 | RELEVANT EXPERIENCE

Relevant Qualifications

Iteris has a history of successful projects with similar scope and work content for the many agencies throughout California. Iteris has a proven track record of on-time, within-budget performance on projects; and encourages the City of Rancho Palos Verdes to check with references provided with our project qualifications below. Iteris is proud of the reputation the company has earned, and the resulting numerous repeat clients. Iteris has initiated over 850 ITS/Engineering and Planning projects within the past four years. These projects include a wide range of public and private entities including local agencies, counties, MPO and Caltrans. Of these 850 projects, approximately 70% represent repeat clients; a testament to Iteris' primary goal of client satisfaction.

Iteris' extensive traffic engineering, transportation planning and ITS experience is demonstrated by the following showcase listing of recent, relevant projects throughout California that encompass all the aspects of the City of City of Rancho Palos Verdes project. The projects are summarized in **Table 4** below followed by a detailed description of each project:

Table 4 – Relevant Project Experience Matrix

PROJECT QUALIFICATIONS	AREAS OF EXPERTISE						
	Transrportation Planning and Traffic Studies	Traffic Simulation	Traffic Calming	Traffic Signal Design	Traffic Signal Operations	Bike Lane / Signing & Striping	System Integration
On-Call Traffic Engineering – City of Rancho Palos Verdes, CA	✓		✓	✓	✓	✓	
On-Call Traffic Engineering – City of Laguna Woods, CA		✓	✓		✓	✓	
POLB On-Call – Long Beach, CA			✓	✓	✓	✓	
OCTA Newport Boulevard South Corridor Traffic Signal Synchronization (TSS) – Orange County, CA	✓			✓	✓		✓
On-Call Traffic Engineering Services – City of Irwindale, CA	✓	✓	✓	✓	✓	✓	
On-Call Traffic Engineering Services – City of Diamond Bar, CA	✓	✓	✓	✓	✓	✓	
On-Call Traffic Engineering and Planning – City of Long Beach, CA	✓	✓	✓	✓	✓	✓	✓
On-Call Traffic Design Services Project – Los Angeles County, CA				✓	✓	✓	

Rancho Palos Verdes On Call Traffic Engineering – City Rancho Palos Verdes, CA

Iteris, Inc. has been providing on-call traffic engineering services to the City of Rancho Palos Verdes since 2012 on task order basis. Some of the task orders we have completed for the City include:

- Hawthorne Boulevard fiber-optic communications design
- Line-of-sight evaluation at Faircove and Locklenna
- Feasibility study for allowing U-turn during certain times of the day at the Hawthorne / Grayslake intersection
- Signal timing evaluation for the intersection of 25th Street and Anchovy Avenue
- Delay analysis for Palos Verdes Drive South at Forrestal Drive
- Signage placement evaluation for Montemalaga Drive at Basswood Avenue
- Right-turn signage and striping analysis for Hawthorne Boulevard at Ravenspur Drive
- Angled Parking Analysis for Crenshaw Boulevard near Del Cerro Park

Key Personnel	Bernard Li (Project Manager), Eunise Reynon, Deepak Kaushik		
Client Reference	Nicole Jules, Deputy Director of Public Works, City of Rancho Palo Verdes, 30940 Hawthorne Blvd, Rancho Palos Verdes, CA, 90275, 310-544-5275, NicoleJ@rpvca.gov		
Project Duration	July 2012 to Present	**Project Budget**	$150,000

Laguna Woods Traffic Signal Operations and Monitoring Services – City of Laguna Woods, CA

Iteris, Inc. is providing traffic engineering services to the City of Laguna Woods. One of the main duties is to operate and maintain all the traffic signals within the City, including:

- Monitor traffic signal operations in real-time and make timing adjustments as necessary to maintain good traffic progressions
- Review scheduled operations on the Centracs traffic signal system to automatically perform a variety of maintenance tasks
- Set up Centracs to automatically gather and store historical data and real-time information of traffic signal operations
- Verify all timings are programmed correctly and that all traffic signals are in good working order
- Report traffic signal problems and malfunctions to the City's signal maintenance contractor
- Coordinate and verify all requested maintenance work is properly completed by the signal maintenance contractor

- Maintain and make adjustments to the traffic signal coordination system
- Assist the City in resolving traffic signal control complaints
- Investigate and recommend to the City improvements such as signal phasing, equipment upgrades and significant timing adjustments
- Coordinate with contractors and modify signal timings due to roadway constructions

Key Personnel	Bernard Li (Project Manager), Alicia Yang, Eunise Reynon, Sai Chundi, Naree Kim		
Client Reference	Akram Hindiyeh, City Engineer, City of Laguna Woods, 24264 El Toro Road, Laguna Woods, CA 92637, 949-547-0816, akram@civil-source.com		
Project Duration	April 2012 to Present	**Project Budget**	$100,000

Port of Long Beach On-Call Traffic and Transportation Engineering – Long Beach, CA

Iteris, Inc. serves as the On-call Traffic Engineer Consultant to the POLB. Projects and services included:

- Plan Checking and Approval Services for Traffic Control Plan
- Traffic Operational Study and Prepare Traffic Control Plans for Harbor Scenic Drive
- Traffic Signal Design at the Intersection of Pico Ave / Pier G Ave and Harbor Plaza / Pier F Ave
- POLB and POLA On-Call Modeling, Traffic Engineering and Transportation Planning

On-Call Plan Checking and Approval Services for Traffic Control Plan

Iteris is serving as a consultant to POLB in support of this on-call traffic engineering project that provides traffic engineering design services to include Plan Checking and Approval Services for Traffic Control Plans. Iteris provides technical reviews of the plans for conformance to Port's guidelines and state standards. Iteris has so far reviewed over 150 sheets of Traffic Control Plans in the vicinity of Port of Long Beach. *(Budget: $50,000; Duration: 2013 to Present)*

Traffic Operational Study and Prepare Traffic Control Plans for Harbor Scenic Drive

Iteris, as an on-call traffic engineering consultant to POLB, provides traffic engineering services to review traffic operations for Harbor Scenic Drive from Harbor Plaza to Pier J Avenue South End and provide recommendations to improve safety and traffic operations within the project area. Iteris conducted field reviews, assessed the issues and has suggested possible solutions for consideration. In general, more than one recommendations were made at some of the critical locations identified along the corridor. All the recommendations have been discussed and presented to the Port of Long Beach to enhance the corridor safety, and traffic operation efficiency. *(Budget: $32,650; Duration: July 2014 to December 2014)*

Traffic Signal Design at the Intersection of Pico Ave / Pier G Ave and Harbor Plaza / Pier F Ave

Iteris is serving as a consultant to the POLB to provide traffic engineering services for Traffic Signal Design at the Intersection of Pico Ave/ Pier G Ave and Harbor Plaza/Pier F Ave. The main objectives of this project are to propose new signal phasing, design the new traffic signal including upgrading the ADA ramps, prepare Plan, Specifications and Cost Estimates (PS&E), and pothole proposed traffic signal pole locations. Upon approval from POLB and the City of Long Beach, Iteris will provide bid and construction support during the construction of the signal. *(Budget: $50,445; Duration: November 2014 to Present)*

On-Call Modeling, Traffic Engineering and Transportation Planning

Iteris has been retained by both the POLB and POLA to conduct a wide range of on-call travel demand modeling, traffic engineering and transportation planning services. The projects range from Port area travel demand model development and implementation, model application for port studies, and large-scale transportation planning and design efforts to local traffic and access studies for Port related developments. The projects supported by Iteris in the Port area include support documents for

environmental reports, development of traffic mitigation plans, traffic signal design and operations analysis, and public presentations and community workshops. Iteris was integral in the early development of the first Port area travel demand models and our staff continue to support the Ports in model updates and applications for many projects. Projects recently completed in the Ports include EIR traffic studies for the Gerald Desmond Bridge, the ICTF and SCIG near-dock rail projects, several port terminal projects, signal coordinate and street design. Iteris has also recently developed and implemented a VISSIM computer micro-simulation model for the port area along a critical stretch of Ocean Boulevard near the future Gerald Desmond Bridge. *(Budget: Varies; Duration: 1995 to Present)*

Key Personnel	Bernard Li (Project Manager), Sai Chundi, Rajat Parashar
Client Reference	Julia Wu, PE, PTOE, Senior Traffic Engineer, POLB, 562-283-7882, Julia.wu@polb.com

OCTA Newport Boulevard South Corridor Traffic Signal Synchronization (TSS) – Orange County, CA

The Orange County Transportation Authority (OCTA) initiated the Newport Boulevard South Corridor Traffic Signal Synchronization (TSS) Project to improve and enhance signal timing and synchronization services and operations for signalized intersections along the Newport Boulevard corridor. The project will provide operations and infrastructure improvements for 33 intersections along a 7-mile segment. In addition to OCTA, three (3) agencies are involved with this project, including the Cities of Costa Mesa and Newport Beach, and Caltrans. Iteris designed and constructed traffic signal equipment and infrastructure upgrades, including fiber optic communications, ASC/3 controllers, traffic signal cabinets, signal modification, CCTV cameras, EVP equipment, and loops detection. All 33 intersections will also retimed with AM, PM, mid-day and weekend traffic signal coordination timing plans. Iteris worked closely with OCTA and all participating agencies to ensure that all the involved Cities receive the necessary traffic signal upgrades, communication infrastructure upgrades, optimized plans, and on-going support, as it was detailed in the application.

Key Personnel	Bernard Li (Project Manager), Sai Chundi, Alicia Yang, Omid Modaghegh, Jennica Smith, Charles Askar		
Client Reference	Ron Keith, Project Manager III, OCTA, 550 South Main Street, Orange, CA 92863-1584, 714-560-5990, rkeith@octa.net		
Project Duration	February 2014 to Present	**Project Budget**	$1,406,267

On-call Traffic Engineering Services – City of Irwindale, CA

Iteris, Inc. serves as the On-call Traffic Engineer to the City of Irwindale. Services included:

- Traffic Engineering Advisor for the Metro Gold Line Extension Project. Plan checked all the traffic plans including traffic signal, communications, signing / striping and traffic control plans. Also prepared and implemented timing sheets for a new signal and assisted during signal turn-on.

- Traffic signal timing update per MUTCD requirements
- Traffic signal timing optimization and implementation along Arrow Highway and Irwindale Avenue
- Preparation and implementation of temporary traffic signal timing for the Live Oak Rehabilitation Project
- Developed Request-for-Proposal (RFP), and assisted in the evaluation and selection of a traffic signal system vendor
- Review of traffic engineering plans and traffic studies for the Metro Gold Line Extension Project.
- Performed traffic signal and stop warrant analysis for various intersections
- Neighborhood traffic calming recommendations and design, including speed bumps, raised crosswalks
- Construction management for new signal installation at Irwindale Ave. / Edna Place
- Review of proposed signal timing prepared by the County
- Preparation of HSIP funding application
- Signing and striping design
- Circulation analysis
- Line-of-sight analysis
- Left-turn warrant analysis
- Traffic impact study review

Key Personnel	Bernard Li (Project Manager)		
Client Reference	William Tam, Director of Public Works/City Engineer, City of Irwindale, 5050 N. Irwindale Avenue, Irwindale, CA 91706, 626-705-5723, wtam@ci.irwindale.ca.us		
Project Duration	2005 to Present	**Project Budget**	$200,000

On-call Traffic Engineering Services – City of Diamond Bar, CA

Iteris, Inc. is currently providing on-call traffic engineering services for the City of Diamond Bar. Iteris' staff, Mr. Bernard Li, has also acted as a Traffic Engineering consultant for City of Diamond Bar for over eight years. During that time, he has personally provided numerous traffic engineering services to the City:

- City's traffic engineering advisor for Alameda Corridor East – Brea Canyon Grade Separation project
- City's traffic engineering advisor for the Los Angeles County Pomona Valley ITS project
- City's traffic engineering advisor for the Traffic Management System project, including preparation of the RFP, participation in the consultant proposal evaluation, and interview panel.
- Citywide signal timing, synchronization and monitoring, including responding to residents' request for timing check
- Traffic signal modification design at over 10 intersections
- New traffic signal installation and interconnect design at various intersections
- Neighborhood traffic management plan design and construction support

- Traffic management and circulation analysis for Quail Summit Elementary School, Lorbeer Middle School, Chaparral Middle School and Diamond Bar High School.
- Suggested Routes to School design for Golden Springs Elementary, Diamond Point Elementary, Walnut Elementary, Castle Rock Elementary, Evergreen Elementary and South Pointe Middle Schools
- Numerous line-of-sight visibility review
- City's traffic engineering advisor for Caltrans 57/60 HOV project
- Basic traffic signal and timing training for City's engineering staff
- City Council Study Session presentation of "traffic signals in our city"
- Interview evaluation panel for the Prospectors Road Street Rehabilitation Project
- Signal warrant analysis and left-turn warrant analysis at various locations
- Signing and striping design at various roadways
- Signal timing preparation and implementation at various newly installed signals
- Traffic control plans review

Key Personnel	Bernard Li (Project Manager)		
Client Reference	David Liu, 21810 Copley Drive, 2nd Floor, Diamond Bar, CA 91765, Tel: 909-839-7041, David.Liu@ci.diamond-bar.ca.us		
Project Duration	July 2004 to Present	**Project Budget**	$200,000

Los Angeles County On-call Traffic Design Services Project – Los Angeles County, CA

Iteris, Inc. served as a consultant to Los Angeles County in support of this on-call project that provided traffic engineering design services to include upgrading traffic signals to minimum standards as defined in the Manual of Uniform Traffic Control Devices (MUTCD) and providing capabilities for synchronization and corridor signal coordination. Improvements included upgrading of signal poles, vehicle heads, ADA push buttons, traffic signal controllers and cabinets, CCTV cameras, loop detection, video detection systems, signal interconnect, and signing and striping. The projects were funded by the County of Los Angeles and involved coordination with the local agencies owning the signalized intersections.

Iteris provided traffic engineering design services for over 100 signalized intersections along the following corridors in support of the County's Signal Synchronization Program.

- Colima Road Traffic Signal Synchronization Design Project
- La Cienega Boulevard Project
- Temple City Boulevard Project
- Maine Avenue Project
- Central Avenue Project

Key Personnel	Bernard Li, Scott Carlson, Paul Frislie, Sai Chundi		
Client Reference	Jane White, County Department of Public Works, Traffic & Lighting Division, 1000 South Fremont Avenue, Building A9-East, Alhambra, CA 91802-1460, 626-300-2020, jwhite@dpw.lacounty.gov		
Project Duration	July 2003 to Present	**Project Budget**	Over $400,000 (Design)

4.0 | PROJECT APPROACH

The objective of this solicitation is to engage a qualified consultant to provide a range of traffic and transportation engineering services to the City of Rancho Palos Verdes. To best serve the City, we have divided the Traffic Engineering and Transportation Planning services into the following categories.

TRAFFIC SIGNAL OPERATIONS	TRAFFIC ENGINEERING DESIGN	TRANSPORTATION PLANNING STUDIES	TRAFFIC ENGINEERING SERVICES	SYSTEM INTEGRATION
• Traffic Signal Timing • Signal Coordination • Timing Implementation • Fine-tuning • Signal System Operations • TMC Operations • Emergency/Special Events Operations	• Traffic Signal Design • Signing / Striping Design • Street Lighting Design • Signal Interconnect / Communications • ITS Design • Traffic Control Plans • Plans Review • Construction Inspection	• Traffic Impact Studies • Parking Studies • LOS Calculations • Circulation Studies • CMP Traffic Data • Traffic Modeling • Warrant Analysis • Report Review	• City Council Meeting • T&T Commissions Meeting • Citizen Complaints • School Safety • Neighborhood Traffic Management • Speed Surveys • CIP Coordination	• TMC design and deployment • Network Management • IP addressing/VLAN • Field deployment of ITS equipment • Acceptance Test Plan and Testing • Acceptance Testing

With extensive traffic engineering knowledge and experience the staff possesses, Iteris can offer a wide variety of traffic and transportation engineering services to the City of Rancho Palos Verdes. The following paragraphs describe our general approach to providing Traffic and Transportation Engineering services. Iteris will be glad to provide detailed scope-of-work on any task orders assigned by the City as part of the on-call contract.

TRAFFIC SIGNAL OPERATIONS - Iteris is experienced in providing traffic signal operations services. Iteris can assist the City of Rancho Palos Verdes in:

- Traffic signal timing monitoring
- Updates of timing parameters per latest State or Federal Standards (e.g. pedestrian flashing-don't walk, yellow change interval, etc.)
- Design, implement, fine-tune and monitor traffic signal synchronization and progression along city's key corridors (e.g. Hawthorne Boulevard)

- Response to residents' request on signal timing check
- Prepare and implement traffic responsive or "flush" timing plans
- Prepare signal timing sheets
- Implementation and fine-tuning of signal timing for new or modified signals
- Review traffic signal timing sheets prepared by others
- Prepare traffic signal operations simulation models

Iteris has been involved in many signal timing optimization, simulation and evaluation projects throughout the Western United States. In the past four years, Iteris staff have developed, tested, deployed, and fine-tuned new signal timing plans at over 3,000 signals nationwide. Our staff is very proficient with various software such as Synchro, SimTraffic, Tru-Traffic, PASSER, TRANSYT, TRAF-NETSIM, CORSIM, and VISSIM in optimization, simulation and evaluation of traffic signals.
General work includes:

- Acquire and collect intersection turning movement counts and existing conditions
- Complete detailed field observation data
- Identify and develop signal timing subsystems
- Identify most appropriate software to complete signal timing analysis
- Develop micro-simulation model
- Implementation and fine-tuning of new traffic signal timing plans
- Training of City staff in traffic signal operations

With such broad knowledge in different platforms and vast experience in signal timing, Iteris has successfully completed numerous signal timing coordination projects for different agencies with significant reductions in reducing travel times, delays and fuel consumption.

TRAFFIC ENGINEERING DESIGN - Iteris will prepare traffic engineering plans, specifications and estimates (PS&E) conforming to the latest City's and Caltrans' Standard, including:

- New traffic signal installation
- Traffic signal modifications
- Signing and striping
- Street lighting
- Work area traffic control
- Traffic signal interconnect (twisted-pair copper, fiber-optic and/or wireless)
- Intelligent Transportation System (ITS), e.g. CCTV cameras, video detection

In general, for developing the PS&E package for design plans, Iteris will complete the tasks as identified by the City. These tasks in general will include, but not be limited to the following activities:

- Research of existing utility company and City records to coordinate proposed improvements with existing field conditions. This activity is of prime importance to assure the accuracy of the field conditions, early identification of utility conflicts and avoiding contract change orders during the construction.
- Completion of design projects including plans, specifications, and engineer's construction cost estimate. Specifications shall be written in Microsoft Word and both physical and electronic copies shall be furnished to the City. The City will provide the specification boilerplate to Iteris.

- All plans will be ink on Mylar drawings using the MicroStation or AutoCAD programs, or as directed by the City. All drawings will be completed per City Standards.
- All original plan sheets, the title sheet of the specifications, calculations, and reports shall be signed and stamped by the Iteris' licensed professional engineer supervising the project. These signed originals will then become property of the City.
- Attend meetings with City staff as required.
- Coordination with other Agencies as required.
- Plan check coordination with the City of Rancho Palos Verdes and other agencies as required.

Iteris is fully familiar with the City's traffic design standards and methodology based on our project manager's prior extensive experience with the City of Rancho Palos Verdes. Design parameters will conform to the latest guidelines of the California Vehicle Code; Caltrans Standard Plans and Specifications; Highway Design Manuals. the Federal and California Manual on Uniform Traffic Control Devices (MUTCD); and all other applicable local, county, state, and federal policies, guidelines, codes and regulations.

CONSTRUCTION INSPECTION SERVICES - Upon commencement of construction activities, Iteris will assist the City to see the project through to a successful completion. Activities performed will include:

- Construction bidding
- Responses to contractors request for information (RFI)
- Pre-construction meetings
- Review material submittals and shop drawings
- Construction inspection (daily or as-needed)
- Review contractors' change order request
- Traffic signal timing setup, and intersection start up
- Review and approve final punch lists

Detailed inspection logs on contractors activities and progress will be kept and provided to the City. As construction reaches completion Iteris will prepare as-built drawings and assist with any warranty-related work or other construction deficiencies.

TRANSPORTATION PLANNING STUDIES - The types of transportation planning services we perform include:

- Traffic impacts studies
- Parking studies
- Traffic Circulation analysis
- Circulation Elements Update of City's General Plan
- Travel demand forecasting
- Corridor studies
- Infrastructure transportation planning studies
- Multi-modal transportation planning projects (rail, highway, non-motorized, goods movement, Bus Rapid Transit, advanced technologies, etc.)

Typical transportation planning studies conducted by Iteris include the following key tasks:

- Project scoping and coordination with City, identification of issues, identification of study area, affected roadway and facilities, agreement on methodology
- Data collection including field review of existing transportation facilities near the project, traffic data collection (see detail below), collection and review of recent documents
- Analysis of the project including trip generation potential, mode split (auto, transit, truck, non-motorized), capacity analysis of links and/or intersections, analysis of transit system impacts
- Deficiency identification – identify deficiencies in the transportation system caused either by the project, by cumulative conditions, or both, in terms of level of service, traffic volumes, future speeds
- Recommendations including physical improvements to intersections, lanes, bridges, freeway facilities, transit facilities, bicycle facilities, other infrastructure, plus operational improvements or changes
- Documentation that is clear and understandable to not only the technical professional, but also to the public since transportation planning is often a key element of local projects

Iteris has conducted hundreds of traffic studies in support of EIRs and EISs throughout California. Iteris staff conducted studies for virtually every type of land use development and public works project, including major retail centers, major office complexes, industrial centers, mixed use projects, residential developments, rail lines, highways, landfills, airports, pipeline projects and many others. We have conducted intersection, arterial, freeway mainline, freeway weaving section, freeway ramp merge/diverge and system level analyses using a variety of tools. We are extremely familiar with all methodologies including ICU, CMA, HCM and others. We have conducted thousands of intersection studies and have compared the results of the various methodologies. From that experience, we are able to recommend a specific methodology to support a particular type of planning challenge:

WARRANT ANALYSIS - Iteris will perform or review warrant analysis, engineering studies and investigation as needed, including:

- Traffic signal warrant analysis
- Left-turn warrant analysis
- Stop warrant analysis
- Crosswalk request
- Speed hump request
- Line-of-sight analysis

For any analysis or studies prepared by Iteris, project reports will be submitted for review and approval by City's staff.

TRAINING - Iteris can provide training tailored to the City's needs, which might include:

- Traffic signal and stop warrants criteria
- Traffic signal design criteria
- Traffic signal operations (e.g. signal phasing)
- Traffic signal timing and coordination (e.g. understanding signal timing sheets)
- Latest traffic engineering standards (e.g. MUTCD)
- Communications (fiber optics, twisted-pair copper, Ethernet technology, etc.)

Training will be conducted using Microsoft PowerPoint presentation, with necessary training materials (handouts and notes) for all attendees.

CITY REPRESENTATION - Iteris can represent the City of Rancho Palos Verdes or accompany City staff and/or City officials to any meetings or presentations and support them on any traffic engineering related issues and negotiation.

- City council meetings
- Traffic & Transportation Commission meetings
- Public outreach meetings
- Meetings with private developers or consultants
- Meetings with adjacent cities on regional transportation matters
- Meetings with L.A. County
- Meetings with Caltrans
- Meetings with other agencies, MTA, SCAG, etc:

NEIGHBORHOOD TRAFFIC MANAGEMENT - Iteris can represent the City of Rancho Palos Verdes or accompany City staff and/or City officials to any meetings or presentations and support them on any traffic engineering related issues and negotiation.

Neighborhood Traffic Management programs include working very closely with the affected neighborhoods to design and monitor traffic calming implementation measures via meetings, other outreach, design and implementation. Iteris has developed neighborhood traffic management programs for many cities, and we have implemented many specific programs in neighborhood impacted by speeding, excessive traffic, or both. We are aware of and have worked with a vast array of traffic calming measures and understand which are oriented to reducing speeds, reducing volumes or both in combination.

We will assist the City in all of the areas needed to design and implement traffic calming action plans. That work may include, but not be limited to community outreach, traffic measurements (speeds, safety, volumes), making preliminary recommendations, presenting recommendations to the public, conducting follow up assessments to measure effectiveness and help the City staff determine if the action plan has met the community goals. As part of our work we are prepared to assist in public meetings (lead or support), and conduct all necessary technical studies. We will also bring the city vast experience gained in other communities on successful traffic calming programs and installations, as well as measures and programs to avoid. Safety is often a critical criteria in traffic calming studies so we are also able to conduct detailed accident investigations and develop enhancements to increase safety.

SCHOOL AREA TRAFFIC MANAGEMENT - Iteris has assisted many cities in providing solutions in school area traffic management, and is pleased to offer similar services to the City of Rancho Palos Verdes:

- Suggested routes to school planning and design

- School area signage and striping update per latest MUTCD standard
- School area traffic circulation
- Special signal timing implementation for school peak-hours

SAFETY MONITORING - In this category, services range from evaluating existing traffic conditions and traffic safety to reviewing design plans as it relates to private development. There are various strategies to evaluating and improving traffic safety and improve the movement of all modes of transportation through the City.

Traffic safety assessments typically involve the review of accident data to assess recent accident history. Collision diagrams are developed to identify the locations of accidents, by type, frequency and cause. Review of such data helps to determine the locations where field observations are necessary to identify factors which may contribute to the accidents or safety concerns. The types of measures that may be employed to reduce safety concerns range from signing and striping changes, signal modifications, geometric changes, lighting enhancement, removal of sight distance impairments, speed limit modifications, traffic calming measures, and other types of traffic control measures.

In addition to field observations, it is also important to listen to the constituents who are expressing concerns of a traffic safety issue, if the investigation is not in response to accident data. Often times, the public may have a perception of a safety problem that is not readily apparent to the field investigator. Iteris has developed a tool kit of pedestrian safety measures which include traditional measures as well as more-recent technologies applied to crosswalks, such as flashing devices and in-pavement devices.

TRAFFIC SIGNAL/ ELECTRICAL MAINTENANCE - With Registered Electrical Engineer and IMSA certified technicians, Iteris can assist the City in performing traffic signal cabinet inspection, communications troubleshooting, and routine electrical wiring diagnosis to ensure top-notch signal operation conditions. Iteris can also work with the City's traffic signal maintenance contractor and get first hand information of any operational or electrical problems, and provide solutions to minimize unnecessary cost that the City would otherwise incur.

STATE MANDATES - Iteris can also perform citywide speed surveys and ensure the City is in compliance with the Speed Trap Law.

PLAN CHECK OR REPORT REVIEW - Iteris will provide plan checking and report review services to the City of Rancho Palos Verdes for any types of traffic and transportation engineering deliverables prepared by other consultants or contractors. The types of traffic engineering submittals we can assist the City in reviewing may include, but are not limited to:

- Traffic signal plans
- Signing and striping plans
- Street lighting plans
- Work area traffic control plans
- Traffic signal interconnect (twisted-pair copper, fiber-optic and/or wireless) plans
- Intelligent Transportation System (e.g. CCTV cameras, changeable message signs) plans
- Traffic impacts study reports
- Parking study reports
- Traffic Analysis portion of any Environment Impact Reports (EIR).

5.0 | FEE SCHEDULE

Table 5 below provides the detailed rates of key personnel that will be assigned to this project. These fees and rates will remain fixed for 12 months from contract execution. Thereafter, any increase in fees and rates and their effective dates will be submitted in writing to the City for approval.

Table 5 – Hourly Fee Schedule

KEY STAFF	PROJECT ROLE	BILLING RATE
Bernard K. Li, EE, TE, PTOE	Project Manager	$250
Scott Carlson, PE	Senior Advisor	$265
Alicia Yang, PE	Task Leader-Traffic Signal Ops	$160
Paul Frislie, PE	Task Leader-Traffic Engineering Design	$165
Chris Devlin	Task Leader-Transportation Planning	$175
Sai Chundi, PE	Task Leader-Traffic Engineering Services	$135
Erlan Gomez	Task Leader-System Integration	$190
Venkatesh Jadhav, PTP	Project Engineer	$130
Eunise Reynon	Project Engineer	$105
Naree Kim, PE	Project Engineer	$135
Charles Askar, IMSA	Project Engineer	$105
Shaumik Pal, PTP	Project Engineer	$165
Jennica Smith	Project Engineer	$95
Chris Curd	Project Engineer	$95
Michael Plotnik, TE	Project Engineer	$140
Omid Modaghegh, MSCE	Project Engineer	$105

Should additional staff be required other than those already identified, the rates will be based on the staff categories listed in **Table 6**.

Table 6 – Standard Fee Schedule

STAFF LEVEL	HOURLY RATE
Senior Vice President / Vice President / Principal / Director	$180 - 270
Associate Principal / Associate Vice President	$150 - 250
Senior Systems Engineer / Senior Transportation Engineer	$130 - 245
Senior Software Engineer / Senior Modeler / Senior Software Developer	$120 - 235
Senior Transportation Planner / Senior Analytics Consultant	$120 - 225
Chief Scientist / Chief Technical Officer / ITS Designer	$120 - 225
Senior Meteorologist / Senior Program Manager / Senior Analyst	$120 - 210
Transportation Engineer/ Transportation Planner / Systems Engineer	$105 - 160
Program Manager / Scientist / Technician	$100 - 160
Software Engineer / Application Technician / Software Developer	$90 - 140
Associate Transportation Engineer/ Associate Transportation Planner	$85 - 135
Assistant Transportation Engineer/ Assistant Transportation Planner	$85 – 125
Project Administration / Senior Administration / Analytics Consultant	$60 – 150
Systems Integrator / Applications Developer	$80 - 150
Technical Support/ Graphics Support / Editing / Applications Developer	$55 – 105
Forecast Meteorologist / Road Weather Specialist	$55 - 105

All other direct costs will be billed to the City at cost with 10% administrative markup. All mileage rates will be based upon IRS standard rates ($0.57 as of January 1, 2015).

ITERIS

Bernard K. Li, EE, TE, PTOE

Associate Vice President

Education

BS, Electrical Engineering,
University of Southern California,
Los Angeles, 1988

Professional Registrations

Professional Electrical Engineer (EE):

- CA #14842, 1995
- AZ #37241, 2002

Professional Traffic Engineer (TE):

- CA #1763, 1994

Professional Traffic Operations Engineer (PTOE), #214

Years of Experience 27

Areas of Expertise

- Traffic Engineering
- ITS Planning & Design
- Signal Timing & Operations
- Municipal Traffic Management

Professional Affiliations

- Technical Coordinator-Institute of Transportation Engineers (ITE) So Cal
- Member-Orange County Traffic Engineering Council (OCTEC)

Mr. Li has served as Associate Vice President of Transportation Systems division with Iteris since November 2010. Mr. Li has over 27 years of engineering and project management experience in providing professional services in planning, design and implementation of traffic engineering and Intelligent Transportation Systems (ITS). Mr. Li's ITS experience comprises fiber optic communications, wireless communications, closed-circuit television (CCTV), video-detection system (VDS) and dynamic message signs (DMS). He also has vast expertise in traffic signal operations, having assisted many agencies in analysis, retiming and synchronization of traffic signals, both corridor and network wide; and he is very familiar with different traffic signal systems. His transportation planning expertise includes traffic impact studies, parking studies, transportation master plans, signal warrant analysis and stop warrant analysis. He has also served as City's Traffic Engineering Consultant for many agencies, in resolving numerous day-to-day traffic engineering issues, including residents' inquiries, plan checking and safety evaluation.

Project Experience

Hawthorne Boulevard Fiber-optic Communications Design Project – City of Rancho Palos Verdes, CA

Mr. Li was the Project Manager for the design of the first fiber-optic communications system in the City of Rancho Palos Verdes. The project involved the design of a new fiber-optic communications systems along Hawthorne Boulevard between Highridge Road and Palos Verdes Drive West (PVDW), as well as the upgrade of the pedestrians signal heads to "countdown" type at three intersections. Iteris is also designing an extension of the fiber-optic system to two city parks (Ryan Park and Fred Hesse Jr. Park) and to the City Hall. The goal is to build a robust and scalable communications network to connect the seven signals along Hawthorne Boulevard, and to the City facilities. The project began in September 2013 and completed in June 2014.

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – Cities of Costa Mesa and Newport Beach, CA

Mr. Li serves as the Project Manager to OCTA to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris was responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches.

Bernard K. Li, EE, TE, PTOE

Associate Vice President

In addition to the traffic signal infrastructure improvements, Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014. The design was completed in March 2015 with construction commencing shortly after.

Port of Long Beach Traffic Engineering – City of Long Beach, CA

Mr. Li has served as the Project Manager since 2012 to provide as-needed traffic engineering services to the Port of Long Beach (POLB). This multi-year contract has a total budget of $500,000 on task order basis. To date, Iteris has performed eight different task orders for POLB, including:

1. Evaluation of roadway safety at Edison Avenue and Lugger Way
2. Review of plans and specs for an overheight vehicle detection system (OVDS)
3. Review of traffic control plans (TCP)
4. Analysis of Gerald Desmond Bridge (GDB) reconstruction EIR Traffic Mitigations
5. Safety and operational improvement analysis of Harbor Scenic Drive
6. Analysis of truck circulation at Pier C / Pico
7. Design of new traffic signal at Harbor Plaza / Pico
8. Preparation of TCPs for Edison Avenue Rehabilitation Project

The project began in January 2012. The on-call contract will expire in December 2015.

On-Call Traffic Engineering Consultant – City of Laguna Woods, CA

Mr. Li is currently serving as a consultant traffic engineer to the City of Laguna Woods. Services provided include:

- Monitor and operate all traffic signals within the City via the Econolite Centracs traffic signal system
- Provide monthly update of operational compliancy for the two red-light photo enforcement intersections
- Design golf-cart push buttons at three intersections
- Recommend operational improvements for two signalized intersections with split-phase operations
- Coordinate with OCTA for the recently implemented El Toro Road TLSP and Moulton Parkway TLSP projects
- Attend OCTA ITS Roundtable meetings
- Address resident complaints on various traffic engineering and roadway lighting matters

On-Call Traffic Engineering Consultant – City of Irwindale, CA

Mr. Li has served as the on-call traffic engineer to the City of Irwindale since January 2005. Services included:

- Proposal and Interview evaluation panel for the selection of a traffic signal system vendor
- Construction management for new signal installation at Irwindale Ave./Edna Place
- Traffic signal timing optimization and implementation along Arrow Highway and Irwindale Avenue
- Signal timing review
- Preparation of HSIP funding application
- Preparation and implementation of temporary traffic signal timing for the Live Oak Rehabilitation Project
- Signing and striping design
- Circulation analysis
- Line-of-sight analysis, Left-turn warrant analysis

On-Call Traffic Engineering Consultant – City of Diamond Bar, CA

Mr. Li acted as a Traffic Engineering consultant for City of Diamond Bar for over seven years (July 2003 - August 2010). During that time, he provided numerous traffic engineering services to the City:

- City's traffic engineering advisor for Alameda Corridor East – Brea Canyon Grade Separation project and the Los Angeles County Pomona Valley ITS project
- City's traffic engineering advisor for the Traffic Management System project, including preparation of the RFP, participation in the consultant proposal evaluation and interview panel
- Citywide signal timing, synchronization and monitoring, including responding to residents' requests for timing check
- Signing, Striping, signal warrant analysis, new traffic signal installation, traffic signal modification and interconnect design at various intersections
- Neighborhood traffic management plan design and construction support

ITERIS

Scott Carlson, PE

Vice President/Assistant General Manager

Education

BS, Electrical Engineering, University of Wisconsin, Madison, 1994

Professional Registrations

Professional Civil Engineer:

- California, #57886, 1999
- Arizona, #34416, 1999
- Idaho, #9962, 2000
- Colorado, #35342, 2001
- Texas, #99160, 2007
- Nevada, #021151, 2011

Years of Experience 22

Areas of Expertise

- ITS Planning & Design
- Communication Master Plans
- Multijurisdictional Deployments
- Systems Engineering
- ITS Integration
- Systems Integration
- Bus Rapid Transit

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- International Council on Systems Engineering (INCOSE)

Mr. Carlson serves as Vice President and Assistant General Manager of the Systems division with Iteris. In this role, Mr. Carlson manages Iteris' Western Region of Systems that includes over 60 transportation planners, traffic engineers and software engineers in offices throughout the western United States. Mr. Carlson has 22 years of experience in transportation engineering, traffic control and management.

Mr. Carlson has been involved in numerous traffic signal management systems, ITS, transit signal priority and traffic engineering projects. He has supported projects in a variety of roles including serving as Project Manager, Task Manager, Quality Control Advisory and Principal-in-Charge to provide ITS-based traffic, transportation, transit and communications consulting systems engineering services to public agencies and transit operators. He is experienced in a wide range of ITS applications, including the development of coordinated advanced traffic management systems, and the design and implementation of systems for arterial, highway, and transit. These ITS applications include the use of systems engineering practices to plan, design, deploy and integrate ITS elements; advanced transportation management systems and advanced traveler information systems; transit signal priority systems and bus rapid transit systems; traffic operations/management center design; and communication networks that employ fiber optic, microwave, IP wireless and spread spectrum radio for Ethernet/Gigabit Ethernet communication systems; as well as traditional analog/serial fiber optic transmissions. Mr. Carlson has recently served as Project Manager and Senior Advisor for large-scale ITS projects in College Station (Texas), Oxnard, San Mateo, Corona, Fountain Valley and Newport Beach (California), all of which encompassed ITS planning, design, integration and operations. All projects were completed on schedule and within budget.

Project Experience

ITS Planning, Design, & Integration

Oxnard ITS Master Plan Design Project – City of Oxnard, CA

Mr. Carlson served as Project Manager for the Oxnard ITS Master Plan Design Project that will implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, as cost saving measures. The Ethernet network will be shared with other City departments to provide communication to City facilities including police and fire stations, and City buildings.

Scott Carlson, PE

Vice President/Assistant General Manager

The project will also design and build the City's new Traffic Management Center (TMC). The project began in December 2010 and was completed in September 2013. Presently, Iteris is providing operations and maintenance support services.

Killeen Traffic Management Center, Killeen TX
Mr. Carlson served as the Project Manager for the design and installation of a new Traffic Management Center (TMC) in the City of Killeen's new Public Works Building. The TMC including eight 55-inch flat panel monitors configured in 4 wide by 2 high. The TMC supports the City's operation of Tactics traffic signal system and Vantage video detection system, with communication to the intersections being done via a citywide wireless Ethernet network.

Corona ATMS Phase 2 Project for Integration Services – City of Corona, CA
Mr. Carlson served as the Project Manager for the integration and hardware procurement for the Corona ATMS Phase 2 Project. Iteris was the Integrator responsible for developing the Network Design (VLAN/IP addressing). Iteris was also responsible for hardware procurement, configuration, and bench testing for 29 IP CCTV camera systems, 100 Ethernet switches, eight Gigabit Ethernet switches, one router, a Gigabit wireless system, 22 IP video detection systems and eight DMS with poles. Once configured, the items were provided to contractor as City-furnished. Iteris is also responsible for overall integration of the project elements as well as 110 signalized intersections. Iteris also provided engineering construction support. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The project design was completed by Iteris, under a separate contract, in April 2009. Iteris' integration task began in December 2009 and was completed in July 2012.

Design-Build

St. Anthony Falls (I-35W) Design-Build Avenue Project –Minneapolis, MN
Mr. Carlson was the Iteris Project Manager, as a subconsultant on the Flatiron-Manson Design-Build team, to provide all ITS design services on for the St. Anthony Falls (I-35W) Design-Build project for the Minnesota Department of Transportation (Mn/DOT). Iteris was a subconsultant to FIGG, the structural engineering firm leading the design of the new bridge structure. This was a design-build contract with an aggressive schedule to design and build the replacement to the bridge that collapsed in Minneapolis on August 1, 2007. The project began in December 2007 and was completed in September 2008.

Transit

OCTA BRT Intelligent Transportation Systems, Traffic Signal Synchronization and Transit Signal Priority Design Project – Orange County, CA
As part of a multi-disciplinary team, Mr. Carlson served as the Deputy Project Manager for the deployment of the first BRT system in operation in Orange County. The project involved the deployment of on-board bus equipment including an AVL system to manage the BRT's passenger information system; deployment of the BRT systems passenger information system that included message signs at 154 stations; interactive voice responsive phone service and Internet based trip planning and passenger information system; design of a transit priority system at over 300 signalized intersection that covers 14 agencies along the three BRT routes (this includes the identification of controller hardware and firmware upgrades that would be necessary to operate a uniform TSP technology); and design and deployment of signal coordination plans at over 250 signalized intersection along and in the vicinity of the BRT routes.

Traffic Engineering & Operations

Corona Citywide Signal Timing Project – Orange County, CA
Mr.Carlson is the Principal-in-Charge for the citywide signal timing project in the City of Corona which includes traffic signalized intersections in the City of Norco and Caltrans ramp interchanges. This project involved the data collection, existing signal timing parameter analysis and design and implementation of four weekday timing plans and one weekend timing plan for nearly 150 intersections. The implementation and fine-tuning was analyzed using travel time studies and visually presented using an effective tool that depicts the before and after data using animation and actual video recorded during the before study and the after study.

ITERIS

Alicia Yang, PE

Senior Transportation Engineer II

Education

BS, Civil Engineering, University of California, Irvine, 2005

Professional Registrations

Civil Engineer, California #82483, 2014

Years of Experience 11

Areas of Expertise

- Transportation Planning
- Traffic Engineering & Operations
- ITS Planning & Design
- ITS Systems Engineering & Architecture
- Systems Integration
- Transit

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)
- American Society of Civil Engineers (ASCE)

Ms. Yang has over eleven years of experience working in traffic operations and engineering, transportation planning, transportation design, and various transportation software. Ms. Yang has experience in various aspects of transportation engineering, but specializes in traffic operations having worked on a number of regional (multi-agency) signal synchronization and special events timing projects. Ms. Yang has been involved in all tasks in signal synchronization projects, from field reviews and travel time studies to implementation (locally or centrally) and field fine-tuning. Ms. Yang has also led signal timing implementation and fine-tuning training courses to City staff operating Actra and Centracs central traffic control systems. Ms. Yang's software knowledge includes Synchro, AutoCAD, MicroStation, PC-Travel, ArcGIS, Tru-Traffic and Vissim. She has worked with signal controllers such as 170, 2070, M52, Econolite and Multisonics; controller firmware including BI Tran, C8, Econolite, NextPhase, Naztec and SEPAC; and traffic control systems such as Actra, Aries, ATMS.now, Centracs, i2, icons, Maxview, QuicNet, Transparity, Tactics and VMS.

Project Experience

Traffic Engineering & Operations

Harbor Blvd TSS Project – City of Santa Ana, CA
As Project Manager, Ms. Yang's responsibility will be to ensure all project stakeholders are receiving the equipment and signal timing improvements requested for this project. Ms. Yang will coordinate with her team to provide necessary ITS improvements (e.g. controller, Ethernet switches, communication, Bluetooth travel time devices, detection, etc.) along the 10-mile stretch of Harbor Boulevard in the cities of Garden Grove, Santa Ana, Fountain Valley, and Costa Mesa. These improvements will feed into the ultimate goal of the project, which is regional synchronization including the signals in the City of Anaheim just north of the project limits. The project began in June 2015 with an anticipated completion date of June 2016 for which a 2-year operations and maintenance period will commence.

Knott Avenue TSS Project – City of Buena Park, CA Ms. Yang is a task leader in the development, implementation and fine-tuning of optimized signal timing plans for 28 intersections along a 7-mile segment of Knott Avenue in the Cities of Buena Park, Anaheim, Stanton, Garden Grove, and Caltrans. Her role includes the collection of counts; mobilizing Iteris' staff to conduct travel time studies; performing signal timing evaluation and recommendations for timing parameters; optimizing signal synchronization parameters; as well as implementing and fine-tuning of new coordination timings. Ms. Yang also worked closely with the contractor leading the project to provide all agencies with their equipment

upgrades, including cabinets, controller, and Bluetooth, CCTV, and fiber communication. The project began in August 2013 and is ongoing.

CA-Incline Bridge Closure Project – City of Santa Monica, CA
As Project Engineer, Ms. Yang is supporting the project team with managing the City's signals and CCTV cameras to ensure vehicles are moving through the detour routes designed as part of the California Incline bridge closure in the City of Santa Monica. Ms. Yang will also monitor and making necessary modifications to the changeable message signs, which are automatically updated every minute with the latest travel time provided by field Bluetooth devices. The project began in April 2015 with an expected completion of September 2015 for staffing.

Incident Timing Plans – San Mateo County, CA
As Project Engineer, Ms. Yang is leading the development of incident response framework, which will define the cycle length limits to the various incident timing plans that will be used during incidents along US-101 in San Mateo County. Ms. Yang will also be leading the optimization of these incident plans for the central area of the county, which includes 8 interchanges along US-101 and approximately 116 signals along select corridors (mostly SMART Corridors that would be equipped with methods of routing vehicles from the freeway). An Operations Manual will be generated with step-by-step deployment procedures for activating the incident response strategies from the Caltrans District 4 TMC that all stakeholders (C/CAG, Caltrans, and participating agencies in San Mateo County) will be able to access. The project began in March 2014 and is ongoing.

LACO-4E & ASC/3 Signal Timing Updates – Los Angeles County, CA
Ms. Yang was Deputy Project Manager in providing the Los Angeles County with updated timing sheets for 70 signals in the cities of Huntington Park, Monrovia, Duarte, Paramount, and Pico Rivera. With the exception of one BI Tran 2033 and one ASC/3 location, all timing sheets were created for LACO-4E operation. The final timing sheets were generated after conducting radar speed studies, crosswalk measurements, and calculating new basic timing parameters per the County's guidelines and standards. Intersection inventory, including measurements and photos, were also provided to the County for reference. Updated optimized timing plans were generated using the time-space diagrams provided by the County as well as any comments from County and/or City staff. The project began in January 2014 and is ongoing.

Pasadena TLSP – City of Pasadena, CA
Ms. Yang served as task leader in providing the City of Pasadena with three (AM, off, and PM) optimized timing plans at 83 signalized intersections along 6 corridors. The tasks included data collection, timing optimization, implementation, and travel time studies to quantify the improvements. Implementation of new timing plans was conducted in the City's TMC using Series2000, QuicNet, and i2. Travel time studies were conducted using the City provided GPS tracker to generate the reports to their specifications and a video comparison was generated for presentations. The project began in January 2013 and was completed June 2013.

Traffic Signal Modernization Phases 1-8 – City of Newport Beach, CA
Ms. Yang is Project Engineer leading the signal timing task. Ms. Yang leads the analysis of the vehicular and pedestrian clearance intervals, coordination timing analysis, and the implementation and fine-tuning of the signalized intersections in the City of Newport Beach. The implementation is done at the TMC in the Econolite Centracs central system. During the implementation and fine-tuning of the Phase 1 signals, Ms. Yang provided training that covered actuated settings, essential ASC/3 parameters, signal coordination, fine-tuning tips, and general Centracs operations and features. In addition to the design and signal timing tasks, this project also included generating summer flush plans along the Peninsula Area, which was optimized for the weekday as part of Phase 4 & 7. In addition, Ms. Yang was also involved in the proposed phasing modification of the City's "Mix Master" location, which involved adding a signalized crosswalk to two intersections operating under one controller. The projects began in March 2007 and is ongoing.

ITERIS

Paul M. Frislie, PE

Senior Transportation Engineer II

Education

MA, Business Administration, University of Phoenix, 2011

BS, Civil Engineering, University of California, Irvine, 2000

Professional Registrations

- Professional Civil Engineer: CA #72982, 2008
- IMSA Traffic Signal Level II, #BB97189, 2012
- IMSA Traffic Signal Level I, #AA97189, 2012
- IMSA Signal Inspector Level I
- #SI97189, 2014
- IMSA Work Zone Safety, #ZZ97189, 2010

Years of Experience 15

Areas of Expertise

- Traffic Signal Design
- ITS Planning & Design
- ITS Integration
- Construction Assistance

Professional Affiliations

Orange County Traffic Engineering Council (OCTEC)

Mr. Frislie is currently serving as Senior Transportation Engineer of Transportation Systems division of Iteris and has been with firm since January 2001. For over fifteen years, Mr. Frislie has been involved in several transportation and traffic engineering projects that include both planning as well as design and deployment of ITS, and traffic signal design. Recently, he has served as the Project Manager for the Rosecrans Avenue Arterial Improvement Project, Cypress Phase 1 through3 ITS Projects, the Newport Beach ITS Phase 5 through 8 Projects, the Santa Monica ATMS Phase 4c project. He has also been the Lead Design Engineer for the development of design plans for the Oxnard ITS Master Plan Design Project, Vermont Avenue Arterial Improvement project, the Santa Monica ATMS 4a/4b Project, SR-710 ITS Design Project, Newport Beach ITS Phase 1, 2, 3, 4 and 7 Projects and the Fountain Valley Phase IV project, as well as the Signal Construction Inspector for completion of the Oxnard ITS Master Plan and the Rosecrans and Vermont Arterial Improvements.

Project Experience

ITS Planning, Design & Integration

Hawthorne Boulevard Fiber-optic Communications Design Project – City of Rancho Palos Verdes, CA

Mr. Frislie was the Design QA/QC leader for the design of the first fiber-optic communications system in the City of Rancho Palos Verdes. The project involved the design of a new fiber-optic communications systems along Hawthorne Boulevard between Highridge Road and Palos Verdes Drive West (PVDW), as well as the upgrade of the pedestrians signal heads to "countdown" type at three intersections. Iteris is also designing an extension of the fiber-optic system to two city parks (Ryan Park and Fred Hesse Jr. Park) and to the City Hall. The goal is to build a robust and scalable communications network to connect the seven signals along Hawthorne Boulevard, and to the City facilities. The project began in September 2013. The PS&E package for Hawthorne Blvd was completed in January 2014. Iteris received a contract amendment for the design of the fiber extension to the city facilities. The design was completed in December 2014.

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – Cities of Costa Mesa and Newport Beach, CA

Mr. Frislie serves as the QA/QC leader and Engineer of Record to OCTA to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris was responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches.

Paul M. Frislie, PE

Senior Transportation Engineer II

In addition to the traffic signal infrastructure improvements, Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014. The design was completed in March 2015 with construction commencing shortly after. Upon completion of new timing implementation and finetuning, Iteris will provide operational and maintenance support for two years.

Traffic Engineering & Operations

Rosecrans Avenue Arterial Improvement Project – City of Gardena, CA

Mr. Frislie was the Project Manager and Signal Inspector team to provide preliminary engineering, design, and construction management of the Rosecrans Avenue Arterial Improvement Project from Vermont Avenue to Crenshaw Boulevard in the City of Gardena. The project is divided into three phases. For the initial preliminary engineering phase, the Iteris Team performed detailed field investigation of the entire corridor to identify deficiencies and recommended improvements to enhance safety and traffic flow along the corridor. Along with recommended median left turn pockets and storage lengths. Topographic survey, geotechnical investigation, traffic signal, signing and striping inventory were conducted as part of the field investigation. Upon City's approval of the Preliminary Design Report (PDR), the Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, raised landscaped medians, pavement rehabilitation, traffic signal improvements, updated signal timing plans and signing and striping modifications for the entire 2 ½ mile corridor. The project began in March 2013 with the PS&E phase completed in August 2014. The Iteris Team also acted as the Construction Manager during construction, which completed in June 2015.

Vermont Avenue Arterial Improvement Project – City of Gardena, CA

Mr. Frislie was the Task Leader and Signal Inspector team to provide preliminary engineering, design, and construction management of the Vermont Avenue Arterial Improvement Project from Rosecrans Avenue to 182nd Street in the City of Gardena.

The project is divided into three phases. For the initial preliminary engineering phase, the Iteris Team performed detailed field investigation of the entire corridor to identify deficiencies and recommended improvements to enhance safety and traffic flow along the corridor. Topographic survey, geotechnical investigation, traffic signal, signing and striping inventory were conducted as part of the field investigation. Upon City's approval of the Preliminary Design Report (PDR), the Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, pavement rehabilitation, traffic signal improvements, which included railroad preemption upgrades; and signing and striping modifications for the entire 2 ½ mile corridor. The project began in August 2012 with the PS&E phase completed in September 2013. The Iteris Team also acted as the Construction Manager during construction, which completed in August 2014.

ITS Planning, Design & Integration

ITS Master Plan Design Project – City of Oxnard, CA

Mr. Carlson served as Design and Integration Leader for the Oxnard ITS Master Plan Design and Integrating Project to implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, as cost saving measures. The project including new traffic signal controllers, CCTV cameras and video detection system upgrades. The new systems will be managed from a new Traffic Management Center (TMC) designed, built and integrated by Iteris. Iteris is also responsible for developing the IP schema, hardware configuration and some installation, acceptance testing and training. The project began in December 2010 and was completed in September 2013.The Ethernet network will be shared with other City departments to provide communication to City facilities including police and fire stations, SCADA, and City buildings. The project began in December 2010 and was completed in September 2013. Presently, Iteris is providing operations and maintenance support services.

ITERIS

Chris Devlin

Senior Transportation Planner

Education

MSc, Engineering, University of Leeds, UK, 1991

BA, Economics, Durham University, UK, 1987

Years of Experience 24

Areas of Expertise

- Travel Demand Forecasting
- Geographic Information Systems (GIS)
- Transportation Planning & Analysis

Mr. Devlin has served as Senior Transportation Planner of Transportation Systems division of Iteris since November 2013. Mr. Devlin has 24 years of experience in transportation planning and has managed and participated in a wide variety of transportation studies including travel demand forecasting studies, travel surveys, traffic impact studies, parking studies, and corridor studies. He is an experienced travel demand forecaster having developed and worked on over twenty different traffic models throughout the world. He is proficient in several modeling packages including TransCAD, Cube and emme2 and in the use of micro-simulation packages. He has developed model outputs to support the economic, financial and environmental analysis of major highway, transit and aviation projects. He is proficient in the use of Geographic Information Systems (GIS) for problem-solving, analysis and the effective presentation of results. He has designed and run GIS training courses specifically for Transportation Planners including the design and coding of GIS utilities and scripts. He has performed several large-scale transportation surveys from the survey design stage, through implementation, data cleaning, database population and reporting.

Project Experience

OCTA I-405 PA/ED from I-5 to SR-55 – Orange County, CA
Mr. Devlin is providing traffic forecasting services for a major freeway enhancement project along a highly congested freeway corridor in south Orange County and is developing traffic forecasts using OCTAM, OCTA's traffic model. The project involves close co-ordination with OCTA, Caltrans and the City of Irvine. Forecast volumes are being prepared for freeway mainline, HOV, ramps as well as for arterial intersection and roadway segments. The forecasts will be compared to volumes from ITAM the City of Irvine traffic model and assessed for reasonableness. PeMS data is being extracted and analyzed using statistical techniques along the freeway corridor to ensure that existing volumes reflect a realistic level of demand rather than artificially low observed volumes that can be observed during periods of severe congestion. Model outputs such as Vehicle Miles Travelled (VMT) are also being developed to support air quality, noise and greenhouse gas emissions analysis. The project commenced in February 2015.

Gateway Cities Strategic Transportation Plan – Gateway Cities COG, CA
Mr. Devlin currently runs the Gateway Cities Strategic Transportation Plan (STP) macro model to analyze a variety of alternative scenarios in support of the Strategic Transportation Plan. The model is a variant of SCAGs 2012 RTP model with additional truck vehicle classes to enable effective modeling of Port truck traffic. Mr. Devlin is responsible for model development and operation as well as the development of model outputs to support environmental and operational analysis. The project ran between November 2013 and February 2015.

Chris Devlin

Senior Transportation Planner

Bob Hope Airport Multi-Modal Ground Access Plan Study (MGAPS) – Burbank, CA
Mr. Devlin was lead transportation planner for the data collection phase of a multi-modal transportation planning project analyzing surface access to Bob Hope Airport in Burbank. Data collection included land use and employment data, travel surveys of Metrolink and airport passengers, vehicle counts and passenger counts. The study was performed throughout 2012 and 2013.

Irvine Traffic Model Support – City of Irvine, CA
Mr. Devlin provided modeling support for the City's traffic model (ITAM) for six years between 2007 and 2013. He performed various upgrades to the City's modeling process including links with OCTA's travel model (OCTAM) and developed GIS outputs. He also provided the City with transportation planning support for a series of major traffic studies. The study was performed between January 2007 and October 2013.

NBC Universal Traffic Model – Universal Studios, CA
Mr. Devlin provided modeling support for the development of the NBC Universal traffic model and the expansion of the model study area into the City of Burbank, including ensuring consistency with the City of Burbank's own traffic model. The NBC model is a sub-area model version of SCAG's Regional Transportation Plan (RTP) model. The NBC model was used to test alternative development and transportation scenarios. The project ran between April 2007 and May2010.

Antelope Valley Traffic Model – City of Palmdale & Lancaster, CA
Mr. Devlin provided modeling support for the development of the Antelope Valley traffic model. The model is a sub-area model version of SCAG's Regional Transportation Plan (RTP) model. The model was used to update the City of Palmdale Circulation element, the City of Lancaster General Plan and an assessment of alternative High-Desert Corridor alignments. The project was performed between April 2007 and December 2009.

Central London Congestion Charging – Transport of London, UK
Mr. Devlin was involved in enhancing existing highway and transit models in order to evaluate alternative congestion charging and workplace parking strategies in Central London. The project was performed between January 2000 and December 2002 and congestion charging was implemented on the ground shortly thereafter.

Maui Traffic Model – County of Maui, Hawaii
Mr. Devlin developed a traffic model for the Island which was used to test various highway improvement alternatives. Model tasks included performing roadside interview surveys to collect origin-destination data as well as all model development and alternative evaluation tasks. This work was performed in 1994 and 1995.

London Area Travel Surveys (LATS) – Transport for London, UK
Assistant project manager for a decennial series of major travel and transportation surveys. Surveys included 1,000 origin-destination roadside interview sites, a 30,000 sample-sized household survey and large-scale on-board bus and rail surveys. The surveys were performed in 1991 and 2001 and survey analysis was completed in 1993 and 2003 respectively.

Cleveland Hopkins Airport Vehicle Surveys – City of Cleveland, OH
Mr. Devlin managed a project to collect a series of traffic data at Cleveland airport in 2010.

Traffic Asset Management System (TAMS) – City of Los Angeles Department of Transportation (LADOT)
Mr. Devlin was project manager for an exercise to incorporate various traffic control device assets including traffic signs, traffic signals, pavement markings and parking meters from disparate legacy systems into a centralized GIS-based asset and work order management system. Mr. Devlin managed this project between December 2005 and May 2007.

ITERIS

Sai Chundi, PE

Transportation Engineer II

Education

MBA Candidate, UCLA Anderson, Los Angeles, 2016 (Expected)

MS, Civil Engineering, University of Central Florida, Orlando, 2005

BE, Civil Engineering, BITS, Pilani, India, 2002

Professional Registrations

PE, California, #C79059, 2011

Years of Experience 9

Areas of Expertise

- ITS Planning & Design
- Traffic Engineering & Operations

Professional Affiliations

- Orange County Traffic Engineering Council (OCTEC)

Mr. Chundi has over nine years of experience in the Intelligent Transportation Systems (ITS) Design and Traffic Engineering areas and has served as a Transportation Engineer with Iteris since June 2006. His traffic engineering design experience includes the design of traffic signals, signing and striping, traffic control, stage construction and street lighting projects. His ITS design experience includes fiber optic communications, CCTV, VDS and traffic signal system upgrades. Mr. Chundi also worked with multi-jurisdictional agencies on numerous signal timing and synchronization projects. Recently, he has served as the Internal Project Manager for the Newport Boulevard TSS Project and has been the Lead Design Engineer for Vermont Avenue Arterial Improvement Project and the Santa Monica ATMS Phase 4c project.

Project Experience

ITS Planning & Design

Santa Monica Phase 4c – City of Santa Monica, CA
Mr. Chundi is the Project Engineer assisting with the development of the design package for the Santa Monica ATMS Phase 4c project that includes upgrading to fiber optic communications for 25 signalized intersections and upgrading existing NEMA cabinets to TYPE 332 cabinets. The project began December 2011 and was completed in 2013.

Phases 1, 2, 3, 4, 5 and 7 ITS Projects – City of Newport Beach, CA
Mr. Chundi was the Design Lead for the Phases I1 thru 7 design projects that implemented communications across the City, upgrades to new traffic signal controllers, installation of CCTV cameras, new traffic signals and signal modifications at various locations. The projects also developed new signal timing plans at all intersections in the City. The projects began in 2007 and was completed in April 2011.

ATMS Phase 2 Project for Design Services – City of Corona, CA
Mr. Chundi was the Project Engineer for the development of the design package for the Corona ATMS Phase 2 project that includes 29 CCTV cameras, over 110 traffic signal controller upgrades, over 10 miles of fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system to include an additional six Gigabit Ethernet hubs. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The project began in December 2008 and was completed in April 2009.

Sai Chundi, PE

Transportation Engineer II

Westminster ITS Phase II Project – Westminster ITS Phase II Project
Mr. Chundi is the Project Engineer responsible for the design of over eight miles of fiber optic cable, 12 CCTV cameras and 12 video detection cameras, as well as the upgrade of 56 intersections from 820A controllers to Model 2070 controllers. The project also involves the replacement of VMS-330 with QuicNet and upgrade to the Westminster TMC. The project began in 2007 and was completed in 2009.

Traffic Engineering & Operations

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – OCTA, Cities of Costa Mesa and Newport Beach, CA
Mr. Chundi serves as the Deputy Project Manager to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris is responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches. Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014 and is on-going.

Port of Long Beach On-Call Traffic and Transportation Engineering – Long Beach, CA
Mr. Chundi serves as the Project Engineer for On-call Traffic Engineering Services to the POLB. Mr. Chundi is responsible for the On-Call Plan Checking and Approval Services for Traffic Control Plan, reviewed traffic operations for Harbor Scenic Drive from Harbor Plaza to Pier J Avenue South End and provide recommendations to improve safety and traffic operations within the project area and is the lead design engineer for Traffic Signal Design at the Intersection of Pico Ave/ Pier G Ave and Harbor Plaza/Pier F Ave. The projects started in June 2013 and are currently ongoing.

LAC Colima Corridor Traffic Signal Synchronization Project (TSSP) – Los Angeles County, CA
Mr. Chundi is currently serving as the Project Engineer to provide traffic signal design services for Colima Road.The Colima Road Project covers a total of 28 signalized intersections within the limits between Camino Del Sur and Brea Canyon Cutoff/ Fairway Drive. Iteris conducted detailed field reviews and prepared the Traffic Signal, Traffic Signal Modification and Cloud existing plans in Microstation in accordance with County format and standards. The project started in June 2012 and is currently ongoing.

C-Street / I-110 Freeway Improvements Project - Port of Los Angeles, CA
Mr. Chundi is the Project Engineer leading the development of the design package for the C-Street improvement project that includes developing Signing and Striping Plans, Traffic Signal Design Plans, Street Lighting Plans, Signal Interconnect Plans, Stage Construction Plans and Temporary Traffic Signal and Lighting Plans per LADOT standards, for the existing and new roadway alignment for the project area. The project began in 2008 and completed in December 2014.

Vermont Avenue Arterial Improvement Project - City of Gardena, CA
Mr. Chundi is the lead Project Engineer to provide preliminary engineering, design, and construction management of the Vermont Avenue Arterial Improvement Project from Rosecrans Avenue to 182nd Street in the City of Gardena. The Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, pavement rehabilitation, traffic signal upgrades, signing and striping modifications for the entire 2 ½ mile corridor. The Iteris Team also acted as the Construction Manager for the project. Project started in August 2012 and completed in August 2014.

ITERIS

Erlan Gomez, EIT

Senior Systems Engineer

Mr. Gomez has served as Senior Systems Engineer of Transportation Systems division with Iteris since May 2014. Mr. Gomez brings over 13 years of experience to the Iteris team of experts. Mr. Gomez has worked for both public and private sectors in the field of Transportation. He has extensive experience in Intelligent Transportation systems (ITS); Traffic Control Systems (TCS), Fiber Optic Communications, Wireless Communications, TWP Copper Communications, Transit Priority Systems, Photo Red Light Enforcement Systems and Traffic Signal Design. Mr. Gomez' is skilled in the integration of TransSuite and SCATS, the design and integration of ITS devices and any associated communication networks required to support both TCS and ITS integrations. Mr. Gomez is proficient in the design and integration of TCS servers and network equipment, communication networks (fiber, copper and wireless), CCTVs, video encoders and battery backup systems.

Education

MS, Civil Engineering, Loyola Marymount University, Los Angeles, CA, 2010

BS, Electrical Engineering, Loyola Marymount University, Los Angeles, CA, 2002

Professional Registrations

- Engineer-in-Training (EIT), California 03/2003 – Current
- IMSA Traffic Signal Technician Level I, 2012
- IMSA Work Safety Zone, 2012

Years of Experience 13

Areas of Expertise

- ITS Systems Engineering
- ITS Planning & Design
- Traffic Control System Integration

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Project Experience

ITS Systems Engineering

Citywide Signal and Transportation Management Center (TMC) Upgrades – City of Fountain Valley, CA

Mr. Gomez is a Systems Engineer for the Fountain Valley Signal and TMC upgrades project which included upgrading the existing TMC video wall, consisting of two plasma screens and a multitude of small flat panels, into a modern six screen video wall with two desktop monitors. Mr. Gomez also upgraded various signal communication components (switches, video encoders, routers) throughout the City to ensure continuous and reliable network communication for controllers, video detection system video feeds and CCTV cameras from the field back to the TMC.

Trabuco Road TSS On-Call – City of Lake Forest, CA

Mr. Gomez designed and implemented an Ethernet over copper network for the City of Lake Forest to upgrade their existing network which was faulty and unreliable. Mr. Gomez along with the Iteris Systems team identified the TWP pairs with the least resistance and integrated Actelis switches using the identified pairs. Actelis switches utilize ultiple TWP copper pairs to communicate over a communications link. Should one of the pairs fail, then the network would continue working on the other pairs making Actelis networks very robust and extremely reliable.

City of Arcadia Phase II ITS – City of Arcadia, CA

Mr. Gomez served as Project Manager (PM) for the City of Arcadia. As the PM, Mr. Gomez coordinated project team efforts in order to efficiently, and within budget, design and integrate the City's proposed traffic communications network in order to better support their traffic management needs and incorporate an Adaptive Traffic Control system.

Erlan Gomez, EIT
Senior Systems Engineer

He also served as the lead in the design of the City's proposed fiber optic traffic signal communications network extensions. The purpose of the extensions was to provide a fiber optic communications link between the traffic management center and intersections which had not been incorporated onto their traffic management system. This project also included the addition of CCTV cameras onto the City's fiber optic traffic communications network for which Mr. Gomez led all PS&E efforts. During construction, Mr. Gomez provided construction support, configured and integrated the fiber optic communications equipment and integrated the signal controllers and existing CCTV cameras onto the City's TransSuite® system. The project began in May 2010 and was completed in April 2014.

Traffic Management System – City of Diamond Bar, CA
Mr. Gomez was responsible for conducting the implementation, integration, testing and maintenance of the City's communications field equipment necessary for the integration of 67 intersections onto the City's TransSuite® system. The project began in December 2008 and was completed in December 2009. Mr. Gomez has provided troubleshooting. Mr. Gomez' responsibilities included:

- Communication network design to communicate over the City's fiber optic and copper interconnect networks
- Developed IP addressing scheme Installation and configuration of Ethernet over copper and fiber optic field switches to communicate between the traffic signal controllers and the Traffic Control System. Configuration of terminal servers to convert the traffic signal controller's data from serial to IP and communicate it to the communications network
- Configuration of traffic signal controllers to communicate with the Traffic Control System
- Implementation of the City's TransSuite® Traffic Control System
- Trouble shooting of City's fiber optic and copper interconnect
- Provided consultant services to the City for all of the City's ITS projects

Project Engineer– City of Los Angeles, CA
In his six years with the City of Los Angeles Department of Transportation (LADOT), Mr. Gomez designed over 15 Transit Priority corridors for the Los Angeles County Metropolitan Transportation Authority's (Metro) Metro Rapid Program, managed the integration of 8 photo enforcement systems, and was actively involved in the design of over 133 intersections that were upgraded and integrated onto the City's Automated Traffic Surveillance and Control system (ATSAC). The design projects included planning, traffic signal design, communications network design, fiber and copper, and PS&E. The project began in August 2002 and was completed in March 2008.

Alhambra Traffic Control System (ATCS) Project (ATCS) – Alhambra, CA
The City of Alhambra selected TransSuite® for its Traffic Control System (TCS). The City chose 71 intersections to be integrated onto the TCS as part of the project. The City's intersection controllers are a combination of Econolite ASC/2 and McCain 170 controllers which were to communicate with the TCS using wireless IP radio communications and existing copper twisted pair communications infrastructure. The City also has Video Image Detection Systems (VIDS) in place. They requested to be able to view the video feeds from the VIDS over the proposed communications network. Mr. Gomez lead the integration of the traffic controllers onto the TCS over the wireless IP radio and copper twisted pair communication network and integrated the VID video streams onto the City's traffic communications network. The project began in August 2011 and was completed in March 2012.

Pasadena SCATS Project – City of Pasadena, CA
The City of Pasadena selected the Sydney Coordinated Adaptive Traffic System (SCATS) for its adaptive traffic system. The project included the Installation of the SCATS adaptive system on 12 intersections, IP over fiber communications, 2070 controllers, 332 cabinets, video detection. Mr. Gomez' responsibilities included the integration of the SCATS servers and software, development of system graphics, initial configuration and the field deployment of the adaptive system. The project began in January 2013 and was completed in April 2013.

ITERIS

Venkateshwar Jadhav, PMP

Transportation Engineer II

Education

MS, Engineering, University of Utah, Salt Lake City, 2007

BS, Civil Engineering, National Institute of Technology, Surathkal, India, 2004

Professional Registrations

- EIT, CA, #134935, 2009
- PMP #1661906, 2013

Years of Experience 8

Areas of Expertise

- Traffic Engineering & Operations
- ITS Planning & Design
- Systems Integration
- Transportation Planning

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Mr. Jadhav has over eight years of experience and is working at Iteris as a transportation engineer. He has served as Project Manager/Task Leader on various traffic and ITS design/construction, traffic signalization and synchronization, operational analysis, and traffic engineering projects. His ITS design/construction experience include fiber optic communication networks, traffic surveillance CCTV, vehicle detection system (VDS) and traffic signal system upgrades. His traffic signalization and synchronization experience include retiming and synchronization of traffic signals both network wide and corridor. He is very familiar with different types of controllers such as 170, 2070, ASC/3, ASC/2, ATC eX; controller firmware such as Bi Tran (Program 233 & Program 2033), C8, Sepac, Omni eX; and traffic control system such as Aries, ACTRA, Tactics, Centracs, i2 and QuicNet. His transportation planning experience include traffic impact studies and corridor improvement studies. He is proficient in using various software including Vissim, Corsim, Simtraffic, Synchro, Transyt-7F, SCOOT, Tru-Traffic (formerly TS/PP Draft), PC-Travel, AutoCAD, ArcGis and Microsoft Project.

Project Experience

Traffic Engineering & Operations

Intelligent Transportation System (ITS) Phase II Project– Pasadena, CA
Mr. Jadhav is the Project Manager to develop and implement traffic signal timing plans at 26 signalized intersections along 4 corridors during AM, MD and PM peak periods. The tasks included data collection, timing optimization, implementation, and travel time studies to quantify the improvements. Implementation of new timing plans will be conducted in the City's TMC using QuicNet and i2. Travel time studies will be conducted using Tru Traffic and the City provided GPS tracker to generate the reports to their specifications. In addition, before and after videos will be recorded to do a comparison for presentations. The project started in December 2014 and is ongoing.

Barranca/Muirlands Regional Traffic Signal Synchronization Project – Irvine (Lead), Mission Viejo, Lake Forest, Caltrans, CA
Mr. Jadhav is the Project Manager to develop and implement traffic signal infrastructure and coordination improvements for the Barranca/Muirlands Corridor within the Cities of Irvine, Mission Viejo, Lake Forest and Caltrans. The project involves design of a new fiber optic cables (multi and single mode), conduits, pull boxes, cabinets and controller upgrade in City of Irvine; conduit, pull boxes, twisted pair interconnect, and wireless radio in City of Lake Forest; cabinets, pedestrian signals and loop detection in City of Mission Viejo. In addition to the traffic signal infrastructure improvements, the project will develop signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for 44 project traffic signals along Barranca/Muirlands corridor.

Venkateshwar Jadhav

Transportation Engineer II

Two years of post-implementation will be provided to the Cities of Irvine, Lake Forest, Mission Viejo and Caltrans. The project started in June 2014 and is ongoing.

Rancho Vista Boulevard and 10th Street West Corridors (PN 701) – Palmdale and Caltrans, CA
Mr. Jadhav is the Task Lead to develop and implement traffic signal synchronization plans for sixteen (16) intersections along Rancho Vista Boulevard and 10th Street West Corridors. Timing plans will be developed for AM, MD, PM and Saturday peak along both the corridors. The City intersections (14) operates with 170 controllers with McCain's 233 program and will be upgraded to NTCIP Complaint Advance Traffic Controllers McCain 2070 ATC eX with Omni eX firmware. The Caltrans intersections (2) operates with 170 controllers with C-8 program. The project started in May 2015 and is ongoing.

Harbor Boulevard TSS Project – City of Anaheim, CA
Mr. Jadhav currently serves as a Task Lead for the development, implementation and fine-tuning of optimized signal timing plans for more than 30 intersections in the City of Anaheim. Intersections operate with Type 170E, 2070N, and ASC/3 traffic signal controllers and are connected to the central system ACTRA/TACTICS residing at the traffic management center. In addition to the signal timing work, the project also involves traffic system upgrades (also being developed by Iteris). This project involves communication upgrades with fiber optic cables along the corridor as well as 5 CCTV camera installations, six Bluetooth system installations and all integration services for these systems. The project began in March 2014 and is ongoing.

Trabuco Road TSS Project – City of Lake Forest, City of Mission Viejo, CA
Mr. Jadhav currently serves as a Task Lead for the development, implementation and fine-tuning of optimized signal timing plans for more than 20 intersections in the City of Mission Viejo and City of Lake Forest. The technologies used on this project to control traffic are ASC/3 traffic signal controllers and ACTRA/TACTICS for the central traffic management systems. In addition to the signal timing work, the project also involves traffic system upgrades with communication hardware design and integration as well as traffic signal equipment upgrades (also being deployed by Iteris). The project began in March 2014 and is ongoing.

Design of East Mission Road Fiber Optic Project – City of San Marcos, CA
Mr. Jadhav serves as the Task Lead for the development of optimized signal timing plans with adaptive traffic control implementation along the E. Mission Road corridor. In addition, the project involves preparing Plans, Specifications and Estimates of new fiber optics communication network, 15 traffic signal controller upgrades, and 8 CCTV locations including Construction support. The project began in February 2013 and is ongoing.

Citywide Ethernet Project – City of San Marcos, CA
Mr. Jadhav currently serves as the Project Engineer to evaluate the existing communication network, design and implement a citywide Ethernet network. The City currently has a total of 130 traffic signals, 35 CCTV cameras and 29 miles of existing fiber optic network. Approximately 85 traffic signals are controlled by a traffic control system, McCain QuicNet Pro. The system server is located in the City of San Marcos Traffic Management Center (TMC). The communication between the TMC and field devices is mainly through single mode fiber optic cables. The City plans to install an additional 9 miles of fiber optic line and 10 CCTV cameras by end of 2014, bringing an additional 11 signal online. The City intends to install a Citywide Gigabit Ethernet network to accommodate future traffic management needs. The project began in July 2014 and is ongoing.

Traffic Signal Synchronization Implementation Project, Orange County, CA
Mr. Jadhav currently serves as a Project Engineer for the implementation and fine-tuning of optimized signal timing plans for more than 50 intersections involving four agencies (Garden Grove, Westminster, Anaheim, and Caltrans). Intersections operate with Multisonics 820, Econolite ASC/2S-2100 and ASC/3-2100, and 2070N controllers. Signal systems included QuicNet 2006, ARIES, and ACTRA. The project began in December 2010 and was completed in October 2012.

ITERIS

Eunise Reynon, EIT

Assistant Transportation Engineer II

Ms. Reynon has served as Assistant Transportation Engineer of Transportation Systems division of Iteris since July 2013. Ms. Reynon has over four years of experience with a background in traffic operations and engineering, and transportation design. She has served as a Project Engineer on various traffic engineering and traffic signal synchronization projects, performing tasks such as field data collection, signal timing optimization, field implementation, and timing fine tuning. Ms. Reynon's software knowledge includes Microstation, Synchro, ACTRA, CENTRACS, i2, TACTICS, and various traffic controllers such as ASC/3, and SEPAC 2070, and McCain/BiTran 170.

Education

BS, Civil Engineering, California State Polytechnic University, Pomona, 2011

Professional Registrations

Engineer-In-Training, California #141545, 2011

Years of Experience 4

Areas of Expertise

- Traffic Management & Operations
- Traffic Signal Timing

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC

Project Experience

Traffic Engineering & Operations

Traffic Feasibility Study for U-Turn Prohibition at Hawthorne Boulevard and Highridge Road – City of Rancho Palos Verdes, CA

Ms. Reynon served as a Project Engineer in conducting traffic feasibility studies for the City of Rancho Palos Verdes. Ms. Reynon was responsible in reviewing collision histories, evaluating existing signal operations, and proposing cost-effective solutions to address the heavy turn volumes in the intersection of Hawthorne Boulevard and Highridge Road. The project began in September 2014 and ended in November 2014.

17th Street and Victoria Street Traffic Signal Synchronization – City of Costa Mesa, CA

Ms. Reynon served as a Project Engineer in performing the travel time evaluation task of the project. Ms. Reynon was responsible in performing the floating car studies before timing was implemented and after new coordination plans were installed to evaluate the improvements of fine-tuned coordination plans for both the 17th Street and Victoria Street corridors. The project began in June 2013 and is scheduled to be completed in April 2016.

Santa Monica TMC Staffing – City of Santa Monica, CA

Ms. Reynon served as a Project Engineer in operating the City of Santa Monica's Transportation Management Center during the summer weekends and holidays. Ms. Reynon was responsible for coordinating with Santa Monica Police Department, Public Works Department, and Parking Department in performing plans and strategies to maintain consistent traffic flow within the city's busy downtown area, such as lane closures or restrictions, staff deployment for traffic control, and signal timing adjustments in response to current traffic and parking conditions. The project began in June 2014 and was completed in September 2014.

Eunise Reynon, EIT

Assistant Transportation Engineer II

Valley View Corridor Traffic Signal Synchronization Project – City of Buena Park, CA
Ms. Reynon currently serves as a Project Engineer for the implementation of the proposed coordination plans and preparation of coordination timing sheets, as well as for the operations and maintenance part of the project, which involves a monthly check of the corridors through travel time studies. The project entails for the providing traffic operations and infrastructure improvements at fifteen (15) intersections along Valley View Street, located in the City of Buena Park. The project began in October 2012 and is currently in the operations and maintenance phase. The project is scheduled to be completed in December 2015.

Laguna Woods As-Needed Transportation Services – City of Laguna Woods, CA
Ms. Reynon serves as a Project Engineer assisting in the as-needed transportation services requested by the City of Laguna Woods. Ms. Reynon noted potential operational improvements along the major study corridors in the City, as well as observed traffic patterns within the corridors in the AM and PM peaks, and performed travel time studies monthly to check and maintain coordination along both the El Toro Road and Moulton Parkway corridors. The project began in May 2012 and is scheduled to be completed in May 2015.

Pacific Park Drive/Oso Parkway Traffic Signal Synchronization Project – Cities of Aliso Viejo, Laguna Hills and Mission Viejo, CA
Ms. Reynon currently serves as a Project Engineer for the data collection task of this project, which synchronizes 32 traffic signals along the Pacific Park Drive/Oso Parkway corridor, stretching across five jurisdictions (County of Orange, Caltrans, and Cities of Aliso Viejo, Laguna Hills, and Mission Viejo). Ms. Reynon also aided in the timing analysis and optimization of the project. The project began in July 2013 and is currently in the operations and maintenance phase. The project is scheduled to be completed in March 2016.

City of Newport Beach Traffic Signal Modernization Phases 6A and 6B – City of Newport Beach, CA
Ms. Reynon currently serves as a Project Engineer, aiding in the signal timing optimization task of the project. Ms. Reynon analyzes the basic signal timing parameters and coordination timing plans for the signalized intersections along the San Joaquin Hills Road and Newport Coast Drive corridors, spanning within the Cities of Newport Beach and Irvine. The project began in 2012 and is ongoing. The project began in July 2013 and is scheduled to be completed in June 2015.

Traffic Operations – Communications Upgrade, Design, & Implement Signal Coordination Timing on Temple Avenue – City of Pomona, CA
Ms. Reynon currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pomona's six signalized intersections and Caltrans' two signalized intersections along Temple Avenue. Ms. Reynon analyzes the current basic signal timing parameters and develops coordination plans for AM, Midday, and PM peak periods along the corridor. The project began in April 2013 and was completed in January 2014.

Signal Timing Plans for Rio Rancho Towne Center – City of Pomona, CA
Ms. Reynon served as a Project Engineer for the field data collection and signal timing optimization task of the project, which involves the synchronization of the City of Pomona's five signalized intersections, in preparation for the opening of the Rio Rancho Towne Center Plaza. Ms. Reynon analyzes the current basic signal timing parameters and develops coordination plans for AM and PM peak periods along the corridor. The project began in September 2013 and was completed in October 2013.

MTC Program for Arterial Signal Synchronization – Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont, CA
Ms. Reynon served as a Project Engineer for the data collection and signal timing optimization task of the project, which involves the timing optimization and synchronization of the traffic signals located within the Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont. The project involves obtaining signal timing data from 126 signalized intersections from their respective agencies, reviewing existing timing data, and provide recommendations for improving coordination and operations for the study corridors. The project began in September 2013 and is scheduled to be completed in April 2015.

ITERIS

Naree Kim, PE

Transportation Engineer II

Education

ME, Civil Engineering, University of Utah, Salt Lake City, 2003

BS, Civil Engineering, University of Utah, Salt Lake City, 2000

Professional Registrations

Civil Engineer, Nevada, #22518, 2013

Years of Experience 12

Areas of Expertise

- ITS Planning & Design
- ITS Operations & Management
- ITS Systems Engineering & Architecture

Professional Affiliations

Orange County Traffic Engineering Council (OCTEC)

Mrs. Kim is currently serving as Transportation Engineer II of the Transportation Systems division of Iteris and has been with firm since October 2008 working on ITS Design and Traffic Engineering and Operations projects. Mrs. Kim has over 12 years of experience in the delivery of transportation and traffic engineering projects, with experience that includes the planning, design and deployment of ITS and traffic signal projects. Her ITS design experience includes fiber optic communications, CMS, VDS and traffic signal system upgrades. She has also served as Project Manager and Project Engineer on a variety of planning and traffic signal design projects including preparation of plans, specifications and cost estimates for traffic signals; arterial signing and striping; traffic operation systems; ramp metering systems; and street lighting. She has accomplished a number of traffic impact studies and traffic and circulation sections of EIRs/EISs. Mrs. Kim is proficient in the use of design and traffic analysis software including AutoCAD, Microstation, AGI 32, Synchro/ SimTraffic, and Traffix.

Project Experience

North Santa Monica Blvd. Reconstruction Project – City of Beverly Hills, CA
Mrs. Kim is the Design Lead for the development of the PS&E package for the North Santa Monica Boulevard Reconstruction Project that includes approximately two miles of street lighting upgrades and signing & striping, ten intersections of traffic signal modifications and traffic control plans. The design of the project5 began in June and is ongoing.

Intersection Improvements at Various Locations – City of Santa Clarita, CA
Mrs. Kim is the Project Manager for this project that provides engineering design services to develop PS&E package at various locations in City of Santa Clarita, CA. The design service includes traffic signal modification plans, signing & striping plans, traffic control plans, and Caltrans Fact Sheet preparations. The design of the project began in September 2013 and is ongoing.

Phase 8 ITS Project – City of Newport Beach, CA
Mrs. Kim is the Project Engineer for the development of the design package for the Newport Beach Phase 8 project that included approximately four CCTV cameras, six traffic signal controller upgrades, and fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system. Iteris developed coordinated signal timing plans at all Project signalized intersections. The project began in June 2014 and is ongoing.

Barranca/Muirlands TSSP (Project P) – City of Irvine, CA
Mrs. Kim serves as the Design Lead responsible for the development of the design package for the Barranca/Muirlands TSS Project for the City of Irvine that includes

about 4.5 miles of upgrading to fiber hybrid communications and upgrading existing cabinet to new 332L cabinets. The project began in July 2014 and is ongoing.

Bicycle and Pedestrian Plan – City of San Marino, CA
Mrs. Kim is the Project Engineer for this project that provides engineering planning services to develop city-wide bicycle master plan and pedestrian plan. This project is developed in conjunction with Ryan Snyder Associates who is the foremost bicycle expertise in LA areas. The project began January 2014 and completed May 2014.

Harbor Blvd Regional Traffic Signal Synchronization Project – City of Anaheim, CA
Mrs. Kim is the Design Lead for this project that provides Design/Build services for the Harbor Boulevard intersections within the City of Anaheim to provide improved traffic signal operations along this critical corridor. This project will install 5 new HD CCTV IP Cameras, provision a redundant Gigabit Ethernet ring in the City of robust communications and deploy three Bluetooth access points to expand the existing Anaheim Bluetooth system. The design of the project began in March 2014 and completed in May 2015.

Milliken Avenue / UPRR Grade Separation – City of Ontario, CA
Mrs. Kim was the Design Lead for this project that provided traffic engineering services. Iteris was responsible for design of all traffic elements within the project limits, which included signal design plans for the upgrade of two existing City of Ontario signalized intersections along Milliken Avenue; one new City of Ontario signalized intersection along Mission Boulevard; the upgrade of street lighting, bridge lighting & soffit lighting plans; signing and striping plans. The design of the project began in 2010 and completed in November 2013. The project construction began in June 2014 and currently under construction support phase.

I-5/Katella U.C. Design Project – City of Anaheim, CA
Mrs. Kim is the Design Lead for the development of the design package for the I-5/Katella Undercrossing Design Build Project that includes signal modification, ramp meter modifications and street & soffit lighting. The design build project began in December 2011 and is completed in June 2012.

Phase 4a, 4b & 4c – City of Santa Monica, CA
Mrs. Kim was the Project Engineer assisting with the development of the design package for the Santa Monica ATMS Phase 4 project that included upgrading to fiber optic communications for about 55 signalized intersections, signal modifications for two existing signalized intersections, upgrading to wireless communication for eight signalized intersection, and upgrading existing NEMA cabinets to TYPE 332 cabinets. The project began in December 2009 and completed construction in October 2013.

ITS Master Plan Design Project – City of Oxnard, CA
Mrs. Kim was the Project Engineer for the development of the design package for the Oxnard ITS Master Plan Design Project that will implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, and serve as cost saving measures. The Ethernet network will be shared with other City departments to provide communications to City facilities including police stations, fire stations, and City buildings. The project will also design and build the City's new Traffic Management Center (TMC). The project began in December 2010 and completed construction in October 2013.

ATMS Phase 2 Project for Design and Integration Services – City of Corona, CA
Mrs. Kim was the Project Engineer for the development of the design package for the Corona Advanced Traffic Management System Phase 2 project that includes 29 CCTV cameras, 110 traffic signal controller upgrades, over 10 miles of fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system to include an additional six Gigabit Ethernet hubs. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The design project began in December 2008 and was completed in April 2009. Construction began in late 2009 and completed integration in April 2011.

ITERIS

Charles S. Askar, EIT

Assistant Transportation Engineer II

Education

BS, Civil Engineer, California State University, Fullerton, 2013

Professional Registrations

Engineer-In-Training, CA, #153780

IMSA Traffic Signal, Level I, #110315, 2015

IMSA Work Zone Safety, #110315, 2015

Years of Experience 4

Areas of Expertise

- ITS Planning & Design
- Traffic Engineering & Operations
- Signal Timing
- Event Management
- ITS Implementation
- Signal Design

Professional Affiliations

Institute of Transportation Engineers (ITE)

Mr. Askar has served as Assistant Transportation Engineer of Transportation Systems division of Iteris since September 2013. Mr. Askar has over four years of experience in transportation systems design, operations and communications. This includes programming controllers, troubleshooting ITS equipment, integrating traffic equipment, timing projects, traffic signal modifications, and over two years of experience in a TMC. Mr. Askar's software knowledge includes Microstation, AutoCAD, MIST, Synchro, ArcGIS, Tru-Traffic, PC Travel, and Microsoft Products; and traffic control systems such as QuickNet, Centracs, Mist, and Intelight.

Project Experience

Traffic Signal Design Plans for EVP Systems – City of Mission Viejo, CA
This project involves design plans for EVP Systems for over 60 intersections in the City of Mission Viejo. Mr. Askar served as a Project Engineer responsible for collecting necessary field work for the existing conditions. He will also be responsible for designing and developing CAD files for the intersections. This project began in December 2013 and was completed in November 2014.

17th Street & Victoria Street–Traffic Signal Coordination – City of Costa Mesa, CA
Mr. Askar assisted in the programming and installation of Etherwan managed switches and Cohu Helios HD cameras. This project upgraded 4 new cameras and 15 switches, integrating them into the City of Costa Mesa's network via new fiber that was also being installed as part of this project. This project began in April 2013 and is proposed to end in June 2018.

Dyer Road- Fiber Installation Project – City of Santa Ana, CA
Mr. Askar assisted in the design and integration of the proposed fiber network for the Dyer Road corridor. The project upgraded 2 miles of existing SIC to fiber optic cables and integrated 4 signals into the City of Santa Ana's existing fiber network. The project began in June 2013 and was completed in September 2013.

MacArthur Boulevard/ Warner Avenue Corridor Integration Projects – City of Santa Ana, CA
Mr. Askar served as an assistant to City Engineers in designing and integrating traffic signal communication upgrades along the MacArthur Boulevard and Warner Avenue corridors. The projects upgraded 15 miles of fiber optic cables and implemented new traffic signal communication equipment at over 20 signals. Mr. Askar assisted with the ITS design in Microstation, programming, testing, implementing, and integration of the signal equipment. The project began in January 2013 and was completed in September 2013.

Harbor Boulevard Regional TSS Project -Anaheim, CA
Mr. Askar currently serves as a Project Engineer for this project, which includes the installation of 5 new HD CCTV IP Cameras, Ethernet switches,

and Bluetooth access points. Mr. Askar is involved in the design and installation of these items in effort to expand the existing Anaheim ITS system. The design of the project began in March 2014 was completed in January 2015.

Barranca/Muirlands TSSP (Project P) - City of Irvine, CA
Mr. Askar currently serves as a Project Engineer for this project, which includes traffic signal synchronization and operational improvements for 44 intersections. Mr. Askar is involved in the optimization, coordination, and design of traffic signal communication upgrades, which span over the cities of Irvine, Lake Forest, and Mission Viejo. This project began in July 2014 and is proposed to end September 2015.

Texas Department of Transportation Signal Synchronization Project – Lake Jackson &Webster, TX
Mr. Askar currently serves as a Project Engineer for the signal timing optimization of the project. The project involves the retiming of 16 intersections throughout the Houston, TX region. Mr. Askar will be assisting in creating the optimized Synchro timing files as well as preparing timing sheets for this project that will be reflecting the final fine-tuned timings that will be installed by engineers in the field. The project began in November 2013 and was completed in April 2015.

MTC Program for Arterial Signal Synchronization – Bay Area, CA
The program involves signal synchronization for over 10 agencies throughout the nine-county region of the Bay Area. The signal synchronization projects include existing conditions, modifications of basic timing parameters to meet the latest California MUTCD guidelines, proposed signal coordination patterns, implementation (field or at the TMC), and field fine-tuning of optimized signal coordination for various agencies each year of the program. Mr. Askar serves as a Project Engineer responsible for collecting the necessary field work for the existing conditions. He will also be responsible for developing the recommended coordination patterns and assist in the implementation and fine-tuning of over 100 signals in the cities of Fremont, Santa Rosa, Mill Valley, and Palo Alto. The project began in September 2013 and was completed in November 2014.

Pacific Park Drive/Oso Parkway Traffic Signal Synchronization Project – Cities of Aliso Viejo, Laguna Hills and Mission Viejo, CA
Mr. Askar currently serves as a Project Engineer for this project, which synchronizes 32 traffic signals along the Pacific Park Drive/Oso Parkway corridor, stretching across five jurisdictions (County of Orange, Caltrans, and Cities of Aliso Viejo, Laguna Hills, and Mission Viejo). Mr. Askar assisted with the travel time studies by collecting travel runs along the corridor using a GPS device with Tru-Traffic. Mr. Askar will also be assisting with the implementation, fine-tuning and evaluation of the new synchronization plans. The project began in July 2013 and is proposed to end March 2016.

Culver Street/Bonita Canyon - Regional Traffic Synchronization Project – City of Irvine, CA
Mr. Askar is a Project Engineer for a multi-jurisdictional signal synchronization project for a 12-mile arterial involving three agencies. The project is implementing Econolite ASC/3 controllers, Emergency Vehicle Preemption, and one CCTV camera. The project will also deploy four signal coordination timing plans for 40 signalized intersections. Coordination plans will be developed for Econolite ASC/3, Siemens SEPAC 2070, and Caltrans TSCP controllers. Mr. Askar assisted with the travel time studies by collecting travel runs along the corridor using a GPS device with Tru-Traffic. Mr. Askar will also be assisting with the implementation, fine-tuning and evaluation of the new synchronization plans. The project began in February 2013 and is proposed to end June 2016.

OCTA Warner Avenue Traffic Signal Synchronization – Cities of Fountain Valley, Santa Ana and Huntington Beach, CA
Mr. Askar currently serves as a Project Engineer for the synchronization system construction phase of the project. Mr. Askar currently coordinates with various agencies to assess special construction timing support necessary to the completion of the project. As a part of this task, Mr. Askar has reviewed and implemented timing parameters of new intersection controller assemblies as well as performed travel time studies and maintenance monthly to assure proper coordination along Warner Avenue. The project began in June 2012 and is proposed to end December 2016.

ITERIS

Shaumik Pal, AICP, PTP

Senior Transportation Planner

Education

- MBA, University of California, Los Angeles, 2012
- MA, Urban Planning and Policy, University of Illinois, Chicago, 2003
- Certificate, Public Private Partnerships, Yale University and UNDP, 2003
- BA, Urban Planning, School of Planning and Architecture, New Delhi, 2001

Professional Registrations

- American Institute of Certified Planners (AICP)
- Professional Transportation Planner (PTP)

Years of Experience 13

Areas of Expertise

- Highway and Transit
- Traffic Impact Studies
- Long Range Planning
- Engineering Studies

Professional Affiliations

- American Planning Association (APA)
- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Mr. Pal has 13 years of experience in the fields of transportation planning and engineering, of which eight years has been with Iteris. Mr. Pal is a results-driven Project Manager with a track record of successfully managing Highway, Transit, Traffic Impact Analysis (TIA), and Long Range Transportation Planning projects. He has exhaustive and detailed knowledge of highway operations and programs in the Southern California region. He has also served as the Project Manager for preparation of traffic impact studies for many projects in and around Riverside, San Bernardino, and Los Angeles Counties. Mr. Pal has extensive experience working with public agencies including Caltrans, Riverside County Transportation Commission (RCTC), LA Metro, San Bernardino Associated Governments (SANBAG), Orange County Transportation Authority (OCTA), and various cities and counties in the Southern California region. He is a dedicated leader and supervisor with capacity to comprehend, manage, and monitor demanding project schedules and budgets. Mr. Pal is proficient with computer software packages applicable to the fields of transportation and urban planning including TRAFFIX, SYNCHRO, HCS, and CORSIM.

Project Experience

I-15 Express Lanes, RCTC – Riverside County, CA
Mr. Pal served as Project Manager for Traffic Forecasting and Traffic Operations Analysis for the Project Report for RCTC that included the addition of Express Lanes to approximately 14 miles of freeway mainline, including the analysis of 10 local interchanges and two system interchanges. The project requires extensive coordination with other active projects throughout the corridor to ensure consistency of analysis and design. Mr. Pal oversaw the refinement and validation of regional model for project corridor, development of traffic volumes, and operations analysis. He also provided substantial input to design team to optimize freeway operations and managed the development of traffic volumes for alternative project phasing scenarios for toll feasibility analysis. Mr. Pal's involvement began in 2008 and the project is ongoing.

I-15/I-215 Interchange PAED, SANBAG – County of San Bernardino, CA
Mr. Pal served as Project Manager for Traffic Operations Analysis for the SANBAG Project Report for reconstruction of major system interchange near Devore. The project included analysis of freeway operations, including the impact of substandard local interchange spacing, heavy truck volumes, and steep grades. Mr. Pal was responsible for development of Forecast 2040 traffic volumes using regional travel demand model. Analysis includes VisSim™ simulation of freeway mainline and ramps. The project began in July 2007 and was completed in April 2013.

Shaumik Pal, AICP, PTP

Senior Transportation Planner

SR-55 Project Study Report (PSR), OCTA – Multiple Cities in Orange County, CA
Mr. Pal served as Project Manager for the OCTA TEPA Report for improvement along SR-55 from I-5 to SR-91. The project includes analysis of freeway operations, intersection operations, weaving analysis, and ramp junction analysis. Mr. Pal was responsible for the development of Forecast 2045 traffic volumes using OCTAM. The project began in July 2012 and was completed in January 2015.

I-215/Washington Street-Mt. Vernon Interchange PAED, SANBAG – City of Colton, CA
Mr. Pal served as Project Manager for Traffic Operations Analysis for SANBAG Project Report for reconstruction of a major interchange in the City of Colton on I-215. The I-215/Washington-Mt. Vernon Interchange Improvement Project reconstructed the interchange so as to improve operation, increase capacity, and reduce congestion, thereby providing adequate access to and from facilities served by the interchange. Iteris developed the project's opening year and horizon year traffic volumes based on the San Bernardino Transportation Analysis Model (SBTAM). Coordinating closely with the project design team, SANBAG, and the City of Grand Terrace, Iteris analyzed six design alternatives, including alternatives to minimize environmental impacts. The project began in July 2012 and was completed in July 2014.

Cajalco Road Improvement Project – Riverside County, CA
Mr. Pal served as Project Manager for travel demand model development, forecasting and traffic analysis for proposed widening and improvement of a 13-mile, two-lane County road in western Riverside County to relieve congestion, improve safety and help address future traffic demands. The project included more than 50 intersections and more than 50 freeway segments. The project began in September 2011 and is ongoing.

SB4 Draft Environmental Impact Report (DEIR) – Department of Conservation, CA
Mr. Pal prepared the transportation and traffic section of the DEIR for the analysis of Oil and Gas well stimulation treatments in California. Co-authored transportation and traffic section for program level analysis and conducted traffic impact analysis. The project began in March 2014 and is ongoing.

Santa Monica Civic Center Joint Use Project (CCJUP) – City of Santa Monica, CA
Mr. Pal served as Project Manager for traffic and parking analysis for the CCJUP project. The analysis role included working with the District and in close coordination with the City to assess the parking needs of the school both during the school hours and non-school hours. In addition, helping the District to assess the traffic impacts of the proposed new and expanded facilities. The project began in December 2010 and was completed in June 2013.

Helendale Specific Plan – San Bernardino County, CA
Mr. Pal served as Project Manager for the traffic study and circulation element for the Helendale Specific Plan area in San Bernardino County. Project involved public outreach and feedback in the development of proposed land use and circulation plans. The project began in July 2009 and was completed in July 2012.

North City Specific Plan – Riverside County, CA
Mr. Pal served as Project Manager for the traffic study and circulation element for the North City Specific Plan area in Cathedral City, in Riverside County. Project involved public outreach and feedback in the development of proposed land use and circulation plans. The project began in July 2007 and was completed in December 2009.

Highgrove Area Redevelopment – Riverside County, CA
Mr. Pal served as Project Manager for traffic study and circulation element for the Highgrove Area redevelopment plan in Riverside County. Developed customized roadway cross-sections and coordinated with regional bikeway and trail plans. The project began in March 2007 and was completed in July 2007.

ITERIS

Jennica Smith

Assistant Transportation Engineer

Ms. Smith serves as an Assistant Transportation Engineer of the Transportation Systems division of Iteris and has been with firm since July 2014. She has served as a Project Engineer on various traffic engineering and traffic signal synchronization projects, performing tasks such as field data collection, signal timing optimization, and traffic signal modification. Ms. Smith's software and traffic control systems knowledge includes AutoCAD, Synchro, ArcGIS, Tru-Traffic, and Centracs.

Education

BS, Civil Engineering, University of California, Irvine, 2014

Years of Experience 2

Areas of Expertise

- Traffic Signal Design
- Traffic Engineering & Operations
- Systems Integration
- Taffic Incident Management

Professional Affiliations

Institute of Transportation Engineers (ITE)
American Society of Civil Engineers, Orange County, Young Member Forum (ASCE OC YMF)
Position: Webmaster
University of California, Irvine Engineering Alumni Society
Position: OC Events Co-Director

Project Experience

Pomona PVHMC Garey-Aliso Timing – City of Pomona, CA
The project involves preparing traffic signal timing and coordination sheets for a newly signalized intersection, as well as providing implementation and fine-tuning services. Ms. Smith serves as a Project Engineer, with the responsibilities to create a signal timing network and complete signal coordination timing optimization for five intersections. The project began in June 2014 and is ongoing.

Newport Boulevard South Traffic Signal Synchronization, OCTA – Cities of Newport Beach, Costa Mesa and Caltrans, CA
Ms. Smith is a Project Engineer for collecting the necessary field inventories, verifying existing traffic signal infrastructure and operations, and implementing signal timing analysis and optimization tasks. The project will provide operations and infrastructure improvements at thirty-three intersections along a seven mile segment for OCTA spanning across Newport Beach, Costa Mesa, and Caltrans jurisdictions. The project began in July 2014 and is ongoing.

Barranca/Muirlands Regional Traffic Signal Synchronization Project – Cities of Irvine, Lake Forest, Mission Viejo and Caltrans, CA
Ms. Smith serves as Project Engineer for this project, which will regionally optimize and coordinate 44 traffic signals along the Barranca Parkway/Muirlands corridor across the City of Irvine, Lake Forest, Mission Viejo and Caltrans. The project will also provide traffic signal and communications upgrades, as well as migrate the City of Irvine's traffic signals from its existing ACTRA system to communicate with the new Centracs system. Ms. Smith's responsibilities include field inventories and verification of existing traffic signal infrastructure. The project began in June 2014 and is ongoing.

INTENTIONALLY LEFT BLANK

ITERIS

Chris M. Curd, EIT

Assistant Transportation Engineer

Mr. Curd is currently serving as an Assistant Transportation Engineer in the Transportation Systems division of Iteris since May 2015. Prior to joining Iteris, Mr. Curd served in the Traffic Engineering division of the City of Long Beach Public Works Department for one year. Mr. Curd has been involved in several projects involving the design of traffic signal modifications and the design and installation of ITS equipment. With Iteris, he has served on the project team for projects such as the North Santa Monica Boulevard Widening project, Oxnard SCADA project, and the IowaDOT I-74 Bridge Reconstruction project. With the City of Long Beach, Mr. Curd also served on the project team for the 7th Street/Ximeno Avenue Signal Upgrade project among others.

Education

MS, Civil Engineering, California State University, Long Beach, in progress

BS, Civil Engineering, California State University, Long Beach, 2014

Professional Registrations

Engineer in Training, CA #152210, 2014

Years of Experience 1

Areas of Expertise

- Traffic Signal Design
- ITS Planning & Design

Professional Affiliations

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)

Project Experience

Traffic Engineering and Traffic Signal Design

N. Santa Monica Boulevard Widening Project – City of Beverly Hills, CA
Mr. Curd is serving on the design team for the development of design plans for the widening of a 1.8-mile segment of North Santa Monica Boulevard, including signal modifications, signing and striping, and street lighting design. The project began in 2015 and is ongoing.

7th Street/Ximeno Avenue Signal Upgrade – City of Long Beach, CA
Mr. Curd produced design plans for a signal modification at the intersection of 7th Street and Ximeno Avenue while serving the City of Long Beach Public Works department. The signal modification included the replacement of a signal pole and mast arm and installation of protected left-turn phasing. Plans were completed in 2014 and the project is currently awaiting funding.

ITS Planning and Design

I-74 Bridge Reconstruction – Quad Cities Area, IA/IL
Mr. Curd is preparing the fiber architecture diagram for an Iowa DOT-sponsored project involving the reconstruction of a bridge on I-74 spanning the Mississippi River between Illinois and Iowa. The project began in 2009 and is ongoing.

Oxnard SCADA Project – City of Oxnard, CA
Mr. Curd is part of the design team for the development of design plans to extend the fiber optics network of the City of Oxnard, including the installation of new conduit, fiber optics cables, pull boxes and fiber distribution units and the termination and splicing of fiber optics wiring. The project began in 2010 and is ongoing.

INTENTIONALLY LEFT BLANK

ITERIS

Michael M. Plotnik, TE

Transportation Engineer

Education

MS, Civil Engineering, California State University, Long Beach, 2013

BS, Civil Engineering, California State University, Long Beach, 2010

Professional Registrations

Traffic Engineer, CA #2735, 2014

Years of Experience 12

Professional Affiliations

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)
- Society of Women Engineers (SWE)

Mr. Plotnik has served as Transportation Engineer of Transportation Systems division of Iteris since May 2014. Mr. Plotnik has over 12 years of systems engineering experience in the field of Intelligent Transportation Systems (ITS). These ITS applications include the use of systems engineering practices to plan, design, deploy, and integrate ITS elements; traffic management center (TMC) construction and integration; Ethernet Communication networks utilizing fiber optic, Twisted Pair, Wireless, Microwave, and spread spectrum radio. His design experience also includes CCTV, and traffic signal design and modifications. He is proficient in the use of AutoCAD and all Microsoft Office software.

Project Experience

TMC & Fiber Design and Integration – City of Carlsbad, CA

Mr. Plotnik is a Project Engineer for the Carlsbad TMC and Fiber project which will connect the newly designed TMC at the Faraday Center with field devices and City Hall via a new 72 SMFO cable. The fiber route proposed is 14 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. A six screen video wall, network rack and infrastructure, and video management software was a big part of this project. The City utilizes Iteris' video detection camera feeds back to the TMC via wireless Ethernet network.

TMC & CCTV Design and Integration – City of Oceanside, CA

Mr. Plotnik is a Project Engineer for the Oceanside TMC, Fiber, and CCTV project which will connect the newly designed TMC at City Hall with field devices via a new 72 SMFO cable. The fiber route is 23 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. A 16 screen video wall, 36 camera PTZ CCTV cameras, and traffic management software was a big part of this project. This project was San Diego ITE's project of the year for 2011/2012.

San Marcos Fiber Optic Installation, CCTV Upgrade Project and TMC Upgrades – City of San Marcos, CA

Mr. Plotnik is a Project Engineer responsible for the design of a new Ethernet communications system, wireless, integration of existing twisted pair and fiber optic system, integration of existing analog PTZ CCTV cameras, design and integration of ten Ethernet based PTZ CCTV cameras, and a new dual 144 SMFO Fiber Optic Cable that runs approximately 14 miles throughout the City. The Ethernet network will be supported by new fiber optic cable, replacing part of the City's existing twisted pair cable. Upgrades were done to an existing TMC, which included replacing a four projector video wall with a new six screen LCD video wall, DVR units, and with state-of-the-art network switches, routers, and firewalls.

Michael M. Plotnik, TE

Transportation Engineer

TMC Upgrade, Fiber Optic, and CCTV Design and Integration – City of Encinitas, CA

Mr. Plotnik is a Project Engineer for the Encinitas TMC, Fiber, and CCTV project which will connect the existing TMC at City Hall with six CCTV cameras via a combination of new 36 SMFO cable, Ethernet extenders, and wireless. The fiber route is 12 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. Many upgrades were completed at the TMC including a new video server and Router.

ITERIS

Omid Modaghegh

Assistant Transportation Engineer II

Education

MS, Transportation Engineering, California Polytechnic State University, Pomona, 2013

BS, Civil Engineering, California Polytechnic State University, Pomona 2011

Microsoft Certified System Engineer (MCSE)

Professional Registrations

Microsoft Certified System Engineer (MCSE), #100118639

Years of Experience 4

Professional Affiliations

- Orange County Traffic Engineering Council (OCTEC)
- Institute of Transportation Engineers (ITE)
- American Society of Civil Engineers (ASCE)

Mr. Modaghegh has four years of experience with ITS, communications systems, traffic design, and traffic signal timing. He establishes HIL (Hardware in the Loop Simulation) using VISSIM, ASC/3 & 2070 Controller, 332 Hybrid cabinet including all interface configuration for his master's thesis. He also has six years of experience in the IT field with establishing network specifications, designing router administration, including interface configuration and routing protocols. Mr. Modaghegh's software knowledge includes i2, CENTRACS, TACTICS, MaxView, and various traffic controllers such as ASC/3, 2070, and McCain/BiTran 170. He is also proficient in Vissim, Synchro, Tru-Traffic and, PC-Travel software. Mr. Modaghegh is a Microsoft certified engineer.

Project Experience

LACO-4E and Econolite ASC/3 Traffic Signal Timing Sheets Upgrades – City of Pico Rivera, Huntington Park; Duarte; Monrovia and Paramount, CA
Mr. Modaghegh currently serves as a Project Engineer for the project in providing new timing sheets for the LACO-4E upgrades in five cities within the County of Los Angeles. The tasks Mr. Modaghegh currently works on includes data collection, which collects the county's existing timing sheets and as-built plans; field review, which includes measuring intersection crosswalks and performing field inventories; and basic timing parameter analysis, which analyses each city's basic timing parameters and updating them to follow the county's preference. The project began in January 2014 and is on-going.

Newport Blvd TSS – City of Costa Mesa, Newport Beach, CA
Mr. Modaghegh was the Project Engineer responsible for the design of over seven miles of fiber optic cable, 5 CCTV cameras and integrates more than 10 Etherwan Switches, as well as the upgrade of 16 intersections from 820A controllers to Model ASC/3 controllers. The project began in May 2014 and was completed in June 2015.

Torrance Transit Rapid Line R3 Transit Signal Priority System
Mr. Modaghegh was the Project Engineer responsible for developing ongoing installation services for the intersection system hardware and software, CAD/AVL on-bus and back end software modifications, system testing, and system maintenance and operations services for the Rapid Line R3. He is currently heavily involved in the Operation and Maintenance and Bench Testing System. The system has many parts which include buses, wireless communication infrastructure, multiple controller types and a central server system. The wireless communication system included Encom radios which are designed to communicate with the onboard bus unit computer (InMotion). The project intersections along the Rapid Line R3 corridor are owned and maintained by a total of four cities (Torrance, Los Angeles, Carson, and Long Beach),

Omid Modaghegh

Assistant Transportation Engineer II

Caltrans, and the Los Angeles County Department of Public Works, a total of six local agencies. The project began in January 2014 and is on-going.

Countywide Metro Rapid Signal Priority Project, Los Angeles County Metropolitan Transportation Authority – Los Angeles, CA
Mr. Modaghegh is the Project Engineer assisting with the deployment, ongoing operations and maintenance of bus traffic signal priority systems at signalized intersections maintained by 26 local agencies along two Metro Rapid corridors. The wireless communication system includes both Cisco and Encom radios which are designed to communicate with the onboard Bus Rapid Transit (BRT) computer. Project responsibilities include coordination with local agencies, line of sight surveys, preparation of design plans, equipment configuration, installation of intersection traffic signal priority systems, maintenance and acceptance testing. This project began in September 2008, and will be completed by April 2017.

MTC Program for Arterial Signal Synchronization – Cities of Santa Rosa, Mill Valley, Palo Alto and Fremont, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project which involves the timing optimization and synchronization of the traffic signals located within the Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont. The project involves obtaining signal timing data from 126 signalized intersections from their respective agencies, reviewing existing timing data, and provides recommendations for improving coordination and operations for the study corridors. Mr. Modaghegh also assisted with performing travel time studies by using pc-Travel Time and Tru-Traffic software. The project began in September 2013 and is on-going.

Traffic Signal Design Plans for EVP systems (64 Intersections) – City of Mission Viejo, CA
Mr. Modaghegh currently serves as a Project Engineer for the project, procuring design plans, specifications, and estimates for the city-wide emergency preemption installation for the City of Mission Viejo. Mr. Modaghegh assisted in the data collection task, which includes field inventories and field review of existing equipment; as well as in the traffic signal modification design task, which entails preparing design plans for the installation of the EVP systems. The project began in December 2013 and is on-going.

San Mateo County Smart Corridor Traffic Signal System – City of San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, South San Francisco and San Mateo County, CA
Mr. Modaghegh assisted in the programming and installation of Hirschmann switches. This project involved configuration of 3 backbone switches, 31 aggregation switches, and 62 edge switches for deployment in fiber optic communications networks. This project began in April 2013 and is on-going.

Traffic Operations – Communications Upgrade, Design, & Implement Signal Coordination Timing on Temple Avenue – City of Pomona, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pomona's six signalized intersections and Caltrans' two signalized intersections along Temple Avenue. The Signal timing was developed for Model 170 controllers. Timing parameters were entered in the field at each signal cabinet manually by hand or using a laptop computer and serial cable. Several weeks of field observation and floating car surveys were conducted to ensure positive results. The project began in April 2013 and is on-going.

ITS Phase II Signal Timing – City of Pasadena, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pasadena's twenty eight signalized intersections along Fairoaks Ave, Hill Ave, Colorado Blvd and Foothill Blvd. The Signal timing was developed for Model 2070 controllers. Several weeks of field observation and floating car surveys were conducted to ensure positive results. The project began in November 2014 and is on-going.

ITERIS

Bernard K. Li, EE, TE, PTOE

Associate Vice President

Education

BS, Electrical Engineering,
University of Southern California,
Los Angeles, 1988

Professional Registrations

Professional Electrical Engineer (EE):

- CA #14842, 1995
- AZ #37241, 2002

Professional Traffic Engineer (TE):

- CA #1763, 1994

Professional Traffic Operations Engineer (PTOE), #214

Years of Experience 27

Areas of Expertise

- Traffic Engineering
- ITS Planning & Design
- Signal Timing & Operations
- Municipal Traffic Management

Professional Affiliations

- Technical Coordinator-Institute of Transportation Engineers (ITE) So Cal
- Member-Orange County Traffic Engineering Council (OCTEC)

Mr. Li has served as Associate Vice President of Transportation Systems division with Iteris since November 2010. Mr. Li has over 27 years of engineering and project management experience in providing professional services in planning, design and implementation of traffic engineering and Intelligent Transportation Systems (ITS). Mr. Li's ITS experience comprises fiber optic communications, wireless communications, closed-circuit television (CCTV), video-detection system (VDS) and dynamic message signs (DMS). He also has vast expertise in traffic signal operations, having assisted many agencies in analysis, retiming and synchronization of traffic signals, both corridor and network wide; and he is very familiar with different traffic signal systems. His transportation planning expertise includes traffic impact studies, parking studies, transportation master plans, signal warrant analysis and stop warrant analysis. He has also served as City's Traffic Engineering Consultant for many agencies, in resolving numerous day-to-day traffic engineering issues, including residents' inquiries, plan checking and safety evaluation.

Project Experience

Hawthorne Boulevard Fiber-optic Communications Design Project – City of Rancho Palos Verdes, CA

Mr. Li was the Project Manager for the design of the first fiber-optic communications system in the City of Rancho Palos Verdes. The project involved the design of a new fiber-optic communications systems along Hawthorne Boulevard between Highridge Road and Palos Verdes Drive West (PVDW), as well as the upgrade of the pedestrians signal heads to "countdown" type at three intersections. Iteris is also designing an extension of the fiber-optic system to two city parks (Ryan Park and Fred Hesse Jr. Park) and to the City Hall. The goal is to build a robust and scalable communications network to connect the seven signals along Hawthorne Boulevard, and to the City facilities. The project began in September 2013 and completed in June 2014.

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – Cities of Costa Mesa and Newport Beach, CA

Mr. Li serves as the Project Manager to OCTA to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris was responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches.

Bernard K. Li, EE, TE, PTOE

Associate Vice President

In addition to the traffic signal infrastructure improvements, Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014. The design was completed in March 2015 with construction commencing shortly after.

Port of Long Beach Traffic Engineering – City of Long Beach, CA

Mr. Li has served as the Project Manager since 2012 to provide as-needed traffic engineering services to the Port of Long Beach (POLB). This multi-year contract has a total budget of $500,000 on task order basis. To date, Iteris has performed eight different task orders for POLB, including:

1. Evaluation of roadway safety at Edison Avenue and Lugger Way
2. Review of plans and specs for an overheight vehicle detection system (OVDS)
3. Review of traffic control plans (TCP)
4. Analysis of Gerald Desmond Bridge (GDB) reconstruction EIR Traffic Mitigations
5. Safety and operational improvement analysis of Harbor Scenic Drive
6. Analysis of truck circulation at Pier C / Pico
7. Design of new traffic signal at Harbor Plaza / Pico
8. Preparation of TCPs for Edison Avenue Rehabilitation Project

The project began in January 2012. The on-call contract will expire in December 2015.

On-Call Traffic Engineering Consultant – City of Laguna Woods, CA

Mr. Li is currently serving as a consultant traffic engineer to the City of Laguna Woods. Services provided include:

- Monitor and operate all traffic signals within the City via the Econolite Centracs traffic signal system
- Provide monthly update of operational compliancy for the two red-light photo enforcement intersections
- Design golf-cart push buttons at three intersections
- Recommend operational improvements for two signalized intersections with split-phase operations
- Coordinate with OCTA for the recently implemented El Toro Road TLSP and Moulton Parkway TLSP projects
- Attend OCTA ITS Roundtable meetings
- Address resident complaints on various traffic engineering and roadway lighting matters

On-Call Traffic Engineering Consultant – City of Irwindale, CA

Mr. Li has served as the on-call traffic engineer to the City of Irwindale since January 2005. Services included:

- Proposal and Interview evaluation panel for the selection of a traffic signal system vendor
- Construction management for new signal installation at Irwindale Ave./Edna Place
- Traffic signal timing optimization and implementation along Arrow Highway and Irwindale Avenue
- Signal timing review
- Preparation of HSIP funding application
- Preparation and implementation of temporary traffic signal timing for the Live Oak Rehabilitation Project
- Signing and striping design
- Circulation analysis
- Line-of-sight analysis, Left-turn warrant analysis

On-Call Traffic Engineering Consultant – City of Diamond Bar, CA

Mr. Li acted as a Traffic Engineering consultant for City of Diamond Bar for over seven years (July 2003 - August 2010). During that time, he provided numerous traffic engineering services to the City:

- City's traffic engineering advisor for Alameda Corridor East – Brea Canyon Grade Separation project and the Los Angeles County Pomona Valley ITS project
- City's traffic engineering advisor for the Traffic Management System project, including preparation of the RFP, participation in the consultant proposal evaluation and interview panel
- Citywide signal timing, synchronization and monitoring, including responding to residents' requests for timing check
- Signing, Striping, signal warrant analysis, new traffic signal installation, traffic signal modification and interconnect design at various intersections
- Neighborhood traffic management plan design and construction support

ITERIS

Scott Carlson, PE

Vice President/Assistant General Manager

Education

BS, Electrical Engineering, University of Wisconsin, Madison, 1994

Professional Registrations

Professional Civil Engineer:

- California, #57886, 1999
- Arizona, #34416, 1999
- Idaho, #9962, 2000
- Colorado, #35342, 2001
- Texas, #99160, 2007
- Nevada, #021151, 2011

Years of Experience 22

Areas of Expertise

- ITS Planning & Design
- Communication Master Plans
- Multijurisdictional Deployments
- Systems Engineering
- ITS Integration
- Systems Integration
- Bus Rapid Transit

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- International Council on Systems Engineering (INCOSE)

Mr. Carlson serves as Vice President and Assistant General Manager of the Systems division with Iteris. In this role, Mr. Carlson manages Iteris' Western Region of Systems that includes over 60 transportation planners, traffic engineers and software engineers in offices throughout the western United States. Mr. Carlson has 22 years of experience in transportation engineering, traffic control and management.

Mr. Carlson has been involved in numerous traffic signal management systems, ITS, transit signal priority and traffic engineering projects. He has supported projects in a variety of roles including serving as Project Manager, Task Manager, Quality Control Advisory and Principal-in-Charge to provide ITS-based traffic, transportation, transit and communications consulting systems engineering services to public agencies and transit operators. He is experienced in a wide range of ITS applications, including the development of coordinated advanced traffic management systems, and the design and implementation of systems for arterial, highway, and transit. These ITS applications include the use of systems engineering practices to plan, design, deploy and integrate ITS elements; advanced transportation management systems and advanced traveler information systems; transit signal priority systems and bus rapid transit systems; traffic operations/management center design; and communication networks that employ fiber optic, microwave, IP wireless and spread spectrum radio for Ethernet/Gigabit Ethernet communication systems; as well as traditional analog/serial fiber optic transmissions. Mr. Carlson has recently served as Project Manager and Senior Advisor for large-scale ITS projects in College Station (Texas), Oxnard, San Mateo, Corona, Fountain Valley and Newport Beach (California), all of which encompassed ITS planning, design, integration and operations. All projects were completed on schedule and within budget.

Project Experience

ITS Planning, Design, & Integration

Oxnard ITS Master Plan Design Project – City of Oxnard, CA

Mr. Carlson served as Project Manager for the Oxnard ITS Master Plan Design Project that will implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, as cost saving measures. The Ethernet network will be shared with other City departments to provide communication to City facilities including police and fire stations, and City buildings.

Scott Carlson, PE

Vice President/Assistant General Manager

The project will also design and build the City's new Traffic Management Center (TMC). The project began in December 2010 and was completed in September 2013. Presently, Iteris is providing operations and maintenance support services.

Killeen Traffic Management Center, Killeen TX
Mr. Carlson served as the Project Manager for the design and installation of a new Traffic Management Center (TMC) in the City of Killeen's new Public Works Building. The TMC including eight 55-inch flat panel monitors configured in 4 wide by 2 high. The TMC supports the City's operation of Tactics traffic signal system and Vantage video detection system, with communication to the intersections being done via a citywide wireless Ethernet network.

Corona ATMS Phase 2 Project for Integration Services – City of Corona, CA
Mr. Carlson served as the Project Manager for the integration and hardware procurement for the Corona ATMS Phase 2 Project. Iteris was the Integrator responsible for developing the Network Design (VLAN/IP addressing). Iteris was also responsible for hardware procurement, configuration, and bench testing for 29 IP CCTV camera systems, 100 Ethernet switches, eight Gigabit Ethernet switches, one router, a Gigabit wireless system, 22 IP video detection systems and eight DMS with poles. Once configured, the items were provided to contractor as City-furnished. Iteris is also responsible for overall integration of the project elements as well as 110 signalized intersections. Iteris also provided engineering construction support. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The project design was completed by Iteris, under a separate contract, in April 2009. Iteris' integration task began in December 2009 and was completed in July 2012.

Design-Build

St. Anthony Falls (I-35W) Design-Build Avenue Project –Minneapolis, MN
Mr. Carlson was the Iteris Project Manager, as a subconsultant on the Flatiron-Manson Design-Build team, to provide all ITS design services on for the St. Anthony Falls (I-35W) Design-Build project for the Minnesota Department of Transportation (Mn/DOT). Iteris was a subconsultant to FIGG, the structural engineering firm leading the design of the new bridge structure. This was a design-build contract with an aggressive schedule to design and build the replacement to the bridge that collapsed in Minneapolis on August 1, 2007. The project began in December 2007 and was completed in September 2008.

Transit

OCTA BRT Intelligent Transportation Systems, Traffic Signal Synchronization and Transit Signal Priority Design Project – Orange County, CA
As part of a multi-disciplinary team, Mr. Carlson served as the Deputy Project Manager for the deployment of the first BRT system in operation in Orange County. The project involved the deployment of on-board bus equipment including an AVL system to manage the BRT's passenger information system; deployment of the BRT systems passenger information system that included message signs at 154 stations; interactive voice responsive phone service and Internet based trip planning and passenger information system; design of a transit priority system at over 300 signalized intersection that covers 14 agencies along the three BRT routes (this includes the identification of controller hardware and firmware upgrades that would be necessary to operate a uniform TSP technology); and design and deployment of signal coordination plans at over 250 signalized intersection along and in the vicinity of the BRT routes.

Traffic Engineering & Operations

Corona Citywide Signal Timing Project – Orange County, CA
Mr.Carlson is the Principal-in-Charge for the citywide signal timing project in the City of Corona which includes traffic signalized intersections in the City of Norco and Caltrans ramp interchanges. This project involved the data collection, existing signal timing parameter analysis and design and implementation of four weekday timing plans and one weekend timing plan for nearly 150 intersections. The implementation and fine-tuning was analyzed using travel time studies and visually presented using an effective tool that depicts the before and after data using animation and actual video recorded during the before study and the after study.

ITERIS

Alicia Yang, PE

Senior Transportation Engineer II

Education

BS, Civil Engineering, University of California, Irvine, 2005

Professional Registrations

Civil Engineer, California #82483, 2014

Years of Experience 11

Areas of Expertise

- Transportation Planning
- Traffic Engineering & Operations
- ITS Planning & Design
- ITS Systems Engineering & Architecture
- Systems Integration
- Transit

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)
- American Society of Civil Engineers (ASCE)

Ms. Yang has over eleven years of experience working in traffic operations and engineering, transportation planning, transportation design, and various transportation software. Ms. Yang has experience in various aspects of transportation engineering, but specializes in traffic operations having worked on a number of regional (multi-agency) signal synchronization and special events timing projects. Ms. Yang has been involved in all tasks in signal synchronization projects, from field reviews and travel time studies to implementation (locally or centrally) and field fine-tuning. Ms. Yang has also led signal timing implementation and fine-tuning training courses to City staff operating Actra and Centracs central traffic control systems. Ms. Yang's software knowledge includes Synchro, AutoCAD, MicroStation, PC-Travel, ArcGIS, Tru-Traffic and Vissim. She has worked with signal controllers such as 170, 2070, M52, Econolite and Multisonics; controller firmware including BI Tran, C8, Econolite, NextPhase, Naztec and SEPAC; and traffic control systems such as Actra, Aries, ATMS.now, Centracs, i2, icons, Maxview, QuicNet, Transparity, Tactics and VMS.

Project Experience

Traffic Engineering & Operations

Harbor Blvd TSS Project – City of Santa Ana, CA
As Project Manager, Ms. Yang's responsibility will be to ensure all project stakeholders are receiving the equipment and signal timing improvements requested for this project. Ms. Yang will coordinate with her team to provide necessary ITS improvements (e.g. controller, Ethernet switches, communication, Bluetooth travel time devices, detection, etc.) along the 10-mile stretch of Harbor Boulevard in the cities of Garden Grove, Santa Ana, Fountain Valley, and Costa Mesa. These improvements will feed into the ultimate goal of the project, which is regional synchronization including the signals in the City of Anaheim just north of the project limits. The project began in June 2015 with an anticipated completion date of June 2016 for which a 2-year operations and maintenance period will commence.

Knott Avenue TSS Project – City of Buena Park, CA Ms. Yang is a task leader in the development, implementation and fine-tuning of optimized signal timing plans for 28 intersections along a 7-mile segment of Knott Avenue in the Cities of Buena Park, Anaheim, Stanton, Garden Grove, and Caltrans. Her role includes the collection of counts; mobilizing Iteris' staff to conduct travel time studies; performing signal timing evaluation and recommendations for timing parameters; optimizing signal synchronization parameters; as well as implementing and fine-tuning of new coordination timings. Ms. Yang also worked closely with the contractor leading the project to provide all agencies with their equipment

upgrades, including cabinets, controller, and Bluetooth, CCTV, and fiber communication. The project began in August 2013 and is ongoing.

CA-Incline Bridge Closure Project – City of Santa Monica, CA
As Project Engineer, Ms. Yang is supporting the project team with managing the City's signals and CCTV cameras to ensure vehicles are moving through the detour routes designed as part of the California Incline bridge closure in the City of Santa Monica. Ms. Yang will also monitor and making necessary modifications to the changeable message signs, which are automatically updated every minute with the latest travel time provided by field Bluetooth devices. The project began in April 2015 with an expected completion of September 2015 for staffing.

Incident Timing Plans – San Mateo County, CA
As Project Engineer, Ms. Yang is leading the development of incident response framework, which will define the cycle length limits to the various incident timing plans that will be used during incidents along US-101 in San Mateo County. Ms. Yang will also be leading the optimization of these incident plans for the central area of the county, which includes 8 interchanges along US-101 and approximately 116 signals along select corridors (mostly SMART Corridors that would be equipped with methods of routing vehicles from the freeway). An Operations Manual will be generated with step-by-step deployment procedures for activating the incident response strategies from the Caltrans District 4 TMC that all stakeholders (C/CAG, Caltrans, and participating agencies in San Mateo County) will be able to access. The project began in March 2014 and is ongoing.

LACO-4E & ASC/3 Signal Timing Updates – Los Angeles County, CA
Ms. Yang was Deputy Project Manager in providing the Los Angeles County with updated timing sheets for 70 signals in the cities of Huntington Park, Monrovia, Duarte, Paramount, and Pico Rivera. With the exception of one BI Tran 2033 and one ASC/3 location, all timing sheets were created for LACO-4E operation. The final timing sheets were generated after conducting radar speed studies, crosswalk measurements, and calculating new basic timing parameters per the County's guidelines and standards. Intersection inventory, including measurements and photos, were also provided to the County for reference. Updated optimized timing plans were generated using the time-space diagrams provided by the County as well as any comments from County and/or City staff. The project began in January 2014 and is ongoing.

Pasadena TLSP – City of Pasadena, CA
Ms. Yang served as task leader in providing the City of Pasadena with three (AM, off, and PM) optimized timing plans at 83 signalized intersections along 6 corridors. The tasks included data collection, timing optimization, implementation, and travel time studies to quantify the improvements. Implementation of new timing plans was conducted in the City's TMC using Series2000, QuicNet, and i2. Travel time studies were conducted using the City provided GPS tracker to generate the reports to their specifications and a video comparison was generated for presentations. The project began in January 2013 and was completed June 2013.

Traffic Signal Modernization Phases 1-8 – City of Newport Beach, CA
Ms. Yang is Project Engineer leading the signal timing task. Ms. Yang leads the analysis of the vehicular and pedestrian clearance intervals, coordination timing analysis, and the implementation and fine-tuning of the signalized intersections in the City of Newport Beach. The implementation is done at the TMC in the Econolite Centracs central system. During the implementation and fine-tuning of the Phase 1 signals, Ms. Yang provided training that covered actuated settings, essential ASC/3 parameters, signal coordination, fine-tuning tips, and general Centracs operations and features. In addition to the design and signal timing tasks, this project also included generating summer flush plans along the Peninsula Area, which was optimized for the weekday as part of Phase 4 & 7. In addition, Ms. Yang was also involved in the proposed phasing modification of the City's "Mix Master" location, which involved adding a signalized crosswalk to two intersections operating under one controller. The projects began in March 2007 and is ongoing.

ITERIS

Paul M. Frislie, PE

Senior Transportation Engineer II

Education

MA, Business Administration, University of Phoenix, 2011

BS, Civil Engineering, University of California, Irvine, 2000

Professional Registrations

- Professional Civil Engineer: CA #72982, 2008
- IMSA Traffic Signal Level II, #BB97189, 2012
- IMSA Traffic Signal Level I, #AA97189, 2012
- IMSA Signal Inspector Level I
- #SI97189, 2014
- IMSA Work Zone Safety, #ZZ97189, 2010

Years of Experience 15

Areas of Expertise

- Traffic Signal Design
- ITS Planning & Design
- ITS Integration
- Construction Assistance

Professional Affiliations

Orange County Traffic Engineering Council (OCTEC)

Mr. Frislie is currently serving as Senior Transportation Engineer of Transportation Systems division of Iteris and has been with firm since January 2001. For over fifteen years, Mr. Frislie has been involved in several transportation and traffic engineering projects that include both planning as well as design and deployment of ITS, and traffic signal design. Recently, he has served as the Project Manager for the Rosecrans Avenue Arterial Improvement Project, Cypress Phase 1 through3 ITS Projects, the Newport Beach ITS Phase 5 through 8 Projects, the Santa Monica ATMS Phase 4c project. He has also been the Lead Design Engineer for the development of design plans for the Oxnard ITS Master Plan Design Project, Vermont Avenue Arterial Improvement project, the Santa Monica ATMS 4a/4b Project, SR-710 ITS Design Project, Newport Beach ITS Phase 1, 2, 3, 4 and 7 Projects and the Fountain Valley Phase IV project, as well as the Signal Construction Inspector for completion of the Oxnard ITS Master Plan and the Rosecrans and Vermont Arterial Improvements.

Project Experience

ITS Planning, Design & Integration

Hawthorne Boulevard Fiber-optic Communications Design Project – City of Rancho Palos Verdes, CA

Mr. Frislie was the Design QA/QC leader for the design of the first fiber-optic communications system in the City of Rancho Palos Verdes. The project involved the design of a new fiber-optic communications systems along Hawthorne Boulevard between Highridge Road and Palos Verdes Drive West (PVDW), as well as the upgrade of the pedestrians signal heads to "countdown" type at three intersections. Iteris is also designing an extension of the fiber-optic system to two city parks (Ryan Park and Fred Hesse Jr. Park) and to the City Hall. The goal is to build a robust and scalable communications network to connect the seven signals along Hawthorne Boulevard, and to the City facilities. The project began in September 2013. The PS&E package for Hawthorne Blvd was completed in January 2014. Iteris received a contract amendment for the design of the fiber extension to the city facilities. The design was completed in December 2014.

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – Cities of Costa Mesa and Newport Beach, CA

Mr. Frislie serves as the QA/QC leader and Engineer of Record to OCTA to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris was responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches.

In addition to the traffic signal infrastructure improvements, Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014. The design was completed in March 2015 with construction commencing shortly after. Upon completion of new timing implementation and finetuning, Iteris will provide operational and maintenance support for two years.

Traffic Engineering & Operations

Rosecrans Avenue Arterial Improvement Project – City of Gardena, CA

Mr. Frislie was the Project Manager and Signal Inspector team to provide preliminary engineering, design, and construction management of the Rosecrans Avenue Arterial Improvement Project from Vermont Avenue to Crenshaw Boulevard in the City of Gardena. The project is divided into three phases. For the initial preliminary engineering phase, the Iteris Team performed detailed field investigation of the entire corridor to identify deficiencies and recommended improvements to enhance safety and traffic flow along the corridor. Along with recommended median left turn pockets and storage lengths. Topographic survey, geotechnical investigation, traffic signal, signing and striping inventory were conducted as part of the field investigation. Upon City's approval of the Preliminary Design Report (PDR), the Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, raised landscaped medians, pavement rehabilitation, traffic signal improvements, updated signal timing plans and signing and striping modifications for the entire 2 ½ mile corridor. The project began in March 2013 with the PS&E phase completed in August 2014. The Iteris Team also acted as the Construction Manager during construction, which completed in June 2015.

Vermont Avenue Arterial Improvement Project – City of Gardena, CA

Mr. Frislie was the Task Leader and Signal Inspector team to provide preliminary engineering, design, and construction management of the Vermont Avenue Arterial Improvement Project from Rosecrans Avenue to 182nd Street in the City of Gardena.

The project is divided into three phases. For the initial preliminary engineering phase, the Iteris Team performed detailed field investigation of the entire corridor to identify deficiencies and recommended improvements to enhance safety and traffic flow along the corridor. Topographic survey, geotechnical investigation, traffic signal, signing and striping inventory were conducted as part of the field investigation. Upon City's approval of the Preliminary Design Report (PDR), the Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, pavement rehabilitation, traffic signal improvements, which included railroad preemption upgrades; and signing and striping modifications for the entire 2 ½ mile corridor. The project began in August 2012 with the PS&E phase completed in September 2013. The Iteris Team also acted as the Construction Manager during construction, which completed in August 2014.

ITS Planning, Design & Integration

ITS Master Plan Design Project – City of Oxnard, CA

Mr. Carlson served as Design and Integration Leader for the Oxnard ITS Master Plan Design and Integrating Project to implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, as cost saving measures. The project including new traffic signal controllers, CCTV cameras and video detection system upgrades. The new systems will be managed from a new Traffic Management Center (TMC) designed, built and integrated by Iteris. Iteris is also responsible for developing the IP schema, hardware configuration and some installation, acceptance testing and training. The project began in December 2010 and was completed in September 2013.The Ethernet network will be shared with other City departments to provide communication to City facilities including police and fire stations, SCADA, and City buildings. The project began in December 2010 and was completed in September 2013. Presently, Iteris is providing operations and maintenance support services.

ITERIS

Chris Devlin

Senior Transportation Planner

Education

MSc, Engineering, University of Leeds, UK, 1991

BA, Economics, Durham University, UK, 1987

Years of Experience 24

Areas of Expertise

- Travel Demand Forecasting
- Geographic Information Systems (GIS)
- Transportation Planning & Analysis

Mr. Devlin has served as Senior Transportation Planner of Transportation Systems division of Iteris since November 2013. Mr. Devlin has 24 years of experience in transportation planning and has managed and participated in a wide variety of transportation studies including travel demand forecasting studies, travel surveys, traffic impact studies, parking studies, and corridor studies. He is an experienced travel demand forecaster having developed and worked on over twenty different traffic models throughout the world. He is proficient in several modeling packages including TransCAD, Cube and emme2 and in the use of micro-simulation packages. He has developed model outputs to support the economic, financial and environmental analysis of major highway, transit and aviation projects. He is proficient in the use of Geographic Information Systems (GIS) for problem-solving, analysis and the effective presentation of results. He has designed and run GIS training courses specifically for Transportation Planners including the design and coding of GIS utilities and scripts. He has performed several large-scale transportation surveys from the survey design stage, through implementation, data cleaning, database population and reporting.

Project Experience

OCTA I-405 PA/ED from I-5 to SR-55 – Orange County, CA
Mr. Devlin is providing traffic forecasting services for a major freeway enhancement project along a highly congested freeway corridor in south Orange County and is developing traffic forecasts using OCTAM, OCTA's traffic model. The project involves close co-ordination with OCTA, Caltrans and the City of Irvine. Forecast volumes are being prepared for freeway mainline, HOV, ramps as well as for arterial intersection and roadway segments. The forecasts will be compared to volumes from ITAM the City of Irvine traffic model and assessed for reasonableness. PeMS data is being extracted and analyzed using statistical techniques along the freeway corridor to ensure that existing volumes reflect a realistic level of demand rather than artificially low observed volumes that can be observed during periods of severe congestion. Model outputs such as Vehicle Miles Travelled (VMT) are also being developed to support air quality, noise and greenhouse gas emissions analysis. The project commenced in February 2015.

Gateway Cities Strategic Transportation Plan – Gateway Cities COG, CA
Mr. Devlin currently runs the Gateway Cities Strategic Transportation Plan (STP) macro model to analyze a variety of alternative scenarios in support of the Strategic Transportation Plan. The model is a variant of SCAGs 2012 RTP model with additional truck vehicle classes to enable effective modeling of Port truck traffic. Mr. Devlin is responsible for model development and operation as well as the development of model outputs to support environmental and operational analysis. The project ran between November 2013 and February 2015.

Chris Devlin

Senior Transportation Planner

Bob Hope Airport Multi-Modal Ground Access Plan Study (MGAPS) – Burbank, CA
Mr. Devlin was lead transportation planner for the data collection phase of a multi-modal transportation planning project analyzing surface access to Bob Hope Airport in Burbank. Data collection included land use and employment data, travel surveys of Metrolink and airport passengers, vehicle counts and passenger counts. The study was performed throughout 2012 and 2013.

Irvine Traffic Model Support – City of Irvine, CA
Mr. Devlin provided modeling support for the City's traffic model (ITAM) for six years between 2007 and 2013. He performed various upgrades to the City's modeling process including links with OCTA's travel model (OCTAM) and developed GIS outputs. He also provided the City with transportation planning support for a series of major traffic studies. The study was performed between January 2007 and October 2013.

NBC Universal Traffic Model – Universal Studios, CA
Mr. Devlin provided modeling support for the development of the NBC Universal traffic model and the expansion of the model study area into the City of Burbank, including ensuring consistency with the City of Burbank's own traffic model. The NBC model is a sub-area model version of SCAG's Regional Transportation Plan (RTP) model. The NBC model was used to test alternative development and transportation scenarios. The project ran between April 2007 and May2010.

Antelope Valley Traffic Model – City of Palmdale & Lancaster, CA
Mr. Devlin provided modeling support for the development of the Antelope Valley traffic model. The model is a sub-area model version of SCAG's Regional Transportation Plan (RTP) model. The model was used to update the City of Palmdale Circulation element, the City of Lancaster General Plan and an assessment of alternative High-Desert Corridor alignments. The project was performed between April 2007 and December 2009.

Central London Congestion Charging – Transport of London, UK
Mr. Devlin was involved in enhancing existing highway and transit models in order to evaluate alternative congestion charging and workplace parking strategies in Central London. The project was performed between January 2000 and December 2002 and congestion charging was implemented on the ground shortly thereafter.

Maui Traffic Model – County of Maui, Hawaii
Mr. Devlin developed a traffic model for the Island which was used to test various highway improvement alternatives. Model tasks included performing roadside interview surveys to collect origin-destination data as well as all model development and alternative evaluation tasks. This work was performed in 1994 and 1995.

London Area Travel Surveys (LATS) – Transport for London, UK
Assistant project manager for a decennial series of major travel and transportation surveys. Surveys included 1,000 origin-destination roadside interview sites, a 30,000 sample-sized household survey and large-scale on-board bus and rail surveys. The surveys were performed in 1991 and 2001 and survey analysis was completed in 1993 and 2003 respectively.

Cleveland Hopkins Airport Vehicle Surveys – City of Cleveland, OH
Mr. Devlin managed a project to collect a series of traffic data at Cleveland airport in 2010.

Traffic Asset Management System (TAMS) – City of Los Angeles Department of Transportation (LADOT)
Mr. Devlin was project manager for an exercise to incorporate various traffic control device assets including traffic signs, traffic signals, pavement markings and parking meters from disparate legacy systems into a centralized GIS-based asset and work order management system. Mr. Devlin managed this project between December 2005 and May 2007.

ITERIS

Sai Chundi, PE

Transportation Engineer II

Education

MBA Candidate, UCLA Anderson, Los Angeles, 2016 (Expected)

MS, Civil Engineering, University of Central Florida, Orlando, 2005

BE, Civil Engineering, BITS, Pilani, India, 2002

Professional Registrations

PE, California, #C79059, 2011

Years of Experience 9

Areas of Expertise

- ITS Planning & Design
- Traffic Engineering & Operations

Professional Affiliations

- Orange County Traffic Engineering Council (OCTEC)

Mr. Chundi has over nine years of experience in the Intelligent Transportation Systems (ITS) Design and Traffic Engineering areas and has served as a Transportation Engineer with Iteris since June 2006. His traffic engineering design experience includes the design of traffic signals, signing and striping, traffic control, stage construction and street lighting projects. His ITS design experience includes fiber optic communications, CCTV, VDS and traffic signal system upgrades. Mr. Chundi also worked with multi-jurisdictional agencies on numerous signal timing and synchronization projects. Recently, he has served as the Internal Project Manager for the Newport Boulevard TSS Project and has been the Lead Design Engineer for Vermont Avenue Arterial Improvement Project and the Santa Monica ATMS Phase 4c project.

Project Experience

ITS Planning & Design

Santa Monica Phase 4c – City of Santa Monica, CA
Mr. Chundi is the Project Engineer assisting with the development of the design package for the Santa Monica ATMS Phase 4c project that includes upgrading to fiber optic communications for 25 signalized intersections and upgrading existing NEMA cabinets to TYPE 332 cabinets. The project began December 2011 and was completed in 2013.

Phases 1, 2, 3, 4, 5 and 7 ITS Projects – City of Newport Beach, CA
Mr. Chundi was the Design Lead for the Phases I1 thru 7 design projects that implemented communications across the City, upgrades to new traffic signal controllers, installation of CCTV cameras, new traffic signals and signal modifications at various locations. The projects also developed new signal timing plans at all intersections in the City. The projects began in 2007 and was completed in April 2011.

ATMS Phase 2 Project for Design Services – City of Corona, CA
Mr. Chundi was the Project Engineer for the development of the design package for the Corona ATMS Phase 2 project that includes 29 CCTV cameras, over 110 traffic signal controller upgrades, over 10 miles of fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system to include an additional six Gigabit Ethernet hubs. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The project began in December 2008 and was completed in April 2009.

Sai Chundi, PE

Transportation Engineer II

Westminster ITS Phase II Project – Westminster ITS Phase II Project
Mr. Chundi is the Project Engineer responsible for the design of over eight miles of fiber optic cable, 12 CCTV cameras and 12 video detection cameras, as well as the upgrade of 56 intersections from 820A controllers to Model 2070 controllers. The project also involves the replacement of VMS-330 with QuicNet and upgrade to the Westminster TMC. The project began in 2007 and was completed in 2009.

Traffic Engineering & Operations

Newport / Balboa Boulevard Regional Traffic Signal Synchronization Project – OCTA, Cities of Costa Mesa and Newport Beach, CA
Mr. Chundi serves as the Deputy Project Manager to provide turn-key traffic / ITS improvements and traffic signal synchronization for 33 intersections along Newport / Balboa Boulevard corridor from Bristol Street in Costa Mesa to Main Street in Newport Beach. Iteris is responsible for the design, procurement and construction of all the infrastructure improvements, including CCTV installation, new fiber-optic cables, controller, cabinet & service upgrades, EVP systems, detections and miscellaneous Ethernet switches. Iteris also develops signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for all project traffic signals along the corridor. This project began in July 2014 and is on-going.

Port of Long Beach On-Call Traffic and Transportation Engineering – Long Beach, CA
Mr. Chundi serves as the Project Engineer for On-call Traffic Engineering Services to the POLB. Mr. Chundi is responsible for the On-Call Plan Checking and Approval Services for Traffic Control Plan, reviewed traffic operations for Harbor Scenic Drive from Harbor Plaza to Pier J Avenue South End and provide recommendations to improve safety and traffic operations within the project area and is the lead design engineer for Traffic Signal Design at the Intersection of Pico Ave/ Pier G Ave and Harbor Plaza/Pier F Ave. The projects started in June 2013 and are currently ongoing.

LAC Colima Corridor Traffic Signal Synchronization Project (TSSP) – Los Angeles County, CA
Mr. Chundi is currently serving as the Project Engineer to provide traffic signal design services for Colima Road.The Colima Road Project covers a total of 28 signalized intersections within the limits between Camino Del Sur and Brea Canyon Cutoff/ Fairway Drive. Iteris conducted detailed field reviews and prepared the Traffic Signal, Traffic Signal Modification and Cloud existing plans in Microstation in accordance with County format and standards. The project started in June 2012 and is currently ongoing.

C-Street / I-110 Freeway Improvements Project - Port of Los Angeles, CA
Mr. Chundi is the Project Engineer leading the development of the design package for the C-Street improvement project that includes developing Signing and Striping Plans, Traffic Signal Design Plans, Street Lighting Plans, Signal Interconnect Plans, Stage Construction Plans and Temporary Traffic Signal and Lighting Plans per LADOT standards, for the existing and new roadway alignment for the project area. The project began in 2008 and completed in December 2014.

Vermont Avenue Arterial Improvement Project - City of Gardena, CA
Mr. Chundi is the lead Project Engineer to provide preliminary engineering, design, and construction management of the Vermont Avenue Arterial Improvement Project from Rosecrans Avenue to 182nd Street in the City of Gardena. The Iteris Team prepared full PS&E package during the design phase, which includes ADA ramps enhancement, pavement rehabilitation, traffic signal upgrades, signing and striping modifications for the entire 2 ½ mile corridor. The Iteris Team also acted as the Construction Manager for the project. Project started in August 2012 and completed in August 2014.

ITERIS

Erlan Gomez, EIT

Senior Systems Engineer

Mr. Gomez has served as Senior Systems Engineer of Transportation Systems division with Iteris since May 2014. Mr. Gomez brings over 13 years of experience to the Iteris team of experts. Mr. Gomez has worked for both public and private sectors in the field of Transportation. He has extensive experience in Intelligent Transportation systems (ITS); Traffic Control Systems (TCS), Fiber Optic Communications, Wireless Communications, TWP Copper Communications, Transit Priority Systems, Photo Red Light Enforcement Systems and Traffic Signal Design. Mr. Gomez' is skilled in the integration of TransSuite and SCATS, the design and integration of ITS devices and any associated communication networks required to support both TCS and ITS integrations. Mr. Gomez is proficient in the design and integration of TCS servers and network equipment, communication networks (fiber, copper and wireless), CCTVs, video encoders and battery backup systems.

Education

MS, Civil Engineering, Loyola Marymount University, Los Angeles, CA, 2010

BS, Electrical Engineering, Loyola Marymount University, Los Angeles, CA, 2002

Professional Registrations

- Engineer-in-Training (EIT), California 03/2003 – Current
- IMSA Traffic Signal Technician Level I, 2012
- IMSA Work Safety Zone, 2012

Years of Experience 13

Areas of Expertise

- ITS Systems Engineering
- ITS Planning & Design
- Traffic Control System Integration

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Project Experience

ITS Systems Engineering

Citywide Signal and Transportation Management Center (TMC) Upgrades – City of Fountain Valley, CA

Mr. Gomez is a Systems Engineer for the Fountain Valley Signal and TMC upgrades project which included upgrading the existing TMC video wall, consisting of two plasma screens and a multitude of small flat panels, into a modern six screen video wall with two desktop monitors. Mr. Gomez also upgraded various signal communication components (switches, video encoders, routers) throughout the City to ensure continuous and reliable network communication for controllers, video detection system video feeds and CCTV cameras from the field back to the TMC.

Trabuco Road TSS On-Call – City of Lake Forest, CA

Mr. Gomez designed and implemented an Ethernet over copper network for the City of Lake Forest to upgrade their existing network which was faulty and unreliable. Mr. Gomez along with the Iteris Systems team identified the TWP pairs with the least resistance and integrated Actelis switches using the identified pairs. Actelis switches utilize ultiple TWP copper pairs to communicate over a communications link. Should one of the pairs fail, then the network would continue working on the other pairs making Actelis networks very robust and extremely reliable.

City of Arcadia Phase II ITS – City of Arcadia, CA

Mr. Gomez served as Project Manager (PM) for the City of Arcadia. As the PM, Mr. Gomez coordinated project team efforts in order to efficiently, and within budget, design and integrate the City's proposed traffic communications network in order to better support their traffic management needs and incorporate an Adaptive Traffic Control system.

Erlan Gomez, EIT

Senior Systems Engineer

He also served as the lead in the design of the City's proposed fiber optic traffic signal communications network extensions. The purpose of the extensions was to provide a fiber optic communications link between the traffic management center and intersections which had not been incorporated onto their traffic management system. This project also included the addition of CCTV cameras onto the City's fiber optic traffic communications network for which Mr. Gomez led all PS&E efforts. During construction, Mr. Gomez provided construction support, configured and integrated the fiber optic communications equipment and integrated the signal controllers and existing CCTV cameras onto the City's TransSuite® system. The project began in May 2010 and was completed in April 2014.

Traffic Management System – City of Diamond Bar, CA
Mr. Gomez was responsible for conducting the implementation, integration, testing and maintenance of the City's communications field equipment necessary for the integration of 67 intersections onto the City's TransSuite® system. The project began in December 2008 and was completed in December 2009. Mr. Gomez has provided troubleshooting. Mr. Gomez' responsibilities included:

- Communication network design to communicate over the City's fiber optic and copper interconnect networks
- Developed IP addressing scheme Installation and configuration of Ethernet over copper and fiber optic field switches to communicate between the traffic signal controllers and the Traffic Control System. Configuration of terminal servers to convert the traffic signal controller's data from serial to IP and communicate it to the communications network
- Configuration of traffic signal controllers to communicate with the Traffic Control System
- Implementation of the City's TransSuite® Traffic Control System
- Trouble shooting of City's fiber optic and copper interconnect
- Provided consultant services to the City for all of the City's ITS projects

Project Engineer– City of Los Angeles, CA
In his six years with the City of Los Angeles Department of Transportation (LADOT), Mr. Gomez designed over 15 Transit Priority corridors for the Los Angeles County Metropolitan Transportation Authority's (Metro) Metro Rapid Program, managed the integration of 8 photo enforcement systems, and was actively involved in the design of over 133 intersections that were upgraded and integrated onto the City's Automated Traffic Surveillance and Control system (ATSAC). The design projects included planning, traffic signal design, communications network design, fiber and copper, and PS&E. The project began in August 2002 and was completed in March 2008.

Alhambra Traffic Control System (ATCS) Project (ATCS) – Alhambra, CA
The City of Alhambra selected TransSuite® for its Traffic Control System (TCS). The City chose 71 intersections to be integrated onto the TCS as part of the project. The City's intersection controllers are a combination of Econolite ASC/2 and McCain 170 controllers which were to communicate with the TCS using wireless IP radio communications and existing copper twisted pair communications infrastructure. The City also has Video Image Detection Systems (VIDS) in place. They requested to be able to view the video feeds from the VIDS over the proposed communications network. Mr. Gomez lead the integration of the traffic controllers onto the TCS over the wireless IP radio and copper twisted pair communication network and integrated the VID video streams onto the City's traffic communications network. The project began in August 2011 and was completed in March 2012.

Pasadena SCATS Project – City of Pasadena, CA
The City of Pasadena selected the Sydney Coordinated Adaptive Traffic System (SCATS) for its adaptive traffic system. The project included the Installation of the SCATS adaptive system on 12 intersections, IP over fiber communications, 2070 controllers, 332 cabinets, video detection. Mr. Gomez' responsibilities included the integration of the SCATS servers and software, development of system graphics, initial configuration and the field deployment of the adaptive system. The project began in January 2013 and was completed in April 2013.

ITERIS

Venkateshwar Jadhav, PMP

Transportation Engineer II

Education

MS, Engineering, University of Utah, Salt Lake City, 2007

BS, Civil Engineering, National Institute of Technology, Surathkal, India, 2004

Professional Registrations

- EIT, CA, #134935, 2009
- PMP #1661906, 2013

Years of Experience 8

Areas of Expertise

- Traffic Engineering & Operations
- ITS Planning & Design
- Systems Integration
- Transportation Planning

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Mr. Jadhav has over eight years of experience and is working at Iteris as a transportation engineer. He has served as Project Manager/Task Leader on various traffic and ITS design/construction, traffic signalization and synchronization, operational analysis, and traffic engineering projects. His ITS design/construction experience include fiber optic communication networks, traffic surveillance CCTV, vehicle detection system (VDS) and traffic signal system upgrades. His traffic signalization and synchronization experience include retiming and synchronization of traffic signals both network wide and corridor. He is very familiar with different types of controllers such as 170, 2070, ASC/3, ASC/2, ATC eX; controller firmware such as Bi Tran (Program 233 & Program 2033), C8, Sepac, Omni eX; and traffic control system such as Aries, ACTRA, Tactics, Centracs, i2 and QuicNet. His transportation planning experience include traffic impact studies and corridor improvement studies. He is proficient in using various software including Vissim, Corsim, Simtraffic, Synchro, Transyt-7F, SCOOT, Tru-Traffic (formerly TS/PP Draft), PC-Travel, AutoCAD, ArcGis and Microsoft Project.

Project Experience

Traffic Engineering & Operations

Intelligent Transportation System (ITS) Phase II Project– Pasadena, CA
Mr. Jadhav is the Project Manager to develop and implement traffic signal timing plans at 26 signalized intersections along 4 corridors during AM, MD and PM peak periods. The tasks included data collection, timing optimization, implementation, and travel time studies to quantify the improvements. Implementation of new timing plans will be conducted in the City's TMC using QuicNet and i2. Travel time studies will be conducted using Tru Traffic and the City provided GPS tracker to generate the reports to their specifications. In addition, before and after videos will be recorded to do a comparison for presentations. The project started in December 2014 and is ongoing.

Barranca/Muirlands Regional Traffic Signal Synchronization Project – Irvine (Lead), Mission Viejo, Lake Forest, Caltrans, CA
Mr. Jadhav is the Project Manager to develop and implement traffic signal infrastructure and coordination improvements for the Barranca/Muirlands Corridor within the Cities of Irvine, Mission Viejo, Lake Forest and Caltrans. The project involves design of a new fiber optic cables (multi and single mode), conduits, pull boxes, cabinets and controller upgrade in City of Irvine; conduit, pull boxes, twisted pair interconnect, and wireless radio in City of Lake Forest; cabinets, pedestrian signals and loop detection in City of Mission Viejo. In addition to the traffic signal infrastructure improvements, the project will develop signal coordination plans for AM, noon, off-peak, PM, "after-hours" and weekend for 44 project traffic signals along Barranca/Muirlands corridor.

Venkateshwar Jadhav

Transportation Engineer II

Two years of post-implementation will be provided to the Cities of Irvine, Lake Forest, Mission Viejo and Caltrans. The project started in June 2014 and is ongoing.

Rancho Vista Boulevard and 10th Street West Corridors (PN 701) – Palmdale and Caltrans, CA
Mr. Jadhav is the Task Lead to develop and implement traffic signal synchronization plans for sixteen (16) intersections along Rancho Vista Boulevard and 10th Street West Corridors. Timing plans will be developed for AM, MD, PM and Saturday peak along both the corridors. The City intersections (14) operates with 170 controllers with McCain's 233 program and will be upgraded to NTCIP Complaint Advance Traffic Controllers McCain 2070 ATC eX with Omni eX firmware. The Caltrans intersections (2) operates with 170 controllers with C-8 program. The project started in May 2015 and is ongoing.

Harbor Boulevard TSS Project – City of Anaheim, CA
Mr. Jadhav currently serves as a Task Lead for the development, implementation and fine-tuning of optimized signal timing plans for more than 30 intersections in the City of Anaheim. Intersections operate with Type 170E, 2070N, and ASC/3 traffic signal controllers and are connected to the central system ACTRA/TACTICS residing at the traffic management center. In addition to the signal timing work, the project also involves traffic system upgrades (also being developed by Iteris). This project involves communication upgrades with fiber optic cables along the corridor as well as 5 CCTV camera installations, six Bluetooth system installations and all integration services for these systems. The project began in March 2014 and is ongoing.

Trabuco Road TSS Project – City of Lake Forest, City of Mission Viejo, CA
Mr. Jadhav currently serves as a Task Lead for the development, implementation and fine-tuning of optimized signal timing plans for more than 20 intersections in the City of Mission Viejo and City of Lake Forest. The technologies used on this project to control traffic are ASC/3 traffic signal controllers and ACTRA/TACTICS for the central traffic management systems. In addition to the signal timing work, the project also involves traffic system upgrades with communication hardware design and integration as well as traffic signal equipment upgrades (also being deployed by Iteris). The project began in March 2014 and is ongoing.

Design of East Mission Road Fiber Optic Project – City of San Marcos, CA
Mr. Jadhav serves as the Task Lead for the development of optimized signal timing plans with adaptive traffic control implementation along the E. Mission Road corridor. In addition, the project involves preparing Plans, Specifications and Estimates of new fiber optics communication network, 15 traffic signal controller upgrades, and 8 CCTV locations including Construction support. The project began in February 2013 and is ongoing.

Citywide Ethernet Project – City of San Marcos, CA
Mr. Jadhav currently serves as the Project Engineer to evaluate the existing communication network, design and implement a citywide Ethernet network. The City currently has a total of 130 traffic signals, 35 CCTV cameras and 29 miles of existing fiber optic network. Approximately 85 traffic signals are controlled by a traffic control system, McCain QuicNet Pro. The system server is located in the City of San Marcos Traffic Management Center (TMC). The communication between the TMC and field devices is mainly through single mode fiber optic cables. The City plans to install an additional 9 miles of fiber optic line and 10 CCTV cameras by end of 2014, bringing an additional 11 signal online. The City intends to install a Citywide Gigabit Ethernet network to accommodate future traffic management needs. The project began in July 2014 and is ongoing.

Traffic Signal Synchronization Implementation Project, Orange County, CA
Mr. Jadhav currently serves as a Project Engineer for the implementation and fine-tuning of optimized signal timing plans for more than 50 intersections involving four agencies (Garden Grove, Westminster, Anaheim, and Caltrans). Intersections operate with Multisonics 820, Econolite ASC/2S-2100 and ASC/3-2100, and 2070N controllers. Signal systems included QuicNet 2006, ARIES, and ACTRA. The project began in December 2010 and was completed in October 2012.

ITERIS

Eunise Reynon, EIT

Assistant Transportation Engineer II

Education

BS, Civil Engineering, California State Polytechnic University, Pomona, 2011

Professional Registrations

Engineer-In-Training, California #141545, 2011

Years of Experience 4

Areas of Expertise

- Traffic Management & Operations
- Traffic Signal Timing

Professional Affiliations

- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC

Ms. Reynon has served as Assistant Transportation Engineer of Transportation Systems division of Iteris since July 2013. Ms. Reynon has over four years of experience with a background in traffic operations and engineering, and transportation design. She has served as a Project Engineer on various traffic engineering and traffic signal synchronization projects, performing tasks such as field data collection, signal timing optimization, field implementation, and timing fine tuning. Ms. Reynon's software knowledge includes Microstation, Synchro, ACTRA, CENTRACS, i2, TACTICS, and various traffic controllers such as ASC/3, and SEPAC 2070, and McCain/BiTran 170.

Project Experience

Traffic Engineering & Operations

Traffic Feasibility Study for U-Turn Prohibition at Hawthorne Boulevard and Highridge Road – City of Rancho Palos Verdes, CA

Ms. Reynon served as a Project Engineer in conducting traffic feasibility studies for the City of Rancho Palos Verdes. Ms. Reynon was responsible in reviewing collision histories, evaluating existing signal operations, and proposing cost-effective solutions to address the heavy turn volumes in the intersection of Hawthorne Boulevard and Highridge Road. The project began in September 2014 and ended in November 2014.

17th Street and Victoria Street Traffic Signal Synchronization – City of Costa Mesa, CA

Ms. Reynon served as a Project Engineer in performing the travel time evaluation task of the project. Ms. Reynon was responsible in performing the floating car studies before timing was implemented and after new coordination plans were installed to evaluate the improvements of fine-tuned coordination plans for both the 17th Street and Victoria Street corridors. The project began in June 2013 and is scheduled to be completed in April 2016.

Santa Monica TMC Staffing – City of Santa Monica, CA

Ms. Reynon served as a Project Engineer in operating the City of Santa Monica's Transportation Management Center during the summer weekends and holidays. Ms. Reynon was responsible for coordinating with Santa Monica Police Department, Public Works Department, and Parking Department in performing plans and strategies to maintain consistent traffic flow within the city's busy downtown area, such as lane closures or restrictions, staff deployment for traffic control, and signal timing adjustments in response to current traffic and parking conditions. The project began in June 2014 and was completed in September 2014.

Eunise Reynon, EIT

Assistant Transportation Engineer II

Valley View Corridor Traffic Signal Synchronization Project – City of Buena Park, CA
Ms. Reynon currently serves as a Project Engineer for the implementation of the proposed coordination plans and preparation of coordination timing sheets, as well as for the operations and maintenance part of the project, which involves a monthly check of the corridors through travel time studies. The project entails for the providing traffic operations and infrastructure improvements at fifteen (15) intersections along Valley View Street, located in the City of Buena Park. The project began in October 2012 and is currently in the operations and maintenance phase. The project is scheduled to be completed in December 2015.

Laguna Woods As-Needed Transportation Services – City of Laguna Woods, CA
Ms. Reynon serves as a Project Engineer assisting in the as-needed transportation services requested by the City of Laguna Woods. Ms. Reynon noted potential operational improvements along the major study corridors in the City, as well as observed traffic patterns within the corridors in the AM and PM peaks, and performed travel time studies monthly to check and maintain coordination along both the El Toro Road and Moulton Parkway corridors. The project began in May 2012 and is scheduled to be completed in May 2015.

Pacific Park Drive/Oso Parkway Traffic Signal Synchronization Project – Cities of Aliso Viejo, Laguna Hills and Mission Viejo, CA
Ms. Reynon currently serves as a Project Engineer for the data collection task of this project, which synchronizes 32 traffic signals along the Pacific Park Drive/Oso Parkway corridor, stretching across five jurisdictions (County of Orange, Caltrans, and Cities of Aliso Viejo, Laguna Hills, and Mission Viejo). Ms. Reynon also aided in the timing analysis and optimization of the project. The project began in July 2013 and is currently in the operations and maintenance phase. The project is scheduled to be completed in March 2016.

City of Newport Beach Traffic Signal Modernization Phases 6A and 6B – City of Newport Beach, CA
Ms. Reynon currently serves as a Project Engineer, aiding in the signal timing optimization task of the project. Ms. Reynon analyzes the basic signal timing parameters and coordination timing plans for the signalized intersections along the San Joaquin Hills Road and Newport Coast Drive corridors, spanning within the Cities of Newport Beach and Irvine. The project began in 2012 and is ongoing. The project began in July 2013 and is scheduled to be completed in June 2015.

Traffic Operations – Communications Upgrade, Design, & Implement Signal Coordination Timing on Temple Avenue – City of Pomona, CA
Ms. Reynon currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pomona's six signalized intersections and Caltrans' two signalized intersections along Temple Avenue. Ms. Reynon analyzes the current basic signal timing parameters and develops coordination plans for AM, Midday, and PM peak periods along the corridor. The project began in April 2013 and was completed in January 2014.

Signal Timing Plans for Rio Rancho Towne Center – City of Pomona, CA
Ms. Reynon served as a Project Engineer for the field data collection and signal timing optimization task of the project, which involves the synchronization of the City of Pomona's five signalized intersections, in preparation for the opening of the Rio Rancho Towne Center Plaza. Ms. Reynon analyzes the current basic signal timing parameters and develops coordination plans for AM and PM peak periods along the corridor. The project began in September 2013 and was completed in October 2013.

MTC Program for Arterial Signal Synchronization – Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont, CA
Ms. Reynon served as a Project Engineer for the data collection and signal timing optimization task of the project, which involves the timing optimization and synchronization of the traffic signals located within the Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont. The project involves obtaining signal timing data from 126 signalized intersections from their respective agencies, reviewing existing timing data, and provide recommendations for improving coordination and operations for the study corridors. The project began in September 2013 and is scheduled to be completed in April 2015.

ITERIS

Naree Kim, PE

Transportation Engineer II

Education

ME, Civil Engineering, University of Utah, Salt Lake City, 2003

BS, Civil Engineering, University of Utah, Salt Lake City, 2000

Professional Registrations

Civil Engineer, Nevada, #22518, 2013

Years of Experience 12

Areas of Expertise

- ITS Planning & Design
- ITS Operations & Management
- ITS Systems Engineering & Architecture

Professional Affiliations

Orange County Traffic Engineering Council (OCTEC)

Mrs. Kim is currently serving as Transportation Engineer II of the Transportation Systems division of Iteris and has been with firm since October 2008 working on ITS Design and Traffic Engineering and Operations projects. Mrs. Kim has over 12 years of experience in the delivery of transportation and traffic engineering projects, with experience that includes the planning, design and deployment of ITS and traffic signal projects. Her ITS design experience includes fiber optic communications, CMS, VDS and traffic signal system upgrades. She has also served as Project Manager and Project Engineer on a variety of planning and traffic signal design projects including preparation of plans, specifications and cost estimates for traffic signals; arterial signing and striping; traffic operation systems; ramp metering systems; and street lighting. She has accomplished a number of traffic impact studies and traffic and circulation sections of EIRs/EISs. Mrs. Kim is proficient in the use of design and traffic analysis software including AutoCAD, Microstation, AGI 32, Synchro/ SimTraffic, and Traffix.

Project Experience

North Santa Monica Blvd. Reconstruction Project – City of Beverly Hills, CA
Mrs. Kim is the Design Lead for the development of the PS&E package for the North Santa Monica Boulevard Reconstruction Project that includes approximately two miles of street lighting upgrades and signing & striping, ten intersections of traffic signal modifications and traffic control plans. The design of the project5 began in June and is ongoing.

Intersection Improvements at Various Locations – City of Santa Clarita, CA
Mrs. Kim is the Project Manager for this project that provides engineering design services to develop PS&E package at various locations in City of Santa Clarita, CA. The design service includes traffic signal modification plans, signing & striping plans, traffic control plans, and Caltrans Fact Sheet preparations. The design of the project began in September 2013 and is ongoing.

Phase 8 ITS Project – City of Newport Beach, CA
Mrs. Kim is the Project Engineer for the development of the design package for the Newport Beach Phase 8 project that included approximately four CCTV cameras, six traffic signal controller upgrades, and fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system. Iteris developed coordinated signal timing plans at all Project signalized intersections. The project began in June 2014 and is ongoing.

Barranca/Muirlands TSSP (Project P) – City of Irvine, CA
Mrs. Kim serves as the Design Lead responsible for the development of the design package for the Barranca/Muirlands TSS Project for the City of Irvine that includes

about 4.5 miles of upgrading to fiber hybrid communications and upgrading existing cabinet to new 332L cabinets. The project began in July 2014 and is ongoing.

Bicycle and Pedestrian Plan – City of San Marino, CA
Mrs. Kim is the Project Engineer for this project that provides engineering planning services to develop city-wide bicycle master plan and pedestrian plan. This project is developed in conjunction with Ryan Snyder Associates who is the foremost bicycle expertise in LA areas. The project began January 2014 and completed May 2014.

Harbor Blvd Regional Traffic Signal Synchronization Project – City of Anaheim, CA
Mrs. Kim is the Design Lead for this project that provides Design/Build services for the Harbor Boulevard intersections within the City of Anaheim to provide improved traffic signal operations along this critical corridor. This project will install 5 new HD CCTV IP Cameras, provision a redundant Gigabit Ethernet ring in the City of robust communications and deploy three Bluetooth access points to expand the existing Anaheim Bluetooth system. The design of the project began in March 2014 and completed in May 2015.

Milliken Avenue / UPRR Grade Separation – City of Ontario, CA
Mrs. Kim was the Design Lead for this project that provided traffic engineering services. Iteris was responsible for design of all traffic elements within the project limits, which included signal design plans for the upgrade of two existing City of Ontario signalized intersections along Milliken Avenue; one new City of Ontario signalized intersection along Mission Boulevard; the upgrade of street lighting, bridge lighting & soffit lighting plans; signing and striping plans. The design of the project began in 2010 and completed in November 2013. The project construction began in June 2014 and currently under construction support phase.

I-5/Katella U.C. Design Project – City of Anaheim, CA
Mrs. Kim is the Design Lead for the development of the design package for the I-5/Katella Undercrossing Design Build Project that includes signal modification, ramp meter modifications and street & soffit lighting. The design build project began in December 2011 and is completed in June 2012.

Phase 4a, 4b & 4c – City of Santa Monica, CA
Mrs. Kim was the Project Engineer assisting with the development of the design package for the Santa Monica ATMS Phase 4 project that included upgrading to fiber optic communications for about 55 signalized intersections, signal modifications for two existing signalized intersections, upgrading to wireless communication for eight signalized intersection, and upgrading existing NEMA cabinets to TYPE 332 cabinets. The project began in December 2009 and completed construction in October 2013.

ITS Master Plan Design Project – City of Oxnard, CA
Mrs. Kim was the Project Engineer for the development of the design package for the Oxnard ITS Master Plan Design Project that will implement Ethernet-based communications to all of the City's approximately 150 signalized intersections. The Ethernet network will be supported by primarily new fiber optic cable installed primarily in existing conduit, replacing the City's existing twisted pair cable. Several of the signalized intersections will be supported by wireless Ethernet radios and select signalized intersections will retain twisted pair cable for Ethernet communications, and serve as cost saving measures. The Ethernet network will be shared with other City departments to provide communications to City facilities including police stations, fire stations, and City buildings. The project will also design and build the City's new Traffic Management Center (TMC). The project began in December 2010 and completed construction in October 2013.

ATMS Phase 2 Project for Design and Integration Services – City of Corona, CA
Mrs. Kim was the Project Engineer for the development of the design package for the Corona Advanced Traffic Management System Phase 2 project that includes 29 CCTV cameras, 110 traffic signal controller upgrades, over 10 miles of fiber optic cable and the expansion of the City's Gigabit-Ethernet backbone communication system to include an additional six Gigabit Ethernet hubs. The project represented a multijurisdictional ITS deployment in partnership with the City of Corona, Caltrans District 8, Riverside County and the City of Norco. The design project began in December 2008 and was completed in April 2009. Construction began in late 2009 and completed integration in April 2011.

ITERIS

Charles S. Askar, EIT

Assistant Transportation Engineer II

Education

BS, Civil Engineer, California State University, Fullerton, 2013

Professional Registrations

Engineer-In-Training, CA, #153780

IMSA Traffic Signal, Level I, #110315, 2015

IMSA Work Zone Safety, #110315, 2015

Years of Experience 4

Areas of Expertise

- ITS Planning & Design
- Traffic Engineering & Operations
- Signal Timing
- Event Management
- ITS Implementation
- Signal Design

Professional Affiliations

Institute of Transportation Engineers (ITE)

Mr. Askar has served as Assistant Transportation Engineer of Transportation Systems division of Iteris since September 2013. Mr. Askar has over four years of experience in transportation systems design, operations and communications. This includes programming controllers, troubleshooting ITS equipment, integrating traffic equipment, timing projects, traffic signal modifications, and over two years of experience in a TMC. Mr. Askar's software knowledge includes Microstation, AutoCAD, MIST, Synchro, ArcGIS, Tru-Traffic, PC Travel, and Microsoft Products; and traffic control systems such as QuickNet, Centracs, Mist, and Intelight.

Project Experience

Traffic Signal Design Plans for EVP Systems – City of Mission Viejo, CA
This project involves design plans for EVP Systems for over 60 intersections in the City of Mission Viejo. Mr. Askar served as a Project Engineer responsible for collecting necessary field work for the existing conditions. He will also be responsible for designing and developing CAD files for the intersections. This project began in December 2013 and was completed in November 2014.

17th Street & Victoria Street–Traffic Signal Coordination – City of Costa Mesa, CA
Mr. Askar assisted in the programming and installation of Etherwan managed switches and Cohu Helios HD cameras. This project upgraded 4 new cameras and 15 switches, integrating them into the City of Costa Mesa's network via new fiber that was also being installed as part of this project. This project began in April 2013 and is proposed to end in June 2018.

Dyer Road- Fiber Installation Project – City of Santa Ana, CA
Mr. Askar assisted in the design and integration of the proposed fiber network for the Dyer Road corridor. The project upgraded 2 miles of existing SIC to fiber optic cables and integrated 4 signals into the City of Santa Ana's existing fiber network. The project began in June 2013 and was completed in September 2013.

MacArthur Boulevard/ Warner Avenue Corridor Integration Projects – City of Santa Ana, CA
Mr. Askar served as an assistant to City Engineers in designing and integrating traffic signal communication upgrades along the MacArthur Boulevard and Warner Avenue corridors. The projects upgraded 15 miles of fiber optic cables and implemented new traffic signal communication equipment at over 20 signals. Mr. Askar assisted with the ITS design in Microstation, programming, testing, implementing, and integration of the signal equipment. The project began in January 2013 and was completed in September 2013.

Harbor Boulevard Regional TSS Project -Anaheim, CA
Mr. Askar currently serves as a Project Engineer for this project, which includes the installation of 5 new HD CCTV IP Cameras, Ethernet switches,

and Bluetooth access points. Mr. Askar is involved in the design and installation of these items in effort to expand the existing Anaheim ITS system. The design of the project began in March 2014 was completed in January 2015.

Barranca/Muirlands TSSP (Project P) - City of Irvine, CA
Mr. Askar currently serves as a Project Engineer for this project, which includes traffic signal synchronization and operational improvements for 44 intersections. Mr. Askar is involved in the optimization, coordination, and design of traffic signal communication upgrades, which span over the cities of Irvine, Lake Forest, and Mission Viejo. This project began in July 2014 and is proposed to end September 2015.

Texas Department of Transportation Signal Synchronization Project – Lake Jackson &Webster, TX
Mr. Askar currently serves as a Project Engineer for the signal timing optimization of the project. The project involves the retiming of 16 intersections throughout the Houston, TX region. Mr. Askar will be assisting in creating the optimized Synchro timing files as well as preparing timing sheets for this project that will be reflecting the final fine-tuned timings that will be installed by engineers in the field. The project began in November 2013 and was completed in April 2015.

MTC Program for Arterial Signal Synchronization – Bay Area, CA
The program involves signal synchronization for over 10 agencies throughout the nine-county region of the Bay Area. The signal synchronization projects include existing conditions, modifications of basic timing parameters to meet the latest California MUTCD guidelines, proposed signal coordination patterns, implementation (field or at the TMC), and field fine-tuning of optimized signal coordination for various agencies each year of the program. Mr. Askar serves as a Project Engineer responsible for collecting the necessary field work for the existing conditions. He will also be responsible for developing the recommended coordination patterns and assist in the implementation and fine-tuning of over 100 signals in the cities of Fremont, Santa Rosa, Mill Valley, and Palo Alto. The project began in September 2013 and was completed in November 2014.

Pacific Park Drive/Oso Parkway Traffic Signal Synchronization Project – Cities of Aliso Viejo, Laguna Hills and Mission Viejo, CA
Mr. Askar currently serves as a Project Engineer for this project, which synchronizes 32 traffic signals along the Pacific Park Drive/Oso Parkway corridor, stretching across five jurisdictions (County of Orange, Caltrans, and Cities of Aliso Viejo, Laguna Hills, and Mission Viejo). Mr. Askar assisted with the travel time studies by collecting travel runs along the corridor using a GPS device with Tru-Traffic. Mr. Askar will also be assisting with the implementation, fine-tuning and evaluation of the new synchronization plans. The project began in July 2013 and is proposed to end March 2016.

Culver Street/Bonita Canyon - Regional Traffic Synchronization Project – City of Irvine, CA
Mr. Askar is a Project Engineer for a multi-jurisdictional signal synchronization project for a 12-mile arterial involving three agencies. The project is implementing Econolite ASC/3 controllers, Emergency Vehicle Preemption, and one CCTV camera. The project will also deploy four signal coordination timing plans for 40 signalized intersections. Coordination plans will be developed for Econolite ASC/3, Siemens SEPAC 2070, and Caltrans TSCP controllers. Mr. Askar assisted with the travel time studies by collecting travel runs along the corridor using a GPS device with Tru-Traffic. Mr. Askar will also be assisting with the implementation, fine-tuning and evaluation of the new synchronization plans. The project began in February 2013 and is proposed to end June 2016.

OCTA Warner Avenue Traffic Signal Synchronization – Cities of Fountain Valley, Santa Ana and Huntington Beach, CA
Mr. Askar currently serves as a Project Engineer for the synchronization system construction phase of the project. Mr. Askar currently coordinates with various agencies to assess special construction timing support necessary to the completion of the project. As a part of this task, Mr. Askar has reviewed and implemented timing parameters of new intersection controller assemblies as well as performed travel time studies and maintenance monthly to assure proper coordination along Warner Avenue. The project began in June 2012 and is proposed to end December 2016.

ITERIS

Shaumik Pal, AICP, PTP

Senior Transportation Planner

Mr. Pal has 13 years of experience in the fields of transportation planning and engineering, of which eight years has been with Iteris. Mr. Pal is a results-driven Project Manager with a track record of successfully managing Highway, Transit, Traffic Impact Analysis (TIA), and Long Range Transportation Planning projects. He has exhaustive and detailed knowledge of highway operations and programs in the Southern California region. He has also served as the Project Manager for preparation of traffic impact studies for many projects in and around Riverside, San Bernardino, and Los Angeles Counties. Mr. Pal has extensive experience working with public agencies including Caltrans, Riverside County Transportation Commission (RCTC), LA Metro, San Bernardino Associated Governments (SANBAG), Orange County Transportation Authority (OCTA), and various cities and counties in the Southern California region. He is a dedicated leader and supervisor with capacity to comprehend, manage, and monitor demanding project schedules and budgets. Mr. Pal is proficient with computer software packages applicable to the fields of transportation and urban planning including TRAFFIX, SYNCHRO, HCS, and CORSIM.

Education

- MBA, University of California, Los Angeles, 2012
- MA, Urban Planning and Policy, University of Illinois, Chicago, 2003
- Certificate, Public Private Partnerships, Yale University and UNDP, 2003
- BA, Urban Planning, School of Planning and Architecture, New Delhi, 2001

Professional Registrations

- American Institute of Certified Planners (AICP)
- Professional Transportation Planner (PTP)

Years of Experience 13

Areas of Expertise

- Highway and Transit
- Traffic Impact Studies
- Long Range Planning
- Engineering Studies

Professional Affiliations

- American Planning Association (APA)
- Institute of Transportation Engineers (ITE)
- Orange County Traffic Engineering Council (OCTEC)

Project Experience

I-15 Express Lanes, RCTC – Riverside County, CA
Mr. Pal served as Project Manager for Traffic Forecasting and Traffic Operations Analysis for the Project Report for RCTC that included the addition of Express Lanes to approximately 14 miles of freeway mainline, including the analysis of 10 local interchanges and two system interchanges. The project requires extensive coordination with other active projects throughout the corridor to ensure consistency of analysis and design. Mr. Pal oversaw the refinement and validation of regional model for project corridor, development of traffic volumes, and operations analysis. He also provided substantial input to design team to optimize freeway operations and managed the development of traffic volumes for alternative project phasing scenarios for toll feasibility analysis. Mr. Pal's involvement began in 2008 and the project is ongoing.

I-15/I-215 Interchange PAED, SANBAG – County of San Bernardino, CA
Mr. Pal served as Project Manager for Traffic Operations Analysis for the SANBAG Project Report for reconstruction of major system interchange near Devore. The project included analysis of freeway operations, including the impact of substandard local interchange spacing, heavy truck volumes, and steep grades. Mr. Pal was responsible for development of Forecast 2040 traffic volumes using regional travel demand model. Analysis includes VisSim™ simulation of freeway mainline and ramps. The project began in July 2007 and was completed in April 2013.

Shaumik Pal, AICP, PTP

Senior Transportation Planner

SR-55 Project Study Report (PSR), OCTA – Multiple Cities in Orange County, CA
Mr. Pal served as Project Manager for the OCTA TEPA Report for improvement along SR-55 from I-5 to SR-91. The project includes analysis of freeway operations, intersection operations, weaving analysis, and ramp junction analysis. Mr. Pal was responsible for the development of Forecast 2045 traffic volumes using OCTAM. The project began in July 2012 and was completed in January 2015.

I-215/Washington Street-Mt. Vernon Interchange PAED, SANBAG – City of Colton, CA
Mr. Pal served as Project Manager for Traffic Operations Analysis for SANBAG Project Report for reconstruction of a major interchange in the City of Colton on I-215. The I-215/Washington-Mt. Vernon Interchange Improvement Project reconstructed the interchange so as to improve operation, increase capacity, and reduce congestion, thereby providing adequate access to and from facilities served by the interchange. Iteris developed the project's opening year and horizon year traffic volumes based on the San Bernardino Transportation Analysis Model (SBTAM). Coordinating closely with the project design team, SANBAG, and the City of Grand Terrace, Iteris analyzed six design alternatives, including alternatives to minimize environmental impacts. The project began in July 2012 and was completed in July 2014.

Cajalco Road Improvement Project – Riverside County, CA
Mr. Pal served as Project Manager for travel demand model development, forecasting and traffic analysis for proposed widening and improvement of a 13-mile, two-lane County road in western Riverside County to relieve congestion, improve safety and help address future traffic demands. The project included more than 50 intersections and more than 50 freeway segments. The project began in September 2011 and is ongoing.

SB4 Draft Environmental Impact Report (DEIR) – Department of Conservation, CA
Mr. Pal prepared the transportation and traffic section of the DEIR for the analysis of Oil and Gas well stimulation treatments in California. Co-authored transportation and traffic section for program level analysis and conducted traffic impact analysis. The project began in March 2014 and is ongoing.

Santa Monica Civic Center Joint Use Project (CCJUP) – City of Santa Monica, CA
Mr. Pal served as Project Manager for traffic and parking analysis for the CCJUP project. The analysis role included working with the District and in close coordination with the City to assess the parking needs of the school both during the school hours and non-school hours. In addition, helping the District to assess the traffic impacts of the proposed new and expanded facilities. The project began in December 2010 and was completed in June 2013.

Helendale Specific Plan – San Bernardino County, CA
Mr. Pal served as Project Manager for the traffic study and circulation element for the Helendale Specific Plan area in San Bernardino County. Project involved public outreach and feedback in the development of proposed land use and circulation plans. The project began in July 2009 and was completed in July 2012.

North City Specific Plan – Riverside County, CA
Mr. Pal served as Project Manager for the traffic study and circulation element for the North City Specific Plan area in Cathedral City, in Riverside County. Project involved public outreach and feedback in the development of proposed land use and circulation plans. The project began in July 2007 and was completed in December 2009.

Highgrove Area Redevelopment – Riverside County, CA
Mr. Pal served as Project Manager for traffic study and circulation element for the Highgrove Area redevelopment plan in Riverside County. Developed customized roadway cross-sections and coordinated with regional bikeway and trail plans. The project began in March 2007 and was completed in July 2007.

ITERIS

Jennica Smith

Assistant Transportation Engineer

Ms. Smith serves as an Assistant Transportation Engineer of the Transportation Systems division of Iteris and has been with firm since July 2014. She has served as a Project Engineer on various traffic engineering and traffic signal synchronization projects, performing tasks such as field data collection, signal timing optimization, and traffic signal modification. Ms. Smith's software and traffic control systems knowledge includes AutoCAD, Synchro, ArcGIS, Tru-Traffic, and Centracs.

Education

BS, Civil Engineering, University of California, Irvine, 2014

Years of Experience 2

Areas of Expertise

- Traffic Signal Design
- Traffic Engineering & Operations
- Systems Integration
- Taffic Incident Management

Professional Affiliations

Institute of Transportation Engineers (ITE)
American Society of Civil Engineers, Orange County, Young Member Forum (ASCE OC YMF)
Position: Webmaster
University of California, Irvine Engineering Alumni Society
Position: OC Events Co-Director

Project Experience

Pomona PVHMC Garey-Aliso Timing – City of Pomona, CA
The project involves preparing traffic signal timing and coordination sheets for a newly signalized intersection, as well as providing implementation and fine-tuning services. Ms. Smith serves as a Project Engineer, with the responsibilities to create a signal timing network and complete signal coordination timing optimization for five intersections. The project began in June 2014 and is ongoing.

Newport Boulevard South Traffic Signal Synchronization, OCTA – Cities of Newport Beach, Costa Mesa and Caltrans, CA
Ms. Smith is a Project Engineer for collecting the necessary field inventories, verifying existing traffic signal infrastructure and operations, and implementing signal timing analysis and optimization tasks. The project will provide operations and infrastructure improvements at thirty-three intersections along a seven mile segment for OCTA spanning across Newport Beach, Costa Mesa, and Caltrans jurisdictions. The project began in July 2014 and is ongoing.

Barranca/Muirlands Regional Traffic Signal Synchronization Project – Cities of Irvine, Lake Forest, Mission Viejo and Caltrans, CA
Ms. Smith serves as Project Engineer for this project, which will regionally optimize and coordinate 44 traffic signals along the Barranca Parkway/Muirlands corridor across the City of Irvine, Lake Forest, Mission Viejo and Caltrans. The project will also provide traffic signal and communications upgrades, as well as migrate the City of Irvine's traffic signals from its existing ACTRA system to communicate with the new Centracs system. Ms. Smith's responsibilities include field inventories and verification of existing traffic signal infrastructure. The project began in June 2014 and is ongoing.

INTENTIONALLY LEFT BLANK

ITERIS

Chris M. Curd, EIT

Assistant Transportation Engineer

Mr. Curd is currently serving as an Assistant Transportation Engineer in the Transportation Systems division of Iteris since May 2015. Prior to joining Iteris, Mr. Curd served in the Traffic Engineering division of the City of Long Beach Public Works Department for one year. Mr. Curd has been involved in several projects involving the design of traffic signal modifications and the design and installation of ITS equipment. With Iteris, he has served on the project team for projects such as the North Santa Monica Boulevard Widening project, Oxnard SCADA project, and the IowaDOT I-74 Bridge Reconstruction project. With the City of Long Beach, Mr. Curd also served on the project team for the 7th Street/Ximeno Avenue Signal Upgrade project among others.

Education

MS, Civil Engineering, California State University, Long Beach, in progress

BS, Civil Engineering, California State University, Long Beach, 2014

Professional Registrations

Engineer in Training, CA #152210, 2014

Years of Experience 1

Areas of Expertise

- Traffic Signal Design
- ITS Planning & Design

Professional Affiliations

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)

Project Experience

Traffic Engineering and Traffic Signal Design

N. Santa Monica Boulevard Widening Project – City of Beverly Hills, CA
Mr. Curd is serving on the design team for the development of design plans for the widening of a 1.8-mile segment of North Santa Monica Boulevard, including signal modifications, signing and striping, and street lighting design. The project began in 2015 and is ongoing.

7th Street/Ximeno Avenue Signal Upgrade – City of Long Beach, CA
Mr. Curd produced design plans for a signal modification at the intersection of 7th Street and Ximeno Avenue while serving the City of Long Beach Public Works department. The signal modification included the replacement of a signal pole and mast arm and installation of protected left-turn phasing. Plans were completed in 2014 and the project is currently awaiting funding.

ITS Planning and Design

I-74 Bridge Reconstruction – Quad Cities Area, IA/IL
Mr. Curd is preparing the fiber architecture diagram for an Iowa DOT-sponsored project involving the reconstruction of a bridge on I-74 spanning the Mississippi River between Illinois and Iowa. The project began in 2009 and is ongoing.

Oxnard SCADA Project – City of Oxnard, CA
Mr. Curd is part of the design team for the development of design plans to extend the fiber optics network of the City of Oxnard, including the installation of new conduit, fiber optics cables, pull boxes and fiber distribution units and the termination and splicing of fiber optics wiring. The project began in 2010 and is ongoing.

INTENTIONALLY LEFT BLANK

ITERIS

Michael M. Plotnik, TE

Transportation Engineer

Education

MS, Civil Engineering, California State University, Long Beach, 2013

BS, Civil Engineering, California State University, Long Beach, 2010

Professional Registrations

Traffic Engineer, CA #2735, 2014

Years of Experience 12

Professional Affiliations

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)
- Society of Women Engineers (SWE)

Mr. Plotnik has served as Transportation Engineer of Transportation Systems division of Iteris since May 2014. Mr. Plotnik has over 12 years of systems engineering experience in the field of Intelligent Transportation Systems (ITS). These ITS applications include the use of systems engineering practices to plan, design, deploy, and integrate ITS elements; traffic management center (TMC) construction and integration; Ethernet Communication networks utilizing fiber optic, Twisted Pair, Wireless, Microwave, and spread spectrum radio. His design experience also includes CCTV, and traffic signal design and modifications. He is proficient in the use of AutoCAD and all Microsoft Office software.

Project Experience

TMC & Fiber Design and Integration – City of Carlsbad, CA

Mr. Plotnik is a Project Engineer for the Carlsbad TMC and Fiber project which will connect the newly designed TMC at the Faraday Center with field devices and City Hall via a new 72 SMFO cable. The fiber route proposed is 14 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. A six screen video wall, network rack and infrastructure, and video management software was a big part of this project. The City utilizes Iteris' video detection camera feeds back to the TMC via wireless Ethernet network.

TMC & CCTV Design and Integration – City of Oceanside, CA

Mr. Plotnik is a Project Engineer for the Oceanside TMC, Fiber, and CCTV project which will connect the newly designed TMC at City Hall with field devices via a new 72 SMFO cable. The fiber route is 23 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. A 16 screen video wall, 36 camera PTZ CCTV cameras, and traffic management software was a big part of this project. This project was San Diego ITE's project of the year for 2011/2012.

San Marcos Fiber Optic Installation, CCTV Upgrade Project and TMC Upgrades – City of San Marcos, CA

Mr. Plotnik is a Project Engineer responsible for the design of a new Ethernet communications system, wireless, integration of existing twisted pair and fiber optic system, integration of existing analog PTZ CCTV cameras, design and integration of ten Ethernet based PTZ CCTV cameras, and a new dual 144 SMFO Fiber Optic Cable that runs approximately 14 miles throughout the City. The Ethernet network will be supported by new fiber optic cable, replacing part of the City's existing twisted pair cable. Upgrades were done to an existing TMC, which included replacing a four projector video wall with a new six screen LCD video wall, DVR units, and with state-of-the-art network switches, routers, and firewalls.

Michael M. Plotnik, TE

Transportation Engineer

TMC Upgrade, Fiber Optic, and CCTV Design and Integration – City of Encinitas, CA

Mr. Plotnik is a Project Engineer for the Encinitas TMC, Fiber, and CCTV project which will connect the existing TMC at City Hall with six CCTV cameras via a combination of new 36 SMFO cable, Ethernet extenders, and wireless. The fiber route is 12 miles and will be supported by Fiber Patch Panels, Routers and Ethernet Switches. Many upgrades were completed at the TMC including a new video server and Router.

ITERIS

Omid Modaghegh

Assistant Transportation Engineer II

Education

MS, Transportation Engineering, California Polytechnic State University, Pomona, 2013

BS, Civil Engineering, California Polytechnic State University, Pomona 2011

Microsoft Certified System Engineer (MCSE)

Professional Registrations

Microsoft Certified System Engineer (MCSE), #100118639

Years of Experience 4

Professional Affiliations

- Orange County Traffic Engineering Council (OCTEC)
- Institute of Transportation Engineers (ITE)
- American Society of Civil Engineers (ASCE)

Mr. Modaghegh has four years of experience with ITS, communications systems, traffic design, and traffic signal timing. He establishes HIL (Hardware in the Loop Simulation) using VISSIM, ASC/3 & 2070 Controller, 332 Hybrid cabinet including all interface configuration for his master's thesis. He also has six years of experience in the IT field with establishing network specifications, designing router administration, including interface configuration and routing protocols. Mr. Modaghegh's software knowledge includes i2, CENTRACS, TACTICS, MaxView, and various traffic controllers such as ASC/3, 2070, and McCain/BiTran 170. He is also proficient in Vissim, Synchro, Tru-Traffic and, PC-Travel software. Mr. Modaghegh is a Microsoft certified engineer.

Project Experience

LACO-4E and Econolite ASC/3 Traffic Signal Timing Sheets Upgrades – City of Pico Rivera, Huntington Park; Duarte; Monrovia and Paramount, CA
Mr. Modaghegh currently serves as a Project Engineer for the project in providing new timing sheets for the LACO-4E upgrades in five cities within the County of Los Angeles. The tasks Mr. Modaghegh currently works on includes data collection, which collects the county's existing timing sheets and as-built plans; field review, which includes measuring intersection crosswalks and performing field inventories; and basic timing parameter analysis, which analyses each city's basic timing parameters and updating them to follow the county's preference. The project began in January 2014 and is on-going.

Newport Blvd TSS – City of Costa Mesa, Newport Beach, CA
Mr. Modaghegh was the Project Engineer responsible for the design of over seven miles of fiber optic cable, 5 CCTV cameras and integrates more than 10 Etherwan Switches, as well as the upgrade of 16 intersections from 820A controllers to Model ASC/3 controllers. The project began in May 2014 and was completed in June 2015.

Torrance Transit Rapid Line R3 Transit Signal Priority System
Mr. Modaghegh was the Project Engineer responsible for developing ongoing installation services for the intersection system hardware and software, CAD/AVL on-bus and back end software modifications, system testing, and system maintenance and operations services for the Rapid Line R3. He is currently heavily involved in the Operation and Maintenance and Bench Testing System. The system has many parts which include buses, wireless communication infrastructure, multiple controller types and a central server system. The wireless communication system included Encom radios which are designed to communicate with the onboard bus unit computer (InMotion). The project intersections along the Rapid Line R3 corridor are owned and maintained by a total of four cities (Torrance, Los Angeles, Carson, and Long Beach),

Caltrans, and the Los Angeles County Department of Public Works, a total of six local agencies. The project began in January 2014 and is on-going.

Countywide Metro Rapid Signal Priority Project, Los Angeles County Metropolitan Transportation Authority – Los Angeles, CA
Mr. Modaghegh is the Project Engineer assisting with the deployment, ongoing operations and maintenance of bus traffic signal priority systems at signalized intersections maintained by 26 local agencies along two Metro Rapid corridors. The wireless communication system includes both Cisco and Encom radios which are designed to communicate with the onboard Bus Rapid Transit (BRT) computer. Project responsibilities include coordination with local agencies, line of sight surveys, preparation of design plans, equipment configuration, installation of intersection traffic signal priority systems, maintenance and acceptance testing. This project began in September 2008, and will be completed by April 2017.

MTC Program for Arterial Signal Synchronization – Cities of Santa Rosa, Mill Valley, Palo Alto and Fremont, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project which involves the timing optimization and synchronization of the traffic signals located within the Cities of Santa Rosa, Mill Valley, Palo Alto, and Fremont. The project involves obtaining signal timing data from 126 signalized intersections from their respective agencies, reviewing existing timing data, and provides recommendations for improving coordination and operations for the study corridors. Mr. Modaghegh also assisted with performing travel time studies by using pc-Travel Time and Tru-Traffic software. The project began in September 2013 and is on-going.

Traffic Signal Design Plans for EVP systems (64 Intersections) – City of Mission Viejo, CA
Mr. Modaghegh currently serves as a Project Engineer for the project, procuring design plans, specifications, and estimates for the city-wide emergency preemption installation for the City of Mission Viejo. Mr. Modaghegh assisted in the data collection task, which includes field inventories and field review of existing equipment; as well as in the traffic signal modification design task, which entails preparing design plans for the installation of the EVP systems. The project began in December 2013 and is on-going.

San Mateo County Smart Corridor Traffic Signal System – City of San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, South San Francisco and San Mateo County, CA
Mr. Modaghegh assisted in the programming and installation of Hirschmann switches. This project involved configuration of 3 backbone switches, 31 aggregation switches, and 62 edge switches for deployment in fiber optic communications networks. This project began in April 2013 and is on-going.

Traffic Operations – Communications Upgrade, Design, & Implement Signal Coordination Timing on Temple Avenue – City of Pomona, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pomona's six signalized intersections and Caltrans' two signalized intersections along Temple Avenue. The Signal timing was developed for Model 170 controllers. Timing parameters were entered in the field at each signal cabinet manually by hand or using a laptop computer and serial cable. Several weeks of field observation and floating car surveys were conducted to ensure positive results. The project began in April 2013 and is on-going.

ITS Phase II Signal Timing – City of Pasadena, CA
Mr. Modaghegh currently serves as a Project Engineer for the signal timing optimization task of the project, which involves the synchronization of the City of Pasadena's twenty eight signalized intersections along Fairoaks Ave, Hill Ave, Colorado Blvd and Foothill Blvd. The Signal timing was developed for Model 2070 controllers. Several weeks of field observation and floating car surveys were conducted to ensure positive results. The project began in November 2014 and is on-going.