

# Exhibit A

Harrison Engineering, Inc. Proposal

August 25, 2016



Harrison Engineering Inc.

# City of San Pablo Qualifications for On-Call Public Works Civil Engineering Consulting Services

August 25, 2016





**HARRISON ENGINEERING INC.**

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Ronalyn Nonato  
Assistant Engineer  
Public Works Department, Engineering Division, City of San Pablo  
13831 San Pablo Avenue, Building 3  
San Pablo, CA 94806

August 25, 2016

**RE: Statement of Qualifications for On-call Public Works Civil Engineering Consulting Services**

Dear Ms. Nonato,

Harrison Engineering Inc. (HEI) is pleased to submit this Statement of Qualifications for On-call Public Works Civil Engineering Consulting Services to the City of San Pablo. HEI is a unique civil engineering firm that only caters to municipal agencies, providing cost effective services for all sizes of CIP projects. As such, we are extremely sensitive to providing services efficiently, while maintaining open communication and developing context sensitive solutions that satisfy the City's needs and expectations. HEI maintains low overhead costs to keep our rates as competitive as possible with minimal administrative time billed to projects.

Because over 90% of our work is related to preparing CIP documents for public bidding, we are very sensitive to maintaining a high level of quality control on our plans and specifications. We want the City's construction manager to be able to "shut the door" on potential contractor claims before it wastes time for the City and its consultant team.

Harrison Engineering Inc. is a California Corporation, properly licensed to practice Civil Engineering in California. We have three State Licensed Professional Civil Engineers that are also a State Certified Qualified SWPPP Developers (QSD).

| Staff Name                   | Title                             | Experience |
|------------------------------|-----------------------------------|------------|
| Randell T. Harrison, PE, QSD | Principal, Senior Project Manager | 30 Years   |
| T. Ryan O'Kane, PE, QSD      | Senior Project Manager            | 17 Years   |
| Wendy Wellbrock, PE, QSD     | Project Manager                   | 12 Years   |

**HEI** has the experience to manage and design a wide variety of federally or locally funded projects. Our staff has extensive experience with drainage, roadway improvements, parks and trails, utility design, grading, and Green Infrastructure (C.3) types of projects. In addition to our design expertise, we have worked on numerous projects involving coordination with State, County, regulatory permitting agencies, and local utility companies. **HEI** is ideally suited to provide the City of San Pablo with civil engineering consulting services including the preparation of plans, design calculations and supporting documentation, general and technical specifications, project schedules, estimates, and studies. For 15 years, HEI has provided on-call services to many cities in the Bay Area.

We are in receipt of Addendum 1 and 2. We look forward to working with you. I will be the PM and your point of contact for all future work. Please call if you have any questions as you review our proposal. In addition to the number above, I may be reached on my cell phone at 925-525-9555 or via email at [Randell@harrison-engineering.com](mailto:Randell@harrison-engineering.com).

Sincerely,  
**HARRISON ENGINEERING INC.**

Randell T. Harrison, PE, QSD, President

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## Statement of Qualifications

### Firm Profile

**H**arrison Engineering Inc. is a California corporation located in Concord, California. Founded in 2001, we provide municipal civil engineering services to government clients throughout the greater San Francisco Bay area. Our staff has extensive experience in projects of all sizes in a wide variety of disciplines, which allows us to provide a broad range of civil engineering services.

Over the past 15 years, HEI has designed and managed hundreds of PS&E projects with project delivery durations ranging from a few weeks to over a year. HEI has consistently managed and delivered our projects on schedule. The size (construction cost) of HEI's projects have ranged from as little as \$20,000 to over \$5,000,000. We successfully coordinate multiple projects by holding weekly internal staff meetings and

reviewing the progress on each project. Upcoming submittal dates are reviewed and deliverables are tracked with a spreadsheet that highlights priority tasks. Subconsultants are contacted to assess their progress on the project and update us on the project progress.

We provide quality engineering services to public agency clients. The quality, professionalism, and commitment of our work are reflected by our repeat clientele, such as the Cities of Berkeley, Antioch, Oakley, Martinez, Pittsburg, Danville, Lafayette, Pinole, Mill Valley, Pleasant Hill, Walnut Creek, Concord, Tiburon, and San Anselmo. Harrison Engineering Inc. strives for client satisfaction by being responsive to our clients' needs and providing a quality work product that fulfills those needs.

### Professional Staff

**HEI** is a California Corporation, properly licensed to practice Civil Engineering in California. We have three Licensed Professional Civil Engineers that are also a Certified QSDs.

**Randell Harrison (Team Leader)** is the principal owner of Harrison Engineering Inc. and has nearly 30 years of experience in flood control, urban drainage, municipal and transportation engineering. He began his professional at Contra Costa County Public Works Department, where he worked for 5 years in the Flood Control, Design, and Construction Divisions. In 1992, Randell went to work for a private consulting firm in Sacramento, where he continued working on flood control, highway transportation, and municipal roadway projects. In 2001, Randell founded HEI, a firm dedicated to providing design services to public works agencies.

**Ryan O'Kane** is a Senior Project Manager with over fifteen years of experience in project management and civil engineering design in the public and private sector. Ryan manages the design and preparation of bid documents and technical specifications. Ryan has performed construction inspection, provided Resident Engineer services, and Construction Management. Ryan completed the Federal Aid Series of Caltrans Local Assistance Training. Ryan is a great communicator and takes pride in his quick response time and coordination with clients.

**Wendy Wellbrock** is a Project Manager with twelve years of experience in project management and civil engineering design in the public and private sector. Wendy works in parallel with Ryan managing the design and preparation of bid documents and technical specifications. Wendy also has served as a City representative to the Contra Costa Clean Water Program and is familiar with the Municipal Regional Permit and those permitting requirements.

## Subconsultant Profiles

**HEI** has developed long standing associations with a wide range of specialty subconsultants to meet the needs of cities to adequately provide similar “on-call” services. The firms that we chose to work with on a regular basis include:

| Subconsultant                                                                                                            | Specialty            | Type of Work                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Quiet River Land Services</b><br>P.O. Box 2881<br>11501 Dublin Blvd., Suite 200<br>Dublin, CA 94568<br>(925) 734-6788 | Land Surveyors       | Topographic & R/W Mapping, Preparation of Tract and Parcel Maps, Lot Line Adjustments, and supporting documentation |
| <b>JMEC Engineering Inc.</b><br>165 Lennon Lane, Suite 106<br>Walnut Creek, CA 94598<br>(925) 944-8999                   | Structural Engineers | Bridge Transportation Developments, Structural Calculations                                                         |
| <b>Fehr &amp; Peers</b><br>100 Pringle Avenue, Suite 600<br>Walnut Creek, CA 94596<br>(925) 930-7100                     | Traffic Engineers    | Traffic Studies, Traffic Plans (Signals)                                                                            |
| If Geotechnical Services are needed:                                                                                     |                      |                                                                                                                     |
| <b>Cornerstone Earth Group, Inc.</b><br>1259 Oakmead Parkway<br>Sunnyvale, California 94085<br>(408) 245-4600            | Geotechnical         | Pavement/Geotechnical Engineering                                                                                   |

HEI has worked almost exclusively with **Quiet River Land Services (QRLS)** since 2006 on our municipal projects. QRLS understand the information that we need to properly design a project. In addition, they are responsive and perform very detailed and accurate work. They provide the complete array of services that are needed from a land surveyor including: topographic survey, construction staking, aerial photogrammetric control, plats and legal descriptions, and more.

**JMEC Engineering Inc.** (JMEC) was founded in 1990 as a California Corporation civil and structural engineering firm. JMEC has a wide range of capabilities that allows the company to be involved in all phases of project work, from initial planning, feasibility study, preliminary engineering, final design, preparation of contract documents including Caltrans PS&E, to construction support services for bridges, parks and recreation facilities, traffic signal modifications, standard and nonstandard structural supports for luminaires and traffic signals, buildings, retaining structures, transit structures, roadway and drainage structures.

**Fehr & Peers** (F&P) is an experienced transportation engineering and planning firm that uses the latest research and innovative technology to better understand and forecast transportation trends in our communities, and use this information to develop plans that meet the needs of all transportation system users. Fehr & Peers offers clients insight and expertise with all matters relating to transportation, including traffic control, data collection, signal and stop sign warrant analysis, mitigation fee development, pedestrian and bicycle safety planning, multi-modal operations and simulation, travel behavior forecasting, and much more.

## HEI Qualifications

### HEI Project Overview

**HEI** has completed PS&E documents for hundreds of projects, including projects for Caltrans and various city and county agencies throughout northern California. Types of projects designed include:

- ☑ **Municipal Infrastructure Improvements** - City **roadways**, expressways, **pedestrian safety** improvements, **site** grading, **drainage** plans, **retaining walls**, **sound walls**, utilities, and drainage structures. Reconstruction, rehabilitation and relocation of facilities. Pipeline installations for storm drainage, **sanitary sewer**, and **water lines**. **HE** will commit the time and resources necessary to respond to **emergency repair projects** for creek bank stabilization, water line or sewer repair projects. Caltrans administered federal-aid projects, including STIP, HBRR, and “Safe Routes to School”.
- ☑ **Flood Control and Drainage Improvements** - Channel improvements, detention basins, weirs, bypass channels, energy dissipaters, debris control structures, storm damage assessment and restoration plans, and other hydraulic control facilities.
- ☑ **Hydraulic and Hydrology Studies and Reports** including: Storm Drainage Master Plans, Hydrology Studies, Hydraulic Studies (Culvert, Open Channel, Detention Basin, etc.), River and Stream Improvement studies (Alternatives Analysis, 404(b)(1)), Location Hydraulic Studies (Bridge Hydraulics), Bridge Scour Analysis, and Roadway Drainage Reports (Caltrans or Agency Format).
- ☑ **Storm Water Pollution Prevention Plans (SWPPP)** – for compliance with NPDES; including preparation of Water Pollution control plans, Notice of Intent, **Best Management Practices** for temporary and permanent pollutant and sediment control.
- ☑ **Storm Water Management Plans (SWMP)** – HE staff has attended all of the training seminars provided by the Contra Costa Clean Water Program and is familiar with all the latest procedures and policies regarding compliance with Section C.3. of the countywide permit.

### Roadway / Pedestrian Facilities

- |                                                                        |                                         |
|------------------------------------------------------------------------|-----------------------------------------|
| ☑ Roadway Planline Studies                                             | ☑ Curb, Gutter and Sidewalk facilities  |
| ☑ Road Rehabilitation (including overlay, digouts, and reconstruction) | ☑ Multi-Use Pedestrian Paths and Trails |
| ☑ Road Widening for additional capacity, bicycle facilities or parking | ☑ Retaining Structures                  |

### Creek / Rivers / Flood Control / Bridges

- |                                                                    |                                                                           |
|--------------------------------------------------------------------|---------------------------------------------------------------------------|
| ☑ Creek Improvement planning studies                               | ☑ River and Stream Improvement studies (Alternatives Analysis, 404(b)(1)) |
| ☑ Storm Drainage Master Plans                                      | ☑ Location Hydraulic Studies (Bridge Hydraulics)                          |
| ☑ Watershed Planning Studies                                       | ☑ Bridge Scour Analysis                                                   |
| ☑ Hydrology Studies                                                | ☑ Roadway Drainage Reports (Caltrans or Agency Format).                   |
| ☑ Hydraulic Studies (Culvert, Open Channel, Detention Basin, etc.) |                                                                           |



Most of HEI's projects are small with a short duration design period with a blend of medium size projects that have longer delivery schedules; this makes it easy to schedule additional small projects into our workload. Because of this flexibility with our workload we are also able to assist the City with the occasional emergency project that may arise due to Acts of God or a Council Member's concern.

### **Caltrans Local Assistance Experience**

**HEI** has developed the PS&E for dozens of federally funded (Local Assistance) projects over the last 15 years. Harrison Engineering has worked with cities throughout the Bay Area in preparing the necessary forms and PS&E documents for "Local Assistance" funded projects.

### **Regulatory Agency Permitting and Environmental**

**H**arrison Engineering knows the environmental and process related permit issues. We provide experience and trust in the eyes of the permit agencies. Harrison Engineering understands the needs and desires of the regulatory agencies, which can greatly accelerate the permit process.

#### ***Environmental Clearance***

- ☑ Provide project management and lead civil engineering to support CEQA/NEPA process for Negative Declaration/FONSI through EIR/EIS compliance documents for transportation, flood control and various other types of public works projects.
- ☑ Prepare Hydrology Report and Floodplain Risk Assessment information to be included in environmental documents
- ☑ Regulatory Agency Permitting (Corps of Engineers, CA Department of Fish and Wildlife, RWQCB, BCDC)

### **Staffing Approach**

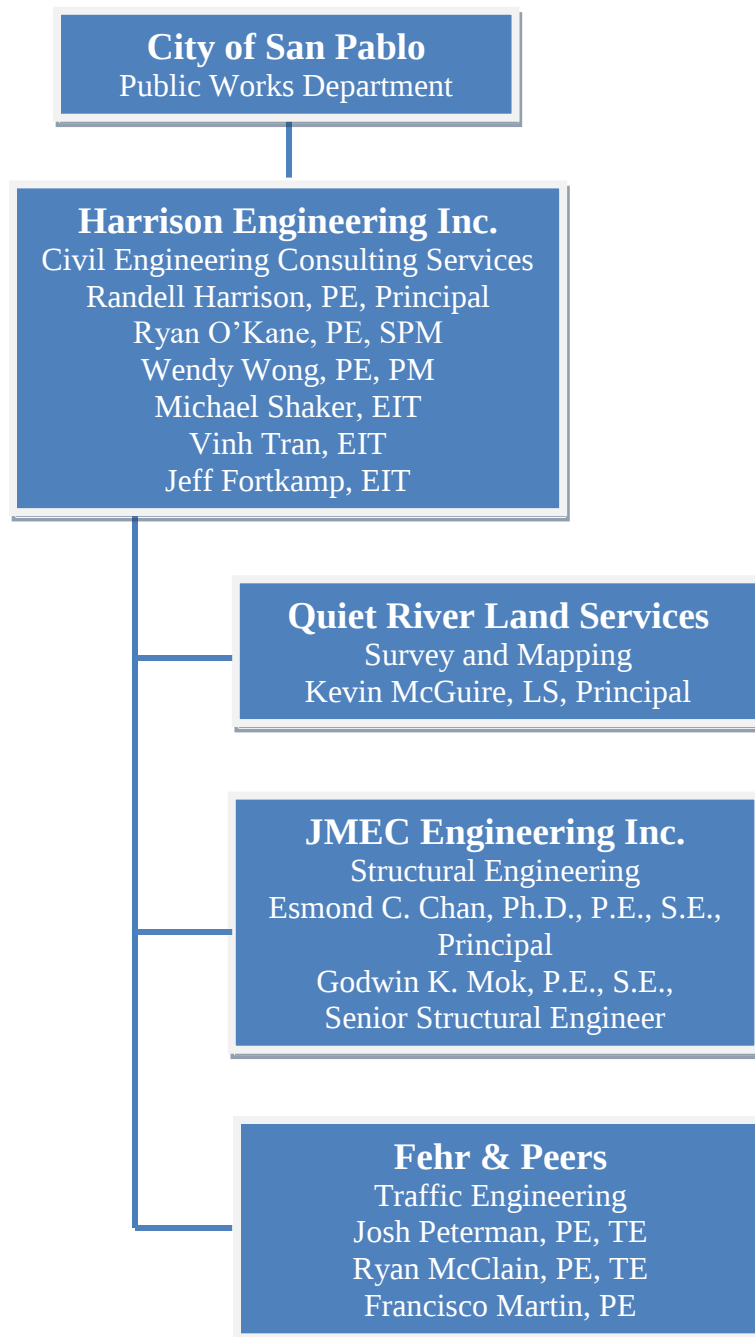
**O**ur current staffing levels are sufficient to provide services to the City of San Pablo without adding staff.

### **Multidiscipline Projects Experience**

**HEI** commonly takes on complex projects that involve multiple disciplines. HEI is typically the prime consultant for our projects with few exceptions. We have coordinated projects that include the following disciplines:

- Land Surveying
- Structural – Bridges and walls
- Traffic – Signal and lighting design
- Traffic Counts
- Utility Locating and Potholing
- Architects
- Landscape Architects
- Noise Consultants
- Hydrographic Surveyors
- Geotechnical Engineers
- Pavement Engineers
- Geologists and Geomorphologist
- Environmental Engineers
- Biologists
- Environmental Planners and Specialists
- CEQA and NEPA Consultants
- Right of Way Acquisition Specialists
- Construction Management
- Marine Engineers

## Organizational Chart



## Resumes

### **Randell T. Harrison, PE, QSD – Senior Project Manager**

**Registration:** Registered Professional Civil Engineer in the State of California, No. C46646.

**Education:** BS in Civil Engineering from University of California at Berkeley, 1986.

**Certification:** Qualified SWPPP Developer, CA Cert. No. 738

**Mr. Harrison** is the principal owner of the firm and has over 25 years of experience in flood control, municipal and transportation engineering. He started his professional career working for Great Lakes Dredge and Dock Company in early 1987, traveling along the West Coast as the project engineer for Corps of Engineers port and channel dredging projects. He was later offered a position at Contra Costa County Public Works Department, where he worked for 5 years in the Flood Control, Design, and Construction Divisions. In 1992, Mr. Harrison started with Mark Thomas & Company, where he continued working on flood control, highway transportation, and municipal roadway projects. In 2001, Mr. Harrison started Harrison Engineering, a consulting engineering firm dedicated to providing design services to public works agencies. Mr. Harrison is actively involved in the American Public Works Association (APWA), Engineer's Without Borders, and East Bay Municipal Engineers. The following contracts are under the direction of Mr. Harrison:

**City of Pittsburg On-Call Services:** Mr. Harrison has been providing lead engineer services to the City for the development of urban drainage projects throughout the City. Work has included design and preparation of PS&E for the following drainage projects: Railroad Avenue and Leland Road Drainage Improvements, Americana Park Bypass Channel, 8<sup>th</sup> Street Drainage Improvements, Mirant Driveway Culvert Replacements, and the Sullenberger Pool Drain Analysis. In addition HEI recently prepared a 3 neighborhood waterline replacement project for the City, which was completed without incident. HEI has provided on-call services to the City of Pittsburg on a continual basis since 2002.

**On-Call Drainage Design Services (Berkeley):** Randell is the Senior Project Manager for these drainage improvements in the City of Berkeley. Projects include storm drainage replacement, intersection regrading projects, creek culvert cured in place pipeliner (styrene free), pipebursting storm drain project, debris rack and debris fence project, plus other consultations for maintenance staff to initiate projects. This contract began in 2013 and has been extended through 2017.

**On-Call Civil Engineering Services (Berkeley):** Randell has been the Senior Project Manager for a variety of ongoing civil engineering projects in the City of Berkeley. Projects include pavement rehabilitations projects, LID projects, emergency slide repairs, full trash capture, storm water treatment systems, sidewalk gap closure projects, curb ramp improvements, and a roadway reconfiguration study.

**On-Call Sanitary Sewer Design Services (Berkeley):** Randell is the Senior Project Manager for this sanitary sewer on-call design services contract in the City of Berkeley. Projects to date have include updates to the City's Standard Details for Utility Trench Cut and for Concrete Flatwork, including curb ramps, sidewalks, curbs and gutters.

**On-Call Civil Engineering Services (Concord):** Randell has been working with the City of Concord, providing on-call services since 2002. HEI has provided on-call services to the city for several curb ramp projects, defending drainage related claims against the City, park restroom projects, parking lot improvements, sidewalk improvement projects, and a variety of minor drainage improvement projects.

**On-Call Civil Engineering Services (Vallejo):** Randell is the Senior Project Manager for this on-call services contract with the City of Vallejo. Projects over the past 2 years have included Grant Street Rehabilitation (2 phases), Seaport Drive Rehabilitation, Winchester Street Rehabilitation (2 phases), and City Park Accessibility Improvements.

**On-Call Engineering Services (Walnut Creek):** Randell is the Senior Project Manager for this on-call services contract with the City of Walnut Creek. Projects have included the Walnut/Homestead/Walker Storm Drain Project, Buena Vista & Parkside SRTS Project, Castle Hill Drainage Study, Development Services Plan Check Hydraulic Review, and a FEMA Floodplain Encroachment Review.

**On-Call Engineering Services (Tiburon):** Randell has been the Senior Project Manager for this on-call services contract with the Town of Tiburon since 2006. Projects have included Reed Ranch Road/SR131 Refuge Lane, Beach Road Drainage Study, “NTPP Steps, Path & Lanes Project”, Town-wide Pavement Rehabilitation Project, Bay Trail Gap Closure Study, Mariner & Harbor Oak Drainage Improvements, Stewart Drive Storm Drain Rehabilitation, Lyford Drive Parking Lot, Detention Basin Dredging and Vegetation Control Project, Multi-Use Trail Improvements, and Tiburon Boulevard Utility Undergrounding Project.

**Town of San Anselmo On-Call Services:** Mr. Harrison has been providing on-call services for a variety of task for the Town which include: Grant Applications, Bolinas Avenue Drainage Study, 61 Angela Avenue Drainage Study, Annual DBE Goal Calculation, 2011 Slurry Seal PS&E Package, and completion of PES and Field Review Forms for the Safe Routes to School Project.

**Town of Danville Staff Augmentation Services:** Mr. Harrison provided staff augmentation services to the Town in support of its Engineering Department. The services have included: C3 compliance review, detention basin analysis and review, hydrology and hydraulic calculation review, plan check and review of final map and closure calculations.

**Lyford Drive Multi-Modal Parking Facility (Tiburon):** Randell was the Principal-in-Charge for this \$800,000 grant funding parking facility that will formalize an existing off street parking area located in Caltrans and Town right of way. The project required preparation of a PEER, Design Exception, Storm Water Data Report, and retaining wall calculations for submission to Caltrans with the Encroachment Permit application. Project was completed in 2013.

**Tassajara Ranch Drive Median Reconstruction and Bike Lane Project (Danville):** Randell was the Project Manager for this \$400K median reconstruction and bike lane project. Project involved realignment and reconstruction of the median to accommodate bike lanes through the corridor. Design included detailed schematics for curb ramp reconstructions, coordination of landscape design, utility relocation identification, crosswalks, curb return reconstruction to accommodate semi-truck turning and signal modifications. Project was constructed in 2012.

**Moraga Road and Ascot Drive Intersection Improvements:** This Caltrans local assistance project involved the design of a signalized intersection, utilizing state of the art video detection, advanced emergency vehicle preemption detectors, median islands, curb ramp improvements, driveway reconstruction for ADA compliance and sidewalk repairs. Project was constructed in 2008.



## **T. Ryan O’Kane, PE – Senior Project Manager**

**Registration:** Registered Professional Engineer in the State of California, No. 73275

**Education:** BS in Civil Engineering, Virginia Tech, Blacksburg, VA, 1999

**Certification:** Qualified SWPPP Developer

*Ryan O’Kane* has over fifteen years of experience in project management and civil engineering design in the public and private sector. Ryan has managed and prepared PS&E packages for multiple roadway rehabilitation and storm drain replacement projects around the Bay Area. In August of 2012, Ryan completed the Federal Aid Series of Caltrans Local Assistance Training, and is well versed in the federal aid requirements. Ryan is a great communicator and takes pride in his quick response time and coordination with clients. Recent project experience includes:

**Hearst Avenue Complete Street Project (Berkeley):** Ryan is the project manager for this \$2.5M Complete Street project in the City of Berkeley, adjacent to the University of California campus. The purpose of this project is to shift the roadway focus to bicycles, pedestrians and transit, while still accommodating automobiles. HEI managed the NEPA environmental clearance on this Local Assistance project, which required archeological excavations (ASR), and HPSR due to historic properties in the corridor. The project reinvented the 35% plans with the additions of parking protected bike lanes and bus islands. Construction is anticipated to start in September 2016.

**HSIP Sonoma Boulevard Project (Vallejo):** Ryan is the project manager for this striping and slurry project. The project will implement a road diet, reducing lanes from 4 to 3 with bike lanes and traffic loops. HEI completed the various Caltrans documents including the PES and field review forms, and technical memoranda. Encroachment permit and E-76 are anticipated in October 2016.

**Franquette Avenue Pedestrian and Bike Trail Connector (Concord):** Ryan is the project manager for this locally funded pathway connector project, administered through CCTA. The project involved the installation of high intensity lighting in the SR-242 Caltrans undercrossing, sharrows, bicycle left turn pocket, AC bike path, sidewalk widening, curb ramps, and drainage improvements. The project included coordination with Caltrans for the encroachment permit needed for the work in the undercrossing. Construction is anticipated to start in September 2016.

**FY’s 2012 Street Rehabilitation and Safety Improvement Projects, Packages A, B, and C (San Anselmo):** Ryan was the Project Manager for the design of this Town-wide pavement rehabilitation project. Package C included a state-funded Safe Paths to School Project on Butterfield Road. All three packages included constructing sidewalks, curb and gutter, curb ramps, and a variety of roadway rehabilitation designs. Ryan’s duties include preparation of special provisions, oversight of the base drawings, direction of the design, and field review of streets.

**Tiburon Pavement Rehabilitation 2013-2014 (Tiburon):** Ryan was the Project Manager for this pavement rehabilitation project, which involves pavement rehabilitation at six streets. Ryan led the determination of the rehabilitation treatment and extents at each location, the development of bid documents, and is currently providing bid and construction support. Ryan managed the project’s design and coordinated with the project team subconsultants. Ryan also provided construction management services for the project.

**Buena Vista and Parkside Drive SRTS Project (Walnut Creek):** Ryan took over this project to wrap up the final design and special provisions. The project involved constructing sidewalks, curbs, conforms of steeply sloped driveways, drainage improvements, and culverting an existing stream through the project site.

**Lyford Drive Multimodal Parking Lot (Tiburon):** Ryan took over this \$800,000 grant-funded project to wrap up the final design, estimates and special provisions. The project involved constructing a reinforced modular retaining wall to create a new 48 space parking facility adjacent to State Route 131 partially located within Caltrans right-of-way. The project required preparation of a PEER, Design Exception, and a Storm Water Data Report for submission to Caltrans with the Encroachment Permit application. Due in part to the extensive cut and fill required, the project included coordination with PG&E to underground overhead lines, Marin Municipal Water District to lower a water main, and AT&T to lower underground facilities.

**Asphalt Rubber Cape Seal & Storm Drain Rehabilitation Project (El Cerrito):** Ryan was the Project Manager and Resident Engineer of this Asphalt Rubber Cape Seal Project. This project included patch paving and cape seal of approximately 22 miles of City streets. The project also included storm drain replacement, sidewalk, ADA curb ramps, curb and gutter replacement, and striping. Ryan engineered the design and prepared the bid documents and technical specifications. Ryan managed the project through bidding and construction including inspection and construction management. Ryan provided project administration and project closeout including compiling and overseeing the execution of the project punch list and final billings. Ryan also responded to resident inquiries through the paving inquiry hotline during construction. This project was successfully completed within the council approved contingency.

**FY 2011 Street Paving Project (El Cerrito):** Ryan was the Project Manager and Resident Engineer of this roadway rehabilitation project. Ryan worked on the preliminary engineering to determine which streets should be included and the recommended treatment. Ryan also provided the design and preparation of the bid documents and technical specifications. Ryan managed the project through bidding and construction including inspection and construction management. The project included patch paving, mill-and-fill of multiple roadways, sidewalk, curb ramps, curb and gutter replacement, and striping.

**Fairmount Ashbury Intersection Pedestrian Safety Improvement Project (El Cerrito):** Ryan provided Inspection and Resident Engineering services of this pedestrian safety improvement project including new signal poles, ADA curb ramps, sidewalk, and curb and gutter. Ryan prepared daily reports, reviewed certified payroll, conducted employee interviews, measured quantities for monthly billings, prepared contract change orders, and completed the weekly statement of working days. Ryan also provided project administration and file management.

**Los Altos Hills Assessment District (Los Altos Hills):** Ryan was Project Manager for a sanitary sewer assessment district in Los Altos Hills. This project included the preliminary design of a new sanitary sewer system to provide a public sewer system for an unincorporated area of Los Altos Hills that relied on aging septic tanks. One of the challenges was providing a gravity system in a hilly area. During the proposal phase, Ryan used a hand level to determine rough preliminary grades and was able to show the client that a pump station could be avoided, keeping construction costs low and potential maintenance issues at a minimum for this resident funded sanitary sewer project.



## **Wendy Wellbrock, PE –Project Manager**

**Registration:** Registered Professional Engineer in the State of California, No. 71414

**Education:** BS in Civil and Environmental Engineering, UC Davis, 2003

**Certification:** Qualified SWPPP Developer, LEED Accredited Professional

*Wendy Wellbrock* has over twelve years of experience in project management and civil engineering design in the public and private sector. Prior to HEI, she worked on a variety of private and public projects for the City of Orinda, Wilsey Ham, MacKay and Soms, and Sacramento County.

### **Project Experience:**

**Winchester Street Rehabilitation Project (Vallejo):** Wendy is the project manager for this pavement rehabilitation project. The project will evaluate pavement rehabilitation alternatives based on anticipated design life and cost. Design also includes reconstruction of sidewalk, curb, gutter and sidewalks. Wendy will provide design support, preparation of the bid documents and technical specifications as well as manage the project through bidding and construction.

**West Berkeley Sidewalk Gaps Project (Berkeley):** Wendy is the project manager for this sidewalk construction project. Wendy's duties include providing design support and managing preparation of the bid documents and technical specifications. Wendy will also manage the project through bidding and construction. The project consists of constructing sidewalks and reconstruction of curb ramps and driveways at 5 sites in West Berkeley.

**FY2016 LID Project (Berkeley):** Wendy stepped into this \$1.8M green infrastructure project in the City of Berkeley after submission of the 95% PS&E. The project involves permeable pavers, bioretention basins, and underground stormwater retention vaults. The projects are funded through the City's Measure M Bond program.

### **Project Experience with the City of Orinda:**

**Camino Pablo Pavement Rehabilitation:** Wendy secured grand funding and managed design consultants, the contractor and construction management consultant for this \$2.0M pavement rehabilitation project. The project include pavement rehabilitation for an approximately 1.2 miles stretch of Camino Pablo, installation of ADA compliant ramps, traffic signal modifications, and signing and striping for bicyclists to improve pedestrian and bicyclists safety.

**Master Storm Drainage Study:** Wendy managed the preparation of a master storm drainage study for the City of Orinda. The study analyzed select portions of the existing storm drain system and identified deficiencies within the City's system to better plan for future capital improvement plan projects.

### **Project Experience with Wilsey Ham:**

**Burlingame Avenue Streetscape Project (Burlingame):** Wendy was the primary project engineer for this utility improvement project which had a construction cost estimate of \$8.0M. The project included replacement and upgrades to over 10,000 lineal feet of sanitary sewer pipe and services, over 10,000 lineal feet of domestic water pipe, services and fire services, and a new storm drain box culvert.

## **Michael Shaker, EIT – Senior Design Engineer II**

**Registration:** Certified Engineer In Training #153511

**Education:** BS in Civil Engineering, Cal Poly San Luis Obispo, 2014

**Certification:** Certified LEED Green Associate #10930025

**Michael Shaker** has engineered and assisted in the designs for several pavement rehabilitation projects. Michael has experience in construction inspection, preparing construction layout plans, construction details, profiles, cross-sections, and performing quantity calculations using Civil 3D. Michael is learning to prepare complete PS&E packages for clients as he works towards his PE license. Michael is highly organized; detail oriented, and has excellent communication skills.

### **Project Experience:**

**Winchester Street Rehabilitation Project (Vallejo):** Michael is a Design Engineer for this complete rehabilitation project between Sonoma Boulevard and 2nd Street. Project includes curb and sidewalk reconstruction, plus full pavement reconstruction using FDR.

**Grant Street CDBG Rehabilitation Project (Vallejo):** Michael is a Design Engineer for this 2 phase rehabilitation project between McLane Street and Cherry Street. In the first phase, Michael designed the concrete sidewalks and ADA compliant curb ramps which included developing a construction staking plan, calculating driveway and curb ramp slopes, and preparing construction plan layouts with details. In the second phase, Michael developed cross sections and profiles for the finished pavement grade, set the crown line to ensure proper drainage, and developed a grading plan for full depth reclamation construction.

**CDBG Grant Street Rehabilitation Project (Vallejo):** Michael is a Design Engineer for this 2 phase rehabilitation project between McLane Street and Cherry Street. In the first phase, Michael designed the concrete sidewalks and ADA compliant curb ramps which included developing a construction staking plan, calculating driveway and curb ramp slopes, and preparing construction plan layouts with details. In the second phase, Michael developed cross sections and profiles for the finished pavement grade, set the crown line to ensure proper drainage, and develop a grading plan for construction using full depth reclamation.

**Camino Tassajara SAFETEA-LU Improvements Phase II (Town of Danville):** Michael prepared the plans and established several design options to meet the town's \$1.7 million federally funded budget. The project included dig-outs, milling, micro-milling, paving mat, HMA inlay, and striping of a 4.2 mile section of this major arterial in the Town of Danville. Michael performed field reconnaissance to identify utilities and pavement dig-out locations, prepared Utility and Right of Way Certifications in accordance with Caltrans Local Assistance procedures, and prepared a P&E.

**Seaport Drive Pavement Rehabilitation Project (Vallejo):** Michael is the design engineer for this full depth reclamation pavement project. Michael developed base mapping using GIS data, high resolution aerial photogrammetry and field observations. Design includes 6 ADA compliant curb ramps, subdrain system to capture spring water, utility mapping and development of the P&E.

**Tiburon Boulevard Utility Undergrounding Project (Tiburon):** Michael served as the construction inspector for this utility undergrounding and multi-use path reconstruction project in for the Town of Tiburon. Work was in State right of way, Town of Belvedere right of way and involved a pedestrian/bike detour plan to accommodate the work.



**Kevin M. McGuire, CA PLS #6437** Principal and founder of Quiet River Land Services, Inc.

Professional Land Surveyor holding current valid license in two western states.

Colorado - PLS #23897 obtained 1986

California - PLS # 6437 obtained 1990

**Education:** Graduate 1992, University of California at Santa Cruz, B.A. in Environmental Studies and a Minor in Biology. Graduated with College Honors and Honors in the Major. The degree work was directed toward Land Use/Land Development Issues, riparian and tidal land-use interface, NEPA/CEQA, land trusts, valuation of species of habitat for land use/development, riparian and wetlands habitats, mitigation of invasive species, restoration of damaged ecosystems and U.S. energy policy.

**Affiliations:** Past President of the Board of Directors Northern California and Nevada Civil Engineers and Land Surveyors Association, Past Member Board of Trustees for Northern California Surveyor's Joint Apprenticeship Committee (NCS-JAC), current member of Local and State Chapters of California Land Surveyor's Association.

#### **Projects:**

**City of Antioch:** 2011-2012: Markley Creek Drainage Project on Somerville Road- QRLS Provided initial topographic survey and mapping, establishing project control and providing detailed mapping of creek channel, piping, rip-rap, side slopes, various other drainage improvements, Somerville Road paving, existing sidewalks and adjacent park data, and all utilities for use in the engineering and construction of the new culverts. QRLS provided all construction staking services for said project, working with The City, Parsons Brinkerhoff Construction management and contractor, Platinum Pipeline.

**Town of Moraga:** 2012: Multiple Street Improvement Projects, Safe Routes crossing projects, and Town Skate Park new parking and drainage project. QRLS provided topographic surveying and mapping for design then provided all construction staking for the projects.

**Town of Danville:** QRLS continues to provide survey, mapping and construction staking services to Town of Danville on various types of projects.

2008-2013: W. El Pintado Roadway Repair Project and Diablo Road Bridge Slope Repair.

2012: provided detailed topographic surveying, mapping and Street right of way determination for new sound wall design and construction along Crow Canyon Road.

2012: Provided detailed topographic surveying and mapping of Danville South Park, park boundaries, street rights-of-way, all planimetric improvements for park rehab.

2012: Provided detailed topographic surveying and mapping for use in the design and construction of upgrades to drainage channels and piping that receive runoff from new adjacent subdivision.

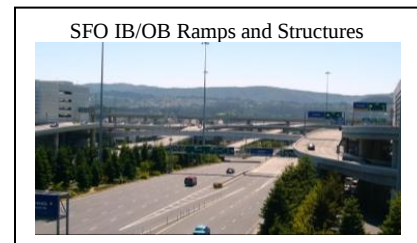
**Esmond C. Chan, Ph.D., P.E., S.E.**  
**Principal and Project Manager - Structure**

Education: Ph.D. /1983/ Structural Engineering, University of California at Berkeley  
M.S. /1977/ Structural Engineering, University of California at Berkeley  
B.S. /1976/ Civil Engineering, University of California at Berkeley

Registration: S.E. #3923/1994/ Structural Engineering, California  
P.E. #39454/1985/ Civil Engineering, California

Dr. Chan brings to the project team more than 30 years of experience in planning, analysis, design and construction of large scale civil engineering projects involving heavy construction for buildings, bridges and transportation facilities, and seismic retrofit and rehabilitation. He has served as Project Principal, Project Manager, Project Engineer and Designer for many major multi-disciplinary projects in U.S., Canada and overseas. He has worked with various cities and municipalities on Capital Improvement Projects including pedestrian safety improvements, park and recreation facilities, retaining structures and slope stabilization projects. He is knowledgeable in many design codes including CBC; AASHTO LRFD Bridge Design Specifications; AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals; and current Caltrans policies on construction and design of bridges and retaining structures. As project manager for many major transportation projects, he worked with Caltrans on structure type selection, final design, prepared PS&E and provided construction phase services for more than 40 Caltrans projects. His experience in roadway and pedestrian safety improvements projects included the Wren Avenue School Safety Improvement, W. Cypress Road Bridge Barrier Replacement and Safety Improvements, Potrero Avenue Improvements, Geary Road and Pleasant Hill Road Improvements, W. El Pintado Roadway and Safety Improvements, and many others. Example completed projects encompassing the relevant design features included:

**SFO Inbound/Outbound Ramps and Structures, San Francisco, CA:** Project Manager and Independent Checker for two off-ramp structures, designed the seismic retrofit of a 1,236-ft on-ramp OC and designed a sign support structure following Caltrans Standards and requirements.



**Detroit Avenue/Whitman Road Pedestrian Safety Improvements, Concord, CA:** Project Manager responsible for designing a safe passage across the bridge by adding a sidewalk on the bridge and a crosswalk across Whitman Road, and included modifying the traffic signal and all necessary striping.

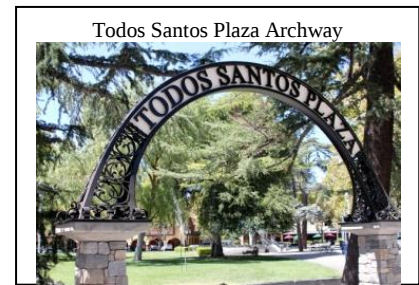


**BART Earthquake Safety Program - Aerial Guideway Structures for A-Line North, Oakland, CA:** Lead Structural Engineer for the seismic safety retrofit of about 9 miles of aerial structures with more than 600 piers, including 104 piers that qualify for Caltrans LSSRP funding; and designed or checked special non-standard lighting and signal supports at various intersections. Provided construction phase services.



**On-call Engineering Services and Peer Review, Pittsburg, CA:** Served as Project Manager for various on-call services and performed plan check for various City's subdivision development projects including soundwalls and retaining walls at San Marco, Greystone Place, Railroad Avenue II and others. As civil engineer, he designed special footings for sign supports and traffic signals.

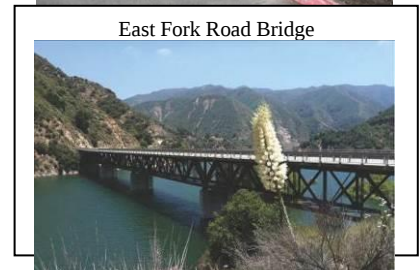
**On-call Engineering Services, Concord, CA:** Project Manager for various civil and structural engineering services including building retrofit, bridge design, pedestrian safety improvements, bridge seismic retrofit for HBP program, gateway signage and archways, retaining walls and tie-back walls, and various facilities improvements. For the Todos Santos Plaza Archway project, JMEC has worked with City Council and citizens to develop the archway concept and completed the archway design with LED lighting. JMEC has completed this project under budget with the help of Public Works to perform pot-holing and electrical connection to the City's power source.



**Woodbine Bridge Replacement, Danville, CA:** Structural Engineer responsible for designing a 103-ft steel pedestrian bridge across the Green Valley Creek, and provided technical support in the permitting process. Provided construction phase services and redesigned the abutment to accommodate incorrectly set piles.



**Countywide Bridge Seismic Retrofit, Los Angeles, CA:** Project Manager for the seismic evaluation and seismic retrofit design of nine bridges, including railroads bridges, overcrossings, and bridges over waterways. For the 640-ft East Fork Road Bridge across NF San Gabriel River that serves as an important access to trail and vehicular traffic, JMEC performed linear and nonlinear seismic analyses that have lead to an economical retrofit with seismic isolation bearings and local bridge strengthening. The East Fork Road Project won the ASCE MLAB Outstanding Structural Engineering Award of the Year 2016.



**New Benicia-Martinez Bridge, Martinez, CA:** Lead Engineer for analysis and design of an award winning segmental light weight concrete bridge with a maximum span of 662-ft. Work included superstructure and substructure design including the CIP south approach structure with a 315-ft maximum span, abutments, all pier tables and pier diaphragms. Evaluated feasibility and structural impacts to accommodate commuter train. Provided construction phase services, performed site visits, reviewed shop drawings, and checked contractors' submittals to ensure structural adequacy and safe operation.



**Wren Avenue School Corridor Safety Improvement, Concord, CA:** Structural Engineer responsible for designing a replacement bridge and all ancillary structures across the Contra Costa Canal. Pretensioned girders were used to ensure construction can be completed within the school summer recess.



**Ygnacio Valley Road Slope Stabilization, Concord, CA:** Structural Engineer responsible for designing a tie-back wall with concrete lagging to stabilize the slope along Ygnacio Valley Road. Alternatives considered included secant wall, cantilever wall and tie-back wall.

**West El Pintado Road Slope Stabilization and Roadway Repair, Danville, CA:** Structural Engineer responsible for a slope and sidewalk repair. Alternatives considered including soldier pile wall, tie-back wall, MSE wall, soil nails, secant wall, and sheet pile wall. He has prepared structure type selection report and completed final design (PS&E).



**Godwin K. Mok, P.E., S.E.**  
**Senior Structural Engineer****Education:** B.S. /1983/ Civil Engineering, University of Southampton, England**Registration:** S.E. #4396/1999/ Structural Engineering, California  
P.E. #54399/1995/ Civil Engineering, California

- Over 25 years of Experiences
- Bridge Design and Retrofit
- Building Design and Retrofit
- Caltrans Experiences
- Seismic Analysis & Design
- Public Works & CIP Projects
- Field Construction Experiences

**Mr. Mok** has more than 25 years of civil and structural engineering experiences included serving as project manager, project engineer, resident engineer, bridge engineer, and building engineer. He has completed many CIP projects for various cities and municipalities. He is experienced in bridge design and bridge seismic retrofit, and is proficient in Caltrans procedures and bridge design tools. Since joining JMEC in 1992, he has participated in more than 30 bridge projects including more than 10 bridge seismic retrofit PS&E (4

Caltrans bridges, 4 bridges for LA County and 2 bridges for USDAFS), and bridge inspection and load rating of more than 30 bridges. He has been senior bridge engineer responsible for the design of SFOBB main pier T1 foundation and has evaluated CIP concrete pile cap and steel pile cap alternatives. He has performed VE and evaluated various pile configurations for the SFOBB skyway, and has participated in the stress analyses of various structural components. As project engineer for the SAS, he has reviewed RFIs and shop drawings including the steel tower, tower head, and the orthotropic steel box. He has served as senior bridge engineer for the PS&E for SFIA Inbound/Outbound ramps and SR242 Concord Avenue Interchange Improvement involving two bridges, retaining walls, MSE walls and soundwalls. He has served in the capacity of designer or independent checker for various Caltrans projects including SR4(West) Gap Closure Improvement; the Central Viaduct seismic retrofit; and the Cypress Viaduct Reconstruction including the pretensioned girders (Section F) and CIP box girder (Section C). He has been project engineer for the USDAFS roadway and bridge projects; 6-lane 520' Nile Creek Bridge for both concrete and steel alternatives with pier design based on displacement ductility requirements; and Whipsaw Creek Bridge seismic retrofit and widening. Relevant completed projects include:

**A-E Services for USDA, Forest Service, Statewide, CA:** Project Engineer for roadway and bridge design including ancillary structures. Completed projects include the design of a 125' China Flat Bridge, the inspection and evaluation of three Bailey Truss Bridges, 160' arch Deep Creek Bridge, and seismic retrofit of a 500' Circle Bridge.

**San Francisco – Oakland Bay Bridge East Span Seismic Safety Project, CA:** Project Engineer for the evaluation and design of the skyway substructure, and for the final design of main tower foundation for the self-anchored suspension bridge. Provided construction phase engineering support for the construction of SAS.

**SFIA Inbound & Outbound Ramps and Structures, San Francisco, CA:** Project Engineer for the design and preparation of Caltrans PS&E for two \$16 million off-ramp structures connecting the elevated circulation roads and a seismic retrofit of a 1,522-ft on-ramp overcrossing.

**New Benicia-Martinez Bridge, Martinez, CA:** Senior Bridge Engineer for analysis and design of superstructure including pier tables, and the gore connecting the North Approach Viaduct and the main bridge. Provided construction design support services for Caltrans.

Construction of China Flat Trail Bridge



SFO Inbound and Outbound Ramps





# Josh Peterman

Director of Engineering  
Principal

## about

Mr. Peterman has over 15 years of experience in the planning and design of transportation infrastructure including traffic signal systems, street and intersection lighting, ITS, transit enhancements, striping and signing, as well as pedestrian and bicycle improvements. He is proficient in analyzing signal operations and timing for various controllers.

He has delivered projects for public and private agencies at the state and local level. Mr. Peterman is an active participant in Fehr & Peers' innovative R&D efforts, and leads the firm's Engineering Discipline Group.

## education

Master of Science, Civil Engineering, University of Texas at Austin, 1999

Bachelor of Science, Civil and Environmental Engineering, University of California at Davis, 1996

Certificate in Telecommunications and Network Engineering, UC Berkeley Extension, 2003

## affiliations

Institute of Transportation Engineers: Member  
Intelligent Transportation Society of America: Co-Chair of Transportation Sustainability Working Group, 2012-2014  
Intelligent Transportation Society of California: Director  
American Society of Civil Engineers: Member  
MTC Arterial Operations Committee: Member, 2007 Co-Chair, 2008 Chair

## registrations

Licensed Civil Engineer, State of California (#62301)  
Licensed Civil Engineer, State of Washington (#49246)  
Licensed Civil Engineer, State of Oregon (#90390PE)  
Licensed Traffic Engineer, State of California (#2177)

## expertise

- Traffic and Transit Engineering
- Communication System Design
- Traffic Signal and Lighting Design
- Traffic Control Plan Design
- Traffic Operations Analysis
- Signal Timing Development and Implementation
- ITS / Communication Network Design
- Pedestrian and Bicycle Planning and Design
- Infrastructure Design for Electric Vehicles

## publications & presentations

- *Automated and Connected Vehicles: Their Impact on Transportation Planning and Infrastructure*, Fehr & Peers, 2014.
- *Using ITS to Plan for Emergency Response in Santa Clara County*, presented at ITS America Annual Meeting in Orlando FL, 2012
- *Traffic Signal Design*, an ASCE Webinar, delivered annually since 2010
- *TE-02 Traffic Signal Design*, UC Berkeley Tech Transfer, Lead Instructor, 2015
- *Evaluation of Incident Detection Methodologies*, presented for M.S. Thesis, University of Texas, 1999
- *Video Over Copper Networks; The Tale of Three Cities*, presented at ITE Technical Conference, Las Vegas NV, 2005
- Presenter to ITS America and ITS UK on the connection between ITS and EV's (2012)



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## project experience

### **Kaiser Oakland Campus Roadway Improvements**

Mr. Peterman led the design team for the multiphased replacement of the Kaiser Permanente Oakland Medical Center. In the first Phase, Fehr & Peers was responsible for the design of three traffic signals, signal interconnect, street lighting, temporary signals and temporary lighting, signing and striping, Citywide wayfinding signage, as well as multi-stage Traffic Control Plans. Fehr & Peers coordinated all power requirements for PG&E, conducted photometric calculations to meet Oakland's lighting requirements, and worked with the City's Electrical Division on design and signal timing parameters to achieve a temporary signal and lighting design that would be durable and maintainable with the City's equipment. The second phase of included all items above as well as CCTV cameras, fiber optic communication, wireless communication, traffic signal timing, construction support and record drawings.

### **SR 4 Bypass Widening and Sand Creek Interchange**

Fehr & Peers prepared Plans, Specifications, and Estimates (PS&E) for the widening of the State Route 4 Bypass, south of Lone Tree Way in Antioch and Brentwood, CA. Fehr & Peers also prepared plans for electrical systems for the SR 4 Bypass / Sand Creek Interchange in Brentwood. The total estimated construction cost for the project, including utilities and right-of-way, was \$75 million. Fehr & Peers prepared plans, specifications and estimates for the following elements: traffic signal and safety lighting; signal interconnection; ramp metering, CCTV and traffic monitoring stations; highway lighting and sign illumination; soffit lighting; street lighting, and temporary signals. Fehr & Peers coordinated the design with the Caltrans District 4 Project Development Team (PDT), and coordinated design and operations requirements with Caltrans signal operations and electrical staff. Fehr & Peers remained involved with the project during construction.

### **Presidio Parkway (San Francisco, CA)**

Fehr & Peers is currently serving as a sub-consultant to Golden Link Partners. This project includes the replacement of Doyle Drive (US 101) from the Golden Gate Bridge to Richardson Drive and Lombard Street in San Francisco, California. We are responsible for the Transportation Management Plan (TMP) for the

construction documents as well as the traffic signal and roadway lighting plans, specifications, and estimates (PS&E). In this role, we are also assisting the design team with traffic handling, maintenance of traffic, and stage construction plan development.

Fehr & Peers has also been tasked with preparing the traffic forecasting and operations analysis to support the basis of design as well as preparing the traffic coordination scheme for 18 intersections that is to be implemented with project opening. Because this project passes through The Presidio (a National Historic Landmark District), there is high sensitivity to impacts during construction as well as the finished design treatments.

### **East Bay BRT (Alameda County, CA)**

Fehr & Peers was retained to assist the City of Oakland with engineering review of the East Bay Bus Rapid Transit Project. The project includes construction of dedicated transit lanes, transit signals, median and shoulder station platforms, and extensive wayfinding signage. Specifically, Fehr & Peers staff reviewed the geometric plans, traffic signal plans, signing and striping plans, traffic control plans, maintenance of traffic plans, and the ITS plans. Fehr & Peers also reviewed the basis of design reports for the referenced disciplines. In addition, Fehr & Peers represented the City of Oakland at technical coordination meetings with the design team to resolve design conflicts and other issues raised during the City approval process. The plan set included over 300 pages covering over seven miles of BRT. Signal work included modifications to accommodate dedicated transit signals and protected left-turn phasing. Traffic control plans included lane reconfigurations, lane closures, and road closures.

### **Contra Costa Boulevard Improvements (Pleasant Hill, CA)**

Fehr & Peers was retained (as a Subconsultant) by the City of Pleasant Hill to design bike lanes, traffic signals and street lighting as part of an overall streetscape improvement of Contra Costa Boulevard from Willow Pass Road to Chilpancingo Boulevard. Fehr & Peers provided the final design for traffic signals, signal interconnect, street lighting and pedestrian-scale lighting for the sidewalks. Our work included photometric analyses and traffic operations analyses to support the design.



Walnut Creek | Denver | Honolulu | Inland Empire | Los Angeles | Oakland | Orange County  
Roseville | Salt Lake City | San Diego | San Francisco | San José | Santa Monica | Seattle

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# Ryan McClain

PE, TE

Senior Associate

Ryan has worked in the transportation engineering field for over ten years, with extensive experience in transportation design and traffic operations analysis, working on projects ranging in size from single intersections to complex, multi-highway interchanges. He provides multimodal design, operations analysis and alternative evaluation making use of the latest software including AutoCAD, AutoTURN, Traffix, FREQ, Synchro and SimTraffic. Leveraging his background in detailed design, Ryan works with local agencies to provide feasible solutions to transportation issues that work from an operations and design perspective and meet the needs of the community.

## EDUCATION

B.S. in Civil Engineering, Cal Poly,  
San Luis Obispo, 2001

## REGISTRATIONS

Licensed Civil Engineer, State of  
California (#67002)

Licensed Traffic Engineer, State of  
California (#2714)

## EXPERTISE

Transportation Design

Conceptual Design and Cost  
Estimation

Pedestrian and Bicycle Facility  
Design

Traffic Engineering

Temporary Traffic Control

Traffic Impact Analysis

Highway Operations Analysis

## PROJECT EXPERIENCE

### Telegraph Avenue Complete Streets (Oakland, CA)

Ryan managed the Fehr & Peers team that started as a planning study to identify potential complete streets treatments along the entire length of Telegraph Avenue through Oakland. Recommendations included pedestrian crossing enhancements, vehicle lane reduction, buffered bike lanes, cycle tracks, transit islands, and transit priority systems. Fehr & Peers provided operational analysis, pedestrian and bicycle level of traffic stress evaluation, concept design and cost estimation, and public meeting support. Fehr & Peers continued work into the implementation phase of the project and developed construction documents for parking protected one-way cycle tracks coupled with lane reductions and crosswalk enhancements to be constructed as part of the City's repaving program this year.

### One Bay Area Grant Application Support (Concord, CA)

Ryan managed this project to develop concept plans and cost estimates, as well as complete grant applications for two projects in the City of Concord. Both projects include improvements to bicycle and pedestrian facilities on underserved corridors. The project locations include a five-lane one-way couplet through downtown, and several one- and two-lane collectors, connecting high density residential, retail, and office uses with BART and bus transit. None of the streets have more than sporadic Class 3 signage for bicycles. Gaps in sidewalk, an inconsistent curb line that did not meet pedestrian desire lines, and several unsignalized crosswalks on multi-lanes roads near schools, all created a less than ideal pedestrian environment. Fehr & Peers developed concepts that included standard and buffered bike lanes, intersection treatments, sharrows, sidewalk extensions, and RRFB pedestrian crossing treatments. The grant applications that Fehr & Peers assembled were both successful.

### Ohlone Greenway Striping Design (Albany, CA)

After BART completed retrofit work for the portion of their raised tracks through Albany, the Ohlone Greenway trail underneath the tracks was replaced with a 14' wide asphalt path with a single centerline stripe. However, the Albany Rollers & Strollers have been seeking a striping configuration that separated bicycle and pedestrian traffic. Fehr & Peers reviewed available standards and guidelines for multi-use trails including State and National design manuals, and developed a recommendation for signing and striping. We presented our recommendation to the Albany Traffic & Safety Commission. Design plans included pathway signing and striping, as well as improvements to roadway crossings. The roadway crossings were enhanced with additional pavement markings to indicate the multi-use path crossing using bicycle pavement legends and a "triple-four" type crosswalk. Ryan served as Project Manager for this project.



## Ryan McClain, PE, TE

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### **Albany Active Transportation Plan (Albany, CA)**

Ryan served as project manager to deliver plans, specifications, and cost estimates for implementation of 15 of the City of Albany's bicycle projects identified in their Active Transportation Plan. The projects included bike lanes, sharrows, bicycle boulevards, traffic calming devices, and wayfinding signage throughout the City, connecting important routes between El Cerrito and Berkeley. Ryan worked with City staff, the City's Traffic and Safety Commission, and the Albany Strollers and Rollers to develop plans that met the needs of the community. Community outreach was critical for the success of the project.

### **Arlington Boulevard/Brewster Street Intersection Improvements (El Cerrito, CA)**

Fehr & Peers was asked by the City of El Cerrito to identify potential improvements to the intersection of Arlington Boulevard/Brewster Street to better facilitate pedestrian and bicycle access and improve safety following a fatal collision. Fehr & Peers identified near-term improvements that could be implemented immediately, including temporary curb extensions, crosswalk striping, sharrows, and centerline enhancements. Long term improvements were also identified, and Fehr & Peers assembled a successful grant application for implementation. Fehr & Peers is currently leading PS&E efforts for the long-term plans, which also require Caltrans Local Assistance Manual compliance and documentation. Ryan serves as project manager for this project.

### **City of Oakland Caldecott Tunnel Settlement Agreement (Oakland, CA)**

Ryan managed this project with the City of Oakland and Eisen-Letunic to evaluate potential improvement projects to be funded by the City's settlement agreement with Caltrans over the Caldecott Tunnel Fourth Bore project. Ryan facilitated three walking audits with City staff and members of the public, including the Fourth Bore Coalition, to identify project locations and discuss possible improvements. Ryan developed conceptual designs and cost estimates for over 30 projects along the State Route 24 corridor which included pedestrian, bicycle, and transit improvements. Based on criteria set forth in the agreement, as well as City and public input, a prioritized list of projects was developed. Ryan continues to work with the City as projects are taken into final design.

### **9th Street Bicycle Boulevard (Berkeley, CA)**

Ryan managed this project involving conceptual design and operational analysis of a proposed bicycle path extension between Heinz Avenue and Ashby Avenue which included a conversion of an existing two-way street to one-way operations, construction of a new one-way street and installation of a new traffic signal on Ashby Avenue. Because of its close proximity to an existing signal, the new signal required creative phasing to allow vehicular and pedestrian/bicycle traffic to pass through at an acceptable level of service.

### **Tenderloin Traffic Calming (San Francisco, CA)**

Ryan provided conceptual design and cost estimation for this traffic calming project encompassing a large portion of the Tenderloin district in San Francisco. Design included bulb-outs, bus bulbs, one-way to two-way traffic conversion, updated curb-ramps, sidewalk extension, and mid-block crossings. Design was required to accommodate commercial vehicles, emergency vehicles, and transit, while improving the walkability of the district.

### **Centennial Drive Pedestrian Access Improvements (Berkeley, CA)**

Ryan managed this project to improve pedestrian access to the temporary sports facilities located on Centennial Drive during construction of the new stadium at UC Berkeley. The temporary facilities have considerably increased the volume of pedestrians in this section of the campus. A walking audit was conducted with UC Berkeley personnel to identify areas of concern. Recommendations included flashing pedestrian crossing signs, radar speed feedback signs, additional crosswalks, and raised curb islands. Ryan worked directly with the contractor to quickly implement the recommendations before the beginning of the school year.

### **Stadium Rim Way Pedestrian Improvements (Berkeley, CA)**

Ryan managed this project, which included a walking audit of facilities around California Memorial Stadium at UC Berkeley on Stadium Rim Way, Canyon Road, and Prospect Street. Recommendations to improve circulation included both near-term and long-term improvements in the context of the seismic retrofit project currently under construction. Striping improvements, curb ramps, bulb-outs, and additional sidewalks were laid out on a conceptual plan that was then used for bidding purposes with a set of contractors. Fehr & Peers worked with the selected contractor to implement the recommendations.

### **Hearst Avenue Complete Streets (Berkeley, CA)**

Fehr & Peers, in collaboration with UC Berkeley, and the City of Berkeley, led an effort to analyze, prioritize, and implement an array of complete streets projects on Hearst Avenue in Berkeley, adjacent to the UC Berkeley campus. After prioritizing numerous bicycle, pedestrian, and transit projects identified in previous studies, Fehr & Peers developed a set of preferred 35% detail designs that are ready to implement. The effort took a multi-modal approach to close sidewalk gaps, enhance crossings, provide new bicycle facilities, and improve access to transit while also considering traffic operations under a road diet along the corridor. Ryan served as project engineer, ensuring that recommendations were feasible and implementable, and oversaw development of the 35% design plans.

## **Project Approach and Schedule**

**W**e have included a recently prepared sample Understanding, Approach and Detailed Work Scope for a “road widening project” in Appendix A as a typical example for the City’s review. Because of the variety of project types involved with On-Call Services, the scope of work can vary significantly depending on the type of project assigned. Types of projects may include grading and drainage, complete street projects, roadway rehabilitation, bridges, and other transportation improvement projects.

**HEI** and our subconsultants will provide the City of San Pablo all of the requested consulting services included in the RFP, including:

### **Pre-design studies, memo’s, and reports**

- ☑ Setting Project Criteria
- ☑ Identify and provide timeline for regulatory agency permitting
- ☑ Project Value/Cost analysis
- ☑ Prepare conceptual improvement plans and identify improvement plans needed
- ☑ Preliminary cost estimating and schedules through construction
- ☑ Preliminary site visits for project feasibility
- ☑ Review tract and parcel mapping in compliance with Subdivision Map Act
- ☑ Review lot line adjustments and boundary closure calculations
- ☑ Review legal descriptions and plats for dedications, easements or rights of way
- ☑ Identify and prepare necessary reports and studies
- ☑ Check for conformance of:
  - Storm Drain Master Plan
  - Fiber Optic Master Plan
  - Bike/Ped Master Plan
  - Street Light Master Plan
  - City Ordinances and Subdivision Map Act
  - City Standards
  - Caltrans Standards and other applicable standards (ADA, AASHTO, CA MUTCD, etc)

### **Project design**

- ☑ Determine if additional reference material is required
- ☑ Review studies, memo’s, and reports for completeness
- ☑ Project management and coordination with other consultants
- ☑ Constructability review with City
- ☑ Preparation of conceptual plans and PS&E
- ☑ Preparation of grading plans for the various phases and improvements plans in conformance with the projects reports
- ☑ Preparation of Hydrology and Hydraulic (H&H) studies/reports
- ☑ Preparation of storm drain improvement plans in conformance with H&H Reports
- ☑ Preparation of traffic control, striping, detour, and traffic staging plans
- ☑ In coordination with our subconsultants, preparation of traffic studies and reports, and traffic plans in conformance with the traffic studies and reports.
- ☑ HEI will work with our subconsultant for irrigation design.
- ☑ In coordination with our subconsultants, preparation of tract and parcel maps and

supporting documentation, and lot line adjustments

- ☑ In coordination with our subconsultants, preparation of structural calculations
- ☑ Preparation of Engineer's estimates
- ☑ Coordinate plans for consistency with other planned improvements
- ☑ In coordination with our subconsultants, perform topographic surveys, and easement and legal descriptions
- ☑ Depending on the type of reimbursements HEI will perform or work with a subconsultant to prepare fair share reimbursements and calculations for future development
- ☑ Coordinate with the City to develop engineering design standards and guidelines
- ☑ Review existing conditions and redesign deficient improvements based on current standards or ordinances
- ☑ Stamp drawings and specifications signifying compliance with applicable local, state and federal requirements
- ☑ Provide quality control and constructability of plans and specifications
- ☑ Either HEI or QRLS will provide quality control map checking review in compliance with the Subdivision Map Act.

### **Bid Preparation**

- ☑ Preparation of bid package and coordination of all disciplines.
- ☑ Identify long lead time items for order of work (electrical, special order items, etc.)
- ☑ Ensure quality control and constructability of plans and specifications
- ☑ Review bids and qualifying for determination of low bidder.
- ☑ Coordinate with the City for contract review and execution
- ☑ Facilitate pre-bid meetings
- ☑ Preparation of Addendums

### **Construction Support**

- ☑ Provide on-site Construction Administration
- ☑ Facilitate Pre-Construction Meeting
- ☑ Review and respond to submittals and maintain submittal review log
- ☑ Provide technical oversight
- ☑ Review and respond to response for information (RFI) in a timely manner
- ☑ Provide responses to drawing and technical specifications questions
- ☑ Review installation procedures and implementation of approved work plans
- ☑ Review Change Orders and coordinate with City
- ☑ Review and respond to differing site condition questions in a timely manner
- ☑ Respond to field questions
- ☑ Attend on-site meetings as needed
- ☑ Attend site walk and prepare a Punchlist
- ☑ Review Contractor redline plans and prepare as-builts

**HEI** will aid the City in any other engineering related requests to the extent that our team is qualified to do so.

**HEI** will provide monthly invoicing in City formatting.

**HEI** can provide plan checking and peer review services. Randell Harrison has over 28 years of plan checking experience.



## Project Approach

**HEI's Team** is composed of highly experienced professionals that have worked together on locally funded projects and federal aid projects for several years. HEI's typical approach to Capital Improvement and other City projects includes:

1. Develop Final Project Schedule and Work Scope
2. Project Management/Coordination
3. Utility Coordination
  - a. Obtain Record Mapping from Utilities in the Project Area
  - b. Utility Locating, Potholing
  - c. Relocation Notifications and Coordination
4. Agency Coordination
5. Data Collection –Field Reconnaissance
6. Topographic Survey and Mapping (QRLS)
7. Right of Way (QRLS)
8. Structural Design (JMEC)
9. Traffic Studies/Design (F&P)
10. Community Outreach
11. Caltrans Local Assistance Documents and NEPA (For Federal Aid Projects)
12. Green Infrastructure Evaluation
13. Constraint Evaluation Study
14. Preparation of Plans, Specifications and Estimates (35%, 60%, 90%, & 100%)
15. Bid Documents
16. Bidding and Construction Support
17. Project Closeout

We pride ourselves on exceptional client service. We understand that your staff time is valuable – which is why we strictly adhere to the project schedule for our deliverables and respond to City requests in a timely manner. However, we understand that certain City requests must be answered immediately. This is especially important in the construction phase, where time lost on

unresolved questions can add to Contractor expenses and potential claims.

We also track overall staff workload on a long-term basis so that we anticipate when deliverables are forthcoming. Each staff member at HEI has a personal standard for producing quality work and providing outstanding client service, which is why City requests will be responded to as soon as possible.

### Predesign Studies, Memos and Reports (Planning and Programming)

**HEI** staff has been involved in the preparation of planning documents for dozens of stream and roadway planning studies, including plan line drawings, drainage studies, and economic evaluations. Early issue identification and consensus

building on projects is one of the keys to successful project implementation. Consensus building early in the project removes “road blocks” through the later more critical project progress.

**HEI** staff has been involved in the preparation of planning documents for over two dozen stream and roadway planning studies.

- ☑ Downtown Infrastructure Studies
- ☑ Precise Alignment Studies and Implementation Plan
- ☑ Reservoir Maintenance Dredging Studies
- ☑ Project Study Reports and Project Reports (Caltrans)
- ☑ Pedestrian Facility Improvement Implementation Program

### Project Management

**H**arrison Engineering will lead the project development team. Our approach is to provide *strong project management* and *team consistency* through the life of the project.

**HEI's** approach to managing the project includes:

- Regularly Scheduled Coordination Meetings
- Regular review and adherence to project schedules.
- Submittals at 35%, 60%, 90% and Final levels of completion. Progress prints as requested.
- Early issue identification and resolution.
- Documentation of meetings with written minutes/record of conversation.

In order to coordinate the team, keep the City informed, and keep the project on track, the following tools will be used to make sure the project is delivered on schedule:

- Developing a detailed Project Schedule with milestone dates is essential in aiding the project team in meeting submittal dates and keeping the overall schedule on track. Schedules keep everyone accountable.
- Periodic Project Team Meetings. Review of schedules and project accomplishments over the past period and review of upcoming submittals. Discussions on right of way, utility and physical constraints. Meeting minutes are prepared and sent out to the team.
- Daily communication with team members as needed, via phone, emails and faxes.
- Paper trail. Good documentation of phone conversations and meetings with distribution to the appropriate parties.

In order to maintain and manage the project, the lines of communication must be well established. All project communications shall be directed through **HEI's** team leader/project manager so that project progress can be monitored at all times.

### Community Outreach

**HEI** has provided community outreach for a variety of projects. HEI caters the outreach to the project. An example of community outreach for a typical project may involve:

- Establish an open communication process to ensure that key stakeholders are informed and educated regarding the impact of the project as well as the 'community benefits' of the project.
- Initiate outreach/participation at the onset of the project, once it is initially defined and



- again at the 95% stage to let people know how their comments were addressed.
- Provide appropriate project information (i.e. collateral materials) to stakeholders regarding the Project, key milestones, traffic impacts, community benefits.
- Coordinate, collaborate, and form partnerships with key stakeholder groups.
- Establish a thorough public involvement/community outreach plan.
- Provide public access to all relevant information.
- Ensure transparency.
- Continue communications between the construction team and community.
- Seek to clearly understand public concerns and convey them to key project/construction staff.
- Consider suggestions/input from the community.
- Respond in a timely manner to all requests for information from citizen/stakeholder inquiries.
- Complete documentation of public participation activities.

### Caltrans Local Assistance Documents (Federal Aid Project Approach)

**R**andell Harrison has developed the PS&E for dozens of federally funded (Local Assistance) projects over the last 30 years. Since 2001, Harrison Engineering has worked with cities throughout the Bay Area in preparing the necessary forms and PS&E documents for “Local Assistance” funded projects, which include the following projects:

| <b><i>Project Name</i></b>                               | <b><i>Client</i></b> | <b><i>Involvement in Project</i></b> |
|----------------------------------------------------------|----------------------|--------------------------------------|
| San Pablo Dam Rd Pedestrian Path                         | San Pablo            | PS&E                                 |
| Broadway Traffic Calming and Pvmr Reconstruction         | San Pablo            | PS&E, Caltrans Coordination          |
| Hearst Avenue Complete Street Project                    | Berkeley             | PS&E, Caltrans Coordination          |
| Buchanan Road Rehabilitation                             | Pittsburg            | PS&E                                 |
| Pittsburg-Antioch Highway Rehabilitation                 | Pittsburg            | Construction Admin.                  |
| SR4 Flood Relief Project at Loveridge Road               | Pittsburg            | PS&E, Construction Admin.            |
| Camino Tassajara & Crow Canyon Rehab Phase 2 (2015)      | Danville             | PS&E, Caltrans Special Studies       |
| Camino Tassajara & Crow Canyon Rehab Phase 1 (2010)      | Danville             | PS&E, Caltrans Special Studies       |
| Camino Alto Multi-Use Path                               | Mill Valley          | PS&E                                 |
| Sycamore Avenue Multi-Use Path                           | Mill Valley          | PS&E                                 |
| Wade Thomas Safe Routes to School Project                | San Anselmo          | PES & FR Forms                       |
| Appian Way Rehabilitation Phase 2                        | Pinole               | PS&E, Caltrans Coordination          |
| Appian Way Rehabilitation Phase 1                        | Pinole               | PS&E, Caltrans Coordination          |
| Treat Blvd and Oak Grove Plaza Signal Project            | Concord              | Project Coordination                 |
| Wren Avenue Sidewalk Improvements                        | Concord              | PS&E                                 |
| Concord Blvd. Sidewalk Phase 1 & 2                       | Concord              | Project Coordination, PS&E           |
| Concord Various Street Pavement Preservation Project     | Concord              | PS&E, Caltrans Coordination          |
| Safe Routes to School - 2012 Project                     | San Anselmo          | PES & FR Forms                       |
| Contra Loma/L Street/Hwy 4 Pedestrian Improvements       | Antioch              | PS&E                                 |
| Moraga Road/Rheem Blvd Intersection Improvements         | Moraga               | PS&E                                 |
| Moraga Road/Ascot Drive Intersection HES Project         | Moraga               | PS&E                                 |
| Non-Motorized Transportation Pilot Project               | Tiburon              | PS&E, Caltrans Coordination          |
| Del Mar Middle School Safe Routes Project                | Tiburon              | PS&E, Caltrans Coordination          |
| Contra Costa Blvd Improvements – Taylor Blvd to Beth Ave | Pleasant Hill        | Caltrans Coordination                |
| Golf Club Road Bridge Replacement                        | Pleasant Hill        | Caltrans Utility Coordination        |

The key to our success with Local Assistance Projects is our knowledge of the Federal Aid Project Process outlined in the Caltrans Local Assistance Procedures Manual (LAPM). A simplified outline of the process for a typical project follows:

#### A. Preliminary Engineering and Environmental Stage

- Preliminary Environmental Study (PES) and Field Review Form
  - Technical Memorandums
  - Field Review
    - Caltrans identifies Special Studies required:
      - Section 106 Study (History of cultural resources in area.)
      - Natural Environment Study (If riparian habitat impacted.)
      - Phase 1 Environmental Site Assessment
      - Location Hydraulic Study (If within 100-year floodplain.)
      - Visual Impact Study (Typically for tree removal.)
      - Parking Study (If loss of parking.)
      - Section 4(f) Study (Park or recreation facility is impacted.)
- Right of Way Certification
  - Utility Facilities Coordination
    - Obtain Utility Mapping
    - Notice to Owners to relocate
    - Utility Agreements
    - Potholing High Risk Utilities
  - Accurate mapping of right of way.
  - Specific wording on permits to enter.
  - All impacts outside right of way identified.

#### B. Final Design Phase

- Caltrans Local Assistance Boilerplate for Special Provisions and Bid Book
- PS&E Checklist
  - Request for Authorization (E-76)
    - Finance Letter
    - Signed PS&E

#### C. Construction Phase

- Preconstruction Meeting
- Ensure Material Testing complies with adopted Quality Assurance Program
- Monthly DBE trucking verification
- Monthly Invoice to Caltrans Local Assistance

#### D. Project Close-Out

- Letter and Federal Report of Expenditures (with Checklist)
- Final Inspection Form
- Federal-Aid Format Final Invoice
- Change Order Summary
- Final Report – Utilization of DBE
- Materials Certificate

## General Design Considerations

**T**here are many design elements to consider for these types of projects that we recognize are important. Some of those elements include:

- ✓ Proper application of ADA requirements and standards (e.g. maximum slopes, minimum widths, maximum ramp lengths, and landing requirements).
- ✓ Adequate turning radii for all anticipated vehicles including street sweepers, semi-trucks and fire trucks.
- ✓ Consideration of drainage from behind walkways and impact of bulb-outs on drainage.
- ✓ Recognizing appropriate geographical constraints to ADA compliance.
- ✓ Consideration of utility and right of way constraints.
- ✓ Appropriate driveway design to contain water in the street and not release water onto private properties.
- ✓ Balancing adequate longitudinal gutter slope with existing pavement conform elevations at the lip of gutter pan to maintain adequate cross slope of roadway.
- ✓ Recognizing when pavement areas should be reconstructed for conforms.
- ✓ Ensuring the alignment for vehicular path of travel conforms to standards.
- ✓ Implementation of green infrastructure where appropriate.

HEI will utilize the following design standards for the project design:

- NACTO - Urban Bikeway Design Guide
- AASHTO – Guide for the Development of Bicycle Facilities, 4<sup>th</sup> Edition
- AASHTO – Policy on Geometric Design 6<sup>th</sup> Edition
- 2010 ADA Standards for Accessible Design
- Caltrans – Highway Design Manual
- Caltrans – 2015 Standard Plans and Specifications
- City of San Pablo Standard Details
- Contra Costa County Public Works Department Standard Plans

## Quality Control

**E**very PS&E Package undergoes a thorough review by an HEI Principal or Project Manager to cross check the package before it is released for bidding.

HEI also utilizes a color coded back-check system to ensure all plan corrections are made. Redline plans are provided to the technical staff for revisions, who highlight the changes with yellow. When plans and markups are returned to the engineer, the engineer or Project Manager back checks the revisions and marks them off with a blue highlighter.

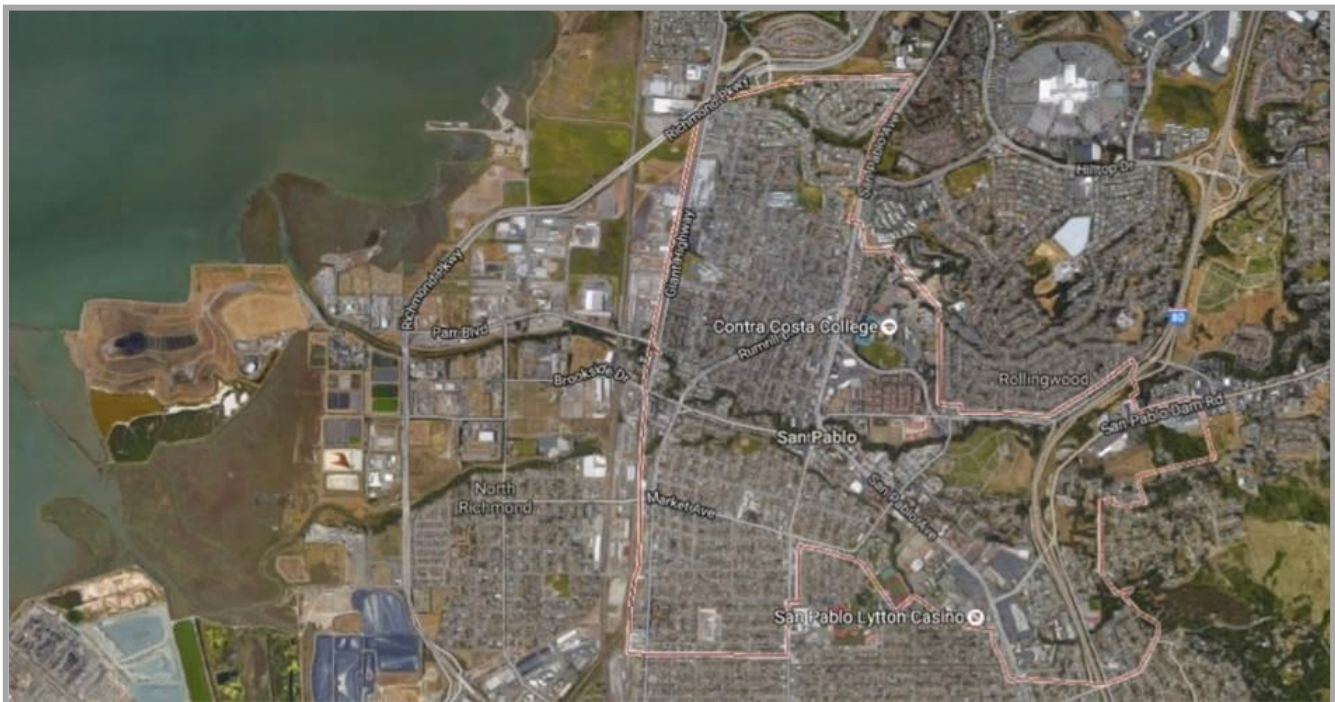
Everyone has differing expectations as to what should be included on various plan submittals (i.e. 30%, 60%, and 90%). Harrison Engineering has developed a submittal checklist for the various submittal stages so that the client and design team know exactly what information is expected for inclusion on each submittal. We recognized that it's not only important to include enough information on the plans, but it is important not to spend too much time putting information on the plans, so that if things change, or the project is downsized, money will not have been wasted on unnecessary details.

## Schedule, Response Time, Availability and Reliability

We pride ourselves on exceptional client service. We understand that your staff time is valuable – which is why we strictly adhere to the project schedule for our deliverables and respond to City requests in a timely manner. We understand that certain City requests must be answered immediately. This is especially important in the construction phase, where time lost on unresolved questions can result in contractor standby charges. We also track overall staff workload on a long-term basis so that we anticipate when deliverables are forthcoming. Each staff member at HEI has

a personal standard for producing quality work and providing outstanding client service, which is why City requests will be responded to as soon as possible.

HEI does not take on projects that we do not have the ability to deliver on schedule. With our experienced staff, we are able to prepare realistic project schedules that can be met. HEI holds weekly internal staff meetings to review project progress and deliverables. Staffing resources are reallocated as necessary to meet deliverable dates and schedules.





## References and Comparable Projects

### HEI References

| Client Information                                                                                                                             | Projects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tracy Clay, PE<br>Supervising Civil Engineer<br>City of Berkeley<br>(510) 981-6406                                                             | <ol style="list-style-type: none"> <li>1. On-Call Drainage Services (Task Orders 1 - 8)</li> <li>2. On-Call Civil Services (Task Orders 1-13)</li> <li>3. On-Call Sanitary Sewer Services (Task Order 1)</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                           |
| Ron Nevels, PE<br>Senior Civil Engineer<br>City of Pittsburg<br>(925) 252-4949                                                                 | <ol style="list-style-type: none"> <li>1. California Avenue Culvert Study at Kirker Creek</li> <li>2. Americana Park Bypass Channel</li> <li>3. Railroad Avenue/Leland Road Storm Drain</li> <li>4. 8<sup>th</sup> Street Drainage Improvements</li> <li>5. Mirant Driveway Storm Drain Replacement</li> <li>6. Buchanan Road Rehabilitation</li> <li>7. Sullenberger Pool Drainage Analysis</li> <li>8. North Parkside Flood Plain Encroachment Study</li> <li>9. Buchanan Park Drainage Study and PS&amp;E</li> <li>10. State Route 4 Flood Relief Project</li> <li>11. Kirker Creek FEMA Letter of Map Revision</li> </ol> |
| Allan Panganiban, PE<br>Senior Civil Engineer<br>City of Vallejo<br>(707) 648-4686                                                             | <ol style="list-style-type: none"> <li>1. Grant Street CDBG Concrete Rehabilitation Project</li> <li>2. Grant Street Pavement Rehabilitation Project</li> <li>3. Seaport Drive Pavement Rehabilitation Project</li> <li>4. Winchester Street CDBG Concrete Rehabilitation Project</li> <li>5. Winchester Street Pavement Rehabilitation Project</li> <li>6. City Park Accessibility Improvements</li> </ol>                                                                                                                                                                                                                   |
| Michael Stella, PE<br>(Former Senior Civil Engineer<br>at Town of Danville)<br><br>Principal Engineer<br>City of San Leandro<br>(510) 577-3433 | <ol style="list-style-type: none"> <li>1. Staff Augmentation-(Drainage &amp; C.3 Compliance Review for development applications)</li> <li>2. W. El Pintado &amp; Diablo Road Bridge Slope Stabilization at San Ramon Creek</li> <li>3. Wembly Drive Storm Drain Project</li> <li>4. Woodbine Pedestrian Bridge at Green Valley Creek</li> <li>5. Crow Canyon Sound Wall Project</li> <li>6. Tassajara Ranch Drive Median Improvements</li> <li>7. Camino Tassajara/Crow Canyon SAFETEA-LU Rehab.</li> <li>8. Sycamore Valley Road Sound Wall Repair Projects</li> </ol>                                                       |

## Street Rehabilitation

**Project:** **Street Pavement Rehabilitation FY2015**

**Client:** City of Berkeley  
Mr. Don Irby, PE  
Senior Civil Engineer  
(510) 981-6439

This project involved the rehabilitation of 8 major streets in the City of Berkeley. Construction cost was \$2,500,000. Work included design of grind and HMA inlay, double fiberized micro-surfacing, traffic control plans, digouts, utility adjustments, curb ramps, island passageway, and striping plans. Cornerstone Earth Group performed field investigations and pavement engineering for the project. Construction is complete.

**Project:** **Broadway Avenue Traffic Calming and Roadway Reconstruction Project**

**Client:** City of San Pablo  
Ms. Adele Ho, PE  
Former Public Works Director  
(510) 815-4043

HEI developed the PS&E for this locally funded \$750K roadway reconstruction project on an urban collector in the City of San Pablo. The project reconstructed all curb ramps and driveways for compliance with ADA. The project also implemented the installation of two high visibility raised crosswalks, tree wells, and reconstruction of an existing median with an interlocking paver surface treatment. HEI developed the traffic calming study which considered an array of options to reduce traffic speeds through the corridor. HEI coordinated with the Fire Department to ensure the improvements did not adversely affect response times. Construction was completed in 2010.



**Project:** **Concord Various Street Pavement Preservation**

**Client:** City of Concord  
Mr. Mark Migliore, PE  
Senior Civil Engineer  
(925) 671-3422

This federal aid project involved the rehabilitation of 2 major collector streets in the City of Concord. Design work involved identifying digout repairs, cold plane and asphalt concrete inlay, restriping to accommodate buffered bike lanes, replacement of detector loops, and use of rubberized HMA. Total project cost was just over \$1M. Construction was completed in 2016.



**Project:** **Grant Street and Seaport Drive Pavement Rehabilitation Projects**

**Client:** City of Vallejo  
**Contact:** Mr. Allan Panganiban, PE  
Senior Civil Engineer  
(707) 648-4686

HEI provided design services for this roadway rehabilitation project in the City of Vallejo. Project involved using full depth reclamation for the pavement rehabilitation, utility locating, construction staging, and pavement engineering. Construction is scheduled for completion in the fall of 2016.



**Project:** Camino Tassajara and Crow Canyon Road  
**Pavement Rehabilitation Phases 1 and 2**  
**Client:** Town of Danville  
**Contact:** Mr. Steven Jones, PE  
 Project Manager  
 (925) 314-3339

Harrison Engineering led the project team for this \$5.2M SAFETEA-LU funded project to rehabilitate the pavement of 5.2 miles on two of Danville's major arterials. Cornerstone Earth Group completed the deflection testing and pavement recommendations for the project. Y&C Transportation prepared signal modification plans, which included alternative signal detection technology. Challenges on the project include the evaluation of various rehabilitation strategies to maximize the project impact within the budget. The project funding includes federal money administered through Caltrans Local Assistance. Phase 2 of this project is being finalized for fall 2016 construction.

## **FY 2012 Town-wide Pavement Rehabilitation Project**

**Client:** Town of San Anselmo  
**Contact:** Mr. Sean Condry, PE  
 Town Engineer  
 (415) 258-4676

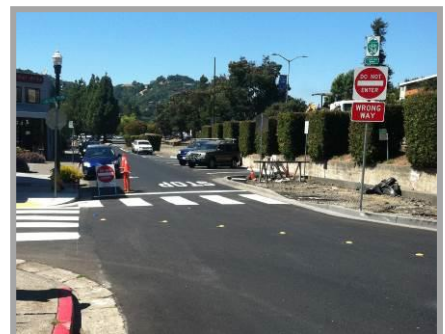
HEI provided the design of this Town-wide pavement rehabilitation project including ADA curb ramp replacement, adjusting utilities to grade, and curb and gutter replacement. HEI performed field review of streets, PS&E, prepared the special provisions, and construction assistance to the Town. Rehabilitation methods included Full Depth Reclamation and Mill & Inlay.

Cornerstone Earth Group performed deflection testing and prepared the pavement engineering studies. Quiet River Land Services performed all land surveying services for the project. Construction is complete.



**Project:** Greenfield Avenue Rehabilitation and Safe Pathways to School Project  
**Client:** Town of San Anselmo  
**Contact:** Mr. Sean Condry, PE  
 Town Engineer  
 (415) 258-4676

HEI designed this rehabilitation and pedestrian/bicycle safety improvement project for the Town. The project involved mill and inlay of asphalt concrete, design of curb bulb-outs, reconfiguration of parking, retaining wall, and the creation of curbed channelization and back-in parking. Construction is complete.



## Street - Improvement Projects

**Project:** Hearst Avenue Complete Street Project  
**Client:** City of Berkeley  
**Contact:** Mr. Don Irby  
 Project Manager  
 (510) 981-6439

This City of Berkeley project began with 35% Plans developed by others. HEI reworked them into an actual set of construction documents. Many of the preliminary design concepts changed due to public input and other design constraints. The project included NACTO recommended features such as green bike lane treatments and bike boxes; it also included curb bulb outs, RRFBs, and changes to signal phasing to accommodate planned movements. The project involved holding a public workshop that was attended by over 80 interested persons. Comments received resulted in multiple changes to the project design including bus islands and review of parking protected bike lanes. HEI coordinated with Caltrans and prepared the PES & Field Review documents, technical memos, utility and right of way certifications, encroachment permit application, and the PS&E through Final Bid Documents. Construction is anticipated to begin in September 2016.



**Project:** Sonoma Boulevard (SR 29) HSIP Project  
**Client:** City of Vallejo  
**Contact:** Ms. Jill Mercurio  
 City Engineer  
 (707) 648-4085



HEI is wrapping up this “Road Diet” project for the City of Vallejo, which will convert the four lane roadway with parking into a two lane roadway with parking, median turn lane, and bike lanes. HEI prepared the NEPA documents, technical memos, utility and right of way certifications, encroachment permit application, and the PS&E through Final Bid Documents. Air quality conformity was an important NEPA environmental issue to overcome on this project due to the increased traffic delays. Construction is anticipated to begin in the Fall of 2016.

**Project:** Bolinas Avenue Traffic Calming Project  
**Client:** Town of San Anselmo  
**Contact:** Mr. Sean Condry  
 Town Engineer  
 (415) 258-4676

This community oriented design project at the border of Ross and San Anselmo implemented many pedestrian enhancement and traffic calming features that resulted from community meetings led by HEI. Design elements included: bulb-outs, striping improvements, underground stormwater retention, curb ramps, high visibility crosswalk markings, and consideration of future drainage improvements to solve localized flooding problems. Construction is complete



**Project:** Wren Avenue Elementary School Pedestrian Improvements  
**Client:** City of Concord  
**Contact:** Mr. Mark Migliore, PE  
Senior Civil Engineer  
(925) 671-3422

Harrison Engineering led the project team for this \$360,000 project, and designed all roadway features, drainage, and traffic handling for the project. This project involved the design of sidewalks, curb and gutter, a pedestrian bridge and the analysis and design of drainage improvements on Wren Avenue in the City of Concord. Funding was through the “Safe Routes to School” program. The project involved hydrologic and hydraulic analysis. Construction was completed in October of 2004. JMEC Engineering performed the structural design for the bridge improvements.



**Project:** Camino Alto, Miller/Almonte SRTS Project  
**Client:** City of Mill Valley  
**Contact:** Ms. Cecilia Zamora  
Associate Civil Engineer  
(415) 384-4807



HEI was selected to design this federally funded multi-use path project. Work included development of alternatives, coordination with local business and property owners, completion of Local Assistance forms and compliant documents after completion of the NEPA document. Construction is complete

**Project:** Franquette Avenue Pedestrian and Bike Trail Connector  
**Client:** City of Concord  
**Contact:** Mr. Bernard Enrile  
Associate Civil Engineer  
(925) 671-3031

HEI developed trail, sidewalk and roadway delineation improvements for this \$300K locally funded project, administered through CCTA. The project involved the installation of high intensity lighting in the SR-242 Caltrans undercrossing, sharrows, bicycle left turn pocket, AC bike path, sidewalk widening, curb ramps, and drainage improvements. CCTA invoicing requirements were implemented after project start up, requiring extensive effort to allow the City to receive reimbursement of the expended funds. Project is currently in construction.



## Storm Drainage Projects

HEI has provided engineering services for numerous drainage and flood control projects. Our project experience ranges from small local drainage projects to citywide storm drain studies. We have the knowledge and resources to prepare detailed hydraulics and hydrology reports, river and stream improvement studies, location hydraulic studies, bridge scour analyses, watershed planning studies, stormwater control plans, and roadway drainage reports. We have successfully used our knowledge of hydraulics and hydrology to design detention basins, channels, and local storm drain systems using software such as HEC-RAS, Hydraflow, and StormCAD.

### **On-Call Drainage & On-Call Civil Design Services**

*Client:* City of Berkeley  
*Contact:* Daniel Akagi  
 Associate Civil Engineer  
 (510) 981-6394

This on-going On-Call Services contact includes green infrastructure projects at two locations in the City of Berkeley, ADA improvements, roadway rehabilitation, and drainage improvements. HEI prepared the PS&E for the project that included permeable pavers, rain gardens, and storm drainage replacement. The low impact design projects are the first such projects for Berkeley and will serve as templates for future green infrastructure projects.

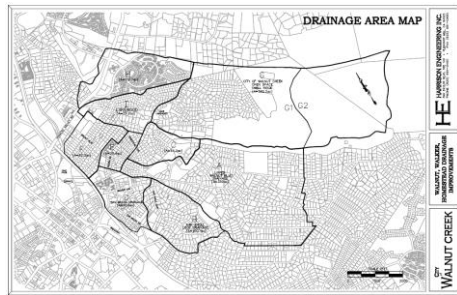


- Task Order D1: 1. Hazel Road –Hydrology and Hydraulics, CIPP rehabilitation of the existing 48” metal pipe. (Complete)  
 2. Fresno and Sonoma – Drainage Improvements (Complete)  
 3. Bonita and Berkley Way – Valley Gutter Improvements, Curb Ramp Reconstruction, & Pavement Rehabilitation. (Complete)  
 4. Fulton and Oregon - Valley Gutter Improvements, Curb Ramp Reconstruction, & Pavement Rehabilitation. (Complete)
- Task Order D2: 1. Milvia and Eunice – Detention Vault, Permeable Pavers, Curb Ramp Reconstruction, and Pavement Rehabilitation. (Complete)  
 2. Spruce and Vine – 2 Bio-retention Basins, Drainage Improvements, Curb Ramp Reconstruction, and Pavement Rehabilitation. (Complete)
- Task Order D3: Terrace View –Hydrology and Hydraulics, storm drain rehabilitation with pipe bursting and sliplining methods. (Complete)
- Task Order C2: Berkeley Way/Henry Street Parking Lot Rehabilitation Project. (Complete)
- Task Order C4: 2015 Pavement Rehabilitation – \$2.2 Million Pavement Rehabilitation and Curb Ramp replacement project. (Complete)
- Task Order C6: Proactive and Responsive Sidewalk Reconstruction Projects. (Complete)
- Task Order D6: 2016 LID Project (Design is complete, Construction anticipated for 2017) - \$2.5 Million green infrastructure projects at 3 locations:
1. Woolsey Street – Bioretention Basin, Stormwater Retention Vault, Street Trees, Curb Bulbouts
  2. Shattuck Avenue at University Avenue – Permeable Paver Bus Pad
  3. Rose and Hopkins Streets Bioretention Basin/Intersection Improvements



**Project:** Homestead and Walker Avenues Drainage Study  
**Client:** City of Walnut Creek  
**Contact:** Mr. Steve Waymire  
City Engineer  
(925) 943-5899 ext 3507  
Email: [waymire@walnut-creek.org](mailto:waymire@walnut-creek.org)

The properties at 900 and 907 Homestead Avenue had experienced property damage due to the flooding of Walker Avenue and Homestead Avenue. The flooding is due to an inadequately sized drainage system. Preliminary costs to alleviate this flooding were estimated at \$6,000,000. The City hired Harrison Engineering, Inc. to review alternatives for resolving the flooding problem and provide a detailed cost analysis. The analysis extended into the Oak Knoll, Shell Ridge, Lakewood, and Walnut Avenue watersheds; requiring a detailed hydrologic analysis to accurately determine peak flows.



Harrison Engineering Inc. developed 6 alternatives plus phasing of several of those alternatives to meet the minimal goal of providing flood protection for a 10-year storm event (10% chance of occurrence) to the Homestead Avenue residents. Detailed hydrologic and hydraulic calculations were performed for each alternative and subsequent costs were estimated. A phased alternative was selected that met the project goals for an estimated \$3 million construction cost. The Phase II Project is currently in design.

**Project:** Multi-Use Recreation Area and Field (San Francisco, CA)  
**Client:** San Francisco State University  
Phil Evans, Director of Site Planning,  
(415) 338-2712

HEI prepared the Civil Design, Sanitary Sewer, Storm Drainage, Rain Garden Design, Water Line relocation and SWPPP for this 3 acre recreational facility on the SFSU campus. The project included restroom facilities, an artificial turf sports field, utility relocations and two large rain gardens for stormwater filtration. Construction completed in spring of 2013.



**Project:** Moretti Drive Drainage Improvements  
**Client:** City of Concord  
Mr. Mark Migliore  
Senior Engineer  
(925) 671-3422

This project involved investigating, developing a solution and scope of work for the design and implementation of improvements. The project corrected a localized flooding problem, which caused storm water from the Concord Naval Weapons Station to enter private property and flood several residences. The report for the project involved a hydrology study of the upstream area, detention basin routing, hydraulic grade line calculations, and recommendations to the City for improvements. The design involved construction of a masonry flood wall, supplemental culverts, new drainage inlets and modification to existing inlets. The system functioned as designed in the 12-31-05 storm, which was a 50-year flood event. Construction is complete.



**Project:** State Route 4 Flood Relief Project at Loveridge Road  
**Client:** City of Pittsburg  
**Contact:** Mr. Sha Azari  
 Retired City Project Manager  
 (925) 382-7653 (Cell)

Harrison Engineering provided project management services for the design of this \$11 million flood control project, designed to alleviate flooding of State Route 4 at Loveridge Road in the City of Pittsburg. The work included project management, permit coordination and review of plans and specifications. HEI was retained by the City to provide construction administration services for this project for two construction seasons ending in 2005. HEI prepared the Letter of Map Revision for FEMA for the project. The fees received from the City of Pittsburg for this project do not reflect the permitting costs, hydraulic analysis or design fees, since Mark Thomas and Company did this work. The fees for Harrison Engineering's scope of work on the project are estimated at \$275,000. Construction is complete.



**Project:** West El Pintado and Diablo Road Bridge Slope Repair  
**Client:** Town of Danville  
**Contact:** Mr. Steve Lake  
 Town Engineer  
 (925) 314-3319

The entire project team, led by Harrison Engineering completed a Project Concept Study, geotechnical study, environmental documents and regulatory agency permitting for this \$1 million slope and roadway restoration project. The project will restore slope protection in San Ramon Creek and construct a cantilever soldier pile & lagging wall to retain W. El Pintado Road, which is failing into the creek. Other work includes 2800 cubic yards of rock slope protection and mitigation planting. The project contract also includes regulatory permitting, CEQA documentation, extended biological monitoring and reporting, materials testing and construction staking. Construction was completed in 2011.



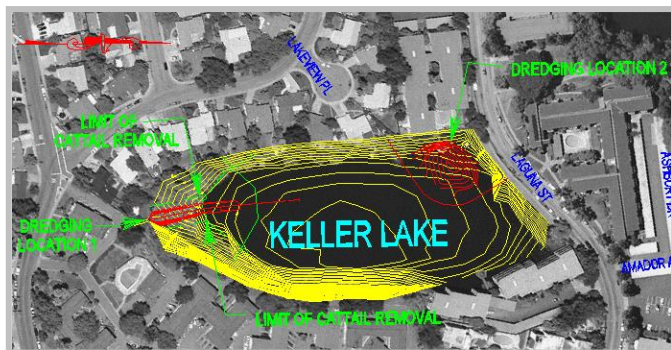


**Project:** Kimball Reservoir Dredging Project  
**Client:** City of Calistoga  
Mr. Jim Smith  
City Project Manager  
(707) 942-2789

Harrison Engineering led the engineering team for this multi-million dollar reservoir dredging program. The work involved development of a 5 alternative “Maintenance Dredging Program”, land surveying above the water line and hydrographic surveys below the water line to develop a detailed topographic map of the reservoir. The project also involves wetland delineation, regulatory permitting, geotechnical evaluation, environmental clearance (CEQA/NEPA), and development of PS&E for the project. Project was not constructed.



**Project:** Keller Lake Dredging and Cattail Removal  
**Client:** City of Concord  
**Contact:** Mr. Mark Migliore  
Senior Engineer  
(925) 671-3422



Keller Lake is a privately owned urban lake near the downtown area of Concord. Through a public/private partnership, the City of Concord took the lead in the project delivery. Harrison Engineering managed the consultant team. HEI coordinated with the regulatory agencies, processed the permits for the project, assessed feasible disposal sites, and prepared the plans, specifications and

estimates. No Section 401 or 404 permits were required for the project. Notice to proceed with design and permitting was issued in May 2002. The project was publicly bid and all work within the Lake was completed by October 15, 2002. Construction is complete.

**Project:** Stewart Drive Storm Drain Rehabilitation Project  
**Client:** Town of Tiburon  
**Contact:** Mr. Pat Barnes, PE  
Town Engineer  
(415) 435-7388

HEI prepared the plans for this project on a fast-track schedule due to the failing condition of the in-street storm drainage system, which was creating sink holes in the roadway. Project included preparation of a hydrologic and hydraulic study, which showed the existing system was undersized in several locations. Project included design of open trench excavation and cured in place pipeliner for the rehabilitation. Project was bid with the CIPP liner as an alternative that saved \$107,000 on the construction cost. Construction was completed in 2015.

**Project:** Buchanan Park Drainage Improvements  
**Client:** City of Pittsburg  
**Contact:** Mr. Ron Nevels  
 Senior Civil Engineer  
 (925) 252-4949

Buchanan Park is a significant recreational resource for the City of Pittsburg. The park contains a swimming pool complex, a community center, bocce ball courts, picnic facilities, a playground, a pond, and lawn areas. The existing drainage through the park was not properly designed to accommodate the upstream watershed. Additionally, the outfall from the park to Kirker Creek was undersized. These factors result in extensive flooding in the community center and bocce courts.

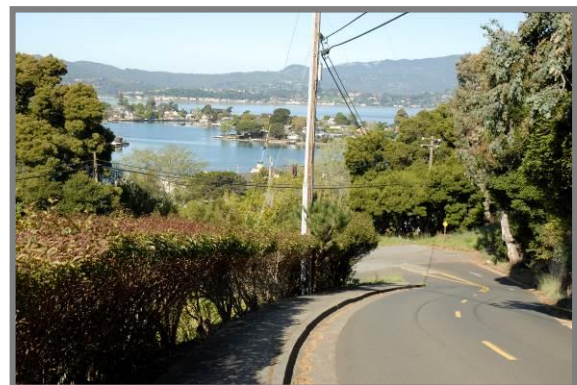


HEI worked with the City to develop a cost-effective drainage solution that would keep the existing drainage system in operation while minimize flooding. HEI prepared the PS&E for the drainage and site improvements, which included constructing a flood wall, upsizing the outfall to Kirker Creek, modifying the spillway structure to accommodate increased flows, modifying site hardscape, and minor grading. HEI also managed all regulatory permitting on behalf of the City for work near Kirker Creek. HEI completed the applications for the Department of Fish and Game, Regional Water

Quality Control Board, and Army Corps of Engineers. Project was not constructed.

**Project:** Mariner Way and Harbor Oak Storm Drain Project  
**Client:** Town of Tiburon  
**Contact:** Mr. Pat Barnes, PE  
 Town Engineer  
 (415) 435-7388

HEI prepared the plans for this project located within State Highway right of way. The existing storm drain system became clogged with debris, spilling storm runoff down the embankment onto Highway 131 (Tiburon Blvd). The project design intercepts water from an existing inlet and uses a downdrain system to convey the water to the roadside ditch below. Project included preparation of a roadway drainage report for submission to Caltrans. HEI also prepared the encroachment permit applications for the project. Construction was completed in 2016.



## Transportation - Trail Projects

HEI has provided engineering services for several parks and trails projects. Our experience with parks and trails has allowed us to successfully deliver cost-effective, safe, and functional engineering design solutions. Our success with parks and trails projects is due to our experience in municipal facility design, our knowledge of regulatory permit requirements and public works maintenance practices, and our proactive coordination with project team consultants.

*Project:*       **Woodbine Pedestrian Bridge**  
*Client:*       Town of Danville  
*Contact:*      Mr. Steve Lake  
                    Town Engineer  
                    (925) 314-3319

HEI led the project team for this \$400K pedestrian bridge replacement project, which involved CEQA documentation, regulatory permitting, geomorphology analysis for siting the new bridge, HEC-RAS analysis, and preparation of PS&E. The PS&E package included demolition plans, planting plans, erosion control, layout and structural plans. Construction is complete.



*Project:*       **Happy Valley Road Pedestrian Path**  
*Client:*       City of Lafayette  
*Contact:*      Mr. Matt Luttropp  
                    Associate Engineer  
                    (925) 299-3247

HEI prepared the plans, technical provisions, and estimates for the reconstruction of a new pedestrian path along the northerly side of Happy Valley Road between Rose Lane and Happy Valley School in Lafayette. This project greatly improves the access for residents to the school, downtown and the BART station. The engineer's estimate for construction of this project was \$145K, which included bid alternates to maximize the project within the City's budget limitations. Construction of this project was completed in August of 2008.

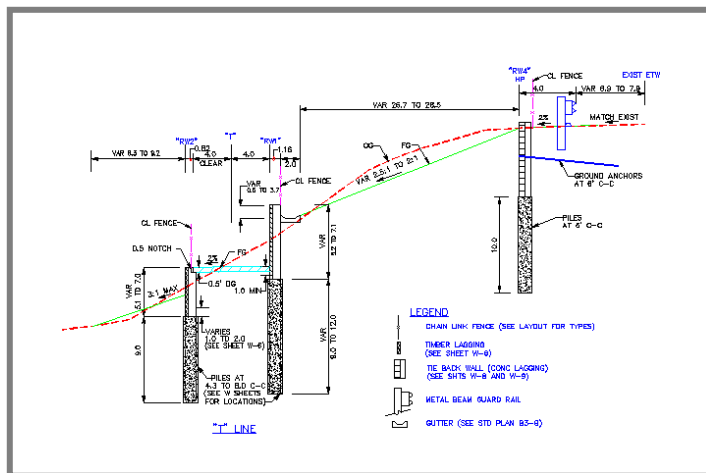


The trail improvements consisted of the construction of approximately 1,150 linear feet of five foot wide asphalt concrete trail with header boards and approximately ½ mile of crack and seal coat of existing AC path. The new pathway was designed to meander between the existing road and right of way. Additional items included: AC dikes, concrete curb ramps, minor roadway widening, landscape restoration, and drainage improvements. Construction is complete.

**Project:** Galindo Creek Trail  
**Client:** City of Concord  
**Contact:** Mr. Mark Migliore  
 Senior Engineer  
 (925) 671-3422

Harrison Engineering Inc. led the design for this trail project that closed a critical gap in the California Riding and Hiking Trail system (part of the East Bay Regional Parks District trail system). The project is between Galindo Creek and Ygnacio Valley Road in the City of Concord. The segment of trail that HEI designed provides local residents access to a wide array of regional trails and open space throughout central Contra Costa County, including Mt. Diablo State Park.

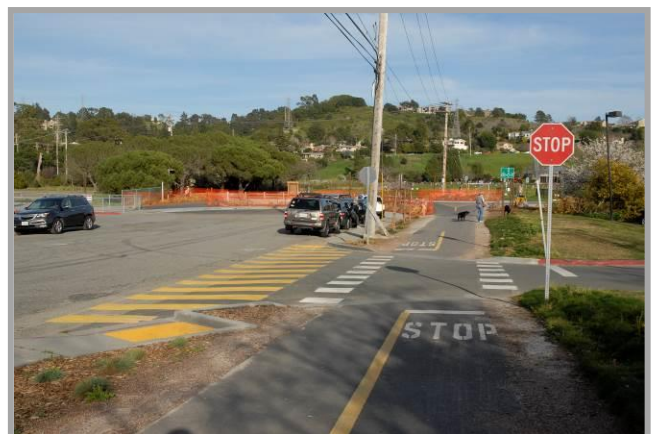
HEI prepared the design for the construction of an 8-foot wide decomposed granite trail between existing trails located on the east side of Galindo Creek and a staging area located approximately 500 feet to the west of the proposed creek crossing. The project design also includes a 120-foot long section along the



trail that requires slope stabilization. HEI Value Engineered the slope repair by utilizing a concrete and tie-back retaining wall at the edge of shoulder. This option saved approximately \$250K in construction costs over the original geotechnical recommendation. Additional project elements included: retaining walls along the trail alignment, installation of pre-fabricated bridge, storm water pollution control, traffic handling plans, utility relocations, and drainage improvements. The total construction cost was \$1.2 Million. Construction is complete.

**Project:** Sycamore Avenue Pedestrian Improvement Project (2013)  
**Client:** City of Mill Valley  
**Contact:** Cecilia Zamora  
 Associate Civil Engineer  
 (415) 384-4807

HEI provided the PS&E for this federally funded pedestrian improvement project, which involves the construction of a bike path connecting the multi-use path on Camino Alto to the Sausalito-Mill Valley bike path. Currently, the project is currently in construction. This project was completed on time and within budget.



## **Transportation - Intersection Improvement Projects**

**Project:** Greenfield Avenue, Red Hill Avenue and Sequoia Drive Intersection  
**Client:** Town of San Anselmo  
**Contact:** Mr. Sean Condry, Town Engineer  
(415) 258-4676

HEI prepared PS&E for this Safe Pathways project, which will remove a pork chop island, reconfigure the delineation and realign the crosswalks at the intersection to improve safety. Work also includes design of curb bulb-outs, reconfiguration of parking, pavement rehabilitation, micro-surfacing treatment, retaining wall, and the creation of curbed channelization at the Lincoln Avenue/Greenfield Avenue intersection. Construction is complete.



**Project:** Moraga Road and Ascot Drive Intersection Improvements  
**Client:** Town of Moraga  
**Contact:** Ms. Jill Mercurio (currently at City of Vallejo)  
(707) 648-4085



Harrison Engineering Inc. led the design team for this \$600,000 Local Assistance funded (HSIP) intersection signalization project in the Town of Moraga. Project included installation of new medians with provisions for future landscaping, video detection for a fifth leg of the intersection to accommodate a sole access driveway for a condominium complex. Construction was completed in early 2009.

**Project:** Oak Park and Patterson Boulevards Intersection Improvements  
**Client:** City of Pleasant Hill  
**Contact:** Mr. Eric Hu, Associate Civil Engineer  
(925) 671-5203

Harrison Engineering Inc. was a subconsultant to Fehr and Peers for this \$400,000 HSIP grant funded intersection signalization project in the City of Pleasant Hill. Project includes installation of new curb and sidewalk, reconstruction of storm drain facilities, curb ramps and realignment of crosswalks. HEI prepared the utility and right of way certifications for the project and created the “master” special provisions and bid book, based on the latest Caltrans boilerplate. Construction was completed in 2011.

**Project:** Treat Boulevard & Oak Grove Plaza Signal Improvements  
**Client:** City of Concord  
**Contact:** Mr. Mario Camarongon, CIP Manager

HEI was the civil designer and City Coordinator for this HES grant funded project in the City of Concord. The project involved the construction of a new signal at the intersection of two driveway intersections with Treat Boulevard, one of which was a Fire Station. The signal required emergency vehicle activation, video detection, signal interconnect and lighting. The project was constructed in 2008.

### **Agency Project Manager**

City of Concord, 1950 Parkside Drive  
Concord, CA 94519  
Mario Camorongan, CIP Manager  
(925) 671-3021

### **Key Personnel**

E Chan – Project Manager  
G Mok – Project Engineer

### **Project Highlights**

- Pedestrian Safety Improvements
- Traffic Signal Modifications
- Bridge Barriers & Approach Railings
- Coordination with Flood Control District
- Possible Federal Funds
- PS&E, Design/Bid/Build delivery

### **Project Challenges / Solutions**

Materials testing are required to reconstruct as-built. Stage construction is used to allow 2-way through traffic during construction. The existing traffic signal is modified for the new crosswalk with new pedestrian signal heads. The traffic striping along Detroit Avenue is re-stripped to accommodate lane shift due to the new sidewalk on the bridge. Permit and environmental review is kept to a minimum by reducing lane widths on the bridge to create a sidewalk without widening the bridge.

### **Detroit Avenue and Whitman Road Pedestrian Safety Improvements, City of Concord, CA (Design began 1/2016, completed 8/2016)**

#### **Project Work Scope / Assignment**

JMEC has been civil engineering consultant for a pedestrian safety improvements and BPMP project, including repaving deck, replacing bridge barriers and approach railings for a bridge over Contra Costa County Flood Control District (CCCCFD) Channel at Detroit Avenue. The project included widening the sidewalk on the bridge as much as practical and reduce the lane widths to a minimum of 11-ft in each traffic direction. This new sidewalk will connect the existing sidewalk at the north end and a new crosswalk at the south end to create a continuous safe passage across the bridge.



### **Agency Project Manager**

City of Concord, 1950 Parkside Drive  
Concord, CA 94519  
Mario Camorongan, CIP Manager  
(925) 671-3021

### **Key Personnel**

E Chan – Project Manager  
G Mok – Project Engineer  
B Chan – Design Engineer

### **Project Highlights**

- Gateway Signs and Wayfinder Signs
- Parks and Recreation Facilities
- Public Meetings with Input from City Council and concerned Citizens
- PS&E, Design/Bid/Build delivery

### **On-Call Civil and Structural Engineering Services**

Concord, CA (since 2004 and on-going)

#### **Project Work Scope / Assignment**

JMEC has been prime design professional for various CIP projects since 2004, including gateway signs, sport facilities, buildings, bridges, pedestrian safety improvements, retaining walls and slope stabilization projects. In 2009, JMEC completed the design of 3 gateway signs and assisted the City in providing construction observations for the Phase II Downtown Wayfinder project. In 2012, JMEC designed a sign structure at the Hillcrest Park; and in 2015, JMEC designed two steel archways with LED lighting at the Todos Santos Plaza. Recently, JMEC completed the evaluation of field lights replacement at the Willow Pass Park.



### **Project Challenges / Solutions**

The Todos Santos Plaza Archway project was particularly challenging due to economical constraints and various public input. The original simple steel archway turned into an elaborate architectural pleasing archway design with LED lighting by incorporating various input/ideas from City's Architect, Mayor, Council members and concerned citizen. Collaborative efforts from all stakeholders have made construction of these archways possible, and completed on time and under the allocated budget in 2015.

**Agency Project Manager**

Town of Danville  
510 La Gonda Way, Danville, CA 94526  
Steve Lake/City Engineer  
(925) 314-3319

**Key Personnel**

E Chan – Project Manager  
G Mok – Project Engineer

**Project Highlights**

- Rock Slope Protection Design
- Environmental Permitting & Monitoring
- Hydraulic & Scour Evaluation
- CEQA Document
- PS&E, Design/Bid/Build delivery

**Regulatory Agencies**

US Army Corps of Engineers  
CA Department of Fish and Wildlife  
Contra Costa Flood Control District

**Schedule & Budget**

Construction was completed on time and on budget in 2012 at a cost of \$900,000.

**Agency Project Manager**

City of Concord, 1950 Parkside Drive  
Concord, CA 94519  
Mark Migliore/Project Manager  
(925) 671-3422

**Key Personnel**

E Chan – Project Manager  
G Mok – Project Engineer

**Project Highlights**

- Bridge Replacement
- Safety Improvement
- Environmental Mitigation
- PS&E, Design/Bid/Build delivery

**Regulatory Agencies**

Contra Costa Water District (CCWD)

**Schedule & Budget**

Bridge construction was completed on time

**Diablo Road Bridge & W. El Pintado Roadway Repair** Danville, CA (Design began 1/2009, Constr. completed 11/2011)

**Project Work Scope / Assignment**

JMEC was structural engineer for the design of a slope stabilization and roadway repair project for the Town of Danville. The project included construction of a 150' length of soldier pile walls and rock slope protection, reconstruct sidewalk and metal railings, and landscaping. The memorial park was maintained and restored. A total of 6 design alternatives have been considered including the use of soil nails, tie-back wall, MSE wall and secant wall. The soldier pile wall with rock slope protection has been chosen as the preferred alternative considering costs, aesthetics and environmental impacts.

**Project Challenges / Solutions**

The ten-cor steel railings were re-used to reduce project costs. Aesthetics of the sidewalk and the memorial park were maintained. Biological monitoring and creek restoration were required for permits. RWQCB did not allow exposed rock slope protection, but RWQCB approved importing and compacting soil over the exposed rock slope

**Wren Avenue POC over Contra Costa Canal**

Concord, CA (Design began 7/2003, Constr. completed 8/2004)

**Project Work Scope / Assignment**

JMEC was structural engineer for a safety improvement project for a school corridor including a replacement of a pedestrian bridge for the City of Concord. JMEC designed a precast pretensioned slab bridge to replace an existing timber bridge over Contra Costa Canal. The design considered CCWD requirements and other environmental impacts to the canal.

**Project Challenges / Solutions**

The window of construction was extremely short due to the school's summer recess schedule, and the use of pretensioned slab bridges has shortened the construction schedule to 4 weeks. Protection against pollution to the canal was achieved by constructing a temporary platform.



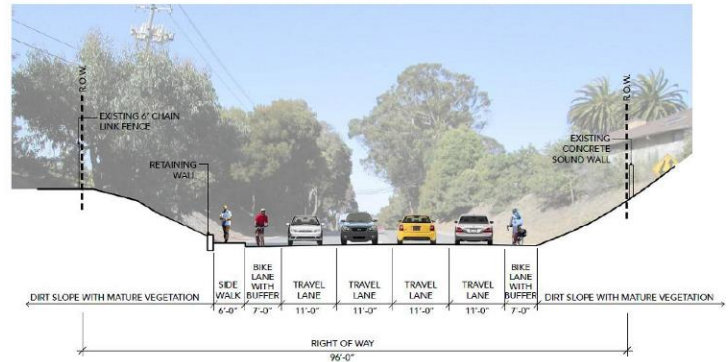
## **Fehr & Peers Project Experience and References**

Fehr & Peers has collaborated with the City of San Pablo on a number of projects over the years, including the projects listed below.

### **San Pablo Avenue Complete Streets (San Pablo, CA)**

The San Pablo Avenue Complete Streets and Pedestrian Connectivity project focused on improving multimodal access and connections along the San Pablo corridor by identifying needs and prioritizing improvements that will facilitate pedestrian, bicycle and transit access and improve safety for all users. The project started with goal definition with the City of San Pablo, City of Richmond and Contra Costa Health Services, followed by a public outreach process facilitated by LGC and Fehr & Peers to establish community priorities with three community workshops and three walking audits to inform the existing conditions assessment and site specific issues addressed in the preliminary improvement plan. Preliminary concept plans, improvement concept alternatives and the final preferred concept plan were developed to ensure feasible and cost-sensitive recommendations. Fehr & Peers also made public presentations and provided project support through adoption of the preferred concept plan for the corridor.

San Pablo Avenue Complete Streets Study



#### **Project Relevance and References**

- ◆ Project Type: Corridor Study, Complete Streets Design, Multimodal, Traffic Study, Community Outreach
- ◆ Client Contact: Lauren Seyda, Formerly with the City of San Pablo, (415) 378-2181
- ◆ Client Type: Public Sector
- ◆ Project Status: Final Study Completed and Approved

### **Rumrill Boulevard/13th Street Corridor Study (San Pablo, CA)**

Fehr & Peers led a complex complete streets study and 30% design for the Rumrill Boulevard/13th Street corridor in the Cities of San Pablo and Richmond. The project challenges included limited roadway connectivity and high demand for all modes on the corridor in addition to the corridor being over two miles and crossing through two jurisdictions. Fehr & Peers worked closely with both jurisdiction along with Contra Costa Health Services and Local Government Commission on this Caltrans Environmental Justice Planning Grant to analyze existing conditions, develop three corridor alternatives, and develop a preferred alternative for the corridor that was taken to 30% design. The project included significant stakeholder outreach, including a Walk & Design workshop and other community workshop and open houses. Traffic operations analysis was completed for the two-mile long corridor. Fehr & Peers collaborated with sub-consultants on the team to prepare the 30% plans and cost estimate.

#### **Project Relevance and References**

- ◆ Project Type: Corridor Study, Complete Streets Design, Multimodal, Traffic Study, Community Outreach
- ◆ Client Contact: Michele Rodriguez, City of San Pablo, (510) 215-3031, micheler@sanpabloca.gov
- ◆ Client Type: Public Sector
- ◆ Project Status: Final Study Completed and Approved

### 3rd Street Traffic Control Plans (Oakland, CA)

Fehr & Peers completed traffic control plans for the 3rd Street project in Oakland. The project vicinity included six different locations where traffic control plans were developed, and plans were completed for a section within a Post Office site as well. EBMUD led the public outreach tasks associated with this project.

#### *Project Relevance and References*

- ◆ Project Type: Traffic Control Plan
- ◆ Client Contact: Tim Karlstrand, EBMUD, (510) 287-1064, tkarlstr@ebmud.com
- ◆ Client Type: Public Sector
- ◆ Project Status: In Design

### City of Concord HSIP Signals (Concord, CA)

Fehr & Peers is led a team of Civil engineers, surveyors, environmental engineers and utility locators to perform intersection and traffic signal improvements at thirteen locations in Concord. The project is funded through a combination of HSIP and CMAQ funds and includes the preparation of traffic-related environmental analysis and documentation to provide justification for the installation of three new traffic signals and modifications to the operations at ten existing traffic signals.

The project involved preparing plans, specifications, and estimates (PS&E) to support implementation of protected left-turn phases and replacement of antiquated equipment at the ten existing signalized intersections; the design of three completely new traffic signal installations; provision of new signal interconnect and communications switches to support the new traffic signals; signing and striping modifications to ensure consistency with new traffic control; and ADA improvements to achieve compliance at each of the thirteen locations.

#### *Project Relevance and References*

- ◆ Project Type: Engineering Design, Traffic Signal Improvements, Environmental Analysis, Signing and Striping
- ◆ Client Contact: Ray Kuzbari, City of Concord, (925) 671-3129, Ray.Kuzbari@cityofconcord.org
- ◆ Client Type: Public Sector
- ◆ Project Status: Construction Complete

### Lennar Lafayette Residential Traffic, Circulation and Parking Study (Lafayette, CA)

Fehr & Peers completed a transportation impact analysis for a mostly-residential development in Lafayette. We studied three intersections and the proposed driveways, completing counts and observations of traffic, pedestrian, and bicycle activity at the study intersections. We prepared daily, AM and PM peak hour trip generation estimates and developed a trip distribution pattern based on an evaluation of local traffic patterns as evidenced by the intersection counts. Fehr & Peers evaluated morning and afternoon peak hour intersection operations for Existing Conditions, Existing Plus Project Conditions, 2024 No Project Conditions, and 2024 Plus Project Conditions.

We also conducted a comprehensive site access and circulation assessment for three different access plans. The assessment included sight distance, traffic safety, parking supply, accommodation and design of on-street parking, pedestrian and bicycle access and circulation within and adjacent to the site, transit access, and service and emergency vehicle access and circulation.

#### *Project Relevance and References*

- ◆ Project Type: Traffic Analysis, Multimodal Site Access and Circulation, Development Project
- ◆ Client Contact: Chad Kiltz, Lennar Homes of California, (925) 242-0811
- ◆ Client Type: Private Sector
- ◆ Project Status: In Design

## List of References

### City of Oakland On-Call Consulting Services

#### Wlad Wlassowsky

Transportation Engineering Manager  
City of Oakland  
250 Frank H. Ogawa Plaza, Suite 4344  
Oakland, CA 94612  
T: (510) 238-6383  
E: [wwlassowsky@oaklandnet.com](mailto:wwlassowsky@oaklandnet.com)

### City of Berkeley On-Call Traffic Engineering Services

#### Hamid Mostowfi

Supervising Traffic Engineer  
City of Berkeley  
2180 Milvia Street  
Berkeley, CA 94704  
T: (510) 981-6300  
E: [hmostowfi@ci.berkeley.ca.us](mailto:hmostowfi@ci.berkeley.ca.us)

### Contra Costa County on-Call Traffic Engineering, Livorna / Wilson signal Design, Willow Pass Road / Port Chicago signal design

#### Monish Sen, Senior Traffic Engineer

Contra Costa County  
255 Glacier Drive  
Martinez, CA 94553  
T: (925) 313-2187  
E: [msen@pw.cccounty.us](mailto:msen@pw.cccounty.us)



## Rate Schedules

## Harrison Engineering Inc. 2016 Charge Rate Schedule

Effective through December 31, 2016

## Hourly Charge Rates

| <u>Position/Title</u>            | <u>Hourly Rate</u> |
|----------------------------------|--------------------|
| Principal/Senior Project Manager | \$192.80           |
| Project Manager II               | \$177.40           |
| Project Manager I                | \$167.20           |
| Senior Project Engineer II       | \$154.90           |
| Senior Project Engineer I        | \$144.60           |
| Construction Inspector           | \$134.40           |
| Project Engineer II              | \$134.40           |
| Project Engineer I               | \$123.10           |
| Senior Design Engineer II        | \$117.90           |
| Senior Design Engineer I         | \$105.60           |
| Design Engineer II               | \$95.40            |
| Design Engineer I                | \$83.10            |
| Design Technician II             | \$77.90            |
| Design Technician I              | \$66.60            |
| Administrative                   | \$72.80            |

## Other Expenses

|                                                                                       |                                    |
|---------------------------------------------------------------------------------------|------------------------------------|
| Automobile Mileage                                                                    | \$0.54 per mile (Current IRS Rate) |
| Plotting                                                                              |                                    |
| Monochrome Drawings (Bond or Vellum)                                                  | \$1.50 per square foot             |
| Color Plots                                                                           | \$5.00 per square foot             |
| Plots on Mylar                                                                        | \$5.00 per square foot             |
| Subconsultant Fees                                                                    | Cost plus 10%                      |
| Reimbursable Costs (Printing, Copying, Parking, Mail/Shipping, Film/Developing, etc.) | Cost plus 10%                      |

Note: Rates are subject to an increase based on SF Bay Area Consumer Price Index, published annually in November.



## Schedule of Hourly Billing Rates

Effective Date: March 1, 2016 to March 1, 2017 - Rates subject to Annual Adjustments.

### •• Office Personnel ••

|                                                                                                             |           |
|-------------------------------------------------------------------------------------------------------------|-----------|
| Principal – California Professional Land Surveyor (CA PLS).....                                             | \$ 155.00 |
| Principal – CA PLS - Professional Witness.....<br>(3 hour minimum, plus materials and expenses as required) | \$ 250.00 |
| Professional Land Surveyor/Project Manager.....                                                             | \$ 130.00 |
| Senior CAD Drafter / Survey/Mapping Technician.....                                                         | \$ 100.00 |
| CAD Drafter / Mapping Technician.....                                                                       | \$ 90.00  |
| Project Coordinator / Property Research Specialist.....                                                     | \$ 80.00  |
| Administrative Services.....                                                                                | \$ 70.00  |

**Note:** Authorized overtime fees will be charged at 1.5 times the above rates.

### •• Field Survey Hourly Rates ••

Note: All field crew rates include vehicle, proof of insurance, survey instruments, all standard survey gear and materials and typical safety equipment. Four Hour Minimum for field survey crew. Any additional safety and/or protection requirements and specialized vehicles/travel will be billed as additional fees. Overtime hours will be billed at factored rates.

|                                                       |           |
|-------------------------------------------------------|-----------|
| 1-Person Survey Crew w/ Robotics.....                 | \$ 185.00 |
| 2-Person Survey Crew (four hour minimum).....         | \$ 230.00 |
| 3-Person Survey Crew (Right-of-way traffic work)..... | \$ 285.00 |

## Standard Fee Schedule

The following provides general cost information for work performed by JMEC Engineering Inc. and is used for cost estimating purposes for Year 2016.

### Direct Labor Rates are as follows:

| Position Classification | Grade | Range of Hourly Rate |
|-------------------------|-------|----------------------|
| Principal               | 11-12 | \$180 - \$240        |
| Project Manager         | 11-12 | \$160 - \$220        |
| Senior Engineer         | 8-10  | \$120 - \$150        |
| Project Engineer        | 8-10  | \$90 - \$120         |
| Engineer                | 5-7   | \$75 - \$90          |
| Assistant Engineer      | 3-4   | \$65 - \$75          |
| Senior CADD Technician  | C     | \$75 - \$85          |
| CADD Technician         | B     | \$60 - \$75          |
| Clerical                | A     | \$50 - \$65          |

### Other Direct Costs are billed at cost including the following:

|                          |                                   |
|--------------------------|-----------------------------------|
| Vehicle Mileage          | \$0.54/mile (or current IRS rate) |
| Photocopies              | \$0.15/sheet                      |
| 24x26 Blackline Printing | At cost (\$3.00/sheet max)        |
| 24x36 CADD Plotting      | At cost (\$15.00/sheet max)       |
| Courier Services         | At cost                           |

## Fehr & Peers Hourly Billing Rate Schedule

(As of July 1, 2016)

| Classification                       | Hourly Rate         |
|--------------------------------------|---------------------|
| <b>Principal</b>                     | \$205.00 - \$325.00 |
| <b>Senior Associate</b>              | \$160.00 - \$320.00 |
| <b>Associate</b>                     | \$140.00 - \$220.00 |
| <b>Senior Engineer/Planner</b>       | \$130.00 - \$180.00 |
| <b>Engineer/Planner</b>              | \$105.00 - \$145.00 |
| <b>Senior Technical Support</b>      | \$130.00 - \$180.00 |
| <b>Senior Administrative Support</b> | \$105.00 - \$145.00 |
| <b>Administrative Support</b>        | \$75.00 - \$125.00  |
| <b>Technician</b>                    | \$105.00 - \$145.00 |
| <b>Intern</b>                        | \$90.00 - \$100.00  |

- ◆ Typical escalation is 6% to 8% annually
- ◆ Other Direct Costs / Reimbursable expenses are invoiced at cost plus 10% for handling
- ◆ Personal auto mileage is reimbursed at the current IRS approved rate  
 (54 cents per mile as of Jan 2016)



## **Appendix A**

## Project Understanding

The City has had a long range goal to widen Laurel Road to a 4-lane divided roadway since the City was incorporated in 2001. This project will widen Laurel Road to the width of the precise alignment and conform to the proposed intersection improvements at Rose Avenue and the existing intersection at Mellowood Drive. The proposed improvements are generally in conformance with the City adopted Precise Alignment for Laurel Road. One exception, mentioned by the City, to the precise alignment is the reconfiguration of the vertical curve through the intersection of Rose Avenue and to the east.

The Duarte Ranch (Sub. 9027) development, on the south side of Laurel Road is developing their frontage improvements. It is our understanding that the designers of Subdivision 9027 will be designing the vertical curve on their frontage for a 45 mph design speed, so this project design will need to coordinate and follow their lead. The vertical grade changes planned for Laurel Road are requiring development of the median and north side of Laurel by the City. The grade lowering of Laurel Road affects existing utilities and the cover over them, which could require their reconstruction. HEI has worked in this same role with Isakson and Associates on City of Pittsburg and City of Antioch projects, where the Isakson and Associates design needed to coordinate with or turn into a City project.

The City has another project planned for Laurel Road at the intersection of Rose Avenue, CIP 191. This project will need to coordinate with the design work on that project, which is anticipated to occur simultaneously with this project. Ideally, HEI would be awarded both projects to simplify the coordination and reduce costs.

There are several utilities that run along Laurel Road and many of these will require relocation. Those utilities include:

- Calpine (Gas Pipeline)
- PG&E (Residential Gas and Electric)
- AT&T - Communications
- Comcast – Cable TV
- Diablo Water District – Domestic Water
- Underground Fiber Optic Lines

Drainage systems for the project are generally located to the west and east ends of the project. Intermediate inlets will be needed to convey roadway flows and the Flood Control District's Drainage Area 30A maps will be reviewed to determine if any major drainage facilities should be anticipated to accommodate future development.

Construction for the project will need to be staged to accommodate traffic. Certain phases of the work may require detours to accommodate the construction.

Construction is planned for the summer of 2018, with the PS&E package ready to bid no later than March of 2018. Our schedule (Page 12) shows an approximate 9 month project delivery for the PS&E package. Developing the plans to the 65% level, requesting utility relocations and the physical relocation of conflicting utilities will be the critical path items in the schedule leading up to construction startup.

## Project Approach

HEI will provide project continuity by maintaining the same senior project manager that worked on our previous work in this corridor. HEI's approach to this project will be to provide the City with a highly skilled team, whose members are experts in the various disciplines required to successfully deliver this bid package with minimal opportunities for contractor change orders and issues during construction. Our team will accomplish this by careful review of the work by qualified project managers at each phase of the project and implementing the following methodologies:

### Project Management

We believe in providing strong project management and team consistency through the life of the project. HEI's approach to project management includes:

- Randell Harrison will be the senior project manager, and oversee the consultant team for the life of the project. Randell was actively involved in the Precise Alignment development and the Laurel Road Widening projects between O'Hara and Empire Avenues.
- Regularly Scheduled Coordination Meetings.
- Submittals at Conceptual Design, 35%, 65%, 90% and Final levels of completion.
- Early issue identification and resolution.

In order to coordinate the team, keep the City informed, and keep the project on track, the following tools will be used to make sure the project is delivered on schedule:

- Developing a detailed Project Schedule with milestone dates is essential in aiding the project team in meeting submittal dates and keeping the overall schedule on track. Schedules keep everyone accountable.
- Periodic Project Team Meetings. Review of schedules and project accomplishments over the past period and review of upcoming submittals. Discussions on right of way, utility and physical constraints. Meeting minutes are prepared and sent out to the team members.
- Daily communication with team members as needed, via phone, emails and faxes.
- Paper trail. Good documentation of phone conversations and meetings with distribution to the appropriate parties.

In order to maintain and manage the project, the lines of communication must be well established. All project communications shall be directed through HEI's project manager so that project progress can be monitored at all times. This means that the City will have one point of contact through the life of the project.

### Geometric Design

This project is relatively straightforward as the area is fairly open, and aside from utilities that require relocation, there appear to be few geometric constraints. Redesign of the vertical curve will be carefully reviewed to ensure the developer's engineer designs for the correct design speed. Other project parameters also need to be established early in the project design phase to accurately develop the lane configurations and geometry of the project. Those items that need to be established by the team include:

- a. Minimum lane and shoulder widths.
- b. Design speed.
- c. Bay taper lengths.
- d. Design vehicle (e.g. California Semi-truck) for turning swept path.
- e. Bike lane transition at intersections.

In addition the City needs to confirm the design standards to be applied to this project, which may include:

- a. City of Oakley Standard Plans
- b. Caltrans Standard Plans
- c. Contra Costa County Standard Plans
- d. Caltrans Standard Specifications 2010 or 2015
- e. Caltrans Highway Design Manual
- f. AASHTO Policy on Geometric Design
- g. NACTO - Urban Bikeway Design Guide
- h. AASHTO – Guide for the Development of Bicycle Facilities, 4th Edition
- i. 2013 CBC for Accessibility Requirements

#### Other Design Considerations

- Need for reconstruction or rehabilitation of existing pavements.
- Installation of topsoil in future island areas to be planted.
- Installation of bark mulch to prevent weed growth until landscaped.
- Installation of Irrigation Crossovers to accommodate future irrigation.

#### Bid Documents

HEI goes through a careful process of developing the special provisions for each project. All items of work are carefully listed from the project plans including subtasks of that work item (for example “Remove Sign” should include removal of concrete footing and backfill and compaction of the remaining hole). The line items in the engineer’s estimate are then carefully reviewed to ensure coordination between the plans, proposal bid form, and the special provisions. The verbiage for each item must be exactly the same to avoid any missed items or confusion between the items of work. Then the measurement and pay clauses are written to include all items of work that were developed. Because of the close coordination required between the bid proposal form and the special provisions, we have found that it is most beneficial to wait until the 95% stage before preparing the specifications for the project.

#### Early Issue Identification

Utility Conflicts. HEI will obtain utility mapping as part of the conceptual design phase to identify potential conflicts with the work. We have included an allowance for utility potholing if there is potential for the design to impact the utilities. If needed, a utility locating company will perform potholing services to provide a positive location of utilities. HEI will then prepare utility relocation notices for the City to print on City letterhead to demand that the conflicting utilities relocate their facilities in accordance with the Street and Highway Code or Franchise Agreements.

There are XX PG&E joint poles and other surface utility features that will need to be relocated to accommodate the widening of Laurel Road. Those features include the PG&E joint poles, guy wires, Calpine casing vents, plus other potential underground water and sewer facilities.

- o HEI plans to have the utilities initially located using ground penetrating radar and other electromagnetic detection methods that have proven cost effective and reliable for identifying potential issues during the early stages of the project. If potential relocations are identified, then additional potholing may be necessary using vacuum excavation methods.

### Quality Control

Every PS&E Package undergoes a thorough review by an HEI Principal or Senior Project Manager to cross check the package before it is released. HEI also utilizes a color coded back-check system to ensure all plan corrections are made. Redline plans are provided to the technical staff for revisions, who highlight the changes with yellow. When plans and markups are returned to the engineer, the engineer or Project Manager back checks the revisions and marks them off with a blue highlighter.

### Qualified Design Team

Our proposed subconsultants for this project are: Quiet River Land Services, Inc., Abey Arnold Associates, Fehr & Peers Transportation Consultants, and PDM Utility Solutions. We have worked with each of these firms on several projects and have confidence in their ability to provide a quality work product. HEI has completed the following roadway widening projects:

- Laurel Road Precise Alignment (Oakley)
- Laurel Road Widening (O'Hara to Brown)
- Laurel Road Widening (Brown to Empire)
- O'Hara Avenue Widening (Laurel to Nutmeg)
- Concord Boulevard Widening (Sattler to Farm Bureau Road) (Concord)
- Concord Boulevard Widening (Farm Bureau Road to Sixth St) (Concord)
- Buena Vista and Parkside SRTS Project (Walnut Creek)

In addition to these major roadway widening projects, HEI has also prepared many pedestrian and bicycle improvement projects that involve many similar elements to this project.

We propose to staff this project with the same individuals proposed for CIP 191, to ensure continuity with the design concept and utility coordination.

### Design Approach

The project will be designed using the Autodesk Civil3D software (2014 version). HEI utilizes an XREF setup for drawings that allows for easy sharing of critical files to ensure continuity amongst the various disciplines. The sheet file for each drawing or subset of drawings will reference in the following XREF files: Border, Topographic Mapping, Geometrics, Right of Way/Parcels, Utility, and Drainage. Changes made to a single XREF file will reflect changes through the entire plan set. The Civil3D software can also create standalone drawing files that bind the XREF files into each drawing to simplify sharing of files with outside agencies, like utility companies.

The Civil3D program will calculate the drainage system hydraulic grade line, so that all pipes can easily be sized to provide the appropriate amount of freeboard at each inlet grate. Rational method will be used for hydrology calculations. All calculations will use the Contra Costa County methods and values for both hydrology and hydraulic calculations.

## Work Scope

### **TASK 1 – PROJECT MANAGEMENT**

Harrison Engineering Inc. shall provide project management services to assure delivery of the project on schedule, within budget, and according to the established project goals.

Project management shall also include active coordination with the City.

- Consultant will meet with the City to review the project scope of work, schedule, and submittals for the project. This initial kick-off meeting will also address project coordination and responsibilities and define key project issues and goals.
- Additional meetings will be on an as-needed basis to clarify items or review submittals.
- Supervise, coordinate, and monitor project design for conformance with standards and policies.
- Maintain project files.
- Prepare monthly invoices.
- Prepare correspondence and memos. If requested, HEI will provide reports of progress to the City Project Manager on a monthly basis.
- Assist with preparation of exhibits and attendance at 2 public meeting if requested.

### **TASK 2 – UTILITY COORDINATION AND MAPPING**

HEI will gather and assemble all available data from the City, including record drawings, reports, available utility maps, utility plans, survey monument data, assessor's maps, right of way maps, etc. The mapping limits requested will extend to beyond Mellowood Drive.

HEI will identify all utility conflicts. It is anticipated that all utility adjustment costs will be covered by franchise agreement or as described in the Streets and Highways Code Section 670-695. HEI will prepare utility relocation letters for printing on City letterhead. Utility relocation letters will go out upon completion of the 65% Plans, and in coordination with Subdivision 9027 and the Rose Avenue & Laurel Road Intersection Signalization Project, CIP 191.

This task will also provide as a notice to utility companies of the potential rehabilitation streets to determine if there are any utility improvements planned for these streets. Anticipated utility companies within the area:

- Ironhouse Sanitary District
- PG&E
- Diablo Water District
- Comcast
- AT&T
- Calpine (CPN)

### **TASK 3 – ELECTRONIC UTILITY LOCATING (PDM)**

PDM Utility Solutions will perform utility locating using a combination of GPR and Electromagnetic detection for the widening of Laurel Road at same time as the work for the Rose Avenue Intersection. The work for this project will consist of:

- 1) Locating: 2 man locate crews with GPR
- 2) Electronic depths when available

- 3) Traffic control: basic traffic control and work ahead notice signage.

Work will be performed during day shift working hours. Weekend work may be required. We have assumed that the potholing allowance for CIP 191 will be sufficient to address potholing requirements for CIP 196 as well.

**Deliverables:**

- 1) Electronic depths painted on the ground.
- 2) Locate report

**TASK 4 – TOPOGRAPHIC SURVEYS (QRLS)**

The following scope of work will employ classic, standard and typical requirements for a design and engineering-grade survey and map. Please review the Scope to insure it includes all that you need. QRLS will perform the following tasks:

**A. Parcel Boundary, Right-of-Way Research and Computations in Office:** This Initial task includes obtaining current, available, recorded maps to define the record right-of-way width and locations. This parcel/Right-of-way data will be uploaded and provided to the field crew for use in the field survey phase of the project.

**B. Project Control and Topographic Survey:** QRLS field crews will locate relevant, existing street monuments and property corners (if any) in close proximity to the project street alignment to help in the determination of the right-of-way lines. Note that this is **not** a property boundary survey project. QRLS will perform a thorough and detailed design-grade topographic survey of the street improvements and conditions found within the Limits of Survey Area along Laurel Road from Rose Avenue intersection approximately 1350 linear feet to the intersection with Mellowood Drive. Survey and Mapping to include:

Cross-section style locations at between 25 to 50 foot intervals as shown on the Limits of Survey Exhibit provided. Survey to include Edge of Pavement, limited lane striping, topographic survey of the edges of the agricultural fields, location and identification of the row crops, median, flowlines, curbs and lip of gutter, drain inlets where present at the Mellowood Intersection. Topographic locations will cover the crown and grades of the existing asphalt street and all visible drainage structures will be located and identified. The survey will include the location of any visible, relevant utilities and evidence of underground utilities (utility poles, guy wires, fire hydrants, risers, transformers, vaults, pullboxes, manholes, inlets, drainage inlet/outlet pipes and utility pipeline markers) that are within the specified area. The survey will include the alignments and identification marking of the underground utility lines if marked-out by others.

**C. Mapping:** Subsequent to the completion of the field survey of the Street, QRLS will create a digital, scale topographic map utilizing the topographic mapping data from the field survey and record parcel/right-of-way data. The map will be prepared in AutoCAD. The main product will be electronic maps, field data and photos transmitted to Harrison Engineering, Inc. electronically via e-mail.

**D. Survey Equipment and Methods:** QRLS will:

- 1.) Utilize Robotic electronic total station, Static and possibly RTK GPS equipment to collect and record field data, establish horizontal and vertical control points.
- 2.) Utilize a combination of cross-section and radial topography to obtain topographic information of the intersection.

- 3.) Utilize various software programs to reduce, process, analyze compute and adjust the field data and mapping information.
- 4.) Basis of Elevations will be City of Oakley Elevation Datum as provided or NAVD 1988 as per WGS 84 GPS Datum.
- 5.) Basis of Bearings will be bearings inversed between City of Oakley Monuments as provided to our office, or CA State Plane Coordinates as determined by Static GPS Observations.

#### Project / Proposal Notes:

- a. **Title Reports:** This proposal **does not** include the purchase of, or the obtaining of, any Title Reports. QRLS will review and utilize any title reports provided to our office, and IF additional title work is required or in the event of a problematic Title report, then an addendum or pass-through fee proposal can be prepared.
- b. **Construction Staking:** This proposal does not include construction staking services. Project control points will be established on the project for use in the construction phase.
- c. **Monument locations - Survey Work in Street Lanes:** All survey and mapping work in the traffic lanes will be done with care and caution by the field crew. The crew will utilize signs and cone zones
- d. **Record of Survey Map and Monuments:** This is **not** a boundary survey and this proposal does not include the setting of any property corners or right-of-way/Street monuments or monument wells. There is no intent or expectation to prepare and file a Record of Survey Map for this project. In the unlikely event that, during the course of this project it is determined that a Record of Survey Map must be prepared and filed, then QRLS will submit a revised proposal to cover those additional fees.
- e. **Permits and fees:** This proposal does not include the cost of encroachment permit fees, any bonds, insurance or special assessments; special classes, equipment or safety requirements, or any as yet unspecified fees. In the event that unforeseen fees are levied, then QRLS reserves the right to increase this services proposal to include those costs.

#### TASK 5 – FIELD RECONNAISSANCE

HEI staff will field review the project area and make notations and measurements for the following features:

- Pavement delineation and signs
- Assess pavement condition
- Utility features
- Assess existing drainage facilities
- Roadway Striping
- Frontage features impacted by concept alternatives

#### TASK 6 – CONCEPT PLAN DEVELOPMENT

Once the topographic survey has been completed and all the existing frontage and utility features have been identified, HEI will develop preliminary concept designs for the widening of Laurel Road. The intersection geometry at Rose Avenue will be shown on these exhibits, combining the two projects. HEI will meet with City Staff to present and discuss the design concepts. Design will consist of a skeleton layout for the proposed project based on the precise alignment drawings and as modified using plans developed for Subdivision 9027. After receiving feedback from the City, HEI will finalize the conceptual design plan and develop an order of magnitude budget for project improvements.

#### Deliverables:

- *Concept Plan – 20 Scale Hardcopy and Electronic PDF Version*

## TASK 7 – PLANTING AND IRRIGATION DESIGN (AAA)

Abey Arnold Associates, Inc. (AAA) will provide Landscape Architectural design services for preliminary design and construction documents for median, and roadside planting areas:

- Median planting between Rose Ave. and Mellowood Drive
- Roadside planting on the North side of the roadway between Rose Ave. and Mellowood Drive

The following tasks will be included:

- Provide Conceptual Design at 35% stage and Design Development drawings for approvals by the City Staff at 65%, 90% and 100% Stages.
- Construction Documents with planting and irrigation plans, specifications, details.
- Cost Estimates

## TASK 8 – LIGHTING DESIGN (F&P)

Fehr & Peers will be responsible for roadway lighting through the project area. We understand that the lighting design needs to accommodate the traffic signal and safety lighting design for Laurel Road / Rose Avenue (CIP 191). The service pedestal at that intersection will include a separate lighting circuit for this project's lighting.

The street lights are to be installed in the median, and will be duplex LED fixtures in accordance with City Standard Plan E-01. Where turn pockets prevent duplex luminaire arms we will design single-arm poles in accordance with standard plan E-02. We will perform a photometric analysis to confirm that average illuminance and uniformity meet the standards set by IESNA RP-2.

The design team will work to ensure no overhead or underground utility conflicts with lighting poles or foundations. F&P will coordinate with PG&E early to ensure the service point can accommodate the new lights and that PG&E design is complete in time for construction to begin.

The work will be organized as follows:

- A) Project Start-up & Site Investigation
  - 1) Attend kick-off meeting
  - 2) Provide input to schedule
  - 3) Perform site observations
  - 4) Obtain PG&E electric map and City street lighting as-builts
  - 5) Develop base map for design tasks
- B) Analysis and Concept Designs
  - 1) Develop conceptual lighting design (photometric analysis, pole locations)
  - 2) Finalize conceptual plan based on City comment
  - 3) Provide ROM cost estimate
- C) Design Development
  - 1) Obtain revised CADD geometric plan
  - 2) Develop 35% Design Development Package (pole locations)
  - 3) Submit application for service to PG&E if needed
- D) Construction Documentation
  - 1) 65% Package
    - i) Develop 65% Lighting Plan and Details (2 sheets)
    - ii) Develop 65% Technical Specifications (Oakley format based on Caltrans standard specifications)
    - iii) QA/QC

- iv) Engineer's Estimate of Construction Cost
- 2) 90% Package
  - i) Meeting with City to discuss comments
  - ii) Develop 90% Plans and Specifications based on City comments
  - iii) Update Engineer's Estimate of Construction Cost
- 3) Final Bid Package
  - i) Develop Final Signed and Stamped Plans and Specifications
  - ii) Update Engineer's Estimate of Construction Cost

## TASK 9 – 35% PLANS AND ESTIMATE

35% Plans and Estimates will develop the Concept Plan further and show refined geometric information for the project, including: curb returns, limit lines, tapers and transitions. Construction notation on these plans will still be limited but focused on the geometric layout. This submittal will include utility mapping, based on record data received from the utility companies and utility locating efforts. Construction details and drainage features are not anticipated to be included in this submittal.

Plan sheets anticipated for this project submittal include:

|                                | <u>No. of Sheets</u> |
|--------------------------------|----------------------|
| Title Sheet                    | 1                    |
| Typical Sections               | 1                    |
| Layout Plan/Profile (20 Scale) | 3                    |
| Total                          | 5                    |

*Deliverables:*

- 35% P&E Electronic PDF Version via email

## TASK 10 – 65% PLANS AND ESTIMATE

Based on the City's review comments on the 35% Plans and feedback, HEI will develop the 65% Plans and Estimates. Plans will include drainage design, construction details, and utility relocation requirements will be fully identified. This plan set will also include the first submittal of the signal improvements. Plan sheets anticipated for this project submittal includes:

|                                | <u>No. of Sheets</u> |
|--------------------------------|----------------------|
| Title Sheet                    | 1                    |
| Typical Sections               | 1                    |
| Layout Plan/Profile (20 Scale) | 3                    |
| Utility and Drainage Plans     | 3                    |
| Construction Details           | 2                    |
| Construction Staging Plan      | 3                    |
| Planting Plans                 | 4                    |
| Irrigation Plans               | 4                    |
| Lighting Plans                 | 4                    |
| Total                          | 25                   |

*Deliverables:*

- 65% P&E Electronic PDF Version

## TASK 11 – 90% PLANS, SPECIFICATIONS AND ESTIMATE

90% Plans, Specifications and Estimates shall further refine the plans developed for the 65% P&E. HEI will fully develop the detailed design for the improvements.

Detailed attention will be given to accessibility to the site, construction staging, coordination and conformance with City requirements, excavation and shoring, and utility relocations. Critical to any reviews is follow-up and completion of a back-check on the documents to verify that all comments have been addressed. A primary goal of this review is to identify and resolve ahead of time construction issues that could result in claims and change orders.

*Deliverables: 3 Sets of PS&E at 90% + Electronic PDF Version of Submittal*

## **TASK 12 – 100% PLANS, SPECIFICATIONS AND ESTIMATE**

100% Plans, Specifications and Estimates will be complete bid ready construction documents incorporating or addressing all City comments on the 90% PS&E package.

HEI will perform a thorough review of the contract documents prior to bid advertisement to ensure the project is constructible and biddable. A constructability review will be performed on the 90% construction documents and will address coordination between the different disciplines, and compatibility with general construction methods. This task budgets for the final bid document preparation. HEI will revise the bid documents based on City comments. Any comments not incorporated into the bid documents will be discussed and addressed with the City.

HEI will combine the technical provisions for the civil components, planting, irrigation, and lighting components and incorporate them into a master bid package suitable for public bidding.

*Deliverables:*

- *1 Set of Print Ready Plans plus estimate and specifications*
- *Electronic PDF Version of Submittal*

## Schedule

We propose to follow the same schedule for CIP 196 as CIP 191, the Rose & Laurel Intersection Project. The number of working days for construction can be significantly reduced from the CIP 191 schedule, since there are no long lead time items as part of this work.

