

Joseph Gutierrez, PE, PMP, ENV SP

President / Senior Project Manager



REGISTRATION

CA/Professional Engineer/Civil/#55604

AZ/Professional Engineer/Civil/#37808

EDUCATION

1991/BS/Civil Engineering/University of California, Irvine

CERTIFICATIONS

2013/Institute for Sustainable Infrastructure/Envision Sustainability Professional

Project Management Institute/Project Management Professional/#318148

PROFESSIONAL AFFILIATIONS

Project Management Institute

American Society of Civil Engineers

Orange County Water Association

Mr. Gutierrez possesses over 25 years of experience in planning, design and construction of water and wastewater facilities for various municipalities as well as the private sector. He has served as Senior Project Manager and key Project Engineer for the design and construction of pipelines, pumping facilities, storage reservoirs, and sewer facilities in the Southern California region.

He has performed construction observation, construction management, and resident engineering duties on large water and wastewater projects with construction costs up to \$180 million. He is a fully certified Project Management Professional (PMP), knowledgeable in every facet of business and project management per the Project Management Body of Knowledge, advocated by the Project Management Institute (PMI).

Experience

Water Pipelines

Plant 137 and Live Oak Road Water Replacement, East Valley Water District, Highland, CA: Project Manager for design of 3,200 lineal feet of 12-inch ductile iron pipe in a residential neighborhood to deliver Plant 137 potable water to Mountain Zone customers as well as future residential development. The new pipeline extended the pressure system boundary and converted five homes from the Little Sycamore Zone to the Mountain Zone system. The existing Little Sycamore Zone pipeline was abandoned in place. Other project components included upgrades to Plant 137, including demolition of two existing steel pressure tanks, removal of abandoned pipelines and valves, demolition of underground vaults and concrete slabs, removal and replacement of an altitude valve assembly, and replacement of existing undersized potable water pipelines in the Canal Zone and the Mountain Zone system.

Jerry Lane, Della Lane, and Loara Street Water Main Replacement, City of Garden Grove, CA: Project Manager for the preparation of contract documents for replacement of 4,000 LF of waterlines in four areas of the City. Tasks included topographic mapping, potholing and plotting of underground utilities, abandonment of fire flow deficient waterlines, construction of new waterlines with replacement fire hydrants and service laterals, and pavement resurfacing. Two of the four areas were near public schools; therefore, construction required coordination with the Garden Grove School District.

Area 1 Water Main Replacement, City of Manhattan Beach, CA: Project Manager for preparation of construction plans and specifications for replacement of 7,000 lineal feet of undersized water lines in the high pressure zone area of the City. Project design included replacement and abandonment of existing water lines, connections to existing water meters, replacement of fire hydrant assemblies, installation of pressure reducing valves where low pressure zone customers were converted to high pressure.

Sepulveda Boulevard and 2nd Street Water Main Replacement, City of Manhattan Beach, CA: Project Manager responsible for design of a 12-inch waterline on Sepulveda Boulevard. The project constructed 2,600 lineal feet of 12-inch waterline between Manhattan Beach Boulevard and Second Street with system cross connections at three street intersections. The project included preparation of a base map with underground utilities, abandonment of existing waterlines and services, and construction of new waterlines, fire hydrants, and service laterals. Sepulveda Boulevard is under the jurisdiction of Caltrans therefore all work within the highway required a Caltrans encroachment permit.

Temescal Canyon Road Non-Potable Water Pipeline, Lee Lake Water District, Corona, CA: Project Manager for preparation of contract documents for construction of 11,900 LF of 12- and 16-inch non-potable water pipeline in Temescal Canyon from Dawson Canyon Road to Campbell Ranch Road. This project facilitated delivery of recycled water to Lee Lake Water District's non-potable water system and storage reservoir. Caltrans permitting was a key task in meeting the project goal.

Large Potable Water Valve Replacement, Long Beach Water Department, Long Beach, CA: Project Manager for preparation of construction plans and contract documents for replacement of non-functioning large diameter valves in four locations in the City of Long Beach. The project also included large steel pipe for make-up spool pieces with air release valves, chlorination assemblies, and blow off assemblies. Project duties included potholing of existing transmission lines for depth and discovery, testing for contaminated soils, and preparation of system isolation plans.

Water/Recycled Water Pipelines Recycled Waterline in Foothill Parkway, Corona, CA: Lead Project Engineer responsible for preparing plans and specifications for 4,400 LF of 16-inch diameter recycled water pipeline in Corona and Riverside County associated with the widening of Foothill Parkway (from California Avenue to Bedford Canyon Road). Project included crossing under several large diameter storm drains and over the existing MWD 108-inch diameter waterline. At the Bedford Canyon/Foothill Parkway intersection, jacking and boring of the proposed recycled waterline was needed to minimize traffic disturbance and to eliminate excavation of several existing utilities and storm drain structures.

Glen Ivy Pipeline Relocation, City of Corona, CA: Project Manager for relocation of two segments of existing 18-inch Glen Ivy Pipeline to accommodate widening of Temescal Canyon Road for Riverside County.

District 1 and 6 Water Main Replacement, City of Pomona, CA: Project Manager for the preparation of construction plans and specifications for the replacement of 5,500 LF of existing water mains of various sizes with 8-inch ductile iron and steel pipe on Gordon Street and Bonita Avenue in the City of Pomona. Project design consists of replacement and abandonment of existing water lines, connection to existing water meters, replacement of fire hydrant assemblies, connections to existing water system at several street intersections, new waterline crossing over the Thomson Creek Channel, and pavement repair/upgrade.

District 4 Phase II Water Main Replacement, City of Pomona, CA: Project Manager for the preparation of construction plans and specifications for the replacement of 10,500 LF of 4- and 6-inch water

main with 8-inch ductile iron pipe on several residential areas within the City of Pomona. Project design consists of replacement and abandonment of existing water lines, connection to existing water meters, replacement of fire hydrant assemblies, connections to existing water system at several street intersections, and pavement repair/upgrade.

District 1 and 2 Water Main Replacement, City of Pomona, CA: Project Manager for the preparation of construction plans and specifications for the replacement of 7,500 LF of existing 6-inch water main with 8-inch ductile iron pipe on White Avenue. Project design consists of replacement and abandonment of existing water lines, connection to existing water meters, replacement of fire hydrant assemblies, connections to existing water system at several street intersections, and pavement repair/upgrade.

District 2 Water Main Replacement, City of Pomona, CA: Project Manager for the preparation of construction plans and specifications for the replacement of 16,000 LF of existing water mains of various sizes with 8-inch ductile iron pipe on 2nd, 3rd, and 4th Street in the City of Pomona (Downtown Area). Project design consists of replacement and abandonment of existing water lines, connection to existing water meters, relocation of several existing water meters, replacement of fire hydrant assemblies, connections to existing water system at several street intersections, and pavement repair/upgrade.

Warner Basin Transfer Tubes Replacement, Orange County Water District, Anaheim, CA: Project Manager for the design of an 84-inch RCP transfer tube between Warner Basin and Little Warner Basin. Project included geotechnical investigations, abandonment and/or removal of existing piping, construction of concrete headwall structures and riprap bedding. Project also included coordination with Southern California Edison for a Consent Agreement with the District for pipe construction within their easement.

Lakeview Pipeline Project, Orange County Water District, Anaheim, CA: Project Manager responsible for the preparation of the Preliminary Design Report and Concept Report for the Lakeview Pipeline Project. The project components included a 66-inch diameter steel pipeline within the busy streets of Anaheim; slide gates with electric operator to control water transfer from various percolation basins owned by OCWD; and an air-inflated diversion dam within Atwood Channel to transfer water to various percolation ponds. The project included coordination with Orange County Flood Control District for a conjunctive use agreement on Atwood Channel.

Orange County Cross Feeder Pipeline Feasibility Study, Metropolitan Water District, Orange County, CA: Project Manager for the alignment study of a 108-inch diameter steel pipeline for MWD, which joins the Second Lower Feeder Pipeline and East Orange County Feeder Pipeline No. 2. The report was performed with coordination with Municipal Water District of Orange County. The alignment study was developed to allow operational flexibility by increasing the delivery capacity of State Project Water from the Jensen Treatment Plant into Central and South Orange County. The report not only developed a rating system for comparison of the different alignments considering construction costs, residential disturbances, traffic impacts, environmental impacts, permitting requirements, and construction methodology, but also

established conceptual alignments along existing street rights-of-way within the cities of Anaheim and Placentia.

Perris Valley Pipeline Feasibility Study, Metropolitan Water District, Riverside, CA: Project Manager for the preparation of the Feasibility Study for the Perris Valley Pipeline. The report identified several possible alignments for this 108-inch steel pipeline from MWD's Mills Treatment Plant to the Western Municipal Water District jurisdictional boundary. The report not only developed a rating system for comparison of the different alignments considering construction costs, residential disturbances, traffic impacts, environmental impacts, permitting requirements, and construction methodology, but also established approximate alignments of the pipeline within existing street rights-of-way and within open areas of future commercial development.

Interstate 5 Widening Waterline Replacement, City of Anaheim, CA: With the widening of the Interstate 5 freeway in the vicinity of the City of Anaheim, engineering design was needed for replacement of existing water mains. Assisted in the preparation of construction plans and specifications. Specific design development was necessary considering interim phases to complement the proposed I-5 construction schedule. Pipe design was for 8- to 24-inch diameter ductile iron pipe.

Alicia Parkway and Pacific Park Transmission Mains, Moulton Niguel Water District, Aliso Viejo, CA: Responsible for horizontal and vertical layout of 24- and 36-inch diameter ductile iron pipeline. Included in the project was the preparation of traffic control plans, design of air release assemblies, blow-off assemblies, and flow metering structures.

Reclaimed Water Distribution System, Schedules 1 through 5, West Basin Municipal Water District, Los Angeles, CA: Performed design and engineering tasks for preparation of the construction plans for this complicated reclaimed water pipeline project. Responsibilities included horizontal and vertical control of the pipelines through some of Los Angeles County's busiest streets and intersections. Pipeline design was for 24- to 48-inch diameter steel pipe. Additional design elements included air release and blow off structures, isolation valve structures, blending stations, and cathodic protection.

Regional Plant No. 2 Potable Water Pipeline Extension, Inland Empire Utilities Agency, Chino, CA: Project Manager for the preparation of construction plans and specifications for the extension of the City of Chino potable water pipeline to the existing IEUA Regional Plant No. 2. The project components included coordination with City of Chino for construction of the pipeline in the public right-of-way and reconfiguration of the potable water system at the Regional Plant No. 2.

Pipeline 4 Extension, Phase 2, San Diego County Water Authority, San Diego, CA: Assisted in the horizontal and vertical layout of the 72-inch diameter concrete transmission pipeline for SDCWA. Special design details were also prepared for air-release and blow-off structures.

Reservoirs and Booster Stations

Facilities Master Plan of the La Palma Reservoir and Pump Station Complex, City of Anaheim, CA: The City of Anaheim has operated this water storage and pumping facility since 1953. The reservoirs are at risk of damage from seismic activity and the City desires a phased master plan for replacement or retrofit. The facilities master plan evaluated the cost and non-cost factors of different strategies of retrofit to the complex. The potential retrofits include upgrading the reservoir with a new liner and a new aluminum roof. Another retrofit included rehabilitation of the existing booster pump station.

Beacon Hill Pump Station Pump and Engine Replacement, Moulton Niguel Water District, Laguna Niguel, CA: Project Manager for preparation of Preliminary Design Report for the Beacon Hill Pump and Engine Replacement Project. The report evaluated various alternatives, 18 in total, studying different fuel sources (natural gas, LPG, and diesel), electrifying the engine, and relocating the fire pump and engine to two other District sites. A hydraulic model was developed to determine the feasibility of relocating the fire pump at the two sites. Project investigations included coordination with Southern California Gas Company to see if existing infrastructure is available to provide natural gas supply for the replacement engine.

Plant 40 and Plant 134 Pump Station Improvements, East Valley Water District, Highland, CA: Project Manager for design and preparation of contract documents for Plant 40 and Plant 134 Booster Station Improvements. Plant 40 improvements included four 1,000 GPM vertical turbine pumps to maximize getaway capacity from the Intermediate Zone to the Upper Zone. Pump station equipment included motor operated check valves, a surge anticipator valve, a magnetic flow meter, and miscellaneous electrical and instrumentation improvements. Plant 134 improvements included removal of two 500 gpm pumps with 75 HP motors (Canal Zone) and three 1000 gpm pumps with 75 HP motors (Foothill Zone) and replacing with larger capacity pumps and 100 HP motors to maximize station production and match treatment plant capacity. Other project design components included removal of undersized diaphragm pump control valves and replacement with motor operated check valves, and retrofits to existing motor control center panels.

Rehabilitation of West Garden Grove Well 22/Booster Pumping Facility, City of Garden Grove, CA: Project Manager for preparation of the Preliminary Design Report. Preliminary investigations included condition assessment of the existing facility, hydraulic testing of three booster pumps and one well pump, testing of natural gas engines, coordination with AQMD for revisions to existing permit, and conversion of one natural gas engine to electric motor. Preliminary Design Report sized proposed replacement engines, results of pump hydraulic testing, sizing of replacement pumps, sizing of new air conditioning unit, and recommendations for miscellaneous improvements to booster pumping facility.

Green Acres Project Backwash Pump Station Flow Metering Modifications, Orange County Water District, Fountain Valley, CA: Project Manager responsible for preparing plans and specification for the modifications to the District's Green Acres Project Backwash Pump

Station. Since its inception, the amount of backwash water from the Green Acres Project discharged by the OCWD to the Sanitation District's treatment facility has been unrecorded. The project modified the configuration of the backwash pumping station discharge piping to include a magnetic flow meter, vacuum valves, and supports. The project also required running power to the flow meter and signal and control to the District's SCADA system.

Tustin Ranch Emergency Pumps and Pressure Reducing Station, Irvine Ranch Water District, Tustin, CA: Led the design team for the preparation of the construction plans and specifications for the IRWD Zone 3 and 4 Pump and Pressure Reducing Stations. Each station included three vertical turbine pumps, pressure reducing and relief valves selection, surge tank, yard piping, site grading and drainage.

Crown Point and Southridge Pump Stations, Moulton Niguel Water District, Laguna Niguel, CA: Modified the District's domestic water hydraulic model to include both the Crown Point and Southridge Pump Stations. After completion of the model, prepared the construction plans and specifications for both pumping stations. Both stations included design of horizontal split case pumps, crane conveyor for maintenance, valve selection, surge tank design, piping layout, site grading, and drainage.

Via Lomas De Yorba West Booster Pump Station (Zone 4), Yorba Linda Water District, Yorba Linda, CA: Project Engineer responsible for supervising design activities for the District's Zone 4 Booster Station which included pump design and valve selection, structural design, yard piping and site grading. Also involved with construction management of the project, responsible for reviewing shop drawings, responding to plan clarifications, and approving progress payments.

Joint Regional Treatment Plant Reclaimed Water Reservoir, Moulton Niguel Water District, Laguna Niguel, CA: Project Engineer and liaison between the project team, subconsultants, and the agency. The project included a 9.0 MGD wastewater treatment plant, a buried 3.0 MG pre-stressed concrete reservoir, a 6,000 GPM reclaimed water pump station, site grading, and yard piping design. A special project feature was the design of the vertical turbine pumps mounted on the reservoir roof slab. This was the accepted solution given the small site available for the improvements. Special coordination and design was also necessary to aesthetically unify the treatment plant site with an existing adjacent community.

John Garth Reservoir and Pump Station Improvement Phase 1, City of Santa Ana, CA: Provided construction administration and support for the construction of the John Garth Reservoir, formerly known as Bristol Reservoir. Project effort included review of shop drawings, response to request for clarifications, site inspection, and redesign of site grading and drainage.

Zone 500 Booster Pump Station, City of Santa Monica, CA: Project Engineer responsible for the design of a pre-packaged, skid mounted booster pump station, within a pre-cast concrete structure. The pump station was located within a landscaped median of a busy street in Santa Monica. The pump station design included mechanical layout, site layout, and coordination with the City's Community Forester for the protection of existing trees and vegetation.

Zone 3 Booster Pump Station / Zone 5 and 6 Booster Pump Station / Zone 5 and 6 Domestic Water Reservoir, San Jose Municipal Water District, San Jose, CA: Project Manager responsible for modeling the City of San Jose domestic water distribution system. The water system modeling was performed using H2ONet, to allow for integration with the District's existing and future modeling database. Part of his involvement included the engineering design and plan preparation of the District's Zone 3 Booster Pump Station (5,000 GPM), Zone 5 and 6 Booster Pump Station (7,000 GPM), and the 2 MG Zone 5 and 6 Concrete Reservoir (W. Lyon Homes – Ranch of Silver Creek Reservoir). The pump station design allowed inter-zone transmission and circulation using pressure reducing and sustaining valves. The design of the water infrastructures was in conformance with the District's design standards with considerations for maintenance and operations requirements.

Water Storage Tank Project CIP 8544, City of Davis, CA: Senior Project Engineer responsible for the engineering design and construction plan preparation of the City's 4 MG domestic water storage tank. The work effort included the design of a concrete reservoir including the pump station, flow metering facility, surge anticipation equipment, site and access grading, site drainage, and approximately 1,200 lineal feet of transmission main. The reservoir and pump station site was located adjacent to Sutter Davis Hospital and was designed with consideration for the hospital's noise abatement requirements.

Hunt Highway and Bush Way Water Production Facilities, City of Chandler, AZ: Project Engineer responsible for the design and preparation of contract bid documents for the City's water production facilities. Each facility included a 2.0 MG reservoir, one of welded steel and the other buried concrete, a 6,000 GPM booster pump station, an emergency diesel generator, a blending station, and a well station. Both projects were designed and constructed on small lots adjacent to a developing community. All construction and components were specially designed to conform to the City's specific plan for the adjacent development. The proposed reservoirs were buried or recessed in a manner unnoticeable when viewed from the development.

Well Equipping and Chlorination

Destruction of Well No. 36 and Construction of Well No. 59, City of Anaheim, CA: The City decommissioned Well No. 36 because of water quality issues. The project scope included destruction of existing Well No. 36, drilling of a new replacement well in the same site (Well No. 59) and equipping of the new well. Destruction of Well No. 36 included removal of the existing well pump and discharge piping, demolition of existing sodium hydroxide tanks, shed, perimeter wall, and trees. Well equipping included a prefabricated metal roll-away building to enclose the new well, the pump, motor, and control valves. An attached masonry building enclosed the electrical equipment, sodium hypochlorite equipment, and future ammonium hydroxide equipment.

Redevelopment of Well No. 22, City of Garden Grove, CA: Project Manager for preparation of construction plans and specifications for the redevelopment of Well No. 22. After completion the Preliminary Design Report for the West Garden Booster Pumping Facility, a redevelopment of one of the City's most productive wells was completed. The redevelopment services included shut-down of the engine, removal of the

existing deep well vertical turbine pump, scrubbing of the screens, and bailing of the bottom of the well. The project also required rehabilitation of the existing deep well vertical turbine pump.

Rehabilitation of Wells No. 1, 5, 7, and 12 at Richfield Plant, Yorba Linda Water District, Placentia, CA: Project Engineer responsible for the full rehabilitation of the District's most productive well site. His involvement with the project started with an economic analysis between the site's existing double lift versus proposed single lift operations. Upon District's approval of his recommendations, generated construction plans and specification for the site rehabilitation. The scope of work included disinfection of the existing wells, sizing and design of the proposed deep well vertical turbine pumps (each at approximately 2,000 GPM), natural gas engines, dual fueled emergency generator, a one-ton chlorination facility, emergency chlorine gas scrubber, and other miscellaneous items such as yard piping design, structural design, site grading, and drainage.

Coyote Well No. 12A Wellhead Facility, City of Fullerton, CA: Designed the wellhead improvements for Coyote Well No. 12A for the City of Fullerton. The project components included pump selection, design of mechanical equipment, flow metering facility, site and drainage design, yard piping design, and tie-in to the City's existing potable water system.

Site and Wellhead Improvements for Well No. 28, City of South Gate, CA: Project Manager responsible for the design, construction, and permitting for the project improvements. The project components included design of mechanical equipment such as well pump and control valves, masonry block buildings with removable wall and roof panels, diesel generator set with fuel tank, sodium hypochlorite chlorination system, flow metering vault, piping layout, and site improvements. The site was subject to liquefaction therefore specific coordination was required with City's Building Department to mitigate for the improvements. After final submittal, the City requested additional modifications of the retaining wall heights and generator set exhaust configuration.

Sewer Pipelines and Force Mains

Loma Terrace Sewer Relocation Project, City of Laguna Beach, CA: Project Manager for preparation of construction plans and specifications for relocation of the Loma Terrace Trunk Sewer located near the City Hall. The project involved abandonment of 1,600 lineal feet of 24-inch trunk sewer, 1,350 lineal feet of 15-inch inverted siphon, and removal of 750 lineal feet of 8-inch sewer. The replacement sewer followed an alignment in front of the City Hall and consisted of 1,280 lineal feet of trunk sewer with an additional 360 lineal feet of 12-inch sewers. Being close to City Hall, the project was designed to minimize disturbance to public employees, downtown businesses, and tourists during the summer season. The project included geotechnical investigations, potholing for existing utilities, flow monitoring studies, and an in-depth analysis of the City's sewer system.

Plano Lift Station Force Main Relocation at Tijeras Creek, Santa Margarita Water District, Rancho Santa Margarita, CA: Project Manager for preparing a Preliminary Design Report and contract documents for replacement of a 350 foot segment of the 24-inch Plano Lift Station Force Main. The existing force main was constructed under Tijeras Creek and has recently ruptured due to internal lining failure. The

replacement pipeline was designed inside a casing and will be supported on a prefabricated steel pedestrian bridge across the creek. The project also included design of an above ground HDPE temporary bypass pipeline to allow SMWD to inspect a 2,400-LF segment of the existing ductile iron force main.

15th Street and Cherry Avenue Sewer Replacement, Long Beach Water Department, Long Beach, CA: Project Manager for preparation of construction plans and specifications for upsizing 600 LF of 8-inch sewer in 15th Street from Cherry Avenue to Dawson Avenue. The project included removing the 8-inch sewer and replacing with 12-inch sewer with replacement manholes and reconnecting existing sewer laterals. Coordinated with subconsultants for geotechnical investigations, utility potholing, and permitting with the City of Long Beach. Construction plans included relocation of a manhole and a sewer segment on Dawson Avenue to keep the alignment away from an existing 66-inch RCP storm drain owned by Los Angeles County Flood Control District.

District 3 and 4 Sewer Main Replacement, City of Pomona, CA: Project Manager for the preparation of construction plans and specifications for the replacement of 2000 LF of 8-inch sewer and miscellaneous sewer point repairs on Yorba Street and 700 LF of 8-inch sewer on La Mesa Avenue and Fourth Street. The project included removal and replacement of existing sewer main and manholes and reconnecting existing sewer laterals. Management duties included coordination with surveyor for preparation of base map, coordination with geotechnical engineer for preparation of geotechnical investigations report, and coordination and contact with miscellaneous utility companies.

District 1 and 2, Phase I Sewer Main Replacement, City of Pomona, CA: Worked with the City and their consultant for preparing contract documents including front ends and technical specifications for the unification of this project with the District 3, 4, and 6 Sewer Main Replacement. Coordinated with City's consultant for review of technical specifications that are common to both projects and recommended modifications to their plans. Prepared bid documents to allow a single bid package.

Brookhurst Street/Parliament Avenue Sewer Improvements, Garden Grove Sanitary District, Garden Grove, CA: Project Manager for the preparation of construction plans and specifications for approximately 6,500 LF of 12 to 18 inch replacement sewer on Brookhurst Street and Parliament Avenue. The project also included a double barrel inverted siphon which required jacking and boring under the existing Anaheim-Barber City Channel. Coordinated with County of Orange Property Permits for the design of the steel casing and carrier pipe through their right-of-way. Other project components included surveying for preparation of the base map and geotechnical investigations for preparation of the geotechnical report.

Street and Sewer Improvements for Richman Avenue, City of Fullerton, CA: Project Manager for the preparation of construction plans and specifications for the sewer and street improvements in Richman Avenue, Drake Avenue, Wilshire Avenue, Whiting Avenue, Amerige Avenue, and Ford Avenue. The project included removal and replacement of the existing sewer main and manholes and reconstructing majority of the street pavements within the project limits. Assisted the

City in developing an approach and recommendations for the street improvements based on a field assessment and geotechnical investigations. Project design included traffic control plans for removal and replacement of existing sewer and street improvements at Richman Avenue and Commonwealth Street intersection. Provided assistance to Construction Manager for miscellaneous bidding and construction services including responding to RFIs, review of shop drawings, assisting in contractor disputes and visiting the site during construction.

Addendum to Santa Ana River Interceptor Expanded Alternatives Study, Orange County Sanitation District, Anaheim, CA: Project Manager for the preparation of the shallow profile alternative study for the replacement of the 48-inch SARI pipeline. This study looked into different alternatives all of which included siphons to cross the Santa Ana River. One alternative was to construct the siphon by tunneling under the river. Management duties included strict coordination with the District, Army Corps of Engineers, Santa Ana Watershed Project Authority, and Orange County Flood Control District. Administered and presented alternative study to Caltrans for project approval.

Upland Interceptor Relief Trunk Sewer, Inland Empire Utilities Agency, Ontario, CA: Senior Project Engineer responsible for the preparation of the Preliminary Design Report and construction plans and specifications for the Upland Interceptor Relief Trunk Sewer. Project responsibility included coordination with two teams to fast-track the project design efforts to meet IEUA's construction schedule. The project components included jack and bore operations through existing railroad rights-of-way, design of siphon and access structures at railroad underpass, construction staging and traffic control for commercial streets in Ontario, and coordination with Los Angeles World Airports for segments of the alignment within the Ontario Airport.

Lake Murray Trunk Sewer Replacement, City of San Diego Metropolitan Wastewater Department, San Diego, CA: Senior Project Engineer responsible for the design and plan production of three miles of sewer replacement for the Lake Murray Trunk Sewer Project. Project included removal of existing trunk sewer and replacement with 15- to 27-inch diameter sewer trunk main adjacent to Lake Murray and through the Lake Murray Golf Course. The project alignment involved pipeline design through environmentally sensitive areas including Chaparral Canyon. The design included jack and bore operations, pipe bursting, and open trench construction.

Kuffel Canyon Sewer Feasibility Study, Lake Arrowhead Community Services District, Lake Arrowhead, CA: Project Manager for the preparation of a feasibility study for the relocation or rehabilitation of the Kuffel Canyon Sewer. The existing sewer followed the general alignment of Kuffel Canyon Creek where sections have been exposed due to erosion of creek banks. The feasibility study recommended replacing sections of the alignment, constructing parallel sewer segments, and constructing riprap stabilization of creek banks. Recommendations included a preliminary level construction cost estimate.

Sewer Lift Stations

P2-90 Trickling Filters at Plant No. 2, Orange County Sanitation District, Huntington Beach, CA: Project Engineer (Design Lead) for this complicated \$180 million construction project. Project components included the construction of a primary diversion structure, three trickling filters with pump station, a mixed liquor channel, a solids contact building, three return secondary sludge pumping stations, a chemical facility, and six trickling filter clarifiers. Project Engineer for the design of the 120-inch steel secondary effluent pipeline, flow metering facilities, 108-inch steel primary effluent pipeline, miscellaneous yard piping, cathodic protection, and plant paving.

Tank Farm Lift Station, Gravity Sewer, and Force Main Project, City of San Luis Obispo, CA: Project Manager for the preparation of construction plans and specifications for this complicated sewer line and lift station project. Coordinated the design effort between in-house staff and sub-consultants. Worked with the City Engineer and Chevron Corporation Project Manager for coordination and layout of the proposed sewer line through Chevron property. Established project controls and directives during construction for contaminated soils and groundwater. Worked with Caltrans to coordinate schedules for construction of the pipeline within Caltrans right-of-way and Caltrans' re-pavement project.

Beachwood Pump Station and Force Main Failure Investigation, City of Burbank, CA: Project Manager conducted a condition assessment of the Beachwood Pump Station, one of only two lift stations owned and maintained by the City of Burbank. The condition assessment determined the cause for station underperformance as sewage that could not be accommodated into the wet well and overtopped an upstream manhole and discharged into Los Angeles North Outfall Structure. The assessment included temporary flow monitoring stations, installation of miscellaneous monitoring instruments, two-day site assessment, and seven-day data collection period. With the compiled data, a hydraulic study was completed and pump station upgrades were recommended to the existing pump station equipment. The improvements would theoretically increase the pump station capacity from 5.9 to 8.3 MGD.

Laguna SOCWA Lift Station Rehabilitation, City of Laguna Beach, CA: Project Manager for preparation of contract documents for the rehabilitation of the Laguna SOCWA Lift Station. The project scope included an evaluation of the sewage bypass concept during the rehabilitation project. Several alternatives were considered including construction of a temporary submersible lift station, purchase and use of diesel-engine powered trailer pumps, purchase and use of electric powered trailer pumps, and reconfiguration of the existing suction piping to utilize the existing dry well immersible pumps for temporary pumping. The rehabilitation included shotcrete and relining of the existing wet well, replacing the existing wet well level controls, constructing a new diversion structure upstream of the wet well.

Lift Station No. 15 Relocation Feasibility Study, Lake Arrowhead Community Services District, Lake Arrowhead, CA: Project Manager for preparation of a feasibility study to assess the relocation of Lift Station No. 15, which is located in a historic landslide area of Rimforest District. The feasibility study developed alternatives taking into account staff safety, construction costs, constructability, projected life of

improvements, and potential risks resulting from excavation. The recommended alternative was for equipping an existing upstream manhole with submersible pumps for minimal excavation.

Regional Lift Station Pumps and Motors Replacement, Moulton Niguel Water District, Laguna Niguel, CA: Project Manager for preparation of Preliminary Design Technical Memorandum and contract documents for replacement of two out of five existing pumps and motors in the Regional Lift Station. The Regional Lift Station is a critical District facility and replacement of the two 250 hp, 5,400 gpm Cornell pumps provided the pump station with another 15-20 years of useful life.

Upper Salada Lift Station Generator Replacement, Moulton Niguel Water District, Laguna Niguel, CA: Project Manager for preliminary design of the generator replacement in Upper Salada Lift Station. The design included an evaluation of two alternative fuel sources (diesel and natural gas/LPG backup). The preliminary design recommended a new 350 kW diesel generator with new ATS and reconfiguration of existing electrical equipment lineup inside the station. Limited in space, the new generator will be sited on adjacent property to be acquired by the District.

Esencia (Planning Area 2) Lift Station, Santa Margarita Water District, Rancho Santa Margarita, CA: Project Manager for developing a Preliminary Design Report for Rancho Mission Viejo Planning Area 2 (Esencia) Lift Station. The Esencia Lift Station included submersible pumps in a wet well, control and isolation valve vault, flow metering, an emergency storage structure, and an emergency generator. The lift station design incorporated interim and ultimate conditions. Interim conditions included PA-2 and PA-3 sewage flows. Ultimate conditions only accounted for PA-2 flows.

Mead Valley Elementary Lift Station, Val Verde Unified School District, Perris, CA: Project Manager responsible for preparing plans and specification for the elementary school lift station which included two submersible pumps, associated piping, valves, flow meter, electrical and control equipment. Design components included a 10-foot diameter wet well, prepackaged ozone odor control system, and emergency generator set. Design was reviewed by Western Municipal Water District for conformance to their lift station design standards and guidelines. Coordinated with architect for design of building enclosure for generator set.

Miscellaneous Projects

Generator Replacement at Five Sites, Moulton Niguel Water District, CA: Project Manager for preparation of a Preliminary Design Technical Memorandum for installation of 14kW generators with LPG tanks at four reservoir sites and a 25 kW generator with LPG tank at the Bridlewood Flow Control Facility. Project scope included sizing and siting of the generators, LPG tanks, and automatic transfer switches.

Hazardous Waste Storage Facility Relocation, Orange County Sanitation District, Fountain Valley, CA: Performed preliminary and final design for demolition of existing hazardous waste storage lockers at OCSD's Plant 1 wastewater treatment plant. The existing waste storage lockers were in violation of Uniform Fire Code setback requirements and were in poor shape from excessive internal corrosion.

Groundwater Treatment Plant Chemical Tanks Replacement, Phase I, Long Beach Water Department, Long Beach, CA: Project Manager for preparing contract documents for the replacement of three chemical storage tanks located in LBWD's Groundwater Treatment Plant. The project required removing one existing cationic polymer tank and replacing it with a new 10,300 gallon ammonium hydroxide tank to partner with an existing tank of similar size. The project also included removing two 14,000 gallon tanks used for caustic soda and replacing them with two new 13,650 gallon tanks for the same purpose. Other project components included replacing chemical isolation valves, segments of the chemical feed line, vent line, drain line, and fill line. Specifications were written to allow for alternative tank materials including polyethylene tanks and fiberglass reinforced plastic tanks.

Planning Studies

Plant 3 Effluent Transmission Main Study, Moulton Niguel Water District, Mission Viejo, CA: Project Manager responsible for preparing a planning study for replacement of the Plant 3 Effluent Transmission Main. The planning study included a reach by reach evaluation of the ETM and recommended necessary pipeline replacement or relocation areas and slope and creek bed improvements. In preparing the planning study, a hydraulic model was developed to locate pressure condition segments in the pipeline. A risk evaluation was also completed to justify the magnitude and order of capital improvement projects.

Phase 1 Facility Plan, City of San Juan Bautista, CA: Developed and prepared the City's Phase 1 Facility Plan to be used for future capital improvement projects. The report included preliminary development and layout of the City's water distribution and storage system, wastewater collection and treatment system, storm drain system, and roadway improvements. The Facility Plan Report included preparation of CAD generated exhibits locating existing and proposed infrastructures using data collected from field survey and record drawing research.

Puerto Penasco Water and Wastewater Treatment Facility, Sun Bank Group, Sonora, Mexico: Project Manager responsible for preliminary planning of the Puerto Penasco Resort's water and wastewater filtration systems using reverse osmosis. The project included site layout, preliminary building and mechanical equipment layout, reclaimed and potable water system analysis and water balance.

City of South Gate Water Master Plan, City of South Gate, CA: Project Manager responsible for hydraulic modeling and report preparation of the City's Water Master Plan. The work effort included the development of water demands using the City's water billing data, development of a hydraulic model, calibration of the model to address specific operational issues for existing and future fireflow, pumping capacities, and pressure deficiencies, and development of a Capital Improvement Program. With the recommendations developed using the hydraulic model, the Water Master Plan was prepared which was used by the City staff for planning, budgeting, and funding up to Year 2020.