Robert C. Matthews, PE, SE

Education

BS w/high honor, Civil Engineering, Michigan State University

Engineering Licenses

Professional Engineer, Texas, #120818

Professional Engineer, Utah, #9884815-2203

Professional Engineer, New Mexico, #12742

Professional Engineer (Structural), Nevada, #020100

Professional Engineer (Structural), California, #3953

Professional Engineer (Civil), California, #44069

Professional Engineer, Michigan, #6201056236

Professional Engineer (Structural), Washington, #44599

Professional Engineer (Civil), Nevada, #020100

Professional Engineer (Civil), Washington, #44599

Professional Engineer (Structural), Hawaii, #14645

Professional Engineer, Colorado, #46324

Mr. Matthews is Vice President for RailPros with operations responsibilities to direct and review the firm's engineering effort and manage the corporate headquarters. Working directly with the owners, he led the transformation of an inefficient small business into a high-performing mid-size engineering operation consistent with leading companies in the industry. Improved effectiveness of marketing efforts by recruiting a new marketing manager and setting guidelines to improve proposal production. Worked with HR Manager to develop and document standards in employee handbook to provide consistent expectations from and benefits to company staff. Recommended new enterprise accounting and project management software to transition from QuickBooks and helped implement the software throughout the company. Started a new structural and civil department by recruiting and training staff to fill out the engineering capabilities of the firm. Developed, implemented and enforced a Design Quality Plan to reduce risk and improve client satisfaction with engineering work products. Developed procedures and led meetings to balance engineering work load throughout the company which significantly improved utilization of staff.

Mr. Matthews is a civil/structural engineer with extensive engineering experience that includes planning, design, and construction support of railways, roadways and buildings. His technical specialty is structural engineering and he has designed buildings, roadway bridges, railway bridges, retaining walls, and drainage and utility structures. He is actively involved as former chairman with AREMA Committee No. 9 (seismic design for railway structures) and prepared the seismic analysis procedures that are published in the AREMA Manual for Railway Engineering. He has developed several structural analysis computer programs, maintains technical websites and has prepared and instructed in-house classes and industry seminars on subjects from construction specifications to structural analysis.

Employment History

DATE	POSITION	COMPANY
March 2015 to present	Vice President	RailPros Irvine, CA
May 1991 to March 2015	Engineering Director	AECOM Orange, CA

Professional Associations

ASSOCIATION	POSITION	DATES
American Railway Engineering and Maintenance of Way Association (AREMA)	Former Chairman, Vice Chairman, Sub Chairman, Committee 9, "Seismic Design for Railway Structures"	1994 to present
American Society of Civil Engineers (ASCE)	Member	2007 to present

American Institute of Steel Construction (AISC)	Member	2008 to present

Engineering Management Experience

RailPros
Vice President engineering
March 2015 to present

As director of RailPros engineering efforts, managed and performed work which improved the performance and quality of the operation by:

- Managed technical staff workloads including chairing a bi-weekly project manager meeting with use of staffing projection sheets to balance and share work throughout the company.
- Organized a new civil discipline group by recruiting and supervising a new civil engineering manager.
- Started in-house technical training series including leading several classes and encouraging other managers to lead other classes.
- Developed, implemented and enforced a design quality plan based on FTA QMS Guidelines throughout the company, including development of standard procedures for document control, design control and purchasing.
- Started regular oversight and mentoring of project managers for project performance including developing agenda for project directors to review projects.
- Directly supervised project managers and structural discipline staff including regular mentoring.
- Recommended, tracked and enforced technical staff utilization goals throughout the company
- Contributed to business development efforts by leading and assisting with several proposal development efforts which resulting in major wins for the company.
- Initiated development of CADD standards for the company
- Obtained temporary contract staff as needed to support projects
- Developed technical staff skills matrix for use in work sharing
- Led and maintained TxDOT prequalification and certification process.
- Managed projects including design reviews for freight railroads and railroad bridge engineer for short line railroad.
- Served as quality manager on projects including at-grade crossing and passenger rail station.

RailPros
Irvine corporate headquarters office manager
March 2015 to present

As Irvine corporate headquarters office manager, coordinated and supervised administrative staff duties and developed new procedures to improve efficiency and performance of the company by:

- Recruited and supervised a marketing manager. Specified initial duties to optimize the proposal preparation efforts and guided marketing efforts as needed.
- Assisted and supervised the human resources manager. Initiated and assisted in several new tasks including development of on-boarding and off-boarding

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	procedures, development of career paths and job titles, development of standard recruiting practices, standardized employee benefits to be consistent with the industry, developed updates to the employee handbook and developed and implemented standard employee evaluation process. Performed duties of HR Manager when she was out on maternity leave. • Specified duties and supervised the office administrator. • Led selection and implementation of Deltek Ajera project management and accounting software to replace Quickbooks accounting system. Recommended dashboard widgets and alerts needed by Project Directors and Project Managers to track project performance. Appointed and supervised superuser to develop additional tools to help Project Managers. • Started social committee and encouraged staff engagement.
RailPros Chief structures engineer March 2015 to present	As chief structures engineer I started a new structural discipline group which I led by certain efforts including: • Recruited, supervised and trained engineers for railroad structures design • Selected new structural software to perform needed design tasks including finite element analysis, nonlinear pile bent analysis and bridge design. • Developed standard calculation forms and format • Provided support to proposal development including writing technical sections and participating in interviews. • Obtained PE license in several additional states to sign design documents. • Led structural work on several projects including passenger rail stations, track projects with bridges, design reviews for freight and passenger railroad companies.
AECOM Engineering Director Southern California May 2008 to Feb 2015	Engineering Director for the Southern California operations of AECOM, which includes offices in Orange, Los Angeles, Ontario and San Diego as well as several temporary project offices. Supervised, mentored and supported Department Managers in the Civil, Structural, Rail and Electrical disciplines as well as the CADD Manager. Coordinated efforts to sustain and improve office production. Coordinate project staffing to maintain desired utilization and project requirements. Maintained contact with the District Manager and Market Sector Leaders to determine priorities and objectives. Facilitated communication between Department Managers and Project Managers. Participated in recruitment and selection of key individuals. Assisted with company acquisitions by training staff on AECOM procedures and integrating staff into Department structures.
AECOM Structural Dept. Manager (interim) Los Angeles and Orange offices June 2012 to Feb 2015	Structural Department Manager (interim) for the Los Angeles and Orange offices of AECOM. Assumed management of these departments after the departure of the previous department managers. Hired key staff to lead projects, mentor senior staff, oversee project budgets, maintain communication with Project Managers and handle all personnel issues. Trained replacement Department Manager.

DMJM Harris Structural Dept. Manager Southern California Oct 2001 to Oct 2003	Structural Department Manager for the Southern California operations of DMJM Harris, which included offices in Orange, Los Angeles, Long Beach and San Bernardino as well as several temporary project offices. Organized the Department into one cohesive operation after the merger of DMJM (Los Angeles), F.R. Harris (Long Beach) and Holmes & Narver (Orange and San Bernardino). Promoted and mentored Department Managers to oversee the operations in the individual offices. Developed Department Standards for Calculations and Design Task Protocols. Developed technical training program that provided a pertinent course to staff every quarter and offered individuals the opportunity to develop their skills in technical instruction.
AECOM Technical Director Southern California Oct 2002 to Feb 2015	Technical Director for the Southern California operations of AECOM, which included offices in Orange, Los Angeles, Long Beach, Ontario and San Diego as well as several temporary project offices. Provided technical guidance and support necessary for the conduct of business. Oversaw Project Managers to assure quality and reduce risk with deliverables. Organized and developed training programs for staff. Approved and developed Project Work Plans. Took a lead role in the organization of software control for the corporation. Developed technical guidelines and procedures to improve quality of work. Provided leadership, mentoring and coordination between three Technical Directors in other offices.
DMJM Harris Engineering Director Northern California May 2006 to Aug 2006	Interim Engineering Director for the Northern California operations of DMJM Harris, which included offices in Sacramento and Oakland as well as several temporary project offices. Provided technical guidance and support necessary for the conduct of business. Facilitated communication between managers. Established operations management structure and responsibilities. Interviewed and recommended appointment of Engineering Director to oversee operations. Provided training and guidance on Technical and quality issues.
DMJM Harris Technical Director Northwest U.S. Aug 2007 to Oct 2008	Technical Director for the Northwest U.S. operations of DMJM Harris, which included an office in Bellevue, Washington and several temporary project offices. Provided technical guidance and support necessary for the conduct of business. Facilitated communication between managers. Recommended appointment of Technical Director to oversee operations. Provides training on Technical and quality issues.
DMJM Harris Regional Quality Mgr. West Region Apr 2002 to Aug 2007	Regional Quality Manager for the West Coast operations of DMJM Harris, which included offices in Orange, Los Angeles, Long Beach, Ontario, San Diego, Sacramento, Oakland and Seattle as well as several temporary project offices. Led implementation of the DMJM Harris ISO 9001 Quality Management System (QMS) for the Region. Helped develop corporate QMS procedures. Maintained and enforced Quality Management System (QMS) for the West Coast. Performed training and auditing. Developed local procedures for Document Checking, Local Audit Program and Review Comments. Developed a local standard for a Project Directory Structure (electronic files) and Project Filing Index (paper files). Selected and mentored a Regional Quality Manager to assume my duties.

Select Project Experience

RAIL/TRANSIT

City of Santa Clarita, Development of the Vista Canyon Multi-Modal Center (Metrolink Station), Santa Clarita, CA. Lead structural engineer on this project to develop a new passenger rail station with center platform, grade separated pedestrian access and related track work. Responsible for all structural design for the project. Station structures include platform, pedestrian underpass, sound walls and canopies. Track structures include new precast concrete slab beam bridge on piles, approach retaining walls and soil nail wall adjacent to station platform.

Global Companies LLC, Global Oil Unloading Facility, Port Arthur, Texas. Structural Project Manager responsible for the design of three bridges and retaining walls on a green site. Bridges include a steel through girder railroad bridge with steel plate deck over a drainage ditch, a parallel PC/PS concrete I girder maintenance road bridge over a drainage ditch and a PC/PS concrete I girder emergency access road bridge over the railroad tracks. Developed the bridge concepts, wrote the specifications, prepared drawings and calculations while training four engineers, coordinated with the client (Global) and railroad (KCS) and led the PS&E production.

BNSF Railway, CHSRA Plan and Spec Review, Fresno to Bakersfield, California. Lead structural reviewer for BNSF responsible for reviewing grade separation structures, intrusion barriers and adjacent California High Speed Rail Authority (CHSRA) facilities and providing comments. This contract covers CHSRA contract packages 1, 2 & 3 and 4 which are three segments from Fresno to Bakersfield California. Attended meetings with BNSF and CHSRA and led multi-discipline review of submittals.

Pacific Harbor Line, Railroad Bridge Engineer, San Pedro, California. Project Manager and Railroad Bridge Engineer providing support for Pacific Harbor Line's railroad bridges. Provide FRA 237-Qualified Railroad Bridge Engineer support to Pacific Harbor Line including: review bridge inspection reports, conduct internal audits, review requests for train movements over bridges, assist PHL in developing annual budgets for bridge maintenance and repairs.

SANDAG, LOSSAN Program Management, San Diego, California. Program Management for the San Diego County segment of the LOSSAN rail corridor. The LOSSAN corridor is used by NCTD Coaster commuter rail south of Oceanside, Metrolink commuter rail north of Oceanside and Amtrak throughout the County. Structural engineer providing support to SANDAG with submittal reviews, engineering standard drawing development and design criteria development. Reviewed plans and specifications for multiple railroad bridges on the LOSSAN Corridor. Was involved directly in finalizing the structures-related design criteria and coordinated review of non-structural criteria with other experts at RailPros. Reviewed and marked up engineering standard drawings and oversaw the incorporation of comments provided by SANBAG and NCTD.

SANBAG, Redlands Passenger Rail Program (RPRP) Management, San Bernardino, California. Program Management for the RPRP. The RPRP is a new DMU commuter rail line from San Bernardino to Redlands with new stations, grade crossings, bridges and a maintenance facility. Responsibilities include development of Project Quality Plan and reviewing consultant submittals.

Union Pacific Railroad, UPRR Tex Rail T&P Station to DFW Airport, Ft. Worth, Texas. On-call task with UPRR to provide review of plans and calculations submitted on modifications to the Tex Rail line from T&P Station to

DFW Airport. Structural Manager provided review of documents per UPRR requirements while training another engineer. Attended design review meetings in Texas with Union Pacific and Tex Rail and their contractors to discuss comments.

MTS, LRV Maintenance Scaffolding, San Diego, California. Task order project with San Diego Metropolitan Transit System to design maintenance platforms in two trolley maintenance buildings. Scaffolding is structural steel framing with steel grating and is designed per the California Building Code for dead, live and seismic loads. Structural engineer provided quality control review of PS&E documents while training an engineer.

SMART, Larkspur Extension, San Rafael, California. Project to provide preliminary design for the Larkspur Extension. This includes preparing 30% PS&E for design-build bridging documents. Structural lead responsible for developing preliminary engineering for bridges, culverts, walls and Larkspur Station platform. Railroad bridges are needed at San Rafael Creek, Unnamed Channel and at Auburn Street (Roadway underpass). Box culvert under Irwin Street is to be extended and new retaining wall is needed from Irwin Street to Rice Drive. Produced preliminary design calculations for a steel through girder with open deck and cast in place trough girder with direct fixation track at San Rafael Creek. Advised and guided the bridge layouts, developed the Design-Build specifications and performed quality control reviews of the structures.

Los Angeles County Metropolitan Transportation Authority, Van Nuys Station Improvements, Van Nuys, California. Project to modify the passenger platform configuration by adding a new center platform with pedestrian underpass and removing the current side platform. Served as the quality assurance/quality control manager for this project and performed quality assurance reviews of plans, specifications and calculations. Verified that all submittals followed RailPros' quality procedures and checked the structural work on the project while training an engineer. Structural work included railroad underpass with ramps, stairs and walls, existing culvert retrofit for railroad surcharge loads, and existing railroad bridge modification to accommodate track realignment. Project challenges include avoiding costly bridge improvements, meeting FRA level boarding requirements as Union Pacific Railroad has operating rights over all tracks, avoiding impacts to a major fiber booster station, fiber relocations, and coordination with more than 30 stakeholders and third parties .

Alameda Corridor East Construction Authority, Nogales Street Grade Separation Project (LA Subdivision), Industry, California. Lead structural engineer on this project to grade separate the Union Pacific Rail Road and Metrolink railroad tracks by lowering Nogales Street. Structural work includes a new PC/PS concrete box girder railroad bridge, a new roadway bridge, drainage structures, and several types of retaining walls. Supervised the structural work, designed the railroad bridge and retaining walls, wrote the specifications, and performed quality control reviews.

NAVFAC, Operations Access Points, Red Beach, MCB Camp Pendleton, CA. Lead structural engineer on this design-build project with Hal Hays Construction. Project involves replacing a 100 year old concrete double arch bridge owned by NCTD and widening the roadway below to allow training operations access for the Marines. A second track will be installed to allow the new bridge construction to be built while maintaining operations on the existing track. The new bridge is a two span precast concrete box girder on reinforced concrete bent caps with large diameter cast-in-drilled hole concrete pile foundations. MSE walls are used for the abutments and fill areas of the railroad bridge approach. Soldier pile walls are used for the cut areas of the bridge approach. The widened road requires construction of sheet pile walls along the existing creek and tieback walls at the Caltrans I-5 bridge abutment. Responsibilities include preliminary design of the structures during the proposal stage to support the contractors cost estimate, preparing and presenting the conceptual design to the government and stakeholders and leading the final design of the structures.

Honolulu Authority for Rapid Transit (HART), Honolulu Rail Transit Project (HRTP), Airport Segment Guideway and Utilities Contract and City Center Section Utilities and Guideway Contract, Honolulu, Hawaii. Specifications Coordinator for these two HART transit projects in Honolulu, Hawaii. The Airport Section is a 5.2 mile, grade-separated fixed guideway transit system. Four (4) stations are located along the route. The design of the Airport Section includes: widening of portions of Kamehameha Highway and other streets to

accommodate the guideway columns; improvements to sidewalks and medians; revised traffic signals; addressing environmental mitigation concerns, and other related improvements. The City Center Section of the HART Project is a 3.9 mile, grade-separated fixed guideway transit system. The design of the guideway structure supports the trackway at eight (8) Stations along the route. The design required the widening of the streets along the route to accommodate the guideway columns, provide bus stops, improve sidewalks and medians, revise traffic signals and other related improvements. Responsibilities include leading and coordinating the development of the project specifications for these two contracts. Researched the applicable specification requirements, produced a Technical Task Protocol describing the specification development process, produced the specification list, trained project staff and reviewed the General and Technical Provisions.

Los Angeles County Metropolitan Transportation Authority, Metro Gold Line Eastside Extension, Los Angeles, California. Technical director for a design-construct light rail transit project. Responsible for quality assurance for the joint venture. Provided technical guidance and quality control review of work. Developed project-specific procedures and trained JV and subconsultant staff to use the quality control procedures. Supervised the quality assurance engineer and helped perform surveillances of project work for compliance with the quality manual.

Los Angeles County Metropolitan Transit Authority, Mid City/Exposition Light Rail Transit, Los Angeles, California. Technical director for a light rail transit project. Developed project-specific quality manual and procedures. Trained all company and subconsultant staff to use the quality control procedures. Audited project work for compliance with the quality manual and performed quality assurance reviews of all submittals.

Sound Transit, Mukilteo Commuter Rail Station, Mukilteo, Washington. Technical director for the commuter rail station in Mukilteo, responsible for implementing and auditing the QA/QC program of this multidisciplinary project, including scheduling discipline and interdiscipline reviews, and for signing off on all deliverables to the client. Provided technical guidance and quality control review of the work.

North County Transit District, Oceanside-Escondido Rail Project, San Diego County, California. $224 million, 22-mile Sprinter passenger rail project in San Diego County. The project includes new ballasted track, signals, 15 stations/platforms, systems, retaining walls and bridges. The rail system converts an existing freight rail corridor along Highway 78 to passenger rail. As Technical Director for AECOM, I helped deliver this project to construction after it experienced various budget/schedule and quality control issues. As project engineer I assumed lead of the maintenance facility design effort and led preparation of project specifications. As structural engineer I designed a unique clock tower ticket vending machine facility, various retaining walls and provided support during construction services. As technical director I provided technical guidance on the bridge design. As quality manager I updated the project-specific quality manual, provided training, lead quality control activities and provided quality assurance reviews of the submittals.

San Bernardino Association of Governments, SR 210 Segment 10, San Bernardino, California. Project manager for the construction phase to improve route 210. Structural work included design of the Lytle Creek Bridge and seismic retrofit of the Muscoy underpass railroad bridge. Reviewed financial invoices, tracked financial performance, processed contract amendments, and served as the technical leader.

Alameda Corridor East Construction Authority, Baldwin Avenue Grade Separation, El Monte, California. Structural engineer on the project to grade-separate the Union Pacific Rail Road and Metrolink railroad tracks by lowering Baldwin Avenue. The structural work includes a new PC/PS concrete I-girder railroad bridge, drainage structures, and several types of retaining walls. Participated in the development of the conceptual railroad bridge design. Designed all the retaining walls. Performed quality control reviews on the bridge and pump station.

Alameda Corridor East Construction Authority, Brea Canyon Road Grade Separation, Industry, California. This project is to grade separate the Union Pacific Rail Road and Metrolink railroad tracks by lowering Brea Canyon Road. Structural work included a new PC/PS concrete I-girder railroad bridge (designed to the latest seismic requirements in the AREMA manual for railway engineering), two underground utility structures, and several types of retaining walls. Supervised the structural work, and designed most of the railroad bridge and all of the retaining walls while training a new graduate engineer. Wrote bridge type selection report and prepared structural specifications. Supervised the structural work and performed quality control reviews of the railroad bridge, retaining walls, and specifications.

Southern California Regional Rail Authority, Arroyo Simi Bridge Replacement, Moorpark, California. Structural engineer on this project to replace the existing Metrolink railroad bridge crossing the Arroyo Simi Channel. The existing bridge is a seven-span steel deck girder supported on extended pile bents. Two of the spans had already been replaced by SCRRA with PC/PS concrete double-box girders. The proposed bridge replacement uses standard SCRRA bridge details with extended pile bents and PC/PS concrete double-box girders. Participated in the development of project-specific design criteria for this bridge located within 1 mile of an active fault. Performed seismic analysis on the proposed bridge structure. Determined the capacity of the standard SCRRA bridge details and evaluated the loads on the remaining portion of the bridge.

City of Fullerton, Highland Avenue Grade Separation, Fullerton, California. Project engineer responsible for design of a railroad bridge over Highland Avenue and supervising the design of tieback walls and cantilevered concrete retaining walls. The railroad bridge is a cast-in-place prestressed box girder carrying five tracks. One of the abutments is supported on large-diameter cast-in-drilled-hole (CIDH) piles, and is tied back utilizing top-down construction techniques to avoid undermining an adjacent industrial facility. The tieback walls begin at the bridge abutment and extend 156 feet in length along the industrial facility and within four feet of the building footing. The cantilevered concrete retaining walls included special design walls along the rail alignment.

Alameda Corridor Transportation Authority, Henry Ford Avenue Grade Separation, Los Angeles, California. Project engineer for the structural work on this $75 million project to separate the ACTA mainline tracks from the State Route 47 ramps/Henry Ford Avenue intersection. Responsibilities included planning, oversight of design, and preparation and quality control checking of PS&E for the mainline viaduct segments 1, 5A, and 5B, as well as the Harbor Belt Line Bridge over the Dominguez Channel. Segments 1 and 5B are the approach walls that consist of mechanically stabilized earth walls and cantilevered concrete walls on piles. The approach walls are founded on improved soil using stone columns to preclude ground liquefaction during an earthquake. Segment 5A is a 312-meter-long, 24-span segment of the railroad bridge consisting of a precast concrete box girder superstructure with bents founded on large diameter cast-in-steel-shell (CISS) piles. The Harbor Belt Line Bridge is an 87-meter-long, nine-span curved railroad bridge with a steel girder open deck superstructure and large CISS pile foundation. Both bridges are founded in liquefiable soils and are designed to ACTA's multi-level seismic criteria.

Alameda Corridor Transportation Authority, Redondo Junction Grade Separation, Los Angeles, California. Project engineer responsible for supervising the layout and design of all retaining walls. The retaining walls consist of 480 meters of mechanically stabilized earth (MSE) walls at the two approaches, and 950 meters of MSE walls along the Burlington Northern Santa Fe Railway alignment at the right-of-way line. A significant percentage of the MSE walls along the BNSF alignment required special design consideration due to their proximity to existing buildings.

US Army Corps of Engineers, Santa Paula Creek Improvements, Santa Paula, California. Project engineer responsible for design of the modification of a railroad bridge crossing Santa Paula Creek, and design of cantilevered concrete channel walls. The original through-truss bridge (constructed in 1916) was lengthened by relocating the truss onto new foundations and designing a new through-girder span. The bridge renovations included the replacement of existing deck ties, installation of new guardrail, and the addition of walkways and

handrails. The project was designed to increase the volume of the Santa Paula Creek, which acts as a flood control channel. Design responsibilities included modifications to a railroad bridge, and the design of channel walls and a fish ladder. The railroad bridge consisted of an existing steel open deck through-truss that needed a deck replacement and lengthening. The lengthening was performed by designing a new steel through-girder structure as an additional span. A reinforced concrete pier wall with nosing was designed as the central support, and new reinforced concrete abutments on spread footings were designed as the end supports. The channel walls consist of 1,178 feet of reinforced concrete cantilever walls on spread footings. The fish ladder consists of timber stoplogs with steel wide-flange supports constructed on steps leading up to a reinforced concrete debris barrier wall with a slide gate. Supervised the structural work; performed all predesign and type selection work; designed the railroad bridge; checked the channel walls; designed the fish ladder; wrote the specifications; and performed quality assurance reviews of all the work.

Port of Los Angeles, Anaheim Street Rail Access, San Pedro, California. Lead bridge engineer for the design of a new 334-foot railroad bridge across the Dominguez Channel. The bridge, designed for Cooper E-80 rail loads, is a multi-span, open-deck girder bridge that crosses the Dominguez Channel (a continually wet channel) and is part of the Alameda Corridor on the south end of the corridor. A three-level seismic design criteria was employed in accordance with the new AREMA seismic criteria. The foundation consists of 42-inch steel shell piles for the bridge foundations to accommodate liquefiable soils to depths of 50 feet, and to facilitate construction. Concrete bent caps were used to avoid field welding of structural members in accordance with AREMA's requirements. Also responsible for the design of several thousand feet of H-pile retaining walls with timber lagging along the railroad alignment. Steel H-piles were designed using a non-linear lateral-pile analysis program. The project was permitted by the Los Angeles County Department of Public Works and was reviewed by the Union Pacific, Southern Pacific, and Atchison Topeka and Santa Fe (AT&SF) Railroads. The $20 million project involved 2 miles of rail, and extensive utility coordination. Provided construction support, including check of shop drawings and response to field questions.

ROADWAY/BRIDGE

Orange County Transportation Authority, Orangethorpe Avenue Grade Separation, Anaheim, California. Lead structural engineer to separate Orangethorpe Avenue from the BNSF railroad tracks. Structural work includes four bridges and several retaining walls. Supervised the structural work, configured the structures, produced the type selection reports, designed portions of the bridges and retaining walls, and checked the plans, specifications, and estimates.

San Bernardino Association of Governments, I-10/Tippecanoe Avenue, Loma Linda, California. Project manager and lead structural engineer to improve the I-10 interchange at Tippecanoe Avenue. Structural work included planning and design of two bridge widenings and several retaining walls. Drainage work included planning and design of storm drain system. Supervised the structural work and prepared the advanced planning studies and type selection reports. Checked the plans, specifications, and estimates. Prepared invoices and progress reports, and managed overall budget.

General Services Administration, San Ysidro Border Station Reconfiguration and Expansion, San Diego, California. Lead structural engineer for the project to reconfigure the US-Mexico border station. Structural work includes planning and design of pedestrian bridges, retaining walls, and ramp structures. Supervised the structural work, performed preliminary calculations, prepared sketches, and coordinated with the architects to configure the structures. Design for this fast-track project was completed in 3 months.

City of San Jose, Norman Y. Mineta San Jose International Airport Terminal Area Improvement Program, San Jose, California. Technical director for the design-build project to provide new and reconfigured passenger facilities at the airport. The project includes modifications to Terminal A, a new terminal B, a temporary passenger processing center for the existing Terminal C and the demolition of Terminal C, a surface parking lot, roadway improvements, an extension of terminal B systems, consolidated RAC garage, and tenant relocations.

Teamed with Granite Construction Company to design and construct the roadway improvements and site civil work. Developed project work plan, quality manual, and document control guidelines. Trained staff on project procedures and provided technical oversight of the engineering work.

California Department of Transportation, District 7, I-10 Emergency Bridge PS&E Reconstruction, Los Angeles, California. Engineer for an emergency task force under contract to Caltrans, responsible for the design effort to replace the Fairfax-Washington undercrossing that was destroyed during the January 1994 Northridge earthquake. Designed the superstructure and bent caps of the 5-span, cast-in-place prestressed box girder bridge. This fast-track project was designed in 33 days and was handled similar to a design-build project.

San Bernardino Association of Governments, SR 60 High-Occupancy Vehicle Widening, Moreno Valley, California. Project to widen SR 60 to accommodate a new HOV lane in each direction. Design responsibilities included widening the existing Pigeon Pass Road undercrossing and Heacock Street undercrossing, and replacing the existing Perris Boulevard undercrossing. Supervised the structural work; designed the Heacock Street bridge widening, and performed seismic assessment and retrofit design; designed portions of the Pigeon Pass Road bridge widening, and helped perform the seismic assessment; and designed the Perris Boulevard undercrossing replacement bridge. Supervised the structural work and performed quality control reviews of the three bridges.

San Bernardino Association of Governments, I-10 High-Occupancy Vehicle Widening, Los Angeles County Line to I-15, San Bernardino, California. Project engineer for the widening project, which included 11 bridge widenings (many included seismic retrofit); three bridge replacements; and a multitude of earth retaining structures, including prestressed tiebacks and soil nail walls. All structure work was staged to maintain eight lanes of traffic on I-10 at all times. All contract documents were prepared to Caltrans standards and approved by the division of structures. Responsible for the design and independent check of water crossing extensions, special retaining walls, soil nail walls, tieback walls, bridge replacement, and bridge widening. Also responsible for design of the east and west MWD Aqueduct protection structure extensions. Designed an extension to the Turner Avenue storm drain (an at-grade RCB culvert). Designed innovative retaining walls at the West Cucamonga Channel RCB to allow for the widened freeway. Designed over 2.5 miles of soil nail walls in a cut section of I-10. Designed a tieback wall in front of a spread footing abutment at the Euclid Avenue overcrossing. Performed an independent check of tieback walls at the Sultana Avenue, Campus Avenue, and 6th Street overcrossings. Performed an independent check of the precast concrete girders at the widening for the Grove Avenue undercrossing. Performed an independent structural check of Haven Avenue overcrossing.

Los Angeles International Airport, Taxiway C Over Sepulveda Boulevard, Los Angeles California. Principal project engineer responsible for the technical direction and quality control for the structural design of an extension of the Sepulveda Tunnel that passes below the runways of LAX. The existing tunnel was 1,910 feet long and carried four lanes of traffic on Highway 1 (Sepulveda Boulevard) below the runways. The extension of the tunnel was necessary to continue taxiway C and an airport service road over Sepulveda Boulevard adjacent to the runways. In order to provide an adequate object-free area next to the taxiway, the tunnel ventilation building had to be partially removed and reconstructed, as well as upgraded to accommodate the increased tunnel ventilation needs. The tunnel extension itself was comprised of 47 precast, prestressed concrete box girders that were made continuous with the abutments to provide a rigid frame structure capable of carrying a future 1.25 million-pound aircraft. The contract documents were approved by both California DOT and the city Structural Engineering Division.

BUILDING FACILITIES

California Department of Transportation, Los Angeles Regional Transportation Management Center, Los Angeles, California. Project to develop a transportation management center for Caltrans and the California Highway Patrol. The center is located close to an existing fault and is designed for high seismic accelerations.

New retaining walls were required along the access road and periphery of the building site. Designed all the retaining walls for the project, including cantilevered concrete retaining walls, soil nail walls, and tangent pile walls. The walls were all designed for the high seismic ground accelerations. .

Federal Aviation Administration, Airport Traffic Control Tower, Los Angeles International Airport, Los Angeles, California. Responsible for the structural design of a 5-story, rigid steel-frame base building. Designed composite floor beams, atrium steel-frame, and cast-in-place concrete basement. Wrote a program to design two-way concrete slabs over the basement for uniform and AASHTO HS20 loads. Designed one-of-a-kind aerodynamic-shaped roof with truss and curved beam system. Wrote Fortran programs to calculate roof geometry and analyze composite steel/concrete columns. Designed a pedestrian bridge between the base building and the air traffic control tower.

Federal Aviation Administration, Airport Traffic Control Tower, O'Hare International Airport, Chicago, Illinois. Responsible for the structural design of the three-story combination rigid and concentrically-braced steel frame base building. Designed a steel frame and cast-in-place concrete basement and foundation to support the building. Performed 3-D lateral load analysis of the irregular structure using STAAD-III for seismic loads, and wrote a Fortran program to combine STAAD-III results using an SRSS procedure.

Federal Aviation Administration, Elgin TRACON Facility, Elgin, Illinois. Engineer responsible for the site adaptation of the environmental support building. Modified the design for snow loads, lateral load analysis, and foundation design. The building is a one-story, concentrically braced steel frame with a penthouse.

Albertsons Stores, Albertsons, Ridgecrest, Poway, and Ramona, California. Project to design new Albertson's stores at various locations in California. Design responsibilities included design of the Albertsons Ridgecrest, Poway, and Ramona stores. The stores are single-story wood-roof buildings with masonry walls. The three stores all had differing features, including storefronts and loading docks. Performed the construction support work during the construction phase of the project, including shop drawing review and responses to requests for information.