

**FEDERAL TRANSIT ADMINISTRATION (FTA)  
PROJECT MANAGEMENT OVERSIGHT (PMO) PROGRAM SERVICES  
Solicitation Number: Reference-Number-FTA-08-PMOC**

**PGH WONG ENGINEERING, INC.  
CAPABILITIES STATEMENT**

**INTRODUCTION**

The objective of the Capabilities Statement is to provide the Federal Transit Administration (FTA) information regarding PGH Wong Engineering, Inc.'s (Wong's) capabilities to perform FTA Project Management Oversight Program Services. This is in response to the FTA's Solicitation Number: Reference-Number-FTA-08-PMOC posted on December 6, 2007.

**PGH WONG ENGINEERING, INC.'S CAPABILITIES**



PGH Wong Engineering, Inc., founded in 1985 with its primary line of business in the transit industry, is one of the nation's leading firms in the transit industry. Wong provides professional services to governmental and public agencies such as the Federal Transit Administration and transit agencies in feasibility studies, planning, design, project management oversight, program/project management, construction management and administration, quality assurance/quality control, procurement, constructability review, risk assessment, inspection, third-party liaison and coordination, utility relocation coordination, permit coordination and expediting, cost control and reporting, schedule control and reporting, estimating, contract administration, document management, contract packaging and bid analysis, field assistance during construction, testing and startup/rail activation services, and claims avoidance/mitigation and resolution. Wong brings a wealth of engineering resources and lessons-learned to the implementation of such transit systems as light rail, heavy rail, subways, commuter rail, bus rapid transit, and people movers from the feasibility/planning phase to commissioning, including experience in systems, electrical, structural and civil aspects. Wong's successful implementation of projects of the highest quality on time and within budget with efficient operations and maintenance has been its trademark for being repeatedly selected by the same clients.

**PGH WONG ENGINEERING, INC.'S FTA EXPERIENCE**



PGH Wong Engineering, Inc. is serving as a prime consultant in the capacity of Project Management Oversight for the Federal Transit Administration (FTA) in Regions I, II, and IV. Region I Projects include projects for the Boston Massachusetts Transportation Authority (MBTA), Rhode Island's South County Commuter Rail, and Fitchburg Commuter Rail. Region II Projects include the Metro-North Railroad and all rail projects in Connecticut. Region IV Projects include the Metropolitan Atlanta Rapid Transit Authority (MARTA) and Love Joy Commuter Rail. Prior to the current role with the FTA, Wong has served for over 10 years as a subconsultant on FTA PMO Program Services for projects in Chicago, San Jose, New York, and New Jersey.

Having been involved in FTA PMO Program Services for over 15 years, Wong is intimately familiar with the FTA Project Management Oversight Services in implementing projects of the highest quality on schedule and within budget. Wong is very familiar with the FTA PMO Program Operating Guidelines, Circulars, SharePoint, and Team Web in addition to assisting Grantees in the preparation of such plans as the Project Management Plans, Quality Assurance Plans, Fleet Management Plans, and Safety and Security Plans. Wong's FTA experience includes PMO on New Starts such as the Boston MBTA Silver Line Phase III Project; Small Starts such as the Fitchburg Commuter Rail Improvement Project in Massachusetts and the South County Commuter Rail Project for Rhode Island; and Rail Modernization Projects for Metro-North Railroad, Boston MBTA, Connecticut DOT, and MARTA.

Examples of Wong's FTA PMO Activities include the following:

**Massachusetts Bay Transportation Authority (Boston MBTA)**

- ▶ **Blue Line Modernization Program.** The Blue Line Modernization Program is part of the Massachusetts Bay Transportation Authority's (MBTA's) effort to accommodate new Blue Line 6-cars train and to meet Americans with Disabilities Act (ADA). This modernization program constitutes seven different projects being overseen by Wong with the necessary expertise provided in the

field of civil, electrical, mechanical, communications, signals, and security systems. These projects include the Orient Heights Station, Airport Station, Maverick Station, State Street Station, and Government Center Station; Blue Line Signals; and Blue Line Cars Procurement.

- ▶ **Light Rail Accessibility Program (LRAP).** The Light Rail Accessibility Program is part of MBTA's effort to provide ADA and Massachusetts Architectural Access Board (AAB) compliant rail transit service. The MBTA has identified stations on its Green Line to serve as ADA compliant key stations. LRAP improvements are intended to enhance safety and security for patrons, provide ADA compliant access to its facilities, and make the stations more convenient and comfortable. Another key LRAP objective is to modify the station platforms to be compatible with the new Green Line low-floor vehicles. The MBTA facilities included in the LRAP are Government Center Station, Park Street Station, Haymarket Station, Arlington Station, Copley Station, Kenmore Station, Boston College Station, and Brookline Village Station.
- ▶ **Systemwide Program.** The Systemwide Program includes the Station Management Program (SMP), Systemwide Radio, Orange Line Haymarket North Signal System, and Passenger Announcement & Variable Message Sign Project. The SMP Project includes the design, procurement and installation of a complete state-of-the-art automated fare collection system including fare gates, fare vending machines, fareboxes, and smart card encoding and printing equipment. Prior to Wong's involvement, the program was grossly over-budgeted and behind schedule with serious quality and reliable issues. Wong assessed the project and made recommendations for corrective actions to the MBTA which has resulted in bringing the project back on track. To accommodate the new equipment, major modifications to the stations were required such as new fiber-optic wide area network (WAN) covering the entire system and designated MBTA facilities. The Systemwide Radio Project includes design, procurement and installation of a digital, trunked voice/data simulcast, two-way land mobile radio communications system complete with an integrated computer-aided dispatch (CAD) system, and an automated vehicle locator (AVL). The Orange Line Haymarket North Signal System Replacement Project replaces the existing "temporary" Orange Line Haymarket North Signal System with a new automatic train control system. The Passenger Announcement and Variable Message Sign Project includes approximately 596 new advanced technology buses.
- ▶ **Silver Line Phase III.** This is a New Starts Projects. Wong is currently performing risk assessment including evaluation/assessment of the grantee's technical capacity and capability, project scope review, cost estimate and escalation, schedule review, and risk modeling on the Silver Line Phase III Project currently estimated in excess of \$1 billion.

### Rhode Island (South Corridor) Commuter Rail

The South County Commuter Rail Project (SCCR) is a continuation of the bi-state (Rhode Island and Massachusetts) goal to improve mobility within the shared corridor. RIDOT has identified the need to extend commuter rail service to meet the travel demand in the South County area. Since RIDOT is not familiar with the requirements of the FTA, Wong has been assisting RIDOT in all aspects of conforming to the FTA requirements such as preparing project management plan, quality assurance plan, and safety plan.

### Connecticut Department of Transportation (CDOT)

- ▶ **New Haven Terminal/Rail Yard Facilities Improvement Project.** This project involves the revitalization and reconstruction of the New Haven Rail Complex for Maintenance and Storage of the Railcars for the consolidation and upgrading of the storage and maintenance facilities for both the Metro-North Railroad New Haven Line and the Connecticut Department of Transportation Shore Line East, and Connecticut Commuter Railroad services. The program is being undertaken as multiple projects consisting of yard storage facility, running repair shop, and future facilities improvements.



- ▶ **New Haven Line (NHL) Catenary Replacement Project.** The New Haven Line passenger rail service operates between Grand Central Terminal in New York City and destinations in Connecticut including New Haven, Waterbury, Danbury and New Canaan. In Connecticut, the electrified main line is a four-track system from the State Line to Bridgeport, and a three-track system from Bridgeport to New Haven. The single-track branch lines, with the exception of New Canaan Line, are not electrified. CDOT is replacing the existing fixed-tension mainline catenary system with a constant-tension, two-wire catenary system, designed for the maximum speed allowed by track geometry and other physical constraints.
- ▶ **M-2 Critical System Replacement (CSR) Project.** The Critical System Replacement (CSR) Project entails replacement of critical systems for 241 existing M-2 Electric-Powered Railcars operating on the New Haven Line (NHL) between Grand Central Terminal in New York and New Haven, CT. CDOT owns 121 of the railcars while Metro-North Railroad (MNR) owns 120. CDOT is the

project sponsor while MNR is the prime contractor. The project is being funded jointly by CDOT and MNR. The cars, designed to operate in married-pairs, have been in daily operation since initial revenue service was inaugurated 30 years ago. The CSR Project is expected to extend the useful life of the railcars by at least 12 years in accordance with CDOT's operating policy.

### Metro-North Railroad (MNR)

- ▶ **Croton-Harmon Yard & Shop Rehabilitation.** The objectives of this project are to replace the Croton-Harmon Maintenance Facility located in Croton-on-Hudson, New York, reconfigure the South Yard, and construct improvements to the North Yard. The existing shop will be replaced with several smaller facilities to accommodate performance of separate functions. The project is designed in stages to enable the purchasing of materials, define construction sequences, and facilitate operational coordination with minimal impact to the present railroad maintenance operations.
- ▶ **Upper Hudson Line Stations Rehabilitation.** The project consists of the rehabilitation of station building envelopes, platforms, viaducts, and retaining walls. Rehabilitation of the viaducts included four bridges with a related project entailing the rehabilitation of 16 Hudson Line stations.

### Metropolitan Atlanta Rapid Transit Authority (MARTA)

Wong's role on MARTA involves the rehabilitation of the CQ311 married-pair cars and assessment of MARTA's Fleet Management Plan. Wong recommended that MARTA update the ridership baseline data by obtaining additional observed peak-hour-peak-direction data and utilize the Breeze System (MARTA's new universal fare system) data. These data will be used to project average weekday entries; ridership in peak-hour-peak-direction at maximum load point, and ridership from Transit Related Development, Regional Transportation Initiatives. Wong is currently preparing a spot report on the assessment of the rehabilitation program.

### SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT (BART)



Wong's experience in providing design, construction management, and project management services is exemplified at BART. The Wong staff has participated in the design and construction management, including testing and startup, of both the original 75-mile BART system and on all the extensions since the 1960s. Wong's projects with BART includes **General Engineering Services** and **General Construction Management** services. As a prime consultant, Wong is providing design services in architectural, civil, structural, mainline and yard infrastructure, train control and traction power systems, and operations control center and communications.

Wong is providing general construction management services on the modernization of Union City Station, 16<sup>th</sup>/Mission Street Station, and traction power system rehabilitation. These construction management services included constructability review, inspection, testing and cost estimates.

Wong is responsible for the preliminary engineering of a new \$1 billion plus **eBART** extension located in the State Highway 4 Corridor which runs east-west in Contra Costa County. Services by Wong to date have been focused on the preparation of conceptual design documents and capital cost estimates for three transit technology alternatives including nine miles for classic BART to Hillcrest Avenue in Antioch, 21 miles for Diesel Multiple Units (DMU), and 21 miles for Bus Rapid Transit (BRT). These conceptual designs are in support of an environmental clearance process underway by BART's Planning Group.

Wong has been involved in the design and construction management of the **BART Extensions Program** on the East Bay and West Bay. This included the **Dublin/Pleasanton Extension (14 miles)**, **East Dublin/Pleasanton Station**, **Pittsburgh/Antioch Extension (7 miles)**, and **SFO/Millbrae Extension (7 miles)**. Involvement included traction power, train control, and communications, fare collection equipment, including data acquisition systems, and train destination signs. Wong prepared systems design for a diverse number of BART Extensions Program projects.

### SILICON VALLEY RAPID TRANSIT PROJECT

As the lead Prime Consultant in joint venture, Wong is responsible for design and integration of all systems for the Silicon Valley Rapid Transit (SVRT) Project which will extend BART south from Fremont to the cities of Milpitas, San Jose, and Santa Clara, California. The 16.3-mile extension will connect the Silicon Valley communities to the San Francisco Bay Area cities served by BART. The advanced systems elements include traction power, communications, automatic train control, tunnel emergency ventilation, power distribution, and fire/life safety systems. The design services also include procurement of trackwork-related materials such as running rail, contact rail system equipment, direct fixation fasteners, and special trackwork. Ventilation for the modern automated 10-car trains currently

serve 43 BART stations over a 104-mile alignment. The SVRT Extension will include six passenger stations, three above and three below ground, a maintenance and vehicle storage facility, and the upgrading of the existing BART "core system" to permit integration of the SVRT Extension into the existing core system. The alignment is comprised of 11 miles of at-grade, elevated, and cut-and-cover track, and a 5-mile tunnel segment consisting of twin bores and a cut-and-cover crossover structure.

## CENTRAL PHOENIX/EAST VALLEY LIGHT RAIL TRANSIT



PGH Wong Engineering, Inc. (Wong) is currently serving as the Prime Consultant, in joint venture, for the Construction Management/Administration of the \$1.37 billion Central Phoenix/East Valley (CP/EV) LRT Project. Wong is responsible for all aspects of construction management/administration, including constructability reviews, quality assurance program, construction coordination, construction cost estimates, scheduling, budget and schedule impact analysis, contractor claims analysis, resident engineering, pre-construction surveys, construction surveys, materials testing services, inspection services, right-of-way acquisition, archaeological investigations, environmental monitoring, owner-furnished materials management, rail system integration and testing services, and rail activation services.

The CP/EV LRT Project is a 20.3-mile starter line currently under construction through the cities of Phoenix, Mesa and Tempe in Arizona. Wong is responsible for the construction management of 19 major construction and procurement contracts, including: Line Section 1 (\$72 million), Line Section 2 (\$57 million), Line Section 3 (\$102 million), Line Section 4 (\$61 million), Line Section 5 (\$73 million), Town Lake Bridge (\$22 million), Maintenance and Storage Facility (\$64 million), 48<sup>th</sup> Street Bridge (\$3 million), Station Finishes (\$67 million), Traction Electrification System (\$57 million) Signals and Communications (\$40 million), Automated Fare Collection (\$7 million), and seven Owner Furnished Material Procurement Contracts (\$26 million).

## SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) LIGHT RAIL TRANSIT SYSTEM

PGH Wong Engineering, Inc. was selected by the San Francisco Municipal Railway (MUNI) to lead the design of the **Muni Third Street Extension** - a new rail transit line that extended the MUNI Metro through the Third Street alignment to Visitation Valley. This major 5.4-mile extension is the first major extension to the MUNI LRT system since its inception and enables the entire San Francisco community and the Bay Area, through BART, to be accessed from anywhere along Third Street. PGH Wong Engineering, Inc., directed, coordinated, and controlled the entire WPK Team in its efforts toward a successful, cost-effective, and on-time completion of the project. The project included all aspects of design, including civil, track and trackway, overhead contact system, platform structures, roadway realignment and restoration, roadway lighting, storm and sewer utilities, roadway signage and striping, integration with highways, over-crossings and bridges, geotechnical investigations, vibration mitigation, traction power, signaling, and traffic signal priority control schemes.

### Central Subway Project

As prime consultant, in a joint venture, Wong is currently managing a team comprised of 20 consulting firms to provide design services for the \$1.4 billion new central subway project. The conceptual and preliminary design of the new central subway involves evaluation of optimum tunnel construction methodology, underground utilities, design of bulk power supply, traction power substations, gap breakers, advanced communications-based train control, communications, and line electrical systems for tunnel ventilation. The 1.7-mile subway includes three underground stations, crossovers, and underground tail tracks. Extensive project management and controls is an essential element for the successful completion of this complex project.

## SFO AIRTRAIN (SAN FRANCISCO INTERNATIONAL AIRPORT)



PGH Wong Engineering, Inc. served as the prime consultant providing Project and Construction Management Services for the \$430 Million Airport AirTrain System. The seven major construction projects included the East Loop elevated guideway (\$70 million), West Loop elevated guideway (\$90 million), Operating System (\$130 million design-build for all vehicles, rail and systems aspects), Remote Terminal Aerial Stations (\$6 million), Domestic Terminal Aerial Stations and Pedestrian Bridges (\$32 million), Maintenance & Storage Facility (\$30 million), Station Graphics (\$1.5 million), and Rental Car Center Improvements (\$4 million). The project consists of 5.5 miles of aerial guideways, 9 aerial passenger stations, 2 pedestrian bridges, 38 vehicles, 124 automated platform doors, 31 switches, a maintenance and storage facility, a new rental car center, central control center, traction power system, fire/life safety systems, security and public address systems, and a state-of-the-art communications based train control system. Wong was responsible for all aspects in the

development of this rail transit system from preliminary design, final design, construction, testing and startup. The construction of the AirTrain transit system required the construction management team to coordinate numerous major heavy civil construction contracts working in and around a 24 hour operating Airport, while continually maintaining traffic flow and pedestrian access.

### SACRAMENTO REGIONAL TRANSIT



Wong has been providing design and construction management services to the Sacramento Regional Transit since 1987 in various capacities, including retrofit and new projects, both as prime construction manager and prime designer. Key projects for RT include the Mather Field Extension Project, Amtrak/Folsom Corridor and South Line Extensions, Sunrise/Gold River Extension Project, Double Tracking Projects, and South Corridor Project.

### SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG)

Since 1986, PGH Wong Engineering, Inc. has been performing, design, project management, construction management, inspection, testing, and startup on retrofit and new projects for Metropolitan Transit Development Board (MTDB) (now part of SANDAG) with **no** interruption in services during retrofit. Previously, Wong's staff designed the initial 16-mile South Line and provided vital construction management and systems startup services. Extensive coordination with the existing local freight railroad was required since the starter line utilized and existing joint-use railroad. Wong monitored the maintenance of the existing railroad for FRA regulations and supported MTDB in requesting catenary height construction variances from California Public Utilities Commission.

### SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)



PGH Wong Engineering, Inc. is currently the prime consultant for the Santa Clara Valley Transportation Authority (VTA) Rail Design Consultant (RDC) contract, On-Call Electrical Engineering contract, and the Systems Design Consultant on the Silicon Valley Rapid Transit (SVRT) Project. Since 1998, Wong has provided construction management and design services for rail maintenance and retrofit projects related to the existing VTA light rail transit system as well as on-call services such as testing and startup/rail activation to support new extensions to the VTA light rail system.

### SALT LAKE CITY UTAH TRANSIT AUTHORITY (UTA) TRAX LIGHT RAIL TRANSIT SYSTEM

Wong served as the prime consultant for the systems design of the 15.3-mile North-South Line of TRAX, the Salt Lake City Light Rail Transit System. The design was accomplished using cost-effective, proven equipment to enable the light rail transit line to be completed within an overall \$312 million budget. The systems design included traction power substations, overhead contact system (OCS), signaling/train control, communications, and fare collection systems. The TRAX North-South Line alignment extends from the southern terminus in the community of Sandy, runs within a 12-mile regional railroad corridor through the cities of Midvale and Murray, and proceeds north in street medians through the Central Business District of Salt Lake City terminating at the Delta Center. The TRAX LRT System focuses on meeting transportation needs with sensitivity to community urban design considerations.

### OTHER TRANSIT PROJECTS

Wong's list of transit projects in planning, design, project management, construction management, testing and startup includes the following:

- New York City Transit
- St. Louis Metro - St. Louis Starter Line and St. Clair County Extension
- Miami International Airport North Terminal APM System
- Metrorrey LRT System, Monterey, Mexico
- Northeast Corridor High-Speed High Improvement Program
- Korean High-Speed Rail Project - Seoul to Pusan