



Tri-County Metropolitan Transportation District Of Oregon



April 3, 2008

# Portland To Milwaukie Segment South Corridor Project

Willamette River Transit Bridge Engineering Services

Contract No. RH080393JB



**HNTB**



## PROJECT EXPERIENCE

### Gerald Desmond Cable-Stayed Bridge, Long Beach, CA

HNTB is performing preliminary and final design that will *create an identity for Southern California*. The initial scope includes a Type Selection Report, Project Study Report, and individual reports for both interchanges that link the bridge approaches. This bridge is a critical link that connects the Port of Long Beach and the city of Los Angeles. The bridge's air draft of 156 feet is too low to accommodate container ships. The improvement program entails demolition and replacement of the existing dilapidated bridge with a six-lane cable-stayed bridge. HNTB has designed an air draft of 200 feet to assure that the largest container ships will have unimpeded access. The new bridge, with its additional capacity, will reduce congestion, traffic delays, accidents, air emissions, and fuel consumption.

**Length: 2000 ft**

**Year Construction:** 2010

**Construction Amount:** \$678 Million (Estimated)

**Engineering Amount:** \$4 Million

**Scope of Work:** Bridge Type Study, Preliminary Engineering, Final Design

**Client Contact:** Mike Bogner, Contract Manager Port of Long Beach, (562) 590-4146



#### PROJECT HIGHLIGHT

The preliminary design was completed within budget and on time.

### Magnolia Bridge Replacement, Seattle, WA

HNTB was selected to perform the preliminary/final engineering, TS&L and environmental documentation for the existing bridge's replacement. The HNTB Team developed and supported the client public involvement program with a focused outreach to industrial employers with concerns over direct impacts and changes in access during bridge construction and operation. The TS&L effort included extensive investigation and evaluations of multiple alignments, bridge layouts and structure types. *The alternatives were developed through an Alignment Study, Rehabilitation Study, Bridge Concept Study, and a Bridge Alternative Study.* The team prepared presentation materials including 3-D photo simulations for the public, City Council, Design Commission, and Design Advisory Group. **Length: 4,400 ft**

**Year Construction Completed:** 2010

**Location:** Seattle, WA

**Construction Amount:** \$260 Million (Estimated)

**Engineering Amount:** \$8 Million

**Scope Of Work:** Bridge Type Study, Preliminary Engineering, Final Design

**Client Contact:** Kirk Jones, Project Manager (206)615-0862



#### PROJECT HIGHLIGHT

The project team received accolades for the presentations and the team's recommendation of bridge types (alternatives) for final design.

## Mary Avenue Signature Pedestrian Bridge, Cupertino, CA

HNTB prepared a combined Project Study Report and Project Report, which continued into preliminary and final PS&E, including bridge architecture, cable stayed structural analysis and preliminary structural design, landscape architecture for the approach pathways, and civil/utility improvements and coordination. In addition, the team provided support services for City Council and community meetings to communicate project milestones and create awareness and acceptance for the project. This bridge will be supported by 44 structural strand stay cables and will be suspended from cables from two 90-foot structural steel towers with a clear span length of 325 feet over the existing freeway. There is approximately 12 acres of native landscaping and soundwall reconstruction and approximately 2,000 feet of AC paved bicycle and pedestrian trail, with bridge and trail lighting. **Length: 500 ft**

**Year Construction Completed:** 2009

**Construction Amount:** \$7.3 Million

**Engineering Amount:** \$1 Million

**Scope of Work:** PSR, PR, Preliminary/Final PS&E, Preliminary Structural Design

**Client Contact:** Terry Greene, Senior Architect (408) 777-3248



### PROJECT HIGHLIGHT

When construction is complete in 2009, the bridge will provide a missing link for the region's bicycle and pedestrian trails that services the local community for recreation, commuter and business purposes.

## Great River Bridge, Little Rock, AR

HNTB designed one of the longest cable-stayed spans in North America. The new bridge will be approximately 4.3 miles long with a cable-stayed main span unit, steel plate girder, and prestressed concrete beam superstructures. The cable-stayed main span unit and one of the adjacent approach span units utilize dredged caisson foundations. Other foundation types used in the approach spans include drilled shaft and steel pile foundations. The design phase of this project includes final design surveys, right-of-way plans, subsurface investigation, geotechnical engineering, construction analysis, vessel collision study, wind engineering, wind tunnel testing, and caisson sinking plans **Length: 1,520 ft.**

**Year Construction Completed:** 2015 Estimated

**Construction Amount:** \$380 Million

**Engineering Contract Amount:** \$11 Million (Estimated)

**Scope of Work:** Location Studies, Environmental Impact Study, Agency Coordination, Final Design/Specifications, Geotechnical Services

**Client Contact:** Robert L. Walters, Chief Engineer (501) 569-2163



## Main Street Bridge, Columbus, OH

HNTB developed three bridge types during the initial design phase based on input from the public involvement process and city leaders. Public participation was an important factor in the selection of the final alternative. This unique three span structure is supported by an inclined, single-rib steel arch. The deck is supported by cables and steel struts. In the main span, the vehicular traffic is separated from the pedestrian and bicycle traffic by the arch and the supports. The vehicular deck is supported by a steel box girder while the pedestrian deck consists of precast concrete. **Length: 400 ft.**

**Year Construction Completed:** 2005

**Construction Amount:** \$35 Million

**Engineering Amount:** \$3.2 Million

**Scope of Work:** Final Design, Bridge Type Studies

**Client Contact:** Richard Ortman, Project Manager (614) 645-8100



### PROJECT HIGHLIGHT

HNTB's final design reduced the estimated construction cost by \$9 million dollars while maintaining the unique aesthetic features of the bridge.

## Bay Area Rapid Transit (BART) San Francisco Airport Extension — San Francisco, CA

HNTB was the prime consultant and designer for the BART San Francisco Airport Extension, from Colma to Millbrae. This project was a FTA-sponsored turnkey demonstration design/build project, and BART's first design/build project. HNTB designed six miles of underground subway, more than one mile of at-grade trackway, and more than one mile of aerial bridge structures that connect BART to the San Francisco Airport. The project also included trackwork design, systems design, grading and utilities identification and relocation along the entire project, ventilation, traction power, street lighting, paving, traffic control, signalization, and pedestrian facilities. The aerial guideways required a non-linear design analysis with direct fixation/continuous welded rail used by BART. **The project was completed on schedule.**

**Year Construction Completed:** 2003

**Construction Amount:** \$30 Million

**Engineering Amount:** \$32 Million

**Scope of Work:** Engineer-of-Record, Architectural Design, Structural/Civil Engineering, Trackwork Design, Systems Design, Bridge Design

**Client Contact (Name, Title, Phone):** Tom Horton, Project Manager (510) 874-7480



### PROJECT HIGHLIGHT

The American Society of Civil Engineers (ASCE) awarded its 2004 Outstanding Civil Engineering Transportation.

## Key Staff Resumes

### Semyon Treygor, PE, SE

*PROJECT MANAGER/ STRUCTURAL LEAD*

*HNTB Corporation*

Semyon Treygor is a registered engineer in the State of Oregon with over 33 years of experience in structural engineering. He is a nationally recognized long span bridge design expert particularly with complex foundations in seismic areas.

### Relevant Project Experience

#### **SR 16/Tacoma Narrows Suspension Bridges, Tacoma, WA** —

Deputy Bridge Design Manager for the design of the new Tacoma Narrows Suspension Bridge and wind/seismic retrofit of the Existing Tacoma Narrows Bridge. The new bridge is designed for a future second deck installation, which was analyzed for utility use of light rail transit and vehicles traffic. Pedestrian comfort analysis was also performed using vehicle/bridge dynamic interaction methods. Extensive wind analysis and evaluation of wind response were performed for both new and existing bridge.

#### **Alsea Bay Bridge, Waldport, OR** —

Bridge Design Manager responsible for this structure which includes a through-arch main span and concrete segmental box girder approach spans that are supported on delta-shaped piers. Mr. Treygor's scope of services included designing the main span for the concrete arch alternative and providing construction redesign for the entire bridge, including the steel arch main span.

#### **BART SFO Extension, San Mateo County, CA** —

As the Lead Structural Engineer for this project, Semyon was responsible for supervising the design and plan development for a segment of underground subway and more than a mile of aerial guideways. The BART SFO Extension, from cities of Colma to Millbrae, connects the existing BART network to the San Francisco Airport. With an initial bid of \$530 million, this light rail project was a FTA sponsored Turnkey Demonstration Design/Build Project and was BART's first Design/Build project. The aerial guideways required a complex non-linear time history analysis to verify their seismic performance. The direct fixation/continuous welded rail used by BART and the presence of outrigger and cantilever bents provided further challenges to the design team.

#### **Gerald Desmond Bridge Replacement, Long Beach, CA** —

Bridge Design Manager responsible for the design of this signature span bridge. The main span of this bridge features a 2,000-foot-long, signature span cable-stayed bridge, with 200-

### Unique Qualifications

- REGISTERED Engineer in the State of Oregon
- Leader in the design of major bridges including suspension, cable-stayed, arch, segmental and steel box many of them recognized by national awards, these include; the Tacoma Narrows Bridge and the Alsea Bay Bridge.

foot vertical clearance. The bridge types being considered are cable-stayed, arch, steel box, concrete box segmental and movable; the approach spans are proposed of three types including concrete bulb tee, steel I-girder and concrete segmental box.

#### **Great River Bridge Over the Mississippi River, AR** —

Task Leader responsible for designing two suspension bridge alternatives for the Bridge Type Study, which included a traditional suspension bridge with 3,000-foot main span and two, symmetrical, 1,000-foot end spans, and a self-anchored suspension bridge with a 2,500-foot main span and two symmetrical 1,000-foot long end spans. Conducted analytical wind evaluation of the main span alternatives considered.

#### **Mary Ave. Pedestrian Bridge, Cupertino, CA** —

Bridge Design Manager for this signature span pedestrian bridge. Bridge types considered were suspension and cable-stayed as bridge has to be built over the existing highway with clear span of 400 feet. The selected type is non-symmetrical cable-stayed bridge with 400-ft main span with concrete deck and splayed cable system. *This bridge is currently under construction.*

#### **San Francisco-Oakland Bay Bridge (SFOBB) Bike Path Study, San Francisco, CA** -

Main Span Task Leader responsible for performing a study for Caltrans for adding a bike path to the West Spans of the SFOBB. Responsible for supervising service loads, including wind tunnel tests, and seismic load analysis of the main spans.

### Education & Years of Experience:

- 33 Years of Experience
- MS/Structural Engineering, Moscow Structures Institute

### Professional Affiliations & Licenses

- **Professional Engineer** : Oregon #14413; Washington #20868; Nevada #011353; California # C050515; **Structural Engineer**: Oregon #14413; Washington #20868; Nevada #011353; California #003756

## David Calver, P.Eng

PRINCIPAL-IN-CHARGE

HNTB Corporation

David Calver has extensive experience in the management, planning and design of transportation projects for the public and private sectors. He has managed and performed key technical roles on projects involving program and project management, consensus building, rail planning, design and operations, and transportation alternatives analysis. His prime area of expertise is in LRT project development.

## Relevant Project Experience

**Evergreen LRT Project, Vancouver, BC** — Technical Manager/Consultant to Translink for the 11-kilometer, nine-station preliminary design phase. Responsible as senior advisor for the oversight of alignment and systems design, schedule and project costing.

**RAV Project, Vancouver, BC** — Deputy Design Manager for the Flour-led 19-kilometer, 22-station DBOM design proposal phase linking Richmond airport and Vancouver. The consortium was not selected at BAFO.

**Phoenix/East Valley LRT Project, AZ** — Deputy Project Manager for the draft environmental impact statement/preliminary engineering (DEIS/PE) phase of the development of a 20-mile (32-kilometer) light rail system.

**Kansas City Southtown Corridor LRT Starter Line Project, Kansas City, MO** — Project Manager for the preliminary engineering/environmental impact statement (PE/EIS) phase of a 5.6-mile (9-kilometer), \$210 million LRT line from downtown Kansas City to Country Club Plaza. Responsibilities included management of budget and schedule, public involvement, environmental documentation, LRT facilities and system design, and client liaison.

**Portland TriMet LRT projects, Portland OR** — Executive Director responsible for the overall direction of the Banfield line station retrofit program; the preliminary engineering and final design for the Hillsboro extension and the conceptual design for the South/North bi-state project between Portland and Vancouver WA.

**BART San Francisco Airport Extension AA/DEIS/Draft Environmental Impact Report (DEIR), San Francisco, CA** — Project Manager for a two-phase planning and engineering study evaluating transportation improvements between San Francisco, the San Francisco International Airport, and San Jose — a distance

## Unique Qualifications

- National leader in light rail train implementation, design and development — assures specific rail needs are addressed
- Successful stakeholder coordination and consensus building

of approximately 50 miles (80 kilometers). During Phase 1, David directed the conceptual development of five previously defined alternatives, including LRT, and analyzed their capital and operating costs. During Phase 2, he directed the preparation of an AA/DEIS sponsored by the Federal Transit Authority (FTA) and a state-required EIR for a 10-kilometer extension of service from the Colma Station to the San Francisco International Airport, and capital costs in the range of \$620 million to \$1.2 billion. The BART airport extension opened in June 2003.

**BART Colma Station AA/DEIS/DIER, Colma, CA** — Project Manager for an FTA-sponsored alternatives analysis evaluating options for a new BART station serving the city of Colma in San Mateo County. Under David's direction, the new station, turnback and yard project was granted Federal funds. The project opened in 1996.

**Caltrain Downtown Station Relocation EIS/EIR, San Francisco, CA** — Project Manager of a study for the relocation of a Caltrain station in downtown San Francisco. David directed the study of alternative station locations to meet the present and future needs of commuter rail transit patrons in the 47-mile (75.6-kilometer) Peninsula Transportation Corridor, which serves three counties — San Francisco, San Mateo and Santa Clara. The study was partially funded by the FTA. David managed the alternatives definition, transportation impacts, and evaluation portions of the EIS.

## Education & Years of Experience:

- 34 Years of Experience
- MS/1972/Transportation Planning and Management, Westminster University London
- HNC/1968/Civil Engineering, Westminster Technical College

## Professional Affiliations & Licenses

- Professional Engineer, British Columbia #12212
- APTA Light Rail Committee

## Greg DeMond, RA

ARCHITECTURAL TASK LEAD

HNTB Corporation

Greg DeMond is a Senior Bridge Architect in HNTB's Kansas City, Missouri office and is responsible for the development and presentation of aesthetic design solutions for bridge and transportation projects. In addition, his experience includes preliminary design and concept studies on the numerous multi-discipline projects in which the firm is engaged. He directs a staff in architectural delineations, graphic design, three-dimensional modeling, reports, public hearing exhibits, as well as assisting in the preparation of working drawings and specifications.

### Relevant Project Experience

**SR 16/Tacoma Narrows Suspension Bridge, Tacoma, WA** — Mr. DeMond served as Bridge Architect responsible for the development and coordination of aesthetic design and architectural treatment for a \$350-million, 5,200-foot suspension bridge including interchange, toll plaza structures and retaining walls as part of the \$700-million SR 16 transportation corridor.

**Replacement of the Main Street Bridge over the Scioto, Columbus, OH** — Mr. DeMond served as Bridge Architect responsible for developing multiple bridge type concepts to replace the 630-foot, seven-span barrel arch bridge located within the Civic Center Historic District in downtown Columbus. He participated in several design charrette/workshops before presenting selected concepts for further development to government officials and community representatives.

**Mary Avenue Pedestrian Bicycle Footbridge, Cupertino, CA** — Mr. DeMond served as Bridge Architect for a three-span cable-stayed bridge over I-280 with a 325-foot main span and a total length of 472 feet. Mr. DeMond developed decorative stainless steel pedestrian fence having a nature theme using laser-cut stainless steel panels located throughout the length of the crossing.

**Replacement Missouri River Bridge, Atchison, KS** — As Bridge Architect, Mr. DeMond developed multiple bridge type options, presenting at public hearings and directed his staff in preparation of public hearing exhibits and both preliminary and final report exhibits for replacement of the community "Amelia Earhart Bridge."

### Unique Qualifications

- Experienced Bridge Architect — 34 Years
- Signature Bridge Designer
- National Charrette Institute Certification

**Replacement of the Troost Bridge over Brush Creek, Kansas City, MO** — Mr. DeMond served as Bridge Architect for this 150-foot flared arch signature bridge that will be the centerpiece of the planned Troost Avenue Streetscape Improvements project. Mr. DeMond participated in several design workshops and presented concepts including the final design to citizen advisory committees and at several public open house events.

**Snake River Bridge, Hoback Junction, WY** — As Bridge Architect, Mr. DeMond developed multiple bridge type options for a 300-foot main span three-lane bridge over the Snake River adjacent to the scenic community. The total bridge length is 675 feet and is part of a major highway re-alignment along the Snake River leading into town.

**U.S. 20 over the Iowa River, Hardin County, IA** — Mr. DeMond served as Bridge Architect responsible for developing alternative bridge concepts for a new crossing of U.S. 20 over the Iowa River in an environmentally sensitive location. The selected alternative is a 460-meter long, six-span, launched steel I-girder structure with cast-in-place concrete piers with an estimated cost of \$16 million.

**Northwest 12th Avenue Bridge, Miami, FL** — Mr. DeMond served as Bridge Architect responsible for aesthetic design concepts for the approximately \$25-million replacement of a National Register eligible 70-year-old bascule bridge over the Miami River that is adjacent to an historical district and part of a major urban corridor.

**Alsea Bay Bridge, Waldport, OR** — Mr. DeMond developed preliminary design concepts and prepared exhibits and presentations, including alternate concept drawings and final design exhibits.

### Education & Years of Experience:

- 34 Years of Experience
- BS/1971/Architecture, Kansas State University

### Professional Affiliations & Licenses:

- Registered Architect, Kansas #2364; Illinois #001.017699; Minnesota #43760; Wisconsin #9786-005

**Bill James, PE**  
*CIVIL TASK LEAD*  
*HNTB Corporation*

Bill James has 24 years of transportation and traffic engineering experience. He has managed all phases of projects, including concept development, environmental analyses and documentation, preliminary engineering and design approvals, final design and PS&E preparation, and construction support services. He has focused on multi-modal projects in constrained urban environments that require the application of a context sensitive approach to identify and implement solutions meeting client and stakeholder objectives. His experience includes support of public involvement programs on high-profile projects, and participation on multi-discipline, multi-agency project teams.

## Relevant Project Experience

**I-90 Two-Way Transit & HOV Operations — WSDOT/Sound Transit, Seattle to Bellevue, WA** — Project Manager for preliminary engineering and final design/PS&E services for this joint WSDOT/Sound Transit project that will provide improved two-way transit and HOV service on the 6.5 mile portion of I-90 between downtown Seattle and Bellevue. It is being implemented in phases, with the first phase of construction scheduled for completion in 2008. Mr. James has provided continuity for WSDOT throughout the course of the project, assisting WSDOT’s project managers with numerous briefings for WSDOT and Sound Transit management, FHWA, congressional and legislative delegations, and many other stakeholders including adjacent communities and user groups such as bicyclists. Key issues have included mitigation for reductions in lane and shoulder widths; accommodation of pedestrian and bicycle traffic on the Lake Washington Floating Bridge, and consideration of future LRT conversion issues.

**Steel Bridge Pedestrian and Bicycle Crossing, Portland, OR** — Project manager for this multi-discipline project that retrofitted the Steel Bridge with a low-level, mixed-use pathway across the Willamette River in downtown Portland. Mr. James was responsible for coordinating the efforts of a multi-discipline team in three HNTB offices (Seattle, Kansas City, and Portland) and subconsultants located in Portland. The project is within the Willamette Greenway, which heavily influenced the design of connections to the Steel Bridge crossing, and consideration of aesthetic issues including views

### Unique Qualifications

- Managed design team for the steel bridge pedestrian and bicycle crossing of the Willamette River in downtown Portland.
- Experience with long-span bridges involving mixed-use facilities for transit, pedestrians, and bicycles.
- Established working relationship with key staff at TriMet and City of Portland

from the facility and coordination with adjacent Parks Bureau projects. It also required development of technical information to assist the City in coordination of navigational requirements with the U.S. Coast Guard, and in support of other permitting activities and agreements with the Union Pacific Railroad.

**City of Portland, Office of Transportation - Portland Freeway Loop Study, Portland, OR** — Lead Transportation Engineer for analysis of freeway reconstruction of the I-5 and I-405 routes serving downtown Portland. The study evaluated the effectiveness of three alternatives to improve system operation and reduce the freeway footprint on the East Bank of the Willamette River. Planning-level cost estimates were developed for elements of the system reconstruction to establish future directions for system planning.

**South-North Transit Corridor Study Draft Environmental Impact Statement, Portland, OR** — Mr. James was responsible for traffic impacts analyses in the Downtown Portland and North Portland portions of the study corridor. HNTB was part of a team that prepared Results Reports, a NEPA Environmental Impact Statement, and Mitigation Plan for this proposed project.

**Westside Corridor Project SDEIS and FEIS & Hillsboro Extension Alternatives Analysis, DEIS, and FEIS, Portland, OR** Project Engineer responsible for analysis of local traffic impacts, noise, and vibration impacts resulting from the LRT and highway improvements associated with the Westside Corridor and Hillsboro Extension projects.

### Education & Years of Experience:

- 24 Years of Experience
- MCE/1984/Transportation Engineering, Villanova University
- BS/1980/Civil Engineering, University of Virginia

### Professional Affiliations & Licenses:

- Professional Engineer, Oregon #15682; Washington #24615

## Steve Litchfield, PE

### STRUCTURAL ASSESSMENT

#### HNTB Corporation

Steve Litchfield has 15 years of experience in the design and construction of transportation projects that include bridge projects for the State of Oregon. Mr. Litchfield he has led sophisticated transportation and structural projects was responsible for coordinating the efforts of the design team and worked closely with various counties, transportation agencies, neighborhood residential and business leaders, and various environmental agencies.

## Relevant Project Experience

**OBDP Bundle 301, Ashland, OR** — Project Manager for \$18M ODOT Bundle to replace five bridges along I-5 in ODOT Region 3. Mr. Litchfield led the multi-discipline team in the design of the major interstate bridges. Regional traffic mobility and context sensitive solutions were primary considerations. The project included detailed bridge hydraulics, water quality features, and major environmental elements.

**ODOT Bridge Baseline Assessment Program, OR** — Project Manager responsible for this \$3.5 million dollar project that provided baseline engineering reports for 178 Oregon highway bridges needing repair or replacement. Mr. Litchfield is leading a team of 40 staff members across five offices for this fast track, 10-month project. This project included developing the process and database system to systematically evaluate and catalog each bridge. The work included assessing the bridge deficiencies, roadway issues, foundation conditions, access management, constructability issues, and right-of-way needs at each bridge. Feasible repair and replacement options were evaluated based on the site constraints. Finally, the team recommended a preliminary feasible option, developed scoping cost estimates and developed a preliminary design and construction schedule, and prepared a the engineering baseline report for each of the 178 bridges.

**Polk, Jackson, & Wasco Counties - 8 Bridge Replacements & 2 Bridge Rehabilitations, OR** — Project Manager and Engineer of Record responsible for design and construction engineering services to replace or rehabilitate ten structurally deficient bridges in Polk, Jackson, and Wasco Counties. The work included survey and right-of-way resolution, hydrologic and hydraulic studies, wetland delineation, environmental permitting, preliminary and final roadway and bridge design, utility coordination and construction management, inspection, contract compliance monitoring and construction engineering. Some of the specific bridges included:

### Unique Qualifications

- 15 years of structural engineering experience in the State of Oregon
- Extensive experience in managing TS&L Studies
- Successful led numerous structural bridge projects within the state of Oregon.

### Luckiamute River Bridges (3 bridges), Polk County

— The 3-span bridges with total lengths of 220-feet, 240-feet, and 310-feet utilized 45-inch deck-bulb tee girders designed to minimize backwater potential during peak flooding.

### Willamette Overflow Wigrich Road, Polk County

— This 186-foot, 3-span bridge was designed with 26-inch precast concrete slabs and an open railing to allow water to easily overtop the bridge during peak Willamette River flows.

### Applegate River Bridges (2 bridges), Jackson County

— 305 & 310-foot long, 3 and 4-span bridges utilizing precast bulb-I girders with cast-in-place concrete decks. Both bridges were constructed on new alignments to maintain traffic during construction and improve the approach roadway geometry.

### Sunnybrook Road Extension, Clackamas County, OR

— Engineer of Record responsible for this \$14 million roadway project that features three bridges and 12 mechanically stabilized earth (MSE) retaining walls. Mr. Litchfield coordinated the efforts of the design team and worked closely with the County, ODOT, residential neighborhood, business leaders, and various environmental agencies. His structural duties also included design of a 70-foot, single-span bridge and the 60-foot-high retaining walls.

### Education & Years of Experience:

- 14 Years of Experience
- MS/Civil Engineering/Texas A&M University
- BS/Industrial/Manufacturing Engineering, Oregon State University

### Professional Affiliations & Licenses:

- Professional Engineer, Oregon #19725; California # C59069

## Gary Peterson, CEG

GEOTECHNICAL ASSESSMENT

*Shannon & Wilson, Inc.*

Gary Peterson has 30 years of Oregon-based consulting experience in engineering geology and geotechnical design support, focusing on public sector and infrastructure projects. Throughout his career, Mr. Peterson’s key technical responsibilities have included site characterization for large civil works structures such as bridges, roadways, tunnels, dams, power facilities, pipelines, buildings, outfalls, and intake structures. Numerous projects he has completed include landslide corrections, seismic risk evaluations, alternative alignment studies, and foundations and retaining system design for major structures. Mr. Peterson supports projects from conceptual planning studies (including NEPA and EIS) through detailed geotechnical design, leading to final design support, contract documents and construction observation.

## Relevant Project Experience

**Westside Light Rail Project, Portland, OR** — Mr. Peterson’s engagement in this TriMet project lasted over a decade, and was highlighted by his role as Geotechnical Project Manager for the West Hills Tunnel Segment. Beginning with alignment alternatives evaluation of surface and tunnel routes through the West Hills, he then led the preliminary and final design geotechnical team. Work included geologic investigations, geotechnical data and interpretive reports, and design support of the tunnel and shafts for the 3-mile light rail deep tunnel system with portals and shafts through complex geology and landslide hazards. Mr. Peterson managed multiple subconsultants and contractors to accomplish extensive explorations under very short timelines, and produce high-quality contract documentation.

**US 101, Spencer Creek Bridge Foundation Investigations, Newport, OR** — Mr. Peterson was Principal in Charge for geotechnical investigations and foundation design for this complex project now under construction at Beverly Beach Park on the Oregon Coast. Design considerations include a 120-year design life for an arch bridge on this prominent site. Geologic and design conditions include deep, interbedded liquefiable and compressible soils, high seismic hazard, ocean front erosion and deep stream. The arch bridge and tall retaining wall approaches on this difficult site required a dozen geotechnical construction elements, including large-diameter drilled shaft groups, stone column ground improvement, wick drains, laterally restraining deadman anchor blocks, driven pipe and sheet piles, tall retaining walls, instrumentation and staged construction. Geotechnical construction has been essentially completed, and superstructure work is underway.

## Unique Qualifications

- Unsurpassed geologic knowledge of site and hazards
- In-depth experience with large, complex laterally loaded foundations
- Proven capability to deliver major projects for TriMet

## Bonneville Dam Juvenile Fish Bypass, Bonneville, OR

Mr. Peterson was Geotechnical Project Director for a major fish passage outfall structure in the Columbia River at Bonneville Dam. Work included in-river explorations, conceptual through final design and construction of 10-foot diameter, 200-foot-long drilled piers to support a bridge outfall, and 2 miles of pipeline. Six drilled piers, 10 feet in diameter and up to 200 feet in length, were installed in adverse river and geologic conditions in the Columbia River. Two outfall structures are periodically overtopped at high river levels and subjected to very large lateral loads. These repeated extreme load conditions, coupled with soft silt and liquefiable sand layers required that the performance of the completed piers be tested to assure that no additional lateral restraint was needed.

## I-5, Columbia River Crossing, Portland, Oregon, to Vancouver, WA

Mr. Peterson is Principal-in-Charge of in-river explorations and seismic design studies for the three Columbia River bridges and three Oregon Slough bridges. Drilling completed this winter included thirty-three borings up to 250 feet deep, and included various in situ testing for lateral load analyses and site-specific seismic design.

**OTIA Bridge Program, OR** — Mr. Peterson was Principal in Charge for more than seventy-five geotechnical investigations and foundation reports for ODOT and County bridges, primarily along the I-5 corridor.

## Education & Years of Experience

- 30 Years of Experience
- BS/Geology/Boise State University

## Professional Affiliations & Licenses

- Certified Engineering Geologist: Oregon #E845

## Daryl Wendle

### ENVIRONMENTAL TASK LEAD

*Parametrix, Inc.*

Daryl Wendle is an experienced environmental program manager with a strong understanding of light rail transit planning, construction and operating issues. He has worked directly with a transit agencies, design teams, and the Federal Transportation Authorities (FTA) to develop NEPA documents and other environmental approvals for projects with capital costs totaling more than \$5 billion. This includes providing the environmental approvals and clearances needed for federal funding approvals, as well as those needed to provide for NEPA compliance and compliance with regulations such as the Endangered Species Act, the Rivers and Harbors Act, and the Clean Water Act. His clients include Metro and TriMet (for the current Portland-Milwaukee Light Rail Project SDEIS), Sound Transit, and the Utah Transit Authority. Mr. Wendle is particularly skilled in coordinating with design teams to develop integrated environmental management, mitigation and monitoring programs.

## Relevant Project Experience

### Portland-Milwaukee Light Rail Project SDEIS, Portland, OR

Mr. Wendle is managing the consultant team responsible for delivering a fast-track SDEIS for this 6+ mile corridor connecting downtown Portland to Milwaukee. The project's proposed new bridge over the Willamette River (the first in more than 40 years) is a major environmental and public interest issue, because the design, placement and construction of a new bridge affects a host of environmental factors including impacts to views, navigation, hazardous materials, Endangered Species, parks/trails, and major new planned developments.

### West Valley Light Rail Transit Project Final Environmental Study Report, Utah Transit Authority, Salt Lake City, UT —

Daryl managed a local-process environmental review for UTA's new West Valley Light Rail Transit Project. The 5-mile alignment includes elevated, at-grade, and in-street running segments; crosses a river, a major rail yard, and an interstate; and connects to a major new intermodal hub. Key issues included arterial traffic, historic resources, neighborhood effects, floodplain and nature area impacts, and noise and vibration.

### North Link Light Rail Project SEIS, Sound Transit, Seattle, WA —

Mr. Wendle managed this full-scope NEPA Supplemental EIS of new route alternatives for the northern segment of the Central Link light rail project connecting downtown Seattle to the University District and Northgate, serving the most densely populated area in the northwest. The

### Unique Qualifications

- Environmental planner specializing in light rail projects
- Direct experience in coordinating design and environmental efforts for major new transit bridges
- Detailed understanding of Portland-Milwaukee environmental setting and regulatory interests

project included tunnel and elevated sections, and the complex construction approach for tunneling, station construction, spoils removal, and staging were key areas of concern for local governments, the public, and resource agencies.

### Initial Segment EA, Sound Transit, Seattle, WA —

Mr. Wendle managed this NEPA EA for a revised minimum operating segment of the Central Link LRT which achieved a Record of Decision allowing funding for the first section of light rail in Seattle. A key issue for the update was a joint operating plan to allow buses and light rail to operate together in the downtown transit tunnel, the first such operating system in the US.

### Seattle Monorail Project Green Line EIS — Seattle, WA —

Mr. Wendle was the deputy EIS team manager for this full-scope EIS covering route and station alternatives for the 14 mile Green Line monorail project. The project proposed a major new bridge over the Ship Canal near Ballard, and the US Coast Guard was the NEPA lead agency.

### Education & Years of Experience

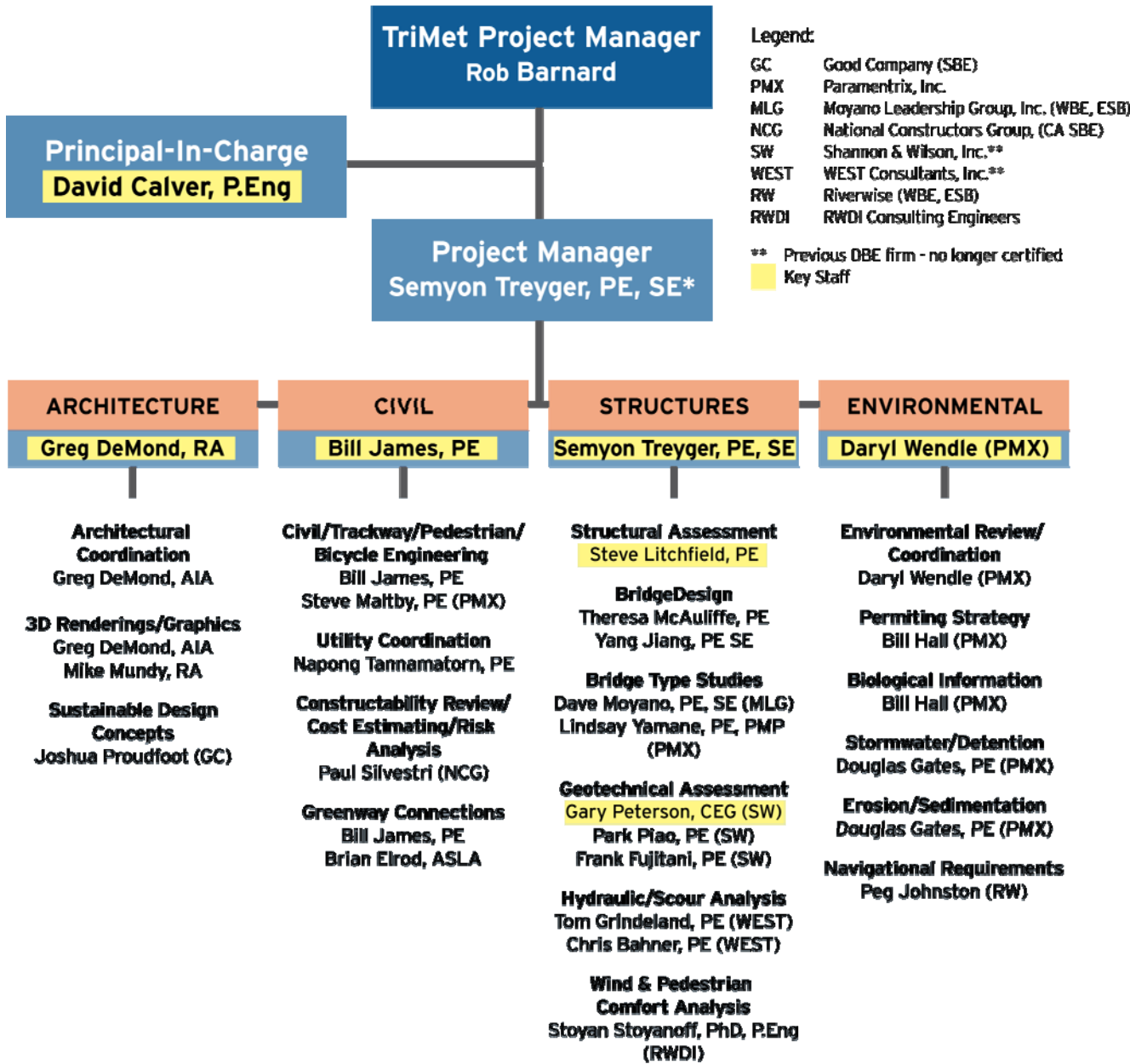
- 20 Years of Experience
- MA/1988/English/University of New York
- BA/1986/English/University of Oregon

### Professional Affiliations & Licenses:

- American Planning Association
- American Public Transportation Association

## Project Engineering Team

The core individuals and firms identified in the organizational chart below have all worked together in various combinations and have a history of recognized service in the Portland area. Our dynamic team is well versed in the issues, conditions and possibilities of this project and will hit the ground running to support TriMet in its goals. Our team will be based in HNTB's Portland office, located near the project site.





# TRIOMET



**HNTB**

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