WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

Bridge & Structures Office Staff Augmentation // Packet A

STATEMENT OF QUALIFICATIONS

KPFF CONSULTING ENGINEERS / 04.07.2022
A. Introduction

From urban, rural, and suburban locations, the Washington State Department of Transportation (WSDOT) is responsible for the safety of people on over 18,000 miles of highway lane-miles throughout Washington State. There are times when WSDOT draws upon the resources of engineering firms to work as an extension of staff to provide engineering services. Because of the complexity of intertwined transportation, environmental, and community concerns involved in many WSDOT projects, knowledge of all applicable local, state, and federal transportation regulations, including familiarity with WSDOT requirements, is essential. To that end, KPFF has pulled together and expert team of three consulting firms KPFF, WSP, and TranTech to provide seamless staff augmentation to WSDOT on bridge and other structural-related projects.

Our Team

KPFF Consulting Engineers

KPFF is a highly trusted consultant to WSDOT and other public agencies who have been awarded some of their most critical and time-sensitive bridge projects. In the past three years, we have managed, as prime consultant, over 55 multidisciplinary bridge and transportation projects, including contracts with several simultaneous work orders and involving many types of subconsultants. For example, as part of the recent WSDOT structural on-call, Greg Hess, our proposed project manager, oversaw 3 seismic retrofits, load ratings for over 30,000 LF of interstate bridges, paint inspection and assessment for a critical movable bridge, a bridge deck rehab, and the design and construction support for a 4-sided box culvert with MSE approach walls. On the NE 8th Street bridge project in Bellevue, Greg is leading a multidisciplinary team with 14 subconsultants. Through these and other projects, Greg and his team has managed the design of critical bridge and infrastructure projects throughout the state from floating and movable bridges, to retaining walls and culverts, and to rehabilitation and strengthening of major structures.

TranTech Engineering LLC (DBE/SEDBE)

Jim King of TranTech will provide structural engineering support. TranTech provides civil engineering, structural engineering, and construction management for public works transportation projects. They have experience in design, rehabilitation, and construction of bridge structures, walls, pedestrian and shared-use facilities as well as dozens of contracts with multiple load ratings. They are well-experienced with WSDOT/FHWA standards, LAG manual procedures, public agency contracting, federal and state funding, federal reporting requirements, permitting and regulatory requirements needed to successfully deliver bridge design and construction projects.

WSP

Greg Banks of WSP will provide structural engineering support. WSP has a well-established and trusting relationship with WSDOT. WSP has been instrumental in standards development, commencing with the development of the original Type W girders, and recently developing seismic design and accelerated bridge construction provisions. WSP is actively working on the development of standard plans for buried structures.

WSP also has a history of successfully delivering projects with KPFF and TranTech. KPFF is currently teamed with WSP on the I-90 East Link project to upgrade structures along I-90 to carry light rail. Greg Hess and Greg Banks were also co-located together for 2-years as part of the 520 Floating Bridge and Landings Project.

Types & Expertise

A summary of the combined firms years of experience on bridge and infrastructure projects is provided below:

<table>
<thead>
<tr>
<th>TYPE OF EXPERTISE</th>
<th>KPFF</th>
<th>TranTech</th>
<th>WSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Bridge Design</td>
<td>30+</td>
<td>15+</td>
<td>30+</td>
</tr>
<tr>
<td>Pedestrian Bridge Design</td>
<td>20+</td>
<td>4+</td>
<td>30+</td>
</tr>
<tr>
<td>Fish Passage</td>
<td>10+</td>
<td>8+</td>
<td>30+</td>
</tr>
<tr>
<td>Seismic Retrofit</td>
<td>20+</td>
<td>15+</td>
<td>30+</td>
</tr>
<tr>
<td>Bridge Strengthening</td>
<td>20+</td>
<td>15+</td>
<td>30+</td>
</tr>
<tr>
<td>Bridge Maintenance</td>
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<td>15+</td>
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<tr>
<td>Load Rating</td>
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<td>30+</td>
</tr>
<tr>
<td>Bridge Inspection</td>
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<td>30+</td>
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<tr>
<td>Specialty Work (Movable Bridges)</td>
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<tr>
<td>Specialty Work (Floating)</td>
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<tr>
<td>Retaining Walls</td>
<td>20+</td>
<td>15+</td>
<td>30+</td>
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</table>
For this project, KPFF has partnered with WSP and TranTech to provide seamless support for WSDOT. All three firms have a long history of supporting WSDOT and local agencies in doing bridge-related work throughout Washington. In addition, Greg has a long tradition of working with both WSP and TranTech. Greg has put together a highly qualified team of technical experts that can assist WSDOT with whatever structural project or challenge that may arise.

Key personnel of the KPFF/WSP/TranTech team are summarized in the organization chart. Greg handpicked the Senior Engineers based on his long-standing relationship and their high-level of technical competence and track record of delivering bridge projects for WSDOT. Specifically the KPFF/WSP/TranTech team offers:

» Three highly respected bridge/structural engineering firms with over 80 years bridge design experience between the PM and three structural leads.

» All three firms are capable of handling any structural task. Tasks will typically be handled by a single firm to provide efficient delivery. Work breakdown between the firms is approximately ~40% KPFF, ~40% WSP, ~20% TranTech. With three highly competent firms, if one firm is busy, another firm can step in.

» Proficiency in all WSDOT bridge analysis and load rating software such as CSiBridge, BRIDG, PGSuper and SAP2000.

» Up-to-date knowledge of latest AASHTO and WSDOT design and load rating requirements. WSP is currently assisting WSDOT with updating the WSDOT BDM culvert and ABC design standards.

» The combined team has load rated all types of bridges including standard concrete and steel girders, cable-stayed, segmental, and floating bridges.
### B. Summary List of each Firm on the Team and their Expertise

The KPFF/WSP/TranTech team has the following structural expertise in their Washington State and greater Portland area offices:

<table>
<thead>
<tr>
<th>Firm</th>
<th>Years</th>
<th>Offices (Number of Staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPFF</td>
<td>62</td>
<td>Seattle (306); Lacey (37); Seattle Special Projects (69); Tacoma (30); Spokane (6); Portland (95)</td>
</tr>
<tr>
<td>TranTech</td>
<td>DBE/SEDBE</td>
<td>17</td>
</tr>
<tr>
<td>WSP</td>
<td>125</td>
<td>Seattle (298); Federal Way (109); Redmond (110); Vancouver (37); Portland, OR (166)</td>
</tr>
</tbody>
</table>

### C. Prime Consultant Experience with Subconsultant

KPFF has combined an impressive team of firms for this WSDOT Bridge & Structures Office Staff contract, including our partners, TranTech and WSP. KPFF has a long and successful history with each of these firms in the delivery of multiple projects. KPFF is currently teamed with TranTech on a curved steel I-girder bridge being constructed in Cashmere, WA. TranTech is also supporting Greg on the current and previous King County Bridge on-call contract. Similarly, KPFF and WSP have been working together on the East Link E130 contract to convert several I-90 bridges to carry light rail. Greg Hess and Greg Banks were previously co-located together on the 520 FB&L project.

### Commitment to MBE/WBE/SBE/VBE/DBE/SEDBE Goals

The KPFF team is committed to meaningful involvement of MBE/WBE/SBE/VBE/DBE/SEDBE firms in serving WSDOT’s needs for the project. KPFF typically teams with MBE/WBE/SBE/VBE/DBE/SEDBE firms as integral elements of our teams, and have continued working relationships with a wide range of subcontractors meeting this requirement. We understand the mission for developing MBE/WBE/SBE/VBE/DBE/SEDBE firms into capable, well-established companies. The size and diversity within the team will allow the team to grow and contract efficiently based on WSDOT’s needs.
History with Proposed Subconsultants

West Cashmere Bridge Replacement, Chelan County, Goodwin, WA
TRANTECH (PRIME), KPFF (SUBCONSULTANT)
2015—2019 (DESIGN), 2020—ONGOING (CONSTRUCTION)
TranTech led the design team for the replacement of a deteriorating, 725-foot steel bridge that crosses over the Wenatchee River, BNSF, and US 2 in Chelan County. Early in the design phase, a Type, Size, and Location (TS&L) Study Report was prepared, with alternatives that included two-span cable-stayed and standard three span steel girder concepts. The County selected a standard, 725-foot, three-span steel girder bridge and the design was advanced to Ad-Ready Plans, Specifications, and Estimate (PS&E). TranTech is currently providing construction management.

As a subconsultant, KPFF designed the substructure on this federally funded project that replaced the existing bridge with a structure that will cross the Wenatchee River, BNSF mainline tracks, and US 2. The completed bridge will have a roadway section that will consist of two 12-foot lanes, two five-foot shoulders, and a separated bike and pedestrian path. Construction access required work trestles and crane hand-offs to install girders.

East Link South to South Bellevue (Segment A) I-90 Light Rail, Sound Transit, King County, WA
WSP (PRIME) KPFF (SUBCONSULTANT), 2015—2017 (DESIGN) 2018—ONGOING (CONSTRUCTION)
The final design project alignment consists of approximately seven miles of double-track Light Rail Transit, located in the existing WSDOT I-90 express lanes, between the International District/Chinatown Station (IDS) and the I-90 Flyover (approximately the east end of the East Channel Bridge) between Mercer Island and Bellevue. The final design effort includes preparation of reports, permit applications and exhibits, and construction contract documents necessary for delivery via the General Contractor/Construction Manager (GC/CM) method.

Installation of light rail on the I-90 Homer M. Hadley (HMH) floating bridge is a “world first”. The weight of the light rail train, tracks, and associated hardware required significant stress and freeboard loss evaluation, led by KPFF, in order to determine appropriate mitigations. Those mitigations included re-ballasting and post-tensioning of the pontoons, use of lightweight materials, and the removal of the south concrete traffic barrier.

WSP and KPFF also worked together to perform the seismic and gravity load analysis and retrofit design for seven WSDOT fixed bridge structures. These retrofits included external post-tensioning added to the concrete box bridges—the D2 concrete spans, Rainier Ave. Bridge, and the HMH East and West Approach Bridges; steel box girder strengthening to the steel bridges—D2 steel spans, HMH East and West Transition Spans, and East Channel Bridge, and substructure retrofits to the D2, East and West Approaches, and East Channel Bridges to improve their respective seismic performance. At the HMH East and West Approaches, in addition to column wrapping/jacketing that improved substructure ductility, the seismic behavior of the structures were changed to draw seismic inertial loads to the foundations on land, which were strengthened to carry those loads. Doing so fundamentally changes the seismic behavior of the bridges and avoided extremely disruptive and costly in-water foundation retrofits.

The HMH and fixed structures retrofit designs were coordinated closely with the WSDOT Bridge and Structures Office (BSO), utilized WSDOT Specifications, and were drafted to the BSO’s CADD standards.
D. Availability

The KPFF team has the capacity and commitment to respond to and complete assignments in a timely and efficient manner. Our key personnel were selected based on their WSDOT and bridge expertise, availability to complete the anticipated work of this project, and commitment to seeing this work through to completion. Our team members’ availability in hours per each month is shown below for the next two years.

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<thead>
<tr>
<th>Name</th>
<th>2022</th>
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<tr>
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<td>May, June</td>
<td>July, Aug</td>
<td>Sept, Oct</td>
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<td>Greg Hess</td>
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<tr>
<td>Detailer</td>
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<td>130</td>
<td>130</td>
</tr>
</tbody>
</table>

1. Qualifications/Expertise of Firms on our Team (cont.)
E. Summary List of each Firm on the Team and their Expertise

Our team projects demonstrate our expertise for this project. See our examples within the next few pages.

Harvard Bridge Widening & I-90 Widening, WSDOT, Liberty Lake, WA. KPFF (PRIME) 2018—2022, $1.4M (DESIGN) $3.1M (CONSTRUCTION)
KPFF was prime consultant for the widening of the Harvard Road I-90 bridge crossing and interchange improvements. The main project goal was to reduce traffic congestion along Liberty Lake Road and Appleway Avenue by providing an additional northbound lane across I-90 and extending the existing I-90 westbound on-ramp to improve driver safety. KPFF led design efforts for both concept and final design phases. Major project elements include 16-foot widening of a 415-long concrete girder bridge over I-90, new MCO on existing bridge, modification and widening of the I-90 on-ramp, utility relocation, storm water facility upgrades, public outreach, right-of-way services, and traffic control/detour plan. The project engaged WSDOT’s Eastern Region and WSDOT’s Bridge Division as a key partner, and KPFF deliverables and work plan was tailored to obtain WSDOT input and buy-in throughout the process.

**Services:** Project Management, Bridge Widening & Strengthening, Bridge Inspection, Load Rating

Peter Western Emergency Bridge Replacement and Environmental Restoration, City of Burien, Burien, WA.
KPFF (PRIME) 2018—2021, $1.3M (DESIGN) // $6M (CONSTRUCTION)
KPFF provided prime Project Management, structural/civil engineering and bridge inspection/load rating for a bridge alternative study and final design services for the emergency replacement of a multi-span, 180-foot bridge that had sagged from major foundation scour. Unstable steep slopes and an underlying pressurized aquifer were present under the bridge. The TS&L considered optimal span length, bridge type, approach length, and constructability. Drilled shaft abutments at each end were designed to resist the forces exerted by the sliding layer (lateral spreading) of soil. A single-span prestressed girder bridge with lightweight concrete girders was selected for constructability. This project met a 19% required UDBE goal. The team consisted of bridge, roadway, geotechnical, hydraulic and fish-passage designers, in addition to property acquisition, constructability and cost estimating specialists. The complex project was able to complete the design, right-of-way and NEPA/permitting documentation 16 months after notice to proceed, allowing for the roadway to open ahead of schedule.

**Services:** Project Management, Bridge Engineering, Bridge Inspection, Load Rating, Fish Passage, Emergency Response
Bridge & Trestle Engineering On-Call, King County, Various Locations, WA.
KPFF (PRIME) 2018—PRESENT, $918K
Twenty work orders were completed including preparation of design documents and construction support for three bridge replacements, deck and railing replacements, landslide emergency response and two emergency scour repairs. Other projects have included routine inspections, load ratings, feasibility studies and peer reviews. The feasibility studies determined alternatives and associated costs for rehabilitating versus replacing the bridges. KPFF completed extensive research to determine constructability, trail impacts, and access for construction for each alternative studied. Each structure carries well-used regional trails over creeks, rivers, and roads. KPFF managed a multidisciplinary team including structural and civil engineering, surveying, geotechnical engineering, hydraulic engineering, environmental engineering, landscape architecture, and permit preparation.

**Services:** On-Call, Project Management, Bridge Engineering, Bridge Inspection, Load Rating, Emergency Response

Statewide Bridge Load Ratings, WSDOT, Various Locations, WA.
TRANTECH (SUBCONSULTANT) 2018—2020, $35,640
As a subconsultant, TranTech performed load ratings and analysis on multiple bridges along I-5, I-82, I-90, I-405, SR 900, and SR 904. The structures consisted of reinforced concrete slabs and box girders from 233 to 1664 feet long and up to 25 spans each. Some ratings included in-span beam ledge and continuous corbel hinges. TranTech staff utilized the latest version of the BRIDG software, as version 10.9 had just been developed and this project was among its first public uses. The team worked with WSDOT to meet a streamlined schedule by working very efficiently with the new BRIDG 10.9 software. We were able to develop a repeatable process for similar structures that saved time and led to meeting the tight timeline requested by the client.

**Services:** On-Call, Load Ratings

On-Call Bridge Program Support, Whatcom County, Whatcom County, WA.
TRANTECH (PRIME) 2019—2021, $71,885
This project included structural analysis and design services to support the Whatcom County Bridge Program. Tasks performed for this contract include:

- Gooseberry Point Ferry Approach Repair: TranTech performed load rating, provided a concept for rehabilitation, and provided final repair recommendations.
- Bridge No. 51 Repair and Rehabilitation: TranTech designed and strengthened the bridge to eliminate load posting.
- Bayview Seawall Repair PS&E: Repair for a damaged roadway barrier.
- Load Rating of Five Bridges: Ratings for Specialized Hauling Vehicles (SHV) and for Emergency Vehicle (EV) as required by FHWA.

TranTech worked seamlessly with the Whatcom County team to provide repair and rehabilitation designs that could be easily performed by their Maintenance and Operations crew, saving time and cost for the client.

**Services:** On-Call, Project Management, Bridge Engineering, Inspection, Load Rating
South Boeing Access Road over Airport Way Seismic Retrofit, City of Tukwila, Tukwila, WA.
TRANTECH (PRIME) 2018—2021, $732K
TranTech provided complete Plans, Specifications, and Estimate as well as construction management for the seismic retrofit of this 4-span, reinforced concrete T-beam bridge constructed in 1952. The retrofit included improved girder seats with catcher blocks, reinforcement of the crossbeams, steel jacketing of the concrete columns, and the addition of concrete approach slabs. Construction was completed in 2021.

Challenges included augmenting the existing multi-column bent crossbeams to be capacity-protected for a 1,000 year seismic event, jacketing multiple columns with steel in a tight and restricted overhead, and installation of approach slabs in phases on the very busy Boeing Access Road.

Services: Project Management, Bridge Engineering, Seismic Retrofit

West Seattle Corridor Bridge Rehabilitation and Strengthening, SDOT, Seattle, WA.
WSP (PRIME) 2019—2022, $7.9M
WSP served as the engineer-of-record of the $40 million emergency stabilization and subsequent rehabilitation of the 1,300-foot long twin cast-in-place, post-tensioned segmental concrete box girder high-rise bridge (high-bridge), in addition to the $10 million rehabilitation of the adjacent cantilevered post-tensioned segmental box girder low-rise swing bridge, and $15 million rehabilitation of multiple approach bridges along the corridor and corridor major maintenance needs ($65 million total). Services commenced in response to accelerated cracking observed while inspecting the high-bridge as part of load rating task order on a structural on-call contract with SDOT. The stabilization of the high-bridge was conducted under an emergency general contractor/construction manager (GC/CM) contracting method, and included installation of an external post-tensioning system, epoxy injection, applying carbon fiber reinforced polymer sheets to the bridge, and replacing lateral bearings. WSP was able to release stabilization plans for construction within 5-weeks of notice-to-proceed.

While the bridge was being stabilized WSP facilitated and authored a multi-disciplinary cost-benefit analysis used to inform key next steps related to further rehabilitation or replacement of the bridge. With the emergency nature of the project, the onset of Covid-19, the many project stakeholders, WSP was able to complete the cost-benefit analysis memorandum and get a decision to further rehabilitate the bridge within 6-months.

Upon direction from the City to proceed with further rehabilitation, WSP assisted the City with on-boarding a Contractor to serve as the GC/CM, facilitated pre-construction interactions with the GC/CM, completed the high-bridge rehabilitation design and rehabilitation design for the low-rise bridge and other bridges along the corridor, and is actively providing construction support services.

Services: Project Management, Bridge Engineering, Inspection, Emergency Response
Structural On-Call, SDOT, Seattle, WA.
WSP (PRIME) 2017—2023, $3.8M

WSP has been supporting the SDOT through a structural on-call contract for multiple years. Due to the dynamics of an on-call contract, it is important to maintain regular coordination and planning in order to efficiently deliver on a given work authorization with the appropriate staff. WSP has near constant communications with the roadway structures team at the SDOT, almost serving as an extension of their staff to deliver on over 26 work authorizations.

Assignments have included: asset management services, including network wide life-cycle cost analyses, quality verification of SDOT’s bridge inspection and documentation practices; advancement of SDOT standards and design practices/policies through review and advancement of SDOT’s list of general special provisions, and review and advancement of SDOT’s Bridge Seismic Retrofit Philosophy, Policy, and Criteria document; consultant peer review services, having reviewed consultant as-built and post-retrofit seismic assessments, and resulting PS&E construction delivery packages, for over 13 different bridge structures of various types and framing; bridge type, size, location studies, having determined how to replace four fish barriers along a creek in a built-out urban environment and replace an aged timber pedestrian bridge spanning over BNSR right-of-way; load ratings of multiple structures of different types on an urban arterial; bridge seismic retrofit, as-built assessment, conceptual study, and PS&E plan development of a bridge spanning an urban arterial; bridge rehabilitation design, developed PS&E packages for multiple bridge deck overlays, expansion joint replacements, and barrier replacement projects.

In addition to good communication and planning, having a large bench depth and good teaming partners makes being able to deliver on multiple, often concurrent assignments, possible. WSP has near 40 local bridge and transportation structures team members, and is managing multiple trusted DBE subconsultants to successfully deliver work authorizations SDOT’s structural on-call contract. Currently, DBE subconsultants have delivered on load rating assignments, rehabilitation designs, and provided support roles on the bridge replacement designs, and type, size, and location studies.

**Services:** Bridge Engineering, Seismic Retrofit, Fish Passage, Load Rating, Bridge Inspection
Greg has over 20 years of successful bridge engineering experience and has served as project manager and lead structural engineer on various bridge projects, including several on-call contracts. His bridge experience ranges from small local agency bridges to large WSDOT design-build projects and includes inspection, load rating, and new, repair, rehabilitation, and retrofit design for timber, steel, and reinforced, prestressed, and cast-in-place concrete structures. Greg is a licensed Structural Engineer (SE) in the State of Washington, Idaho and Kentucky and helps to educate aspiring SEs as an instructor for two structural engineering licensure courses conducted by SEAW on seismic and gravity bridge design. Greg’s relevant project experience includes:

### 2A, B, C, D PM Qualifications

**Structural Engineering On-Call, WSDOT, Various Locations, WA. 2017—2021 (Design through Construction)**

Project Manager and Engineer of Record for on-call contract with WSDOT Bridge division. Greg used a team of task managers to complete multiple concurrent tasks. Work orders included 4 load rating packages consisting of 30 major bridges along I-90 and I-5 corridors, 3 seismic retrofits for bridges along the JBLM critical lifeline route, steel truss bridge paint condition assessment, the design of a new 4-sided box culvert with MSE walls, and construction support services.

**Responsibilities & Tasks:** Overall design effort as PM, provided technical review as EOR, managed budget and schedule, and managed DBE subconsultants.

**Madden Bridge #58 Rehabilitation & Deck Overlay Replacement, Snohomish County Public Works, Between Lake Stevens & Granite Falls, WA. 2020—2022**

Project Manager and Engineer of Record for the comprehensive rehabilitation of this 130-foot riveted steel girder bridge. Work includes a new deck overlay, construction phasing, new bridge railings, new approach slab, replacement bearings, and new expansion joints. Greg prepared a concept design report that evaluated various retrofit options for each element including the pros and cons of closing the bridge versus maintaining one lane of traffic during construction. Based on KPFF’s recommendation, the County elected to close the bridge and detour traffic during construction.

**Responsibilities & Tasks:** Overall design effort as PM, provided technical review as EOR, managed budget and schedule, and managed subconsultants.

**Eastrail Corridor Regional Trail NE 8th Street Crossing, King County Parks, Bellevue, WA. 2017—2022**

Project Manager and Engineer of Record for design and construction of a 6-span, 474-foot-long signature pedestrian crossing in Bellevue. Greg managed a multidisciplinary team of 14 subconsultant and oversaw all aspects of the design. The project required coordination with multiple property owners and jurisdictions, including King County Parks, Sound Transit, and City of Bellevue. Greg developed a Sound Transit Coordination Matrix that was used to track the status of over thirty technical challenges identified early in design. Each challenge was closed-out with a technical memo. Greg and his team worked with the City of Bellevue and a Japanese American advisory panel to develop a bridge aesthetic that reflects the rich Japanese American farming legacy of the area.

**Project Schedule:** Greg coordinated closely with the County and partner Sound Transit (ST), who was constructing a station and guideway directly adjacent to the pedestrian bridge. Greg worked with the County to setup a series of over-the-shoulder and formal submittal reviews with ST to make sure the two projects were in lock-step throughout design and avoid surprises that would could potentially delay the project.

**Scope of Work/Scope Creek:** In its tight urban setting, the project touches multiple stakeholders including ST, City of Bellevue, private property owners, and utilities including a 72-inch sewer main. To track and coordinate this complex, multi-faceted design effort, Greg established communication protocols including weekly County touch-base meetings, ST task forces,
weekly ROW and permitting meetings, and weekly bridge/architectural and civil/landscaping design team meetings to carefully coordinate the design effort and track design progress and monitor scope. Through this coordination, Greg was able to alert the County when unexpected challenges arose that would impact the scope.

**Budget Issues:** The selected bridge design was to use a series of (6) prefabricated steel trusses that would be enhanced with an architectural cladding to meet the project’s aesthetic vision. The trusses were to be contractor designed. However, as the design progressed, Greg realized that the complexity would add considerable schedule risk to the construction phase. Greg worked with the County to incorporate the steel truss design into the design schedule. Although this required a significant budget amendment to the design phase, it essentially moved these design costs up front and helped to reduce a huge potential schedule risk during construction.

**Changes that Arise throughout the Life of the Project:** The trail bridge project and Wilburton Station both border the Sturtevant Creek. Although not constructed yet, the reinforced slopes adjacent to the creek were not designed to support the bridge abutment and an embankment was needed for the NE 8th project. In addition, Greg's team wanted to add a staircase that connected directly to the station from the bridge. Greg worked with the County and ST to facilitate a betterment agreement to incorporate this work into ST contractor’s scope which avoided expensive and unnecessary re-construction of a shared facility.

**Post Street Bridge Replacement, City of Spokane, Spokane, WA. 2018—2022**

Structures Design Manager and Engineer of Record for the replacement of a 350-foot historic spandrel arch bridge crossing the Spokane River in downtown Spokane. Greg suggested to preserve and rehabilitate the existing arches in lieu of demolition. This solution resulted in significant time and cost savings as it eliminated in-water work to perform demolition and construct the bridge. Significant concrete testing and life-cycle analysis were performed to confirm the arches’ structural adequacy and ability to meet the City’s 75-year life requirement. Greg worked with the contractor to develop a complex stage-by-stage demolition and construction sequence. The project also adds a new 60-inch sewer line that is supported off of the arches.

**Project Schedule:** The City required that a rehabilitated structure have a minimum 75-year design life. Realizing the latent potential of the existing but heavily deteriorated arches, Greg initiated two parallel design efforts. One design effort was predicated on re-using the arches, but required in-depth testing and service life modeling to confirm. The other design effort focused on designing and costing several complex long-span bridge solutions that didn’t rely on the arches. Both efforts were completed at the same time, and in the end, the arches—albeit with some major repair and strengthening—were confirmed to have adequate service life to last another 75 years. This dual phased design approach was a low-risk, out-of-the-box way to approach the design of a complex bridge structure while meeting the client’s desired schedule.

**Scope of Work/Scope Creek:** Rehabilitation of existing structures typically require more engineering oversight during construction than new bridges. Greg developed a detailed construction phase scope of work that broke out work elements into categories such as field inspection time, major submittals, minor submittals, RFIs, and change orders. Furthermore, Greg created a comprehensive list of contract required submittals to further detail expected scope. During construction, Greg and his team reconciled “actual” versus “scoped” submittals on SharePoint in real time and in monthly progress reports as a tool to communicate work progress and help track scope/budget trend.

**Budget Issues:** Due to the complex nature and high risk work elements such as building adjacent to an historic building, switching over a live sewer pipe, rehabilitating 100 year old arches, drilling into Basalt rock, among others, Greg and his team utilized WSDOT’s Project Risk Management modeling.
tool to help identify and provide a framework for understanding project risks and opportunities. This was implemented in close-coordination with the City and ultimately helped the City in establishing the City’s Construction budget and appropriate contingency.

**Changes that Arise throughout the Life of the Project:** Throughout construction, Greg and the design team have dealt with numerous construction challenges. One of the biggest challenges was the Contractor wanting to modify the demolition sequence. Since the existing arches are sensitive to unbalanced loads and require complex analysis to confirm changes, Greg and his team provided an immediate fatal flaw analysis and then worked in conjunction with the Contractor and City to modify the construction sequence in parallel with the Contractor as they developed their detailed demolition and erection submittal.

**Woodin Avenue Bridge Rehabilitation, City of Chelan, Chelan, WA. 2016–2020**
Project Manager and Engineer of Record for the preservation, rehabilitation, and conversion of an historic two-lane bridge into a single lane with wider sidewalks and bike lane. The iconic structure needed extensive rehabilitation of the superstructure, including the deck. Greg developed an ultra-lightweight sidewalk consisting of geofoam overtopped with fiber-reinforced lightweight concrete. This was implemented to eliminate the need to strengthen the existing girders. Other improvements included new historic bridge railings, new expansion joints, new bridge overlay, a new waterline, and new historic concrete lampposts. The project received APWA’s 2020 Historic Bridge Preservation Project of the Year Award and WSDOT’s 2020 Award of Excellence for Best Special Project.

**Project Schedule:** This project combined four projects with different funding types (bridge rehab, waterline replacement, park improvements, and roadway safety). While each of the four projects were independent of each other in terms of scope, they were all physically adjacent to or overlapping of each other. Greg and his team worked with WSDOT to combine these projects using the Tied Bid process. This allowed all the projects to be managed and constructed at one time, reducing the overall project duration/schedule and impact to the community.

**Scope of Work/Scope Creek:** Greg worked with the City over many years to evaluate multiple options from widening, to full replacement, to an adjacent pedestrian bridge. Ultimately, funding challenges led the project down the path of preserving the City’s iconic structure while reconfiguring the bridge to a single-lane with wider sidewalks. Although many desired the ‘pie-in-the-sky’ full replacement, Greg worked closely with the City and stakeholders to develop a range of options including more-practical reduced-scope options that retained the true character of the bridge and ultimately allowed the project to be funded.

**Budget Issues:** The project had limited funding and Greg and his team worked with the City to ensure the repair and strengthening work fell within the available budget. As part of a design alternatives report, Greg developed a list of options that evaluated and compared the cost of various repair/replacement options. One example is Greg and his team recommended replacing only a small section of bridge railing while repairing other sections. This allowed money to be re-prioritized to other important areas such as full replacement of the historic concrete light posts.

**Changes that Arise throughout the Life of the Project:** Extensive concrete repairs were required to the underside of the 450-ft bridge. Unfortunately, during the first winter after construction, a majority of the repairs failed prompting an immediate on-site meeting with the contractor, City, inspectors and the design team. Greg worked with all parties to establish root cause and a path forward. Ultimately, at Greg’s insistence, the City hired KPFF to perform initial inspections and help train City staff to ensure proper repair procedures were implemented. The second round of repair work went smoothly.
Key Team Members Qualifications

A. B. Resumes/Roles/Responsibilities & Professional License(s)

Senior Engineers

Anne Streufert, PE, SE

FIRM
KPFF Consulting Engineers

REGISTRATIONS
40903, Professional Engineer: WA—2004
40903, Structural Engineer: WA—2010

Anne has 21 years of bridge engineering experience, including project management, design, evaluation and inspection of over 200 bridge structures. Anne is one of KPFF’s in-house WSDOT specifications experts and routinely works with state and federally funded projects. Anne has extensive experience with WSDOT BDM Load Rating Methods, the AASHTO MBE Manual and the Bridgeworks/WSBIS database.

Upper Finney Bridge Seismic Retrofit & Strengthening, Skagit County, Concrete, WA. 2020—Present
Project Manager and Structural Engineer for the seismic retrofit and strengthening of this 217-ft long CIP concrete t-girder bridge. Her team was able to develop a retrofit method that prevented the need to modify the intermediate bridge footings, saving significant cost and time. The federally funded project will include the installation of drilled shafts at each corner of the bridge, concrete shaft caps, concrete bolsters enlarging the existing girders, MCO deck rehab, rock anchors and new retaining walls and guardrail at the bridge approaches.

Illabot Creek Alluvial Fan Restoration, Skagit County & Skagit River System Cooperative, Rockport, WA. 2017—2018
Project Manager and Structural Engineer. The project included removal of an existing culvert, a temporary detour road, construction of two new channels for Illabot Creek beneath the bridges, installation of two new pre-cast concrete girder single-span bridges with spread footing foundations, and installation of scour protection in the form of riprap. Funding and fish window considerations required an expedited design and construction schedule to maintain funding.

Greg Banks, PE, SE

Senior Engineer

FIRM
WSP

REGISTRATIONS
45120, Professional Engineer: WA—2008
45120, Structural Engineer: WA—2018

Greg Banks has a passion for bridge engineering and understands process and multi-disciplinary needs as it relates to bridge engineering. He is a good communicator that tailors the level of communication to the audience. He is a natural leader that is open and honest with the team to build trust, and aims at delivering clear, timely, and purpose minded messages to avoid surprises.

Interstate-5/State Route 18 Interchange Improvements – Phase 1, WSDOT, Federal Way, WA. 2004—2009
Lead Structural Designer responsible for the design of a 10-span 1,450-foot-long bridge spanning Interstate 5 and State Route 18, and also lead designer for the project walls. The spans within the 464-foot radius consisted of a single steel tub girder, and the spans within the 3,000-foot radius consisted of multiple precast, prestressed concrete girders.

SR520 Floating Bridge and Landings Replacement, WSDOT, Medina, WA. 2010—2018
Lead Structural Designer of the east approach bridges which consisted of two parallel bridges, 620-foot-long, three-span, segmental cast-in-place post-tensioned balanced cantilever bridges carrying westbound and eastbound traffic. Also led the designs of Pier 36 (westernmost pier of the project) utilizing ABC techniques, the maintenance dock/pier, and all the upland walls. During construction, served as a deputy project manager and facilitated completing load ratings and project as-builts.

SR 410 White River Bridge Painting, WSDOT, Buckley, WA. 2017—2018
Project Manager for the load rating and construction document development to paint an existing WSDOT owned steel truss bridge and approach spans. The load rating assessed the structure’s ability to support temporary construction loading while maintaining legal vehicular traffic loadings. The load rating was performed in accordance with the WSDOT Bridge Design Manual Chapter 13, using the Load Factor Rating (LFR) method.
Coal Creek Bridge No 3035A Replacement, King County, King County, WA. 2018—Fall 2022
Structural Lead. Replacement of a 41-foot steel bridge on timber substructure consisted of voided slab girders supported on cast-in-place spread footings. The bridge design defined the structural depth to minimize the rise in roadway profile grade required to provide freeboard to the flood elevation. It also eliminated elastomeric bearings to minimize long term maintenance for the structure. A temporary detour roadway and bridge is being utilized to maintain public access throughout construction. BRAC/FHWA funded.

On-Call Load Rating Services: I-90 Homer M. Hadley Floating Bridge, WSDOT, Seattle, WA. 2019
Project Engineer and QC Reviewer for load rating the steel tub girder transition span and post-tensioned concrete cross beam (Pier 2) of the I-90 floating bridge. The load rating of both elements utilized CSI Bridge and Excel for post-processing.

Padden Creek Fish Passage, WSDOT, Bellingham, WA. 2019—2022
Structural Lead. Rachel led the structural team for the I-5 northbound and southbound crossings of Padden Creek during the successful pursuit of this design-build fish barrier removal project. During final design, Rachel designed and detailed the precast voided slab girders supported on GRS-IBS abutments. The northbound I-5 bridge required phased construction to maintain live traffic.
**Tony Parris**, PE

**Junior Engineer**

**FIRM** WSP

**REGISTRATIONS**
56079, Professional Engineer: WA—2018

Tony Parris is a production minded bridge and transportation structures engineer. He has been involved in all sorts of projects; new bridge design, bridge rehabilitation, seismic retrofits, buried structure design, wall design, bridge deck overlays, expansion joint replacements, sign structure design, etc. He is well versed in WSDOT standards and policies.

**SR 520 Floating Bridge and Landings Replacement, WSDOT**, Medina, WA. 2014—2018

Structural Engineer that worked on many components of the project including the cast-in-place post-tensioned balanced cantilever bridges east approach bridges, the site civil walls, and the maintenance dock and pier. Tony also load rated the east approach bridge following WSDOT Chapter 13 standards. Tony will use his in-depth understanding of WSDOT’s standards and practices gained from working on many different facets of the job to help seamlessly augment WSDOT’s BSO staff on this opportunity.

**SR 410 White River Bridge Painting, WSDOT**, Buckley, WA. 2017—2018

Bridge Engineer responsible for the load rating and construction plan development for painting of a 200-ft long single-span steel truss and T-beam concrete approach spans. The load rating was performed in accordance with the WSDOT Bridge Design Manual Chapter 13, using the Load Factor Rating (LFR) method. The steel and concrete spans were load rated to assess what construction loads could be placed on the bridge while maintaining an operating rate factor above unity for all legal loads. The bridge was modeled using the CSiBridge program. The LFR checks were made using Excel or Mathcad calculations.

**Milwaukee Road Puyallup River Bridge Rehabilitation, City of Puyallup, Puyallup, WA.** 2014—2020

Structural Engineer responsible for supporting the development of conceptual and plan, specification, and cost estimate design of the rehabilitation of a three-span, conventionally reinforced concrete box girder structure. The rehabilitation resolved gravity and seismic deficiencies by replacing the existing approach structures with new laterally stiff approach structures, which avoided costly in-water foundation retrofits.

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**Mairi Stanners**, PE, SE

**Junior Engineer**

**FIRM** KPFF Consulting Engineers

**REGISTRATIONS**
57222, Professional Engineer: WA—2019
57222, Structural Engineer: WA—2021
WSDOT/NBIS Bridge Inspection Team Leader

Mairi has 13 years of engineering experience contributing to infrastructure-related projects. She has inspected, load rated, and designed vehicular, rail, and pedestrian bridges of various types, including cable-supported, timber, steel, and concrete structures. Mairi is also a certified bridge inspector who has performed routine, fracture critical, and interim inspections on timber, steel, and concrete structures.

**On-Call Kittitas County Bridge Load Ratings Inspections, Kittitas County, Various Locations, WA** 2017—2021

Co-Inspector and Load Rater for more than 75 load ratings, and short-span bridges. Structures varied from pre-stressed concrete, concrete slab, timber, steel, and culverts. Mairi prepared initial inspection reports and updated the statewide bridge inspection database (WSBIS/Bridgeworks) so Kittitas County maintained compliance with state and federal requirements. She also provided office preparation for inspection trips including mapping, report assembly, safety plan creation, and documentation review.

**Gold Hills Community Club Bridge Evaluation, Crystal Mountain, Crystal Mountain, WA.** 2019—2020

Project Manager and Lead Inspector for routine inspections of two steel truss vehicle bridges. The project included field evaluation and measurements for load ratings as well as preparation of inspection reports in conformance with WSDOT standards. Additional tasks included preparation of load rating analysis in accordance with WSDOT BDM and MBE specifications, recommendations for safe posting and signage, and review of construction vehicle access.

**Upper Finney Bridge Seismic Retrofit, Skagit County, Skagit County.** 2020—Ongoing

Design Engineer for a Type, Size, Location study to evaluate the feasibility of retrofitting or replacing the 217-foot-long, 5-span, cast-in-place concrete bridge. Task included evaluation of the existing bridge for seismic loads and logging vehicles, as well as providing preliminary designs, layouts, and cost estimates for two replacement options and one repair option.
Rubin has over 33 years of cumulative experience in structural, civil, waterfront, and hydro engineering disciplines using AutoCAD up to v2020, MicroStation V8i and Connect. His experience consists of being the CAD Lead for design and drafting of plans, profiles, elevations, details, sections, geometry calculations, and marketing graphics for railroad, traffic, pedestrian and floating bridges, Structural buildings, Tilt-up precast walls, waterfront and marine structures and light rail stations and tunnels. He is experienced with ProjectWise v7, SharePoint, Microsoft office, Bluebeam Revu 20, Word, Excel, and Teams.

**Mukilteo Ferry Terminal Phase 2 Design, Washington State Ferries, Mukilteo, WA. 2014—2021**

CAD Lead for the design and construction of the new Mukilteo Ferry Terminal. The new terminal facility includes a state highway extension, expanded upland vehicle holding area, passenger terminal building, maintenance building and toll plaza structures, ferry berthing structures, transit center, and extensive public amenities including a waterfront promenade and fishing pier. CAD Lead for over 175 pages of record drawings.

**Lynnwood Link Extension Final Design, Sound Transit, Lynnwood, WA. 2016—Present**

CAD Lead. KPFF provided civil and structural engineering for the 8.5-mile light rail extension and four stations from Northgate to Lynnwood through the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood. CAD Lead for over 100 pages of record drawings.

**Padden Creek Fish Passage, WSDOT, Bellingham, WA. 2019—2022**

CAD Lead Civil and Structural. KPFF is prime consultant and lead designer for this $24.5M design-build fish barrier removal project to replace two existing barriers along Padden Creek within the City of Bellingham. The scope included two 60-foot voided slab bridges supported on GRS-IBS abutments. Both bridges are along I-5 and required phased construction to maintain live traffic.

Lee Childress is a CAD designer that has worked his whole career with WSP working on bridge and transportation structures. He is proficient in MicroStation and associated CAD software packages, and is intimately familiar with WSDOT CAD standards. Lee has delivered in a staff augmentation role for WSDOT BSO before. Lee also has been working alongside Greg Banks (proposed Senior Engineer) and Tony Parris (proposed Junior Engineer) for their entire careers and knows how to efficiently communicate to minimize efforts and iterations in the drawing development process.

**Interstate-5/State Route 18 Interchange Improvements – Phase 1, WSDOT, Federal Way, WA. 2004—2009**

Lead structural drafter responsible for the design of a 10-span 1,450-foot-long bridge spanning Interstate 5 and State Route 18, and the project walls. Provided CAD design services for the sister bridge. This required regular coordination efforts with the WSDOT BSO to ensure similarity and efficiency in detailing and design.

**State Route 520 Floating Bridge and Landings Replacement, WSDOT, Medina, WA. 2010—2018**

Lead structural drafter of the east approach bridges. Lead the development of the as-built plans.

**SR 410 White River Bridge Painting, WSDOT, Buckley, WA. 2017—2018**

Served as the CAD detailer responsible for plan development for painting a 200-ft long single-span steel truss following WSDOT BSO standards. Lee’s understanding of 3D space and the WSDOT BSO standards allowed for the plans to be developed with minimal direction from the engineer.
Chris Hearing, EIT

Detailer

FIRM
TranTech

REGISTRATION
#19110734, Engineer-in-Training

Chris is a staff civil engineer and recent graduate from Washington State University, emphasizing in transportation. He interned for the Washington State Department of Transportation at the Port Angeles project engineer office. Some of his recent work involves plan sheet preparation and geometric road and sidewalk modeling for numerous projects in the greater Bellingham area.

Lake Samish Bridge Replacement, Whatcom County, Whatcom County, WA. 2018—Present
Staff Civil Engineer. This project involved the replacement of a deteriorating timber bridge that spans 250-feet across Lake Samish. Moreover, many of the surrounding roads and stormwater conveyance systems were redesigned. Chris took part in the preparation of project drawings, such as the plan/profile and channelization sheets in accordance with the MUTCD. Additionally, he generated the stormwater compliance report, using the Stormwater Management Manual for Western Washington.

West Valley Highway (Strander Blvd to I-405), City of Tukwila, Tukwila, WA. 2019—Present
Staff Civil Engineer. Chris helped with addressing the total discharge areas for the stormwater aspect of the project. This included specifying the pollution-generating and non-pollution-generating impervious surfaces for existing and proposed conditions. Additionally, Chris provided sidewalk modeling to ensure ADA compliance, using AutoCAD Civil3D.

Tacoma Dome Light Rail Extension, Sound Transit, Tacoma, WA. 2019—2020
Staff Civil Engineer. Chris took part in Phase 2 of the ongoing Tacoma Dome Light Rail Extension, covering over 9 different track alternatives from Fife to Tacoma. He prepared sheets for the Draft Environmental Impacts Statement, outlining each option’s effect on existing conditions. Chris also helped produce the engineering plans for the 10% submittal, emphasizing in demo, stormwater, and civil roadway sheets.

Understanding of WSDOT &/or Public Agency Regulations &/or Procedures
KPFF understands the regulations and procedures required to accomplish federal, state, and local transportation projects. Our engineers have managed projects throughout the state utilizing WSDOT’s Bridge Design Manual, Standard Specifications, AASHTO LRFD, and AASHTO MBE. We use these manuals and standards daily on projects for WSDOT and local cities and counties.

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<tr>
<th>Key Team Members’ Experience with WSDOT &amp;/or Public Agency Regulations &amp;/or Procedures</th>
<th>Greg Hess</th>
<th>Anne Streufert</th>
<th>Jim King</th>
<th>Greg Banks</th>
<th>Rachel Liberty</th>
<th>Mairi Stanners</th>
<th>Tony Parris</th>
<th>Rubin Jackson</th>
<th>Lee Childress</th>
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A. Quality Assurance/Quality Control

Quality Assurance/Quality Control
KPFF applies our formal in-house quality control and assurance process that to all projects.

Ensure that Quality is an Integral Consideration in the Completion of each Task

Our Project Manager, Greg Hess, will develop a QA/QC process as part of the first work order. This process will be updated if required based on the scale of subsequent tasks. For each work order, the key personnel will be updated. Greg will perform the role of QA lead.

Independent Verification of Workmanship & QC Procedures

The QA Lead (Greg) will review the QC documents to confirm that a thorough QC was performed. These reviews will be performed at each project phase as outlined in the “QC Plan Summary” of the QA/QC Plan.

For WSP and TranTech or other subconsultants, Greg will verify that appropriate quality control procedures were implemented at each phase. Consultants will be required confirm that their own internal QC procedures were implemented and be asked to retain QC documentation, such as check sets. If tasks require multiple disciplines and consultants, KPFF will perform an interdisciplinary (IDR) review of the drawings and specifications at major milestones. Greg will require an IDR comment matrix be filled out by each discipline/subconsultant. Greg will then verify that each subconsultant submitted their IDR comments and responses and that these comments and responses were addressed in the drawings.

Adequate Resources Dedicated Exclusively

As previously discussed, Greg will identify key individuals who have a role in the QA/QC process during the scoping phase for each work order. These individuals will receive a copy of the QA/QC plan and schedule, which is also posted to SharePoint at the beginning of each work order. It is critical that the QA process is integrated into the required scope of work and schedule of deliverables.

Also, the team has 50+ dedicated and local bridge engineers to provide additional support when unexpected things come up as they often do on an on-call.

Inspection of Work in Progress Rather than at Completion of Components

The definition of QC is that “thorough, timely review occurs in advance of submittals” to WSDOT or other stakeholders. The specific type of QC performed will depend on the work order. For load ratings, “inspection of work” is usually performed by regular weekly check-ins between the design engineer and the task manager. For larger projects, such as a bridge replacement, in addition to regular design meetings, Greg will require progress prints prior to major submittals to confirm that all disciplines are performing as expected. For example, on the NE 8th Street project, which had 14 subconsultants, Greg required progress prints 6-weeks prior to the submittal deadline. The progress prints were posted to SharePoint for the client to review. These allowed Greg and his team to measure the progress of each subconsultant well in advance of the submittal deadline.

Communication Regarding Quality Issues & Project changes

Issues regarding quality and project changes will be immediately identified and corrected as follows:

» If/when there are project changes, Greg will let the WSDOT Project Manager know immediately. These will be tracked in the monthly Progress Reports. Based on previous on-call work, project changes are more likely to occur on rehab/repair work orders, due to unforeseen conditions, than load rating work orders and this possibility will be considered during the scoping phase of the work order.

» If / when there are quality issues, Greg will immediately notify the WSDOT Project Manager and work to identify the root cause. On a recent project, Greg addressed quality issues from a subconsultant by adding increased meetings, additional deadlines and over-the-shoulder reviews. In other situations, Greg replaced or re-assigned staff to a different task or project.

Tracking System to Monitor Budget and/or Scope

Greg and his team have established efficient project management protocols to ensure team members work together to deliver projects on schedule and within budget while minimizing the need for client oversight. Greg will manage the augmentation project with assistance from his Project Coordinator, Valerie Gardiva. At scoping, Greg will provide the team with templates for work order fee proposals, monthly progress reports, and invoicing to streamline administration efforts. Greg will track budgets using Microsoft PowerBi and BST software which are updated automatically through the invoicing process. Invoices will be triple-reviewed for accuracy by Greg, Valerie and the project accounting team.
To track progress, Greg will provide monthly reports to WSDOT that include budget status summaries for each work order on a task basis, status on work performed, upcoming work, and identification of risks and potential changes. Any out-of-scope elements or potential scope changes will be immediately brought to the attention of the client and will be tracked in the monthly progress report. On the recent NE 8th Street project, an adjacent parallel project was built out-of-alignment and interfered with our approach ramp. Greg immediately notified the client to discuss the change and begin the formal process of a contract amendment.

Effective communication skills are key to successful management of multiple concurrent work orders. As such, Greg will be the single point of contact for WSDOT. Greg will communicate project progress via regular meetings and check-in calls or emails with the client. These communications are typically every two to four weeks depending on the project complexity and schedule. When multiple subconsultants are involved in a task, Greg will establish and maintain a schedule that sets clear expectations for deadlines and deliverables including interdisciplinary review dates, progress prints dates, and submittal deadlines. For tasks led by WSP or TranTech, Greg will stay in the email chain for all WSDOT correspondence and review subconsultant progress reports.

For a given task, the work will typically be performed by a single firm: either KPFF, WSP or TranTech. The lead firm for a task will participate in developing the scope of work and hourly estimates. In this way, all team members have a clear understanding of their responsibilities for the project up front and have the appropriate hours budgeted.

**Type of Software or Process**

Greg typically uses Microsoft Project to develop schedules to illustrate the dependency relationships between tasks. Greg also uses an Excel spreadsheet on SharePoint tracking log. Greg has used these tools on multiple projects including on-calls such as DNR Load Rating On-call and King County Roads On-call and traditional design projects like Madden Bridge Rehabilitation.

Managing multiple concurrent work orders can be challenging and requires pro-active management and a depth of resources to handle effectively. Multiple work orders can be planned and happen all at once or happen in succession unexpectedly. Greg and his team have experienced both scenarios and have tools and resources to deal with multiple work orders however they occur.

On the DNR load rating on-call, Greg keeps an Excel tracking log on SharePoint. The tracking log is updated regularly to indicate status of each load rating such as dates of draft/final submittals, issues related to each bridge, load rating factors, and posting requirements.

On the King County Roads on-call, four simultaneous work orders were given at once. Greg developed a Microsoft Project schedule showing all meetings, tasks, predecessor-successor relationships between tasks, major and intermediate milestones, and due dates. Each task was assigned a task manager who oversaw the production work and subconsultant coordination. Greg checked in weekly with task managers and tracked the work status on SharePoint using a master Excel spreadsheet that was shared with the client. Greg updated the client bi-weekly via check-in phone calls and by updating the tracking spreadsheet on SharePoint.

Submittals were coordinated and staggered for efficient review by the client. Work progress was provided to the client by a combination of several means:

1) Regular check-in emails and progress meetings,
2) Over-the-shoulder progress prints, and
3) Progress prints that were posted to SharePoint.

When multiple tasks orders are issue concurrently, KPFF, WSP and TranTech have a depth of resources to assist.

**Prepare Monthly Progress Reports**

Greg and his project coordinator Valerie prepare monthly progress reports and invoices for each task as follows:

» Valerie assembles the initial invoice and progress report which will include subs, if any. Valerie will check all billing rates and titles to ensure that they are consistent with approved values.

» Greg reviews the initial invoice and progress report. In filling out the progress report, Greg will review all project emails for the time period, project schedule, and deliverables and develop a detailed bulleted list to summarize work items completed and upcoming. If the project is in construction, Greg will review the CSS log and list submittals and RFI’s that were addressed over the billing period.

» The progress/invoice will contain the following information: Work Completed, Work in Progress or Planned, Requests for Supplements, Discussion of Issues Impacting Budget and Schedule and Budget Status. Budget Status includes percent of work completed versus percent work invoiced.
Project Delivery Approach

A. Ensure Staff are Available

Availability

KPFF has partnered with WSP and TranTech to provide seamless support for WSDOT. All three firms have a long history of supporting WSDOT and Statewide local agencies in doing bridge-related work throughout Washington. In addition, Greg has a long tradition of working with both WSP and TranTech.

TranTech is currently supporting Greg on the King County Bridge On-call contract. KPFF and TranTech are also teamed on the Cashmere bridge replacement project with one firm designing the superstructure and the other firm the substructure. Greg and WSP are currently working together on the conversion and strengthening of I-90 mainline structures as part of Sound Transit’s East Link project. Furthermore, Greg was co-located with Greg Banks and other WSP staff (formerly BergerAbam) for 2 years during the design of the 520 Floating Bridge and Landings (520) project. On 520, both firms augmented each other’s staff to provide timely support for critical-path tasks. This intimate working relationship and trust between the three firms will provide the foundation for a flexible team to support WSDOT when tasks unexpectedly pop-up and/or need to be delivered quickly.

Since the contract allows multiple people to be pre-approved for each team positions, except for Project Manager, during negotiations Greg will work with WSDOT to approve additional Senior and Junior Engineers as well as Detailers to ensure that we have a wide range of options to support WSDOT throughout the duration of the contract.

Tasks Assigned

When tasks are assigned, Greg will ensure that all approved staff are available to work on tasks using the following protocol:

» Greg as main point of contact throughout the project will field all work order requests. He will immediately meet with WSDOT to review the schedule, project goals and any particular concerns related prior to assigning the work order.

» Work orders will be assigned to a single firm in rotating fashion. Greg has established a tentative workload split between the three firms of: TranTech ~20%, KPFF ~40%, WSP ~40%. Please note that TranTech is DBE and will help to fulfill the 26% goal (10% Minority and 5% SBE). Prior to work commencement, Greg will work to develop a DBE participation plan that meets the 26% voluntary contract goal. This will include reaching out to WBE and VBE firms that can also be included to support the work.

» If one firm is unable to take on a task, then the task will be re-assigned to another firm. If warranted by the type of task and staff availability, the work order may also be assigned to multiple firms. This will be done with the utmost care and in the most-efficient way possible. For example, if multiple firms are combined on a task, one firm may be assigned to perform a QC of the other firm or take on a part of a task order that can be completed as independently as possible.

Throughout the work, Greg, will check-in with both the WSDOT lead and the assigned task manager to ensure that work is meeting WSDOT’s expectations.

B. Approach to Resolving Issue(s)

Resolving Issue(s)

As a project-manager for many complex projects with multiple stakeholders/subconsultants, Greg is used to dealing with issues that come up related to the project team, client and stakeholders. He has learned that the best way to deal with issues is to be pro-active and provide constant open communication throughout the course of the work order so issues can be dealt with in real-time, with proper context and understanding. Greg and his team will employ the following steps to resolve issues:

» When a work order is assigned, regardless of which firm is leading, Greg will facilitate the contract negotiations and review the contract including schedule, deliverables, and key assumptions.

» Greg will monitor schedule and budget expenditures monthly, or weekly, to ensure the work order is proceeding according to WSDOT’s expectations. Greg will meet regularly with the task and WSDOT leads to stay apprised of project happenings and be able to step-in to provide support when needed. This approach allows Greg to be responsive in issue resolution before they adversely affect the schedule or budget.

» When Greg identifies or hears of a potential issue, he will be proactive finding solution(s) to minimize impacts to the budget and schedule. This would likely involve immediate meetings with task lead and WSDOT to determine root cause and develop mitigating solutions. Potential solutions could be to provide additional expertise or staff or replace under-performing staff. With an extremely deep bench of structural engineers from these three firms, Greg will have a tremendous amount of support to deal with and correct issues immediately.

» Lastly, all three firms were selected based on a wealth of WSDOT technical expertise. Greg is confident that team will be able to quickly and decisively deal with any issues when they arise. Greg will lead this charge and ensure the end product meets all of WSDOT’s technical goals within budget and schedule.
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