



**BRIEFING: JUNE 14, 2016 BOARD MEETING AGENDA ITEM #3**

**TO: Chairman Richard and Board Members**

**FROM: Scott Jarvis, Chief Engineer**

**DATE: June 14, 2016**

**RE: Consider Releasing a Request for Qualifications for Geotechnical Site Investigation Services in Silicon Valley to Central Valley Line**

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**Background**

The 2016 Business Plan identifies the Silicon Valley to Central Valley Line as the first operating section of the high-speed rail system. As outlined in the Business Plan, staff anticipates that there will be three to five significant design-build construction contracts in addition to the existing construction packages in the Central Valley. To prepare for the procurement of these large and complex construction contracts, staff recommends conducting geotechnical subsurface investigations in the Silicon Valley to Central Valley Line, specifically in the Northern California region from San Jose to Gilroy, through the Pacheco Pass into the San Joaquin Valley to Madera.

There are two fundamental levels of geotechnical investigations associated with the development of the high-speed rail system. The first level is work that is conducted to support environmental clearance. The second level is done in order to prepare for design and construction. The Authority's environmental and engineering consultant for this region, HNTB, is completing the level of investigation necessary for environmental clearance. The additional geotechnical investigation that is being recommended today will help the Authority prepare for design and construction in Northern California and, importantly, inform and support the procurement of the upcoming major construction packages in this region.

Specifically, the purpose of these investigations is to proactively identify geotechnical conditions in a region where the geography dictates the need for complex structures – including bridges, high viaducts and deep tunnels. Because all elements of the design of these structures are a function of ground conditions (particularly tunneling), the information derived from these investigations will yield valuable information to the Authority regarding potential risks and provide a tool for mitigating and managing those risks. This detailed geotechnical information will also provide the basis for further refinements to capital cost estimates and will be provided to future design-build proposers, allowing them to prepare more informed and accurate price

proposals by accounting for what otherwise would be unknown and unforeseen risks related to ground conditions.

Conducting these investigations prior to initiating the procurement process for these significant construction packages will position the Authority to be more completely prepared for those procurements. It will also allow the contractors to advance more quickly into final design and construction. The ability to advance and expedite this work is critical given that these complex structures have long lead times and are on the critical path for completing construction of the Silicon Valley to Central Valley line.

There are a number of factors to consider in determining the timing, extent and approach to conducting geotechnical investigations for design and construction. For example, for Construction Packages 1, 2-3 and 4 in the Central Valley, the Authority opted to defer these investigations and require that they be conducted by the design-build contractors. This was, in large part, based on the fact that these project sections are on relatively level terrain and do not involve particularly high viaducts or deep tunnels.

In contrast, the system in Northern California between San Jose and Merced will run through more irregular terrain, particularly in the Pacheco Mountains and the foothills to the west and east, which necessitates more complex structures. Designing and constructing these structures will require much greater understanding of subsurface conditions than is necessary for construction in level geographies, such as the Central Valley and the northern section through the San Joaquin Valley. The steep elevation changes between San Jose and both the western and eastern edges of the mountains will require high embankments of up to 80 feet and a number of high viaducts, some of which will be as high as 150 feet. The alignments under study through the Pacheco Mountains will involve a series of tunnels, some of which could be as deep as 1,000 feet below the surface.

Undertaking these geotechnical site investigations at this stage of project development, prior to procurement of the design-build contracts, will culminate in the preparation of a Geotechnical Baseline Report. This is standard and recommended practice in the industry and yields the following benefits to future construction package procurements:

- Ground conditions are defined, which establishes a consistent basis for bidding among proposers
- Risk contingencies can be reduced by the proposers in their price proposals (which can far exceed the value of the geotechnical investigation work on mega-construction projects)
- Allows the Authority to reduce contingencies carried forward for unknown underground conditions after the contract is awarded
- Contractors are able to rely on established geotechnical parameters for design which will enable them to start final design and begin ordering construction materials and equipment sooner, which will be key to achieving the schedule
- Contractors are able to properly prepare for ground conditions which avoids delays and enables more effective contract administration associated with differing site conditions

The estimate for completing these geotechnical investigations is \$28 million (not to exceed, see **Discussion** section below). It is expected that making this investment now, prior to procurement, will result in future price proposals that are lower by an equal or greater amount than the cost expended.

More specifically, future proposers will not be required to conduct these investigations and therefore the costs will not be included in their proposals. Providing future proposers with detailed information on ground conditions will lead to more informed and more accurate price proposals – with less of the proposal amount allocated to risk contingency. Because the cost associated with these investigations will be spread across multiple construction contracts, there is also potential for cumulative savings associated with providing this information to future proposers. This early investment is also expected to result in faster construction schedules than might otherwise be realized if all geotechnical investigations were deferred and required of the contractors. Depending upon the type of information generated by these investigations, the contractor may choose to perform additional and specific geotechnical investigations during the final design phase to fully inform its design.

### **Prior Board Action**

There have been no prior Board actions associated with this item.

### **Discussion**

Staff seeks Board approval to issue a Request for Qualifications (RFQ) to procure Geotechnical Site Investigation Services in the Silicon Valley to Central Valley Line. The RFQ will be issued and a three year contract will ultimately be awarded to the most qualified Offeror at fair and reasonable compensation with a not-to-exceed amount of \$28 million. The estimate covers work along approximately 113 miles from San Jose to Gilroy, through the Pacheco Pass into the San Joaquin Valley to Madera. The scope of work includes drilling, trenching, laboratory and field testing, geophysical surveys and associated permits, traffic control, spoils handling, hazardous materials assessments, seismic analysis, assessment of tunneling conditions, foundations analysis, water table analysis, slope stabilization, subsurface investigation plan, and preparation of geotechnical data and fault crossing displacement reports. The cost estimate was developed based on a detailed scope of work and assumptions related to labor, equipment and materials required to complete the work, and is based on the length of each section, miles of tunneling, number of grade separations, and the number and depth of borings.

For example, conducting a 1,000 deep boring in the Pacheco Pass alignment will be a complicated, time-consuming process. Before conducting the borings, specific sites need to be clearly identified and specific plans prepared, while advance planning and logistics will need to be organized and permits will need to be secured. The tunnel alignment will be accessible at some locations by truck-mounted drill rigs, however, in remote locations helicopters will be required to transport drill rigs, crews and supplies to the sites. Borings will be advanced to obtain a continuous rock core sample at each site. Each deep boring could take several weeks to complete. Completed boreholes will have various tests performed to measure several characteristics of the rock mass. The time required to conduct this on-site testing increases substantially with depth, as highly sensitive equipment must be repeatedly lowered and retrieved.

Specialized drill rigs required to obtain high quality rock cores needed for lab testing may need to be mobilized from out of state locations. This specialized equipment is necessary for lab testing and to produce accurate and reliable data.

The contract to be awarded will be managed by task orders that provide a detailed description of the services to be performed and the timeframe for the work to be performed. The contract will include both non-invasive and invasive geotechnical site investigations. Geotechnical site investigations will occur both on public right-of-way and on privately-owned land. The geotechnical consultant procured under this RFQ will be responsible for obtaining all requisite permits and/or approvals necessary to conduct these investigations in collaboration with the Rail Delivery Partner and with HNTB, the Authority's Environmental and Engineering Consultant for the San Jose to Merced project section.

The Rail Delivery Partner will provide the overall direction for the geotechnical investigations and will manage the geotechnical consultant on behalf of the Authority. The consultant will rely on Geotechnical Investigation Plans (Plans) that will be used to guide and conduct the geotechnical investigations. These activities will result in the preparation of a Geotechnical Baseline Report that will be used as a tool to procure and administer the construction contracts.

#### *Procurement Process*

This is a qualification based contract and the procurement will be governed by Architecture & Engineering (A&E) procurement requirements. The Authority will proceed in accordance with Government Code section 4525, et seq., the Authority's regulations, Board policies for RFQs, and other applicable state and federal requirements.

#### *Procurement Schedule*

The anticipated schedule for the procurement is as follows:

Issue Request for Qualifications	June 15, 2016
Industry Forum/Pre-Bid Conference	June 29, 2016
Deadline for Offeror Questions regarding the RFQ	June 30, 2016
SOQ Due Date	July 15, 2016
Discussions	July 27-28, 2016
Final Ranking of Teams	July 29, 2016
Contract Negotiations	August 9, 2016
Notice to Proceed	September 27, 2016

#### *Scope of Work*

The geotechnical consultant is anticipated to provide services to the Authority as follows: site reconnaissance; coordination with Federal, State, and Local Agencies for permit applications (such as drilling permits, utility clearance, etc.); access for drilling and field testing; traffic control and management; collecting geotechnical and hydrologic data through drilling, field and laboratory testing, geologic mapping, fault trench logging, and geophysical investigations; furnishing piezometer monitoring equipment; installing piezometers and collecting groundwater levels from piezometers; furnishing inclinometer monitoring equipment; installing inclinometers and measuring ground movements from inclinometers; compiling geotechnical and hydrological data; surveying of exploration locations and determination of as-built locations and elevations;

preparation of boring location plans; developing Logs of Test Borings; and, preparation of Geotechnical Data Reports and Fault Crossing Displacement Reports.

The full extent of the work required, as noted in the previous paragraph, was considered in developing the cost estimate. It is anticipated that up to 480 locations will be selected with an average investigation depth of 600 feet below the surface. Of those 480 locations, 340 are anticipated to be borings, with some as deep as 1,600 feet below the surface, while the rest will be for performing other subsurface investigation testing. On average, this is about one location every 1,300 feet, or four football fields spacing between locations. The basis of the total cost estimate includes the site-specific costs at these 480 locations, along with the other services described in the scope of work in the previous paragraph. The majority of the total estimate of the investigation costs is for the 24-mile long Pacheco Pass segment where deep, long tunnels are planned. In this segment the borings will be drilled at a greater frequency and depth than the other areas of the Northern California alignment.

Any services to be provided by the successful Offeror shall only be performed pursuant to a task order and/or workplan that provides a detailed description of the services to be performed, and the time for the work to be performed. Task orders shall state, as applicable, the method of compensation, time and materials, fixed price and/or, not-to exceed compensation for satisfactory performance.

The Geotechnical Investigation Plans will show the locations and depths of the investigations with regard to the proposed alignment(s) and will be used by the geotechnical consultant to guide the site investigations. The Authority or its designated representative will assist the geotechnical consultant in obtaining requisite approvals (e.g., Special Use Permits) and assist the consultant where necessary.

The entire scope of work is provided in more detail in the RFQ and accompanying draft contract, which is provided to the Board with this memorandum.

#### *Procurement Evaluation and Criteria*

The RFQ process will be coordinated by the Authority. Statements of Qualifications (SOQ) submitted by the offeror teams will be reviewed by the Authority to ensure that all requisite qualifications and requirements are met. The SOQ will then be technically evaluated by the Authority pursuant to established criteria in Attachment B of the RFQ, which include the following:

<b>NOTE: These criteria are 60% of the final score</b>		<b>Maximum Score</b>	<b>Actual Score</b>
1.	<b>PAST PERFORMANCE AND EXPERIENCE</b> <ul style="list-style-type: none"> <li>Has the Offeror successfully delivered on past projects of similar scope and complexity?</li> </ul>	30	
2.	<b>ORGANIZATION AND KEY PERSONNEL</b> <ul style="list-style-type: none"> <li>Does the proposed project organization present a clear and logical framework?</li> <li>Does the management approach reflect an integrated team, responsive to the RFQ requirements?</li> <li>Does it demonstrate a high level of commitment and resource availability?</li> <li>Does it address the full expanse of potential tasks in the scope?</li> </ul> <b>KEY PERSONNEL AND ROLES</b> <ul style="list-style-type: none"> <li>Are the personal qualifications and professional skills of the project manager, senior professionals and Key Personnel nominees appropriate for the roles assigned?</li> <li>Is their past experience applicable and indicative of success on this project?</li> <li>Does the project manager have sufficient authority within their organization to effectively lead and manage the project?</li> </ul>	30	
3.	<b>UNDERSTANDING OF PROJECT REQUIREMENTS</b> <ul style="list-style-type: none"> <li>Has the Offeror demonstrated a thorough knowledge of the project?</li> <li>Is there sufficient evidence of analysis to lend credibility to the commitments made?</li> <li>Has the Offeror given clear evidence through narratives and examples of prior work that it has the capability to carry out the Geotechnical Site Investigation Services for a project of this complexity and magnitude with innovation and autonomy?</li> </ul>	30	
4.	<b>SMALL BUSINESS PARTICIPATION</b> <ul style="list-style-type: none"> <li>Does the approach to Small Business utilization demonstrate the Offeror's responsiveness in meeting the Authority's Small Business goal objectives?</li> </ul>	10	
<b>Total SOQ Score</b>		<b>100</b>	
<b>Total Weighed Score with 60% Weighting Factor (SOQ Score x 0.6)</b>		<b>60</b>	

This evaluation will be followed by oral discussions, which will be evaluated by the Authority pursuant to the following criteria in Attachment C of the RFQ:

<b>NOTE: These criteria are 40% of the final score</b>		<b>Maximum Score</b>	<b>Actual Score</b>
1.	<b>PRESENTATION</b> <ul style="list-style-type: none"> <li>• Quality and appropriateness of the presentation</li> <li>• Logic of the chosen speakers relative to project challenges</li> <li>• Project Manager control over the team</li> </ul>	25	
2.	<b>PROJECT MANAGER PARTICIPATION</b> <ul style="list-style-type: none"> <li>• Clear and responsive answers to questions</li> <li>• Understanding of Geotechnical Site Investigation Services challenges and requirements</li> <li>• Perceived level of involvement with SOQ structure, content and presentation plan</li> </ul>	25	
3.	<b>KEY STAFF PARTICIPATION</b> <ul style="list-style-type: none"> <li>• Clear and responsive answers to questions</li> <li>• Understanding of assignment challenges and requirements</li> <li>• Perceived level of involvement with SOQs preparation</li> <li>• Demonstration of an integrated team displaying awareness and understanding of the project.</li> </ul>	25	
4.	<b>UNDERSTANDING OF PROJECT</b> <ul style="list-style-type: none"> <li>• Does Offeror convey an understanding of the critical project success factors?</li> <li>• Is the Offeror able to provide evidence of successful small business utilization for this project?</li> <li>• Is the Offeror able to provide evidence of prior project experience, including lessons learned or challenges, with projects of this magnitude and complexity?</li> </ul>	25	
<b>Total Discussions Score:</b>		<b>100</b>	
<b>Total Weighted Discussion Score with 40% Weighing Factor (Discussion Score x 0.4)</b>		<b>40</b>	

At the conclusion of the SOQ review and the Discussions, the Evaluation/Selection Committee will rank the Offerors on the basis of total weighted SOQ score (60 percent) plus total weighted Discussion score (40 percent), and recommend to the CEO the offeror with the highest final score for award of the contract, as detailed below.

<b>Total Score for Statement of Qualifications and Discussion</b>	<b>Maximum Score</b>	<b>Actual Score</b>
<b>Total Weighted SOQ Score</b>	<b>60</b>	
<b>Total Weighted Discussion Score</b>	<b>40</b>	
<b>Final Score</b>	<b>100</b>	

The resulting contract issued for Geotechnical Site Investigations Services include the Board's adopted 30 percent Small Business participation goal.

**Legal Approval**

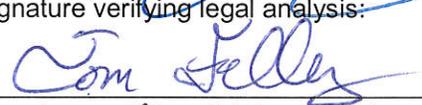
Chief Counsel’s office concurs with the requested RFQ and affirms the Authority’s ability to issue this RFQ and resulting contract under its A&E regulations, policies, and state contracting law.

**Budget Implications**

The funds associated with this request include state and federal funds and are provided for in the project budget as a component of the Project Development tasks for the Silicon Valley to Central Valley Line. This request is consistent with the cost projections contained in the Authority’s 2016 Business Plan.

**Recommendations**

It is recommended that the Board adopt the Resolution approving issuance of a Request for Qualifications to obtain Statement of Qualifications from qualified offerors to provide Geotechnical Site Investigation Services, in order to select one consultant to enter into a contract for the work for a term of three years and a not-to-exceed contract amount of \$28,000,000.

REVIEWER INFORMATION	
Reviewer Name and Title: <b>Russell Fong, CFO</b>	Signature verifying budget analysis: 
Reviewer Name and Title: <b>Tom Fellenz, Chief Counsel</b>	Signature verifying legal analysis: 
Reviewer Name and Title: <b>Scott Jarvis, Chief Engineer</b>	Signature verifying division analysis: 

**Attachments**

- Draft Resolution #HSRA 16-17
- Final Draft Request for Qualifications for Geotechnical Site Investigation Services in Silicon Valley to Central Valley Line