Agenda Item No. (5)

To: Building and Operating Committee/Committee of the Whole
Meeting of February 25, 2021

From: John R. Eberle, Deputy District Engineer
      Ewa Z. Bauer-Furbush, District Engineer
      Denis J. Mulligan, General Manager

Subject: APPROVE ACTIONS RELATIVE TO THE AWARD OF PROFESSIONAL SERVICES AGREEMENT, (PSA) NO. 2020-B-053, BRIDGE INSPECTION SERVICES, TO HDR ENGINEERING, INC.

Recommendation
The Building and Operating Committee recommends that the Board of Directors approve the following actions relative to the Professional Services Agreement (PSA) No. 2020-B-053, Bridge Inspection Services:

1. Award PSA No. 2020-B-053, to HDR Engineering, Inc., Walnut Creek, CA, in an amount not to exceed $9,063,000, to perform two cycles of the 23 CFR 650 mandated bridge inspections at the Golden Gate Bridge; and,

2. Establish a 10% contingency for PSA No. 2020-B-053 in the amount of $906,300;

with the understanding that sufficient funds are available in the Fiscal Year (FY) 2020/21 Bridge Division Operating Budget to finance the estimated $1,200,000 FY 2020/21 expenses under PSA No. 2020-B-053.

This matter will be presented to the Board of Directors at its February 26, 2021, meeting for appropriate action.

Summary
Title 23—Highways, Code of Federal Regulations, part 650, subpart C, National Bridge Inspection Standards (NBIS), sets the national standards for inspection and evaluation of all highway bridges. The Golden Gate Bridge, Highway and Transportation District (District) is required to comply with the bridge inspection requirements set forth in 23 CFR 650 in order to receive federal funding for Bridge projects.

In accordance with 23 CFR 650, bridge owners are required to perform inspections of all bridge structural members every two years, except for the underwater portions of bridges that must be inspected every 5 years. There are four types of bridge inspections applicable to the existing bridges: (1) Fracture Critical Member Inspection, (2) Special Close Up (In-Depth) Bridge Inspection, (3) Routine Bridge Inspection, and (4) Complex Bridge Element Inspection.
A Fracture Critical Member (FCM) is defined as a steel member in tension or with a tension element whose failure would probably cause a portion or the entire bridge to collapse. The Fracture Critical Member Inspection of all bridge FCMs must be performed no more than an arm’s length distance from the member to be inspected. Non-FCMs, including Complex Bridge Elements, are subject to biennial inspections. Complex Bridge Elements of the Golden Gate Bridge include main cable bands, rocker-links, and special devices such as energy dissipation devices and force impact resisting devices. The Routine Bridge Inspections and the Complex Bridge Element Inspections must be performed from such a distance that allows a visual assessment of their condition. Some of the non-FCMs can be, if needed, subjected to an in-depth Special Close Up Inspection to provide more detail assessment of their condition and any required repairs.

23 CFR 650 also requires that a load rating analysis using the latest standards be performed to determine the safe load carrying capacity of a structure. The load rating must be updated when there are any changes affecting load carrying capacity of a structure and if there are any other FHWA required loading changes. The District last performed a load rating for the Golden Gate Bridge in 2015. Since 2015, FHWA has revised the load rating guidelines to require structures be analyzed for two new vehicle loads. In addition, the 2015 load rating did not include the loading from the suicide deterrent system. Due to these changes, the District is required to update the structure load rating and to report the new values to FHWA. The load rating work entails: 1) revisiting the load rating calculations performed in 2015 to include the weight of the suicidal deterrent system; 2) analyzing the structure with the revised weights and newly adopted vehicles in addition to design, legal and permit vehicles; 3) computing new number load rating; and 4) submitting a final load rating summary sheet to FHWA. The load rating analysis will be performed during the 2023/24 inspection cycle.

District’s engineering staff have been performing the Fracture Critical Member Inspections and the Special Close Up Inspections of those bridge members that are accessible from existing bridge access platforms and maintenance travelers, and the Routine Inspections and Complex Bridge Element Inspections of those bridge members that can be assessed from a more far away distance, if necessary with binoculars. In addition to the FCMs that are not readily accessible within an arm’s distance, there are a number of areas on the Bridge that are not readily accessible to perform the Special Close Up Inspections, Complex Bridge Element Inspections and the Routine Inspections by the Engineering staff and must be inspected by qualified and certified personnel using rope climbing access techniques. In the past, the District retained a professional engineering consultant firm with personnel certified in the use of rope climbing access techniques to access and inspect these areas.

The District’s engineering staff has identified the FCMs of the Golden Gate Bridge that, every two years, must undergo the Fracture Critical Member Inspection, and those non-FCMs that, for a specific inspection cycle, must undergo the Special Close Up Inspection. A total of 614 Golden Gate Bridge members have been designated as FCMs, which include the Suspension Bridge floor beams and the entire length of the two Main Cables; the South and North Approach Viaduct girders, floor beams, truss chords and truss diagonals; and, the Fort Point Arch floor beams.

Engineering staff has also identified certain non-FCM bridge members, which, due to lack of conventional access to assess their condition, must be inspected using rope access system as part of the Routine Inspections and, if required, Special Close Up Inspections. These elements include
the South Approach Viaduct Girder Span steel diaphragms; the Fort Point Arch steel pedestals located on top of the floor beams; the entire Suspension Bridge stiffening trusses, underside of steel orthotropic deck and steel pedestals located on top of the floor beams; Strut 5 at the South and North Towers; and, non-destructive testing of the Suspension Cable eye-bar pins.

During previous inspection cycles, Engineering staff utilized the existing Suspension Bridge maintenance travelers to access and inspect the bridge members on this structure. Due to the ongoing construction of the Golden Gate Physical Suicide Deterrent System project, the existing Suspension Span maintenance travelers are no longer available for the District’s use so for the next two bridge inspection cycles, all Suspension Bridge inspections must be performed by a consulting firm certified in using rope climbing access techniques, in addition to inspections of the not readily accessible areas on other structures of the Bridge. These inspections may require non-destructive testing and additional investigation of elements, including structural analysis, to define the impact of conditions found during the inspections on load bearing capacity of the investigated members. It is also proposed that, on a trial basis, in addition to the rope inspection method, the consultant will utilize an Unmanned Aircraft System (UAS) for the Routine Inspection of the Suspension Bridge North Back Span stiffening trusses to test the reliability of the UAS inspection method.

The District does not have in-house rope climbing expertise, non-destructive testing expertise or computer modeling capacity to perform the load rating analysis and must contract with an outside consultant to perform the field inspections of the Bridge areas not accessible through conventional methods and other work that must be accomplished during the next two cycles, 2021/22 and 2023/24, of bridge inspections.

On November 4, 2020, the District advertised on its website and sent to 128 firms a Request for Statement of Qualifications and Proposals, RFQ/RFP No. 2020-B-053, Bridge Inspection Services, to professional consultants specializing in inspection of bridges using specialized rigging and rope access techniques. A pre-proposal meeting was held on November 17, 2020 at the Bridge with representatives from the District’s Engineering Department and Disadvantaged Business Enterprise (DBE) Program Administrator. A total of 11 people representing 5 firms attended the meeting. A total of 36 firms downloaded the documents from the District website.

By the due date of December 8, 2020, the Office of the District Secretary received proposals from one consulting firm as follows:

HDR Engineering, Inc., Walnut Creek, CA

Representatives from the Engineering Department and a representative from Caltrans Structures Maintenance and Investigations/Toll Bridges, as well as the District’s DBE Program Administrator and District’s Attorney, reviewed the proposal and determined that it was responsive to the solicitation requirements.

The District’s selection committee, consisting of one Supervising Civil Engineer, two Senior Civil Engineers, and the Caltrans representative, reviewed the proposal’s response to the selection criteria specified in the RFQ/RFP, including the qualifications and experience of the consultant team, the consultant’s project understanding and methodology of providing the requested services, and consultants’ capabilities, including their records of successfully performing similar work, and determined that HDR Engineering, Inc., has the qualifications and experience necessary to perform these services. The District Engineer concurs with this finding.
The consultant’s scope of services will include two bridge inspection cycles (one to begin in 2021 and one to begin in 2023) each consisting of:

(i) designing, furnishing, installing and utilizing rope climbing access systems at the multiple inspection locations on the Bridge;

(ii) Fracture Critical Bridge Inspection;

(iii) Routine Bridge Inspection;

(iv) Special Close Up Inspection, including performing non-destructive testing of nine (9) main cable eye bars and pins in each anchorage house;

(v) testing of the UAS inspection method;

(vi) performing, on an as needed basis, non-destructive testing of bridge members to be determined by the District;

(vii) performing structural analysis of any areas of concern found during the inspections;

(viii) preparing inspection reports; and,

(ix) performing a load rating of the entire Bridge during the second bridge inspection cycle.

In accordance with Section V, Competitive Negotiations, of the District’s Procurement Manual, in the event that the District receives only one proposal in response to an RFQ/RFP, the selection committee shall conduct a cost analysis to determine whether the compensation proposal is fair and reasonable. Following the procedures in the RFQ/RFP, staff requested a cost proposal from HDR Engineering, Inc., and conducted a cost analysis, comparing the cost proposal to the District’s cost estimate for the services. After performing the analysis and reviewing the cost proposal, staff negotiated a total not-to-exceed price of $9,063,000 for the services. Staff has determined that this not-to-exceed price is fair and reasonable based on the scope of work and historic cost data of bridge inspection services provided by consultants on previous Golden Gate Bridge Inspection contracts.

A Small Business Enterprise (SBE) contract-specific goal of 2% was established for this RFP. The DBE Program Administrator has determined HDR Engineering, Inc., has met the 2% SBE goal and is responsive to the District’s DBE/SBE requirements for this contract. At this time, 6% SBE participation is anticipated, including 2.8% DBE participation, during the performance of this contract.

Staff recommends that the Building and Operating Committee recommend to the Board of Directors an award of Professional Services Agreement (PSA) No. 2020-B-053, Bridge Inspection Services, to HDR Engineering, Inc., for a not-to-exceed price of $9,063,000, and an establishment of a 10% contingency in the amount of $906,300 for this PSA for any additional scope that may develop while work proceeds. The consultant will be compensated based upon actual time expended and expenses incurred, plus a fixed fee within the authorized not-to-exceed amount.
Fiscal Impact

The total estimated cost of services under PSA No. 2020-B-053, *Bridge Inspection Services*, is $9,969,300, which includes the not to exceed authorized PSA amount of $9,063,000 and contingency in the amount of $906,300. This project is 100% District funded.

It is estimated that approximately $1,200,000 of the project budget will be expensed in FY 2020/21, approximately $3,000,000 will be expensed in FY 2021/22, approximately $2,800,000 will be expensed in FY 2022/23 and approximately $2,063,000 will be expensed in FY 2023/24. Currently there is $800,000 earmarked in the Bridge Division Operating Department for this activity. The remaining estimated $400,000 will be absorbed from the FY 2020/21 Bridge Division Operating Budget using expected projected budget savings.