





# Memorandum

**Date:** 12.03.14 **RE:** Finance Committee  
December 9, 2014

**To:** Finance Committee: Commissioners Cohen (Chair), Wiener (Vice Chair), Farrell, Tang and Avalos (Ex Officio)

**From:** Lee Saage – Deputy Director for Capital Projects 

**Through:** Tilly Chang – Executive Director 

**Subject:** **ACTION** – Recommend Increasing the Amount of the Professional Services Contract with WMH Corporation by \$5,400,000, for a Total Amount Not to Exceed \$11,300,000 to Complete Preliminary Engineering, Environmental Analysis, and Design Services for the Yerba Buena Island Bridge Structures and Authorizing the Executive Director to Modify Non-Material Contract Terms and Conditions

## Summary

As the Congestion Management Agency for San Francisco, we are working jointly with the Treasure Island Development Authority (TIDA) on the I-80/Yerba Buena Island (YBI) Interchange Improvement Project, which includes the seismic retrofit of the YBI Bridge Structures on the west side of the island. Under the Memorandum of Agreement between the Transportation Authority and TIDA, consultant contract work for engineering and environmental services is managed and administered by the Transportation Authority. As part of continued preliminary engineering and design efforts and as required by federal funding, a Value Engineering Analysis (VA) Report was prepared in February 2014. The VA team's primary recommendation is to realign Hillcrest Road into the hillside utilizing several retaining walls; construction of a new realigned eastbound I-80 off-ramp bridge structure; and elimination of existing Structures #2, #3 and #6. The structures to be retrofitted (#1, 4, 7A, 7B, and 8) remain largely the same; however approach roadways, slopes, etc. are also affected. The VA Report estimates that the proposed change in scope will result in a \$9 million overall project cost savings compared to the current environmentally approved alternative. Implementation of the VA Report Alternative will also improve seismic performance, simplify construction efforts, minimize maintenance cost and is preferred by TIDA. The introduction of the VA Alternative will require additional engineering and environmental analysis to be performed. Amendment of the WMH Corporation contract is contingent on the approval of additional federal funding. TIDA has the responsibility to reimburse the Transportation Authority for all costs on the project that are not reimbursed by federal or state funds and also provides the required local match. **We are seeking a recommendation to increase the amount of the professional services contract with WMH by \$5,400,000, for a total amount not to exceed \$11,300,000, to complete preliminary engineering, environmental analysis, and design services for the YBI Bridge Structures and authorize the Executive Director to modify non-material contract terms and conditions.**

## BACKGROUND

In our capacity as the Congestion Management Agency for San Francisco, we are working jointly with the Treasure Island Development Authority (TIDA) on the I-80/Yerba Buena Island (YBI) Interchange Improvement Project, which includes the seismic retrofit of the YBI Bridge Structures on the west side of the island. Under the Memorandum of Agreement (MOA) between the Transportation Authority and TIDA, consultant contract work for engineering and environmental services is managed and administered by the Transportation Authority. TIDA has the responsibility to reimburse the Transportation Authority for all costs for the I-80/YBI Interchange Improvement Project that are not reimbursed by federal and state funds and also provides the required local match.

On December 14, 2010, through Resolution 11-28, the Transportation Authority awarded a two-year professional services contract to WMH Corporation, in an amount not to exceed \$1,600,000, for preliminary engineering and environmental analysis services for the YBI Bridge Structures.

On February 28, 2012, through Resolution 12-34, the Transportation Authority increased the amount of the professional services contract with WMH Corporation by \$4,300,000 for a total amount not to exceed \$5,900,000.

The purpose of this memo is to seek a recommendation to increase the amount of the professional services contract with WMH Corporation by \$5,400,000, for a total amount not to exceed \$11,300,000, to complete preliminary engineering, environmental analysis and design services for the YBI Bridge Structures and authorize the Executive Director to modify non-material contract terms and conditions.

## **DISCUSSION**

Consistent with the MOA between the Transportation Authority and TIDA for the I-80/YBI Improvement Project, we have undertaken the procurement and management of professional consultant services to provide the necessary engineering and environmental services to produce all necessary documents required to prepare the Seismic Strategy Reports, environmental documentation, and design for YBI Bridge Structures on the west side of the island. There are a total of eight (8) bridge structures being studied. These bridge structures are a vital component of the YBI traffic circulation system and also serve as an important part of the on and off-ramp system to I-80 and the San Francisco Bay Bridge.

The initial scope of work for the WMH Corporation contract included the preparation of Seismic Strategy Reports for all eight bridge structures. These reports were approved by the California Department of Transportation (Caltrans) Structures Department in December 2011. The approved reports indicated that five of the bridge structures should be retrofitted in place while three of the bridge structures were recommended for replacement.

Separate environmental documents Categorical Exclusions per the National Environmental Protection Act (NEPA) and Categorical Exemptions per the California Environmental Quality Act (CEQA) for each of the eight bridges were approved in December 2012.

As part of continued preliminary engineering and design efforts and as required by federal funding a Value Engineering Analysis (VA) Report was prepared in February 2014 in consultation with TIDA, the San Francisco Department of Public Works (SFDPW), and independent construction experts. The VA team made various recommendations for the Transportation Authority's and TIDA's consideration to reduce overall project risk and cost. The VA team's primary recommendation is to realign Hillcrest Road into the hillside utilizing several retaining walls; construction of a new realigned eastbound I-80 off-ramp bridge structure; and elimination of existing Structures #2, #3 and #6. The structures to be retrofitted (#1, 4, 7A, 7B, and 8) remain largely the same; however approach roadways, slopes, etc. are also affected. The recommended VA Report Alternative estimated at \$66 million will save approximately \$9 million compared to the environmentally approved alternative estimated at \$75 million. Implementation of the VA Report Alternative will also improve seismic performance, simplify construction efforts, minimize maintenance cost and is preferred by TIDA and SFDPW. Caltrans approved the VA Report in November 2014.

The introduction of the VA Alternative will require additional engineering and environmental analysis to be performed. All work necessary to prepare the required technical analysis will be performed in accordance with current Caltrans and Federal Highway Administration (FHWA) policies and procedures.

The proposed milestone project schedule is shown below:

- Notice to Proceed December 2014
- Environmental Approval March 2016
- PS&E Completion December 2016
- Construction Start March 2017
- Construction Completion Summer 2019

TIDA has requested that the Transportation Authority proceed with engineering, environmental and design activities and amend the WMH Corporation contract to direct the preparation of the appropriate documents. The amendment of the WMH Corporation contract for preliminary engineering, environmental analysis and design is contingent on the approval of additional federal HBP funding. The Transportation Authority will be reimbursed for eligible preliminary engineering and design costs with a combination of TIDA and federal funds. TIDA funds will leverage the federal grant award and fulfill the local match requirement.

Since a portion of this contract is anticipated to be funded with federal financial assistance from FHWA, administered by Caltrans, the Transportation Authority will adhere to federal regulations pertaining to disadvantaged business enterprises (DBE). To date WMH Corporation has maintained 11% DBE participation from four sub-consultants: women-owned firms, ABA, David J. Powers and Associates, Inc. and Haygood & Associates Landscape Architects; and Asian Pacific-owned firm, Earth Mechanics, Inc. ABA is also based in San Francisco.

The proposed amendment to WMH Corporation would increase the existing \$5,900,000 contract amount by a maximum of \$5,400,000, to an amended total not to exceed \$11,300,000. It would extend the existing contract through the approval of the additional environmental analysis, preliminary engineering and final Plans, Specifications and Estimate. It is anticipated that the professional services contract will be extended to March 31, 2017.

**We are seeking a recommendation to increase the amount of the professional services contract with WMH Corporation by \$5,400,000 for a total amount not to exceed \$11,300,000 to complete preliminary engineering, environmental analysis, and design services for the YBI Bridge Structures and authorize the Executive Director to modify non-material contract terms and conditions.**

## **ALTERNATIVES**

1. Recommend increasing the amount of the professional services contract with WMH Corporation by \$5,400,000, for a total amount not to exceed \$11,300,000 to complete preliminary engineering, environmental analysis, and design services for the YBI Bridge Structures and authorizing the Executive Director to modify non-material contract terms and conditions, as requested.
2. Recommend increasing the amount of the professional services contract with WMH Corporation by \$5,400,000, for a total amount not to exceed \$11,300,000 to complete preliminary engineering, environmental analysis, and design services for the YBI Bridge Structures and authorizing the Executive Director to modify non-material contract terms and conditions, with modifications.
3. Defer action, pending additional information or further staff analysis.

## **CAC POSITION**

The item was included on the consent calendar for the December 3, 2014 CAC meeting. The CAC unanimously adopted a motion of support for the staff recommendation.

## **FINANCIAL IMPACTS**

Under the MOA between TIDA and the Transportation Authority, TIDA will reimburse the Transportation Authority for all project costs and accrued interest, less state or federal government reimbursements to the Transportation Authority. Award of this contract amendment is subject to Caltrans' approval of an additional \$3,660,000 of federal HBP funds from Caltrans for reimbursement of preliminary engineering and design services costs, anticipated in late December 2014. A portion of the proposed contract amendment will be included in the Transportation Authority's mid-year budget amendment. Sufficient funds will be included in next fiscal year's budget to cover the cost of this contract.

## **RECOMMENDATION**

Recommend increasing the amount of the professional services contract with WMH Corporation by \$5,400,000, for a total amount not to exceed \$11,300,000 to complete preliminary engineering, environmental analysis, and design services for the YBI Bridge Structures and authorizing the Executive Director to modify non-material contract terms and conditions.

Attachment:

1. YBI Bridge Structures Contract Amendment Scope of Services

## **SCOPE OF SERVICES**

### **YBI WEST-SIDE BRIDGES RETROFIT PROJECT (VALUE ANALYSIS PROJECT & BRIDGE RETROFIT PROJECTS #1, 4, 7A, 7B AND 8)**

#### **PRELIMINARY ENGINEERING, ENVIRONMENTAL APPROVAL and FINAL DESIGN (Final PS&E)**

### **INTRODUCTION**

This Scope of Services is to provide preliminary engineering, environmental approval and final design (PS&E) services for the Yerba Buena Island West-Side Bridges Retrofit Project (Project), located along Treasure Island Road on Yerba Buena Island (YBI), in the City and County of San Francisco. This Scope of Services reflects the changes in the project resulting from a thorough value engineering and value analysis study process.

The original “environmentally approved” Project involved the seismic retrofit of five bridge structures and the replacement of three bridge structures, as well as associated roadway and slope improvements. The “environmentally approved” project was in the 65% PS&E phase of project development when the Value Analysis process was performed. WMH performed the Value Analysis (VA) Study consistent with Federal Highway Administration (FHWA) requirements for Structure #2. The total project cost for replacement of Structure #2, including preliminary engineering and estimated construction costs, was estimated to be greater than \$20 million. For projects in this cost range, the FHWA requires that a VA Study be performed to determine if there are reasonable ways to reduce the project costs. The VA Team identified an alternative that completely revised all three replacement structures. WMH performed preliminary engineering analysis for the VA Alternative and determined that construction cost savings would be realized compared to the original “environmentally approved” alternative. This Project is now proceeding with the VA Alternative.

The Project that will now be delivered is the “Value Analysis” Project. The Value Analysis Project proposes to realign Hillcrest Road into the hillside utilizing several retaining walls; constructs a new realigned eastbound I-80 off-ramp bridge structure; and eliminates existing Structures #2, #3 and #6. The structures to be retrofitted (#1, 4, 7A, 7B, and 8) remain largely the same; however the approach roadways, slopes, etc are affected.

To deliver the Value Analysis Project, additional preliminary engineering will be required, and the environmental technical reports and environmental documents will need to be updated and resubmitted for approval. The design of the five retrofit structures (#1, 4, 7A, 7B, and 8) is 65% complete; all of this work will carry forward. The design of new Retaining walls and the Replacement Bridge will be entirely new design. Roadway design is almost all new. However, some of the preliminary engineering effort can be utilized such as field surveys, existing drainage and utility information, etc; these items will require supplemental effort for new areas of the project that are outside of the original boundaries.

The objective of this Project Scope of Services is to obtain environmental approval and prepare Construction Bid Documents (Plans, Specifications and Estimates) to Final level of completion for the comprehensive Project.

Due to Federal funding requirements, this Project will be comprised of six (6) individual projects; each bridge is an individual project. However, it is assumed that these projects will be administered as one construction contract, with six individual construction cost estimates (one for each bridge project) for tracking purposes.

## **SCOPE OF THE AGREEMENT**

### Project Elements to be designed:

- Replacement Bridge for the EB I-80 off-ramp Bridge Structure that includes a realigned EB I-80 off-ramp and new signalized intersection at Hillcrest Road
- New Retaining Wall along the uphill side of Hillcrest Road (Retaining Wall #1)
- New Retaining Wall along Treasure Island Road - north of the new EB I-80 off-ramp intersection (Retaining Wall #2)
- New Retaining Wall along Hillcrest Road - south of the new EB I-80 off-ramp intersection (Retaining Wall #3)
- New Retaining Wall along the WB I-80 on-ramp adjacent to Hillcrest Road (Retaining Wall #4)
- Seismic Retrofit of Bridge Structure #1
- Seismic Retrofit of Bridge Structure #4
- Seismic Retrofit of Bridge Structure #7A
- Seismic Retrofit of Bridge Structure #7B
- Seismic Retrofit of Bridge Structure #8
- Roadway Improvements at Treasure Island Road
- Roadway Improvements at Hillcrest Road
- Demolition of Bridge Structure #2
- Demolition of Bridge Structure #3
- Demolition of Bridge Structure #6

### Services to be performed include:

- TASK 12            Project Management
- TASK 13            Preliminary Engineering
- TASK 14            Environmental Approval
- TASK 15            Finalize Design of Retrofit Structures #1, 4, 7A, 7B and 8
- TASK 16            65% PS&E

- TASK 17            95% PS&E
- TASK 18            100% PS&E
- TASK 19            Final PS&E
- TASK 20            Right of Way Certification

## **SCHEDULE**

The project schedule milestone dates are as follows:

- Notice to Proceed            December 2014
- Environmental Approval        March 2016
- PS&E Completion            December 2016
- Construction Start            March 2017

### **12.0 TASK 12. PROJECT MANAGEMENT**

The CONSULTANT will provide project management of each task for the entire duration of the project. Management activities will consist of administration, coordination, scheduling, meeting attendance, and quality control as stated in the following:

- 12.1 Project Management/ Administration /Filing - Supervise, coordinate and monitor planning and design for conformance with the City and County of San Francisco’s (CCSF) standards and policies. The CONSULTANT will maintain Project Files in accordance with CALTRANS’ Uniform Filing System and, when applicable, CALTRANS’ Bridge Memo to Designers.
- 12.2 Agency/Subconsultant Coordination - Coordinate with subconsultants, adjacent project design teams and involved agencies to assure timely flow of information.
- 12.3 BCDC and RWQCB Coordination – CONSULTANT shall coordinate with the Bay Conservation Development Commission (BCDC) to position the Project for BCDC approval. It is assumed a Permit will be required due to the encroachment of drainage facilities into BCDC’s 100-foot shoreline band. Coordination will include approval from Engineering Criteria Review Board (ECRB), Design Review Board (DRB) and the full Commission. Additionally, CONSULTANT shall coordinate with the Regional Water Quality Control Board to work towards obtaining NPDES MS4 Compliance and Permit.
- 12.4 CPM Schedule - Prepare a detailed Critical Path Method (CPM) schedule for the entire project using Microsoft Project software. The Microsoft Project CPM schedule will be

- updated on a monthly basis. A four-week horizon schedule will also be provided at Project Development Team (PDT) meetings.
- 12.5 Quality Control - The CONSULTANT will implement a quality control procedure for engineering activities, perform in-house quality control reviews for each task, and submit project deliverables to SFCTA, CCSF and/or Caltrans for review in accordance with the approved schedule.
- 12.6 Project Funding: Tracking and Coordination – CONSULTANT shall prepare a plan and associated draft funding request documents to deliver the Project consistent with Federal Highway Bridge Program (HBP) and Prop 1B State Seismic Retrofit funding reimbursement requirements. CONSULTANT shall track and document Project expenditures to allow for obtaining eligible HBP and Prop 1B funds. CONSULTANT shall assist SFCTA in maximizing available HBP and Prop 1B funds for the Project.
- 12.7 PDT Meetings - Conduct monthly Project Development Team meetings. Meetings will include SFDPW, SFPUC, SFMTA, CCSF, SFCTA, and TIDA. This will include preparation and submittal of agenda, preparation and submittal of Data Request Logs, and preparation of meeting minutes for each PDT Meeting, distribution of meeting minutes and development of action items list. The agenda will be submitted prior to the meeting and the meeting minutes/action items will be submitted within one week after the meeting.
- 12.8 Technical Meetings – Coordinate and attend meetings such as design coordination meetings, workshop meetings, comment review sessions, and peer review meetings with SFCTA, CCSF, Caltrans and other agencies to resolve issues. Meetings will be held during performance of each task or as needed by the CONSULTANT, SFCTA, CCSF, Caltrans, or other agencies.
- 12.9 Stakeholder Briefings /Workshops – CONSULTANT shall coordinate, attend and direct meetings for stakeholder briefings and workshops as necessary. Stakeholders may include CCSF, SFPUC, SFWater, MTA, USCG, TIDA, Caltrans, and others.
- 12.10 Invoices/Progress Reports - Prepare and submit budget reports, monthly progress reports, updated schedules and invoices in accordance with SFCTA requirements.

Task 12 - Deliverables

- CPM schedule
- Meeting Materials
- Project Correspondence
- Progress Reports
- Invoices

Task 12 – Schedule



- Notice to Proceed is scheduled for December 2014

### **13.0 PRELIMINARY ENGINEERING**

This Task involves the effort necessary for preliminary engineering activities that are required due to the revised Value Analysis Project. Preliminary engineering activities that were performed previously, and are still useful and relevant, will be utilized.

This task consists of compiling and reviewing existing data pertinent to the Value Analysis Project, planning activities, identifying and requesting supplemental information and surveys, coordination with adjacent projects, obtaining information and requirements for utilities, right-of-way and permits, defining and refining the study alternative, preparing base mapping, preparing bridge advanced planning studies and preliminary structural analysis, performing traffic handling / stage construction studies, developing preliminary utility impacts, and preparing the preliminary cost estimate. CONSULTANT activities shall include, but are not limited to the following:

- 13.1 Data Collection and Review – CONSULTANT shall obtain and review available data and information necessary for planning and preliminary engineering of the Project. The information may be obtained from SFCTA, Caltrans, local agencies, utility owners, and other agencies and organizations. A data request log will be maintained to track data requested and obtained. Data to be reviewed includes the following:
- Previous plans, report(s) or documents related to the proposed project area
  - As-built plans
  - Utility information
  - Aerial photos and any available mapping, including digitized topography
  - Survey control data
  - Preliminary Layout Plans
  - Right-of-way information
  - Existing traffic information including traffic counts, information related to TOS, and bicycle and pedestrian information
- CONSULTANT shall obtain:
- An encroachment permit from CCSF to conduct site investigations to thoroughly explore existing site conditions
  - Permits to Enter private property will also be requested, if necessary, for site investigations
- 13.2 Access Permits and Field Review - The CONSULTANT will obtain Access Permits from Caltrans, the CCSF and affected property owners to conduct field studies and surveys. The CONSULTANT will thoroughly explore existing site conditions, take photographic records and verify topographic mapping features.

- 13.3 Topographic Surveys - Topographical field surveys will be performed to supplement the existing Project field surveys. Surveys will include hillside above Hillcrest Road, fences and access road, trees located within the Area of Potential Effect, pavement conform elevations, foundation locations and elevations, retaining walls and expansion joint conforms, drainage facilities, slope paving, fences, terrain obscured by ground cover, structures, and utilities.

All trees to be removed will be surveyed. The limit of tree removal has increased due to the need to provide additional contractor laydown and work areas. Also, the realignment of Hillcrest Road introduces more tree removal.

- 13.4 Base Mapping – Base mapping limits will be expanded to accommodate the Value Analysis Project. The additional Topographic Surveys will be integrated into the Project base mapping. New “original ground” surfaces will be produced with Digital Terrain Models that incorporate the additional survey information. Additional existing drainage facilities, utilities, trees, fences, walls, etc will be added to the base mapping.

- 13.5 Develop Roadway Geometrics - The CONSULTANT will develop roadway, bridge and retaining wall alignments, profiles and cross-sections. Hillcrest Road, Treasure Island Road, EB I-80 off-ramp, and WB I-80 on-ramp will be redesigned. Roadway design will be coordinated with the design of new proposed retaining walls, in an effort to minimize wall height.

Geometry for the proposed EB I-80 off-ramp / Hillcrest Road intersection will be developed in coordination with the bridge structural requirements, retaining walls, bike path, and agency representatives.

- 13.6 Preliminary Signing and Pavement Delineation – CONSULTANT shall develop preliminary signing and striping plans for final roadway configuration. These preliminary plan sheets are needed to reach consensus on the project alternative with project stakeholders.

This work will include signs on the San Francisco Oakland Bay Bridge for the EB I-80 off-ramp.

It is anticipated that variations signing and striping will be developed and discussed with MTA, SFDPW, TIDA and SFCTA. Bicycle routes and the Bus Ramp will be of particular interest.

- 13.7 Preliminary Drainage – CONSULTANT shall identify and evaluate existing drainage systems for locations uphill (north) of Hillcrest Road, and other areas affected by the Value Analysis project; this information will be combined with the current “existing drainage facilities” strip maps.

Due to the extent of the Value Analysis project changes, an entirely new preliminary concept for proposed drainage facilities will be required. Preliminary design developed for drainage facilities will include realigned Hillcrest Road; all retaining walls; “new bus only” on-ramp that exits from Hillcrest Road, EB I-80 off-ramp bridge; Structure #4, locations where Structures #2, 3 and 6 will be removed, and Treasure Island Road.

The project site will require many drainage features that convey storm water from the hillside, roadway, and bridge deck. Drainage outlet locations downhill of the project will be evaluated.

- 13.8 Preliminary Geotechnical – CONSULTANT (EMI) shall perform the following geotechnical design services for VA Alternative Project. This scope of work covers: new Tie-Back Retaining Walls #1, #2 and #3; Standard Retaining Wall #4, and new Bridge.

#### **Preliminary Foundation Report**

A Preliminary Foundation Report will be prepared for the Type Selection phase based on existing geotechnical data. It will summarize ground conditions, verify site seismicity, and provide feasible wall and foundation types, pile load capacity curves, pile length estimates, and initial earth pressure diagrams for walls. The seismicity check is included because updates in the seismic procedures and databases have occurred since the original development of project seismic design criteria in 2010. We anticipate this task will require more than usual analysis up front to derive at a feasible design for the purpose of type selection and approval. If comments are received, they will be incorporated into a final PFR.

*Deliverable: Draft/Final PFR*

#### **Field Investigation and Testing**

*Review:* The following scope of work builds on the existing field investigation and laboratory soil data, and prior soil profiles and design strength parameters. This data will be revisited.

*Field Investigation:* EMI proposes to perform a site reconnaissance visit to plan a supplemental field investigation. The proposed investigation consists of drilling a total of four (4) soil and rock borings in the upslope areas using track-mounted drill rigs. The purpose of these borings is to determine the depth, composition, and strength of soil and rock materials where no factual geotechnical data exists currently. These materials affect design and construction of proposed Walls No. 1, 2 and 3. The drill locations are mainly controlled by site accessibility and will consider no or minimal environmental impact. The borings will be used for cut slope stability evaluation and foundation design and are required to determine tieback lengths. EMI will prepare a boring location map which WMH can use to secure/extend encroachment permits. The sites are not on public roadway.

Maximum six days of drilling is anticipated. EMI proposes to use the similar procedures and equipment used in the initial field investigations in 2011 and 2012. In-hole pressuremeter testing is proposed in rock to determine the in-situ bulk modulus and stress-strain characteristics. One boring may be converted to a groundwater monitoring well. Schedule and progress depends on weather conditions and permit requirements.

Laboratory Testing: EMI will select representative soil samples from boreholes for laboratory testing. Laboratory tests will be performed to determine and confirm physical and engineering characteristics of soils. Anticipated laboratory soil tests include: in-place moisture and density, grain size distribution, direct shear, undrained triaxial strength tests, pressuremeter tests, and soil corrosion tests.

All tests will be conducted in general accordance with California Test methods or ASTM standards.

*Deliverable: Borehole Location Plan*

### **Engineering Analysis and Reports**

Geotechnical Engineering Analyses: Using the findings from the field investigation and laboratory testing program, we will:

- Determine final soil strength parameters,
- Finalize idealized design soil profiles,
- Recheck site seismicity criteria,
- Update and perform soil slope stability evaluation for (7) transverse sections,
- Perform foundation analysis to support wall and bridge foundation design,
- Perform pavement design for flexible or rigid pavement structural sections, and

Design methodologies will follow current Caltrans design procedures. Foundations include driven and drilled piles (CIDH/CISS) with rock sockets. Wall design and slope stability will be a key element in the evaluation. A limited finite-element analysis is included to verify the seismic performance of the global slope.

Reports: The following reports will be prepared:

- A draft Addendum Geotechnical Foundation Report will be prepared for the 65% design phase documenting the supplemental field investigation and laboratory testing, and providing a characterization of final ground conditions. It will include Log of Test Borings Sheets, slope stability evaluation, load capacity/pile data tables for bridge foundations, lateral pile design recommendations, lateral earth pressures for walls, pavement structural sections, and recommendations for foundation construction, earthwork, and pavement.
- Any review comments will be incorporated into a final Addendum Geotechnical Foundation Report for final submittal and distribution.

*Deliverable: Draft/Final Addendum Foundation Report*

- 13.9 Erosion Control & Slope Stability Analysis – CONSULTANT shall consider slope stability applications. Erosion control locations will include the hillside above Hillcrest Road, all areas that will require tree removal, areas disturbed by temporary access trestles (New Bridge and Retrofit Structure #4), and all areas disturbed by construction activities for bridge demolition (Structures #2, 3 and 4).

CONSULTANT shall evaluate replacement slope pavement and/or stability options for slope locations directly underneath the bridge structures. Erosion control Best Management Practices will be considered to inhibit erosion at the top of bank alongside the bridge structures, as well as areas that may be impacted due to construction activities.

- 13.10 Constructability – The CONSULTANT will conduct an independent review of the Project to verify that the proposed improvements can be constructed safely and effectively in the time allocated. The review will look at stage construction and traffic handling requirements; construction access; critical path construction activities; availability and price fluctuations of construction materials; staging areas, and disposal areas; and cost-effective construction methods. The CONSULTANT will prepare a Preliminary Construction Schedule for the Project.

- 13.11 Stage Construction / Traffic Handling – Stage Construction and Traffic Handling concepts will be developed that allow for the construction of the Project. Concepts will be developed through coordination with Caltrans, TIDA, SFPDPW, and USCG. One-Way circulation on Hillcrest will be proposed, requiring traffic rerouting at Treasure Island / Macalla Road intersection, two-way traffic on Macalla Road, and also one-way traffic on Southgate. This concept would reduce the overall construction duration and provide cost savings. Concepts will include construction phasing to minimize costs.

- 13.12 Maintenance Improvements: Identify and Develop Cost Estimates – CONSULTANT shall coordinate with SFPDPW regarding maintenance needs for the existing bridge structures and develop cost estimates.

- 13.13 Utility Coordination - Utility information shown on plans and any other documents prepared by the CONSULTANT will be coordinated with the CCSF and SFPUC's Utility Coordinators. Additional effort will be provided to evaluate new Value Analysis Project impact areas such as the hillside above Hillcrest Road. The CONSULTANT will perform the following work activities:

- Request and review utility mapping from all affected public utility owners
- Prepare existing utility maps and submit to affected utility owners for their verification

- Positively locate underground utilities at conform locations by potholing and field survey
- Identify potential utility conflicts and develop a utility relocation strategy in coordination with the utility owners and affected stakeholders
- Maintain copies of all utility correspondence

### **SF Water District**

CONSULTANT shall continue to coordinate with the SF Water District and its consultants to identify an alignment for the relocation of their 12” Water Line. The line is currently slated for replacement due to its age. As currently proposed by SF Water and TIDA, the 12” water line will be relocated prior to construction of this Project. WMH will provide SF Water with proposed Project cross-sections, wall information, etc to support SF Water in relocating the water line such that it will not require additional relocation.

- 13.14 Pavement Materials Memorandum - CONSULTANT shall prepare a pavement materials memorandum that provides a “composite pavement structural section as requested by SFDPW for Hillcrest Road. Recommendations will include new structural section, a full-depth AC section, and an AC overlay section.
- 13.15 Replacement Planting Conceptual Plan – CONSULTANT (HT Harvey) shall prepare a planting plan that addresses replacement planting for locations of the project that will be disturbed during construction. The replacement plan will be consistent with the Habitat Management plan that was previously prepared for YBI as part of the planning for Treasure Island Development.

### **Background Review**

H. T. Harvey & Associates restoration ecologists will review existing background materials, including the NES MI, the most recent engineering plans, and the Yerba Buena Island Habitat Management Plan to gain an understanding of the Project.

### **Site Investigation**

H. T. Harvey & Associates restoration ecologists will conduct a site investigation with the WMH to assess the current and anticipated conditions in order to prepare the Conceptual Revegetation Plan. We will collect up to four composite soil samples for laboratory analysis. Lab results will guide any soil amendment recommendations to be included in the Conceptual Revegetation Plan.

### **Conceptual Revegetation Plan**

H. T. Harvey & Associates will prepare a Conceptual Revegetation Plan that will focus on revegetating areas disturbed during project construction. The conceptual plan will be prepared in accordance with the Yerba Buena Island Habitat Management Plan and will include, at a minimum, the following sections: site preparation, plant and seed species palettes, planting and seeding methodologies, and a maintenance and monitoring

program. It is assumed that there will be two iterations (draft and final) of the report. It is assumed that a moderate amount of time will be required for coordination with the Project's geotechnical and civil engineers, as well as other team members, during preparation of the plan.

- 13.16 Advanced Planning Studies – CONSULTANT shall prepare Advance Planning Studies for the new Structures that are included in the Value Analysis Project. This task is comprised of the subtasks described below:

SUBCONSULTANT (BCA and MGE) shall coordinate with Design Team in development of structure alternative concepts that address structure layout, structure materials, site conditions, and aesthetics.

- Evaluate alternative bridge geometry configuration for the new bridge structure
- Provide input regarding construction methodologies for various replacement structure foundation types.
- Consider construction access for all locations and the potential need for temporary access trestle for bridge construction
- Evaluate structure details in the context of visual aesthetics. Provide input on aesthetic treatment options.

#### **Advance Planning Study**

SUBCONSULTANT (BCA and MGE) shall prepare Advance Planning Studies (APS) and APS level Bridge and Special Design Retaining Wall plans.

Reports will be prepared for the following:

- Replacement Bridge (BCA) – This structure will serve as a portion of the EB I-80 off-ramp. The structure will be approximately 400-feet long and 27' wide.
- Retaining Wall #1 (MGE) – This wall will be on the uphill-side of Hillcrest Road. It will be approximately 25-30 feet in height.
- Retaining Wall #2 (MGE) – This wall will be on the downhill-side of Hillcrest Road. It will be approximately 25 feet in height.
- Retaining Wall #3 (MGE) - This wall will be on the downhill-side of Hillcrest Road. It will be approximately 25 feet in height.

#### **Bridge and Retaining Wall APS Reports**

1. Review available project data and establish design criteria
2. Attend project development meetings
3. Develop Conceptual Plan, Elevation, and Typical Section for each bridge replacement
4. Work with Team to develop workable construction staging schemes
5. Prepare Conceptual cost estimates

6. List critical design and interface issues required for final design
7. Prepare APS-level bridge and retaining wall plans, report, and checklist including the items listed above

13.17 Preliminary Structural Analysis – CONSULTANT shall perform preliminary structural analysis sufficient to define the replacement bridge and retaining wall #1, #2, #3 and #4 structures.

This Task includes the 35% / Type Selection effort to determine the bridge and wall types. Preliminary indications suggest:

- Bridge #3 – Cast-in-place prestressed concrete box girder superstructure. The foundation will likely be on CIDH piles. An area that the designers will concentrate on is minimizing the size of the CIDH piles to improve constructability.
- Retaining Wall #1 – Tie-Back Wall supported on H-Piles
- Retaining Wall #2 – Tie-Back Wall supported on H-Piles
- Retaining Wall #3 – Tie-Back Wall supported on H-Piles. This wall may require that the roadway above utilize lightweight fill
- Retaining Wall #4 – Likely a Caltrans Standard wall that does not require special details except for conforms to adjacent walls.

Effort includes construction staging and sequencing, compatibility of new foundations with existing foundations (from structures that will be replaced but the old foundations will remain buried), aesthetic treatments, conforms with existing retaining walls to remain, utility openings, etc.

13.18 Develop Design Alternative - CONSULTANT shall prepare the design alternative to be included in Design Approval Report for conceptual approval from SFDPW, TIDA and SFCTA. Design Alternative will include detail sufficient to identify non-standard features, evaluate impacts, and develop cost estimates. The following preliminary plan sheets are anticipated to be included:

- Layout Sheets
- Typical Cross-Sections
- Profile and Superelevation
- Contour Grading
- Signing and Pavement Delineation
- Stage Construction and Traffic Handling
- Structural General Plan Sheets

13.19 Exceptions to Design Standards – CONSULTANT shall identify and document non-standard geometric design features “Fact Sheets”, and submit to CCSF for review and



approval. This effort will include almost entirely new/different exceptions compared to the original project concept.

- 13.20 Right of Way Requirements - The CONSULTANT will coordinate the right of way requirements for the realigned Hillcrest Road and Tie-Back Walls (tie-Back wall anchor rods), and prepare preliminary right-of-way requirements maps using record data that identify those parcels that will be impacted by the improvements. The approximate dimensions and areas of parcels and/or easements to be acquired will be calculated.
- 13.21 Preliminary Engineers Estimate - The CONSULTANT will prepare a preliminary Engineers Estimate in Caltrans' 6-page format.
- 13.22 Design Approval Report – CONSULTANT shall update the Design Report that documents the Project design standards utilized and design features incorporated into the project. The purpose of this report is to obtain consensus from the stakeholders as to the Project definition prior to advancing to Final Design. This report will be significantly modified as a result of the VA Alternative project

Hydraulic and Hydrology (Drainage) Report – CONSULTANT (RMC) shall identify and evaluate existing drainage systems, and the need for replacement / new drainage elements. The project site currently includes many drainage features that convey storm water from the hillside, roadway, and bridge decks. Replacement facilities will be required, including at bridge replacement locations and to address erosion concerns. Drainage outlet locations downhill of the project will be evaluated.

A Drainage Report shall be prepared to determine the watershed areas, design flows, pipe sizes and outfall details/locations. The Drainage Study Area will include: Treasure Island Road between Structure #4 and Structure #7A; realigned Hillcrest Road and the area of the hillside above realigned Hillcrest Road; EB I-80 off-ramp including Bridge #3; and the WB I-80 on-ramp including Structure #1; and area underneath Structure #3.

CONSULTANT shall develop a Hydraulics/Hydrology model based on the 2012 version of the Caltrans Highway Design Manual and the U.S. Department of Transportation Hydraulic Engineering Circular No.22, Third Edition of the Urban Drainage Design Manual (Chapter 3 Urban Hydrology Procedures, and Chapter 4 Pavement Drainage).

It is anticipated that the rational method will be used for this exercise, as the Rational Method is one standard method used for estimating peak drainage discharges from small watersheds 330- acres or less in size per the recommendations of the State of California

Department of Transportation (Caltrans). The basic assumptions for the Rational Method are:

- The maximum runoff rate at any design point is a function of the average rate of rainfall during the time of concentration.
- The maximum rate of rainfall occurs during the time of concentration, whereby the variability of the storm pattern is neglected.

The methodology described in the Caltrans Highway Design Manual, Section 810 will be used to evaluate design flows. The following information will be confirmed or developed as part of the analysis:

- Rational Method Runoff Coefficient
- Rainfall Intensity, duration and frequency curves
- Time of concentration
- Drainage Areas
- Design Flows for multiple storm events (2-year , 25-year, 50-year and 100-year)
- Stormwater conveyance pipeline sizes

CONSULTANT shall develop the Hydraulics/Hydrology Drainage Report based on findings from the hydraulic model and in compliance with San Francisco Stormwater Management Plan and the State Water Resources Control Board's Phase II General Permit, and other BCDC requirements. In addition to the model findings, this task will also include a discussion on possible outfall alternatives and locations.

*Deliverable:*

- Hydraulics/hydrology models
- Development of draft and final Drainage Report. Technical memorandum will also include section on outfalls alternatives and locations.

- 13.24 Hazardous Materials – CONSULTANT (GEOCON) shall perform “Phase 2” hazardous materials field investigations for soils and bridge structures.

#### ADL and TPH Soil Sampling

Field Activities:

Collect up to 36 surface and near-surface soil samples from up to 24 locations beneath existing bridge structures at proposed excavation areas.

Laboratory Analyses:

- 28 soil samples for Total Lead
- 8 soil samples for CAM 17 metals
- 18 soil samples for Soluble (WET or TCLP) Lead
- 18 soil samples for TPHd/mo

GEOCON will prepare a Draft Soil Sampling Report for Agency review. After receipt of comments, GEOCON will prepare the Final Soil Sampling Report.

#### Asbestos and Lead-Containing Paint Survey

##### Field Activities:

- Provide traffic control (rolling lane closure) for one day
- Collect up to 70 bulk asbestos samples
- Collect up to 16 bulk paint samples

##### Laboratory Analyses:

- 70 asbestos samples for Polarized Light Microscopy (PLM)
- 8 asbestos samples by PLM 400-point count
- 16 paint samples for Total Lead
- 14 paint samples for Soluble (WET or TCLP) Lead

Results will be included in a separate Asbestos and Lead-Containing Paint Survey Reports.

- 13.25 Storm Water Data Report - The CONSULTANT will prepare a Storm Water Data Report (SWDR) that is in compliance with Regional Water Quality Control Board MS4 requirements and City and County of San Francisco requirements.

The project site is located on an island hillside adjacent to the San Francisco Bay. Existing storm drain facilities that collect storm water from the bridges and roadways and discharge it to the Bay do not meet current storm water management standards. Several broken corrugated metal pipes currently lie on the hillside that leads to the bay for discharge. Several existing drainage facilities will be removed during construction of Project.

Replacement storm drain facilities will be included that meet RWQCB standards. This Scope of Work does not include replacement of drainage facilities that are not impacted by the Project. Hyrdomodification analysis is not included.

The Report will focus on the storm water quality issues to construct the project, implement appropriate temporary and permanent Best Management Practices (BMPs), and coordinate them with the overall phased construction. Documentation to support compliance with the new National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) that became effective July 1, 2010 will also be prepared.

Water Pollution Control Plan Sheets and Erosion Control Plan Sheets will be prepared to support preparation of the SWDR.

- 13.26 Transportation Management Plan (TMP) and Lane Closure Charts - The CONSULTANT will prepare a TMP that addresses potential traffic delays on Treasure Island Road, Hillcrest Road, and the closure of the westbound I-80 on-ramp and the eastbound I-80 off-ramp.

This TMP will document the consensus concept of the traffic management and stage construction concepts that were developed during the previous preliminary engineering phase. Factors involved in this assessment will include traveler and worker safety, public outreach, expected delays, availability of detours and alternate routes, coordination with adjacent construction projects, U.S. Coast Guard (USCG) requirements, and duration of construction activities.

TMP Document will also include:

- Stage Construction Plans
- Traffic Handling Plans
- Construction Area Sign Plans
- Lane Closure Charts
- Detours and Temporary Signal locations

Task 13 - Deliverables

- Additional Design Surveys
- Updated Base mapping and DTM
- Preliminary Foundation Report
- Draft and Final Foundation Report
- Maintenance List
- Utility Relocation Concept
- Replacement Planting Conceptual Plan
- Structures Advanced Planning Studies
- Exception to Design Standards
- Preliminary Right of way requirements mapping
- Draft Design Approval Report and
- Preliminary Construction Cost Estimate
- Hydraulic and Hydrology (Drainage) Report
- Hazardous Materials Reports
- Storm Water Data Report
- Transportation Management Plan

**14.0 ENVIRONMENTAL APPROVAL**

This scope of work is to prepare NEPA/CEQA clearance documentation for the proposed Value Analysis Project. New NEPA/CEQA clearance documentation will be prepared for the Value

Analysis Project in lieu of the environmental approval obtained for the original bridge projects #2, 3 and 6. The primary issues to be addressed and DJP&A's assumptions are described below.

## **PRELIMINARY ENVIRONMENTAL STUDIES FORM AND FIELD REVIEW**

DJP&A will prepare the Caltrans Preliminary Environmental Studies (PES) Form (and supporting information) for submittal to Caltrans. SFCTA can then schedule the Field Review that WMH and DJP&A will attend with the Project Team. The PES Form will be used by Caltrans to determine the environmental studies required for the project. Because the Field Review has not yet been conducted, the following Scope of Work describes the studies that DJP&A believes could ultimately be required by Caltrans, based on our recent experience.

## **NEPA STUDIES**

Based on the Field Review, preliminary engineering, and previously completed studies, DJP&A will prepare environmental technical reports per Caltrans' Supplemental Environmental Review (SER) formats. WMH and DJP&A will submit the reports to Caltrans for review and approval. Below is a discussion of reports/memos we expect Caltrans to require:

### Cultural Resources

This scope includes preparation of a Section 106 Cultural Resource Study Addendum for the Yerba Buena Island Bridge Structures Project by *Far Western*, as a subconsultant to DJP&A. The purpose of the Addendum is to address Re-validation locations that were not within the Area of Potential Effect (APE) of the original Section 106 Historic Property Survey Report (HPSR). The work included in the Addendum is as follows:

- Revisions to the APE Map – WMH will define the revised limits of impacts for the Value Analysis project, including additional contractor access, realigned Hillcrest Road, and the retaining wall tie-back anchors that will intrude onto the hillside.
- An Addendum Archaeological Survey Report (ASR) short form will be prepared, based on Caltrans guidelines and consultation with Professionally Qualified Staff (PQS), building on the original ASR. The report will include a summary of any additional records search results and field surveys. This scope includes one round of Caltrans review.
- An Addendum HPSR will be prepared that incorporates the revised APE map and the ASR. This scope includes one round of Caltrans review of the HPSR.

This effort will utilize an aerial of the YBI Bridge Structures Value Analysis Project locations at a scale of at least one inch equals 200 feet for use in creating an archaeological APE map. This scope also assumes all access is granted to *Far Western* prior to commencing any archaeological survey.

### Biological Resources

This scope includes preparation of an updated Natural Environment Study Minimal Impacts (NES MI) by *H. T. Harvey & Associates*, as a subconsultant to DJP&A. The updated NES will include a description of the project, the biological resources present within the project area, potential impacts on those resources, and mitigation measures for such impacts, as appropriate. Based on the 2012 NES MI, it is assumed that impacts on biological resources will not be substantial.

The revised project design layouts will be reviewed, as well as other sources of information, such as the California Natural Diversity Database (CNDDDB), to verify that no new and substantial changes pertaining to biological resources (such as documented occurrences of special-status species or changes in a species' listing status) potentially occurring on the Project site have occurred since November 2012. Due to *H.T. Harvey's* familiarity with the site, the preparation of the updated NES MI will rely primarily on that familiarity and the information contained in the 2012 NES MI and reference documents. A site visit will be conducted to discuss the project design revisions with the project team. The data collected will be used as the basis for preparing an updated NES MI per California Department of Transportation (Caltrans) guidelines.

#### Traffic

This scope does not include any traffic forecasts, traffic analysis or weaving analysis. DJP&A will revise the Traffic Technical Memorandum to describe the project changes and locations, what effect the changes will have on traffic at those locations, and how the project changes will not result in new or greater traffic impacts.

#### Hazardous Materials

The proposed Project elements will not result in any new or increased hazardous materials impacts, compared to those addressed in the Hazardous Materials Technical Memorandum. DJP&A will prepare a revised memo describing the project changes and locations, what effect the changes have on hazardous materials contamination at those locations, and how the project changes will not result in new or greater hazardous materials impacts. This scope includes one round of Caltrans review of the hazardous materials memo.

#### Water Quality

This scope assumes that a location hydraulic study is not needed for the proposed Project changes. The proposed Project elements will not result in new or increased water quality impacts, compared to those addressed in the Water Quality Study. DJP&A will revise the study to describe the project changes and locations, what effect the changes will have on water quality at those locations, and how the project changes will not result in new or greater water quality impacts.

#### Visual

DJP&A will prepare a revised Visual Resources Technical Memorandum memo describing the proposed Project locations and the visual changes resulting from the proposed changes. The revised memorandum will also include photo simulations, as necessary, and describe how views from the San Francisco shoreline would change with the proposed changes. This scope includes one round of Caltrans review of the visual memo. If required, a full Visual Impact Assessment can be prepared.

#### Equipment Staging

DJP&A will revise the Equipment Staging Technical Memorandum to describe the proposed Project, including any additional staging areas, and how the project changes will not result in new or greater impacts to these areas than previously described.

#### Air Quality PM<sub>10</sub>/PM<sub>2.5</sub>

This scope assumes no air quality analysis is needed for the Re-validation. The Yerba Buena Island Bridge Structures projects underwent interagency consultation on July 26, 2012 and SFCTA received confirmation that the Yerba Buena Island Bridge Structures projects has undergone and completed the interagency consultation requirement for PM<sub>2.5</sub> project level conformity. The SFCTA will provide MTC with the project information regarding the proposed changes to verify if anything else is required for the interagency consultation requirement process, based on these changes. DJP&A will coordinate with MTC and will prepare a memorandum documenting this process and any additional requirements needed based on MTC's response.

#### Coordinate Updated NEPA Categorical Exclusion with Caltrans

Upon approval of all revised technical studies by Caltrans, DJP&A will coordinate the completion and sign-off of the updated NEPA CE with Caltrans staff.

### **CEQA NOTICE OF EXEMPTION (NOE)**

#### CEQA NOE Form

DJP&A will prepare updated CEQA NOE forms based on the revised project description and provide them to the SFCTA and WMH for review and comment. DJP&A will coordinate any revisions with the SFCTA and will provide a final version of the updated CEQA NOE for signature. DJP&A will also file the updated Cat Ex forms with the State Clearinghouse and County Clerk, if requested by the SFCTA.

### **BIOTIC SURVEYS**

#### Survey for Roosting Bats

The presence of roosting bats on the viaducts could potentially constrain project construction. In order to facilitate the implementation of measures to avoid impacts on roosting bats without

constraining project work windows (i.e., to allow for the eviction of bats during the non-breeding season), a qualified bat biologist from *H.T. Harvey & Associates*, as a subconsultant to DJP&A, will conduct a survey for roosting bats prior to the onset of the breeding season (i.e., 1 April) in the year in which removal of trees and/or ground-breaking disturbance is scheduled to occur. All bridges within the project boundary and any trees within or immediately adjacent to (i.e., within 100 feet of) work areas will be assessed to determine whether they provide high-potential roost sites.

If *H.T. Harvey* detects evidence of roosting bats or determines that potential roost sites have a high probability of supporting roosting bats during the construction period, they will conduct an additional survey to determine whether an active bat roost is present. This survey will be conducted at dusk when bats can be seen emerging from their roosts, and will utilize visual observations and acoustic equipment to determine: 1) whether the roost is active; 2) the type of roost present (i.e., a day roost or night roost); 3) the approximate numbers of bats using the roost; and 4) the species of bats present. These observations will be used to inform the recommendations for avoiding potential constraints on project activities due to the presence of roosting bats. Adequately conducting this nighttime survey will require one additional biologist to assist with visual monitoring of bat activity (i.e., if bats are roosting at multiple locations on the bridge structures, two biologists would be needed to visually observe bat emergence along the length of the bridge during the survey).

Following the completion of the survey, a letter report will be prepared summarizing the results and any recommendations (e.g., bat eviction, exclusion devices, etc.) for avoiding constraints on the project's construction schedule due to the presence of roosting bats.

#### Nesting Bird Habitat Assessment

In order to provide the Project team with as much advance notice as possible regarding potential constraints on work activities associated with nesting birds (i.e., construction-free buffer zones up to 100 feet around active nests of non-raptors and 300 feet around active nests of raptors), and to facilitate planning for measures to minimize such constraints, *H. T. Harvey & Associates*, as a subconsultant to DJP&A, will conduct a survey to assess available nesting habitat for birds within the work area and surrounding buffers. During this survey, a qualified biologist will inspect all project areas that may be impacted by construction to assess suitability for nesting birds and feasibility of implementing measures to deter nesting in order to minimize project constraints. Following the survey, written recommendations regarding vegetation management activities and/or exclusion devices that may be implemented (in addition to regular monitoring efforts and deterrence by removal of inactive nests and nest-starts) to reduce the probability of establishment of active bird nests that might constrain construction activities, will be provided.

#### Tree Survey

A tree survey will be conducted by *H. T. Harvey & Associates*, as a subconsultant to DJP&A. An International Society of Arboriculture (ISA) Certified Arborist from *H.T. Harvey* will inventory and evaluate significant trees (as defined by the Public Works Code of the City and



County of San Francisco) that could be affected by the Yerba Buena Island West-Side Bridges project. Each tree found to meet the City’s criteria for significant trees will be tagged with a unique identifying number. The following information will be reported for each significant tree:

- Tree identification number
- Scientific name/Common name
- Trunk diameter at breast height (4.5 feet above grade): actual dimension in inches
- Tree height: 0 (less than 20 feet) or 1 (greater than/equal to 20 feet)
- Canopy diameter: 0 (less than 15 feet) or 1 (greater than/equal to 15 feet)
- Tree condition
  - 0 (dead)
  - 1 (Poor): The tree appears unhealthy and may have significant structural defects, mechanical damage, crown dieback, and/or poor vigor
  - 2 (Fair): The tree has minor structural problems, non-fatal/disfiguring diseases, or minor crown dieback/thinning crown, but reasonable vitality and no obvious signs of decay.
  - 3 (Good): The tree is in relatively good health and structural condition.

The data obtained will be used to quantify the required mitigation for impacts on significant trees in the NES MI update. In addition, a letter report will be prepared summarizing the survey results suitable for submittal to the City and County of San Francisco Department of Public Works, per the requirements of the City and County of San Francisco Tree Ordinance.

#### Scope Assumptions

- The project changes will be eligible for a CE under NEPA.
- The YBI West-Side Bridges Project does not affect any Section 4(f) properties.
- A Biological Assessment and Wetland Technical Report will not be required for this updated NES MI.
- Because the level of effort required to evict bats and subsequently exclude them from the site will depend on the number and location of roosts (e.g., tree cavity, bridge), the eviction and exclusion of bats is not included within this scope of work.
- The completed Tree Survey Report will be based on requirements outlined in the City and County of San Francisco’s Public Works Code and according to the standards of the International Society of Arboricultural.
- No more than 100 trees will be evaluated to determine their status as significant trees.
- On-site biologists are not included for pre-construction deterrence and/or deterrence during construction

#### Task 14 - Deliverables

- Environmental Technical Reports
- NEPA Approval Documentation
- CEQA Approval Documentation

Task 14 – Milestone Schedule

- Environmental Approval is scheduled for March 2016

**15.0 TASK 15 FINAL DESIGN – RETROFIT PROJECTS: BRIDGES # 1, 4, 7A, 7B & 8**

This Task includes the completion of Bridge Retrofit Projects #1, 4, 7A, 7B and 8. These bridge projects have already obtained environmental clearance. Structural engineering for these projects is near 65% complete. The roadway portion of the design is approximately 35% complete.

Structure Plans – Bridges– Structure Plans will be prepared for the seismic retrofit of the following bridges. These Structure Plans will include five (5) independent bridge designs. The structures will be designed according to Caltrans Standards.

- Structures to be Seismically Retrofitted:
  - These Retrofit Structures were included in the original “environmentally approved” project. The retrofit strategy for each of the structures below was identified and approved in a formal Seismic Analysis and Retrofit Strategy process, and documented in Caltrans Approved Seismic Strategy Reports.
  - Structure #1 – This structure serves as the WB I-80 on-ramp to the Bay Bridge. The structure connects to the Bay Bridge. The retrofit strategy includes seat extensions for the bridge deck girders and also includes fiber reinforced column wrap to improve shear capacity for concrete columns.
  - Structure #4 – This structure supports both lanes of Treasure Island Road at the north end of the project. The retrofit strategy is to replace the steel frame substructure with a reinforced concrete substructure. The project will include drilling several 30-inch CIDH piles through the existing bridge deck; constructing concrete bent caps; reinforcing the steel superstructure girders; and repairing the bridge deck. Access to this Structure is very challenging and will require an access road and trestle
  - Structure #7A – This bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide of its piers.
  - Structure #7B – Similar to Bridge 7A, this bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide of its piers.
  - Structure #8 – Similar to Bridge 7A and 7B, this bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide of its piers.

The following deliverables will be prepared and submitted for this task:

- 65% Structure PS&E Independent Check. Independent Check will be performed for each bridge retrofit design.
- 65% “Checked” Structure PS&E (Plans, Specifications and Estimate)
  - 65% Structure Plans

Structure Plans – Bridge #1 (retrofit)
Structure Plans – Bridge #4 (retrofit)
Structure Plans – Bridge #7A (retrofit)
Structure Plans – Bridge #7B (retrofit)
Structure Plans – Bridge #8 (retrofit)

- A separate construction cost estimate will be prepared for each bridge
- Special Provisions will be combined into one package.
- 65% Roadway Plans
  - Roadway Sheets will be prepared that are relevant to the Retrofit Structure Plans. In some cases, the plan sheets will be further updated as part of the PS&E phase of the Value Analysis Project (Tasks 16 thru 19). The following sheets are anticipated as part of this task:

Title Sheet & Location Map
Typical Cross-Sections
Key Map & Line Index
Layout Plans
Construction Details
Temporary Water Pollution Control Plans
Erosion Control Plans, Details and Quantities
Drainage Plans, Profiles, Details & Quantities
Utility Plans
Construction Area Sign Plans and Quantities
Stage Construction Plans
Traffic Handling Plans and Quantities
Summary of Quantities

- 95% Structure PS&E

- A separate construction cost estimate will be prepared for each bridge
- Special Provisions will be combined into one package.
- Roadway Sheets will be updated that are relevant to the Structure Plans
- 100% Structure PS&E
  - A separate construction cost estimate will be prepared for each bridge
  - Special Provisions will be combined into one package.
  - Roadway Sheets will be updated that are relevant to the Structure Plans

Task 15 - Deliverables

- Structure Design: Independent Check; 95% PS&E; and 100% PS&E for Retrofit Projects #1, 4, 7A, 7B, and 8
- Roadway Design for 65% PS&E; 95% PS&E; and 100% PS&E for Retrofit Projects #1, 4, 7A, 7B, and 8

Task 15 – Milestone Schedule

- Retrofit Design is scheduled for completion in March 2016

**16.0 TASK 16 FINAL DESIGN (65% PS&E)**

Task consists of preparation of 65% Plans, Specifications, and Estimates for the YBI West-Side Bridges Retrofit Project. This task involves the effort associated with preparing: technical reports; 65% structural plans; independent check of structural plans, draft 65% roadway plan sheets; unedited technical provisions; and an individual engineer’s estimate for each of the projects. As noted above, the project is comprised of six individual projects that are to be tracked separately for Highway Bridge Program (HBP) funding requirements. However, in order to facilitate construction staging and traffic handling of the six YBI Bridge Structure projects, in conjunction with the adjacent Caltrans San Francisco Bay Bridge construction projects, SFCTA’s WB I-80 YBI Ramps project, and Treasure Island Redevelopment projects, this Project will be prepared as one combined bid package for construction. The project plans, specifications, and estimates will be developed such that the costs of each individual projects can be tracked and processed independently.

- 16.1 Erosion Control & Slope Stability Plan – CONSULTANT (WMH, Haygood and EMI) shall evaluate the downhill-side slope adjacent to and underneath the project bridge structures and develop slope stability measures.

Construction of the retrofit structures, retaining walls, and roadway, as well as demolition of existing structures, will impact the slope, resulting in the need for restorative contour grading and slope stability applications. Concrete slope paving currently exists underneath Structures 2, 3, 4 and 6. CONSULTANT shall evaluate

replacement slope pavement and/or stability options for slope locations directly underneath the bridge structures. Erosion control Best Management Practices will be considered to inhibit erosion at the top of bank alongside the bridge structures, as well as areas that may be impacted due to construction activities.

Haygood will provide planting and irrigation recommendations; EMI will develop slope stability details; WMH will prepare slope paving details, etc

16.2 Utility Coordination - CONSULTANT (WMH and AR/WS) shall coordinate with the CCSF, SFPUC and U.S. Navy Utility Coordinators. The CONSULTANT will perform the following work activities:

- Continue coordination to ascertain utilities of concern
- Continue coordination with SF Water regarding placement of the 12” Water line relocation
- Positively locate underground utilities at conform locations by potholing and field survey.
- Identify potential utility conflicts and develop a utility relocation strategy in coordination with the utility owners and affected stakeholders
- Maintain copies of all utility correspondence
- Prepare correspondence to utility companies as required to facilitate preparation of utility relocation design, draft utility agreements, and draft utility certification documents
- Prepare draft utility Notice to Owners, utility agreements and utility certification documents. Caltrans utility coordinator and SFCTA will review all draft documents. Upon approval from Caltrans and SFCTA legal, SFCTA will execute all required NTO’s and utility agreements
- Provide schedule management and recommendations where requested with regard to the right of way utility coordination and right of way certification process.
- Coordination, meetings, contacts and correspondence with project stakeholders
- Meeting with utility owners and team members as needed
- Communication and approvals (as necessary) with Caltrans Utility Relocation Department

SFCTA will finalize and implement the final Utility Agreements.

16.3 65% Roadway and Structural Plan Sheets – CONSULTANT shall prepare 65% level plan sheets that included the following:

Task	Plan	Sheet Count	Plan Sheet Scale
2.8.01	Title Sheet and Location Map	1	1"=500'
2.8.02	Typical Cross Sections	6	Varies
2.8.03	Key Map and Line Index	1	1"=300'
2.8.04	Construction Staking Survey Control Sheet	1	1"=100'
2.8.05	Layout (Removal) Plans	4	1"=30'
2.8.06	Layout Plans	4	1"=30'
2.8.07	Profile and Superelevation Diagram Plans	8	1"=50'H, 1"=10'V
2.8.08	Construction Details	24	1"=20', Varies
2.8.09	Aerially Deposited Lead Removal Plans	3	1"=30'
2.8.10	Temporary Water Pollution Control Plan, Details and Quantities	16	1"=30'
2.8.11	Erosion Control Plan, Details and Quantities	12	1"=30'
2.8.12	Contour Grading Plans	8	1"=20'
2.8.13	Drainage Plans, Profiles, Details, and Quantities	20	1"=30'
2.8.14	Utility Plan	4	1"=30'
2.8.15	Construction Area Sign Plans and Quantities	4	No Scale
2.8.16	Stage Construction Plans	7	1"=50'
2.8.17	Traffic Handling Plans and Quantities	23	1"=30'
2.8.18	Detour Plans	3	1"=200'
2.8.19	Pavement Delineation Plans, Details, and Quantities	7	1"=30'
2.8.20	Sign Plans, Details, and Quantities	10	1"=30'
2.8.21	Summary of Quantities	2	N/A
2.8.22	Retaining Wall Plans - Retaining Wall #4	6	
2.8.23	Highway Planting and Irrigation Plans	8	1"=30'
2.8.24	Electrical – Permanent Lighting Plans and Details	8	1"=30'
2.8.25	Electrical – Permanent Signal Plans	3	1"=30'
2.8.26	Electrical – Temporary Lighting Plans	9	1"=30'
2.8.27	Electrical – Temporary Signal Plans	8	1"=30'
2.8.28	Electrical – Temporary Electrical Details	1	1"=20'
	Structure Plans - Retaining Wall #1	10	
	Structure Plans – Retaining Wall #2	8	
	Structure Plans – Retaining Wall #3	8	
	Structure Plans – Bridge #1 (retrofit prepared as part of Task 15)	6	
	Structure Plans – Bridge #2 (demolish)	4	
	Structure Plans – New Bridge	24	
	Structure Plans – Bridge #3 (demolish)	4	
	Structure Plans – Bridge #4 (retrofit prepared as part of Task 15)	28	
	Structure Plans – Bridge #6 (demolish)	3	
	Structure Plans – Bridge #7A (retrofit prepared as part of Task 15)	3	
	Structure Plans – Bridge #7B (retrofit prepared as part of Task 15)	4	
	Structure Plans – Bridge #8 (retrofit prepared as part of Task 15)	4	

	<b>TOTAL SHEETS:</b>	<b>317</b>	
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**Roadway and Structure Plans Description:**

Title Sheet - The Title Sheet will be prepared per City and County of San Francisco standards

Typical Cross Sections - Typical Cross Sections will be prepared to clarify the proximity of slopes, retaining walls, roadways, bridges, etc. Pavement structural sections, slope grades, etc will be included.

Key Map and Line Index - The Key Map and Line Index Sheet will be prepared.

Construction Staking Survey Control Sheet - The Project Control Sheet will be prepared per the per City and County of San Francisco standards.

Layout Removal Plans - Separate Layout Removal Plans will be prepared to clearly identify limits of removals. Removals include trees, bridge structures, retaining walls, slope paving, etc.

Layout Plans - Layout Plans will be 1"=30 scale and depict information per the Caltrans Plan Preparation Manual.

Profile and Superelevation Plans - The Profile Plans and the Superelevation Diagrams will be prepared for project alignments.

Construction Details - The Construction Detail Plans will be prepared for the following areas:

- Pavement Elevations for most of the entire project limits
- Slope Paving Details under Structure 3 and 4.
- Concrete Barrier and MBGR transition details
- Curb & Gutter and fence details
- Miscellaneous roadway detail sheets

Aerially Deposited Lead Removal Plans - Plans will be prepared to identify the location and limits of anticipated aerially deposited lead that may be disturbed by construction. The special provisions will identify where and how said material can be placed or disposed of. These plan sheets will be set up during the 65% plan preparation. During the 95% plan preparation, the plans will incorporate all of the information provided by the Hazardous Materials Report prepared in Task 12.2 of the 65% PS&E phase.

Temporary Water Pollution Control Plans - The Temporary Water Pollution Control Plans will be prepared for site specific conditions. Standard Detail WPC plan sheets will be provided in this set. For site specific treatment, plan sheets will be set up during the 65% plan preparation. During the 95% plan preparation, the plans will incorporate all of the WPC

information required by the Storm Water Data Report prepared in Task 10.10 of the 65% PS&E phase.

Erosion Control Plans, Details and Quantities - The Erosion Control Plans will be prepared for the permanent condition. The Erosion Control Plans will be prepared in addition to, and in coordination with, the replacement planting plans. Standard Detail EC plan sheets will be provided in this set. For site specific erosion control, plan sheets will be set up during the 65% plan preparation. During the 95% plan preparation, the plans will incorporate all of the EC information required by the Storm Water Data Report prepared in Task 12.3 of the 65% PS&E phase.

Contour Grading Plans - Contour Grading Plans will be prepared to identify the final earthen graded conditions within the project limits. Said plans will identify the horizontal location of proposed retaining walls, bridge abutments and foundations, grade to drain areas, and slope paving. The 65% Plan set will be set up for the locations that will require contour grading. The 95% Contour Grading Plans will include the information that is provided in the Erosion Control and Slope Stability Analysis, developed in Task 12.5 of the 65% phase.

Drainage Plans Profiles, Details and Quantities - The Drainage Plans will include the replacement of drainage facilities related to new retaining walls, Hillcrest Road realignment, replacement bridge, extension of local drainage cross culverts, and the construction of new inlets. The drainage improvements will be designed in coordination with the Hydraulics and Hydrology (Drainage) Report that is prepared in Task 12.1. The improvements will likely include the relocation and/or modification of existing inlets and appurtenant facilities resulting from the proposed improvements. Where feasible, the scope of the drainage plans is based on utilization of existing downstream drainage systems for tying in new or relocated drainage systems or extending existing systems. Temporary drainage systems required due to stage construction are included in the Stage Construction Plans.

Utility Plans - Utility Relocation Plans will be prepared per the CCSF standards. Utility sizes and approximate locations will be in accordance with the plans and/or plotted information provided by the utility owners. The utility plans will identify coordination of utilities in relationship to the proposed improvements. If directed by SFCTA, CONSULTANT shall incorporate SF Water 12” water line relocation into the plan set. Per discussion with SF Water staff, SF Water will design the water line such that it could be inserted into the plan set

With the exception of the SF Water 12” water line relocation, specific utility relocations will be referenced on the utility plans as “by others” or as shown elsewhere in the contract plans. Any utilities that are identified that are abandoned, conduit only, require “protect in place”, or require relocation shall be listed and identified on the plans. This information will be available following the utility verification process for new project areas that will be performed during Preliminary Engineering Task 10.

The utility plans will also identify the high-risk utilities in conformance with the Caltrans “Policy on High and Low Risk Underground Facilities within Highway Right of Way”.



Construction Area Sign Plans and Quantities - Construction Area Sign plans will be prepared that are comprised of two (2) sheets:

- Construction Area Sign plan will that covers the proposed Project area;
- Motorist Information Plan sheet that will identify temporary signage outside the physical construction area project limits. Said Motorist Information Plan will be advisory and informational to help manage traffic flow on the San Francisco Bay Bridge during construction of this Project. Signs and/or changeable message signs will be identified on the Motorist Information Plan. The location and placement of said signs will be at the direction of the Resident Engineer.

Stage Construction Plans - The Stage Construction plans will be prepared and will identify the major and minor stages of construction. Said plans will graphically identify construction areas and/or major improvements that are to be constructed within each phase of construction. This task assumes there will be four major stages of construction and two intermediate phases of construction. Stage Construction Plans will include temporary drainage requirements.

Traffic Handling Plans - Traffic Handling plans will be prepared. Said plans will identify the placement of temporary railing, location of interim travel lanes and the signage needed to convey vehicles through the construction area. One to two typical cross-sections will be shown for each stage. This task assumes there will be four major stages of construction and two intermediate phases of construction. For each change in the staging, a new temporary alignment of railing, travel lanes and signage will be needed. Temporary herein is equated to staging that is in place a minimum of a few weeks. It is assumed that one-way traffic circulation through the project site will be possible.

Detour Plans - The Detour plans will be prepared to accommodate the necessary temporary detours to construct the proposed improvements. The following detours are anticipated herein:

- One-way Hillcrest traffic circulation (clock-wise) will require that all Southgate traffic is one-way that leads to the EB I-80 on-ramp.
- During EB I-80 Off-Ramp closure, all traffic will be routed to the alternate EB I-80 off-ramp on the east side of the tunnel.
- One-way traffic circulation on Hillcrest Road and Treasure Island Road through the project site will require that all southbound traffic originating from Treasure Island must use Macalla Road Road.

Pavement Delineation Plans - Prepare Pavement Delineation plans identifying existing striping, and modifications in relationship to the proposed improvements.

Sign Plans - Prepare Sign plans identifying existing signs, installation of new regulatory, warning, and guide signs, and modifications required in relation to the roadway improvements.

Retaining Wall Plans – Retaining Wall #4 plans are included in this scope. It is assumed this wall will be a Caltrans Standard Type wall and will be designed utilizing standard details.

Planting/Irrigation Plans - Consultant shall prepare site plans, specifications and estimates for landscape and irrigation. The planting plan will be based upon the Replacement Planting Conceptual Plan prepared previously in Task 10.15 in preliminary engineering. The replacement planting plan will be consistent with the Habitat Management Plan; if the plan includes trees, they will be included in this task. Tree removal will be shown on the Layout (Removal) Plan sheets. This task does not include mitigation tree planting.

Electrical–Permanent Lighting Plans - Consultant will prepare Permanent Roadway Lighting plans and details to replace and/or relocate the existing lighting system. The lighting plans will include proposed type of poles and pole locations, pull boxes, conduit, service locations, and circuit wiring diagrams.

Electrical–Permanent Signal Plans - Consultant will prepare Permanent Signal plans and details for the proposed intersection of EB I-80 off-ramp and Hillcrest Road. The signal plans will include controllers, pole locations, pull boxes, conduit, service locations, and circuit wiring diagrams.

Electrical – Temporary Lighting Plans – Consultant will prepare temporary lighting plans as needed to accommodate the stage construction on the Project.

Electrical – Temporary Signal Plans – Consultant will prepare temporary signal plans for one (1) location to accommodate the stage construction on the Project.

Structure Plans – Bridges and Retaining Walls – Structure Plans will be prepared to 65% Checked level of completion. These Structure Plans will include six (6) bridge designs and three (3) retaining walls. The structures will be designed according to Caltrans Standards.

- Structures to be Seismically Retrofitted:

These Retrofit Structures were included in the original “environmentally approved” project. The retrofit strategy for each of the structures below was identified and approved in a formal Seismic Analysis and Retrofit Strategy process, and documented in Caltrans Approved Seismic Strategy Reports.

- Structure #1 – This structure serves as the WB I-80 on-ramp to the Bay Bridge. The structure connects to the Bay Bridge. The retrofit strategy includes seat extensions for the bridge deck girders and also includes fiber reinforced column wrap to improve shear capacity for concrete columns.
- Structure #4 – This structure supports both lanes of Treasure Island Road at the north end of the project. The retrofit strategy is to replace the steel frame substructure with a reinforced concrete substructure. The project will include drilling several 30-inch CIDH piles through the existing bridge deck; constructing concrete bent caps; reinforcing the steel superstructure girders;

- and repairing the bridge deck. Access to this Structure is very challenging and will require an access road and trestle
- Structure #7A – This bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide off its piers.
  - Structure #7B – Similar to Bridge 7A, this bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide off its piers.
  - Structure #8 – Similar to Bridge 7A and 7B, this bridge is low to the ground, supporting the southbound lane of Treasure Island Road. Concrete blocks will be constructed underneath the bridge beams to “catch” the bridge should it slide off its piers.
- **New Replacement Structures:**

The following Structures were conceived during the Value Analysis process.

    - Replacement Bridge #3 – This structure will serve as a portion of the EB I-80 off-ramp. The structure will be approximately 400-feet long and 27’ wide. Likely to be precast concrete box girder structure with CIDH pile foundation.
    - Retaining Wall #1 – This wall will be on the uphill-side of Hillcrest Road. It will be approximately 25-30 feet in height. Likely to be a “Tie-Back” wall supported by steel “H” piles.
    - Retaining Wall #2 – This wall will be on the downhill-side of Hillcrest Road. It will be approximately 25 feet in height. Likely to be a “Tie-Back” wall supported by steel “H” piles.
    - Retaining Wall #3 - This wall will be on the downhill-side of Hillcrest Road. It will be approximately 25 feet in height. Likely to be a “Tie-Back” wall supported by steel “H” piles.
  - **Structures to be Demolished:**
    - Structure #2 – Tall and long steel structure on a steep slope.
    - Structure #3– Tall and long steel structure on a steep slope.
    - Structure #6 – Reinforced concrete bridge

**Deliverables:** *Final Roadway Design Plans – Unchecked (65% complete)*  
*Plan types as noted herein*

**Note:** The above noted plans as an aggregate will be approximately 65% complete and represent the major items/areas of construction. Individual plans or types of plans may be substantially complete, while some plans or types of plans may be less complete. For example, the quantity sheets may only identify a blank table with anticipated bid items shown, and the actual quantities will not be shown.

- 16.4 Special (Technical) Provisions - CONSULTANT shall prepare draft technical provisions (in MS Word format) for bid items. SSP's shall be prepared generally consistent with Caltrans 2010 format standards.
- 16.5 Construction Quantities and Engineer's Estimate - CONSULTANT shall prepare an engineer's estimate for each of the eight individual bridge projects. Unit prices will be based upon Caltrans Contract Cost Data information and recent relevant projects. Eight individual bid schedules will be prepared.
- 16.6 Finalize Exceptions to Design Standards (Fact Sheets) - The CONSULTANT shall obtain final approval from CCSF for non-standard project geometric features.
- 16.7 Permit Applications – CONSULTANT shall prepare permit applications on behalf of SFCTA as necessary for RWQCB, BCDC and other relevant agencies. CONSULTANT shall coordinate with permitting agencies to ensure complete permit application packages are submitted and that they are consistent with stated agency requirements. David J. Powers & Associates (DJPA) will assist the Team to ensure that proposed project elements are consistent with the environmental approval documents.
- The project hillside includes protected plants, trees, and special status species. DJPA will assist in identifying drainage facility locations that minimize impacts.
- 16.8 Constructability Assessment – CONSULTANT (ABA) will: 1) evaluate constructability of project design with regard to the unique project site; and 2) provide 65% level constructability review. Task includes site visits and assessment of potential construction staging and access requirements. Objective of this task is to assist/inform the design team regarding preparation of PS&E that buildable and compatible with site requirements for environmental impacts and traffic handling.
- 16.9 Prepare and Submit 65% PS&E Package - CONSULTANT shall prepare 65% PS&E packages. PS&E packages will be provided to SFCTA, CCSF, and Caltrans for review. CONSULTANT anticipates hard copy submittals.

Deliverables:

- 65% PS&E Roadway Plans – 10 Sets 11” x 17” Sheets
- 65% Structure Plans - 10 Sets 11” x 17” Sheets
- Draft Technical Provisions – 10 Sets Hard Copy
- Updated Engineer's Estimates – 10 Sets Hard Copy
- Permit applications – RWQCB and BCDC

## **17.0 TASK 17 FINAL DESIGN (95% PS&E)**

Task 17 consists of preparation of 95% Plans, Specifications, and Estimates for the YBI West-Side Bridges Retrofit Project. This task involves the effort associated with preparing: final technical reports; independent check of structural plans; 95% checked structural plans; 95% roadway plan sheets; edited technical provisions; and an updated individual engineer's estimate for each of the eight projects. As noted above, the Project is comprised of six individual projects that are to be tracked separately for Highway Bridge Program (HBP) funding requirements. However, in order to facilitate construction staging and traffic handling of the six YBI Bridge Structure projects, in conjunction with the adjacent Caltrans San Francisco Bay Bridge construction projects, SFCTA's WB I-80 YBI Ramps project, and planned Treasure Island Redevelopment projects, this Project will be prepared as one combined bid package for construction. The project plans, specifications, and estimates will be developed such that the costs of each individual bridge projects can be tracked and processed independently.

### **17.1 Respond to Agency Comments from 65% PS&E Submittal**

CONSULTANT shall incorporate agreed-upon comments from Caltrans, CCSF (SFDPW, SFPUC, SFWater, and MTA), TIDA, and SFCTA into PS&E. A comment-response matrix will be prepared that tracks all written comments and responses for each agency that submits comments.

### **17.2 Finalize all Technical Reports**

CONSULTANT will incorporate agreed-upon comments from agency reviews and prepare Final engineering documents for the following:

- Hydraulic and Hydrology (Drainage) Report
- Hazardous Materials
- Storm Water Data Report
- Transportation Management Plan (TMP) and Lane Closure Charts
- Erosion Control & Slope Stability Analysis

### **17.3 Utility Coordination**

CONSULTANT shall continue coordination with SFPUC and TIDA for their proposed utility facilities that may impact the YBI West-Side Bridges project. CONSULTANT will coordinate electrical connection points for new roadway lighting and sign illumination.

### **17.4 Prepare 95% Roadway and Structural Plan Sheets**

CONSULTANT shall prepare 95% level plan sheets that incorporate agency review comments from 65% submittal. Roadway plan sheets will be a complete set that includes all plan sheets listed in the 65% Plan Sheet Table.

### **17.5 Special (Technical) Provisions**

CONSULTANT shall incorporate agency review comments and prepare 95% edited technical special provisions (in MS Word format) for bid items. SSP's shall be prepared generally consistent with Caltrans 2010 format standards.

- 17.6 Construction Quantities and Engineer's Estimate - CONSULTANT shall prepare an engineer's estimate for each of the eight individual bridge projects. Unit prices will be based upon Caltrans Contract Cost Data information and recent relevant projects. Eight individual bid schedules will be prepared.
- 17.7 Finalize Exceptions to Design Standards (Fact Sheets) - The CONSULTANT shall incorporate agency review comments, update the documents, and obtain final approval from CCSF for non-standard project geometric features.
- 17.8 Prepare and Submit 95% PS&E Package - CONSULTANT shall prepare 95% PS&E packages. PS&E packages will be provided to SFCTA, CCSF, and Caltrans for review. CONSULTANT anticipates hard copy submittals.

Deliverables:

- 95% PS&E Roadway Plans – 10 Sets 11" x 17" Sheets
- 95% Structure Plans - 10 Sets 11" x 17" Sheets
- 95% complete edited Technical Provisions – 10 Sets Hard Copy
- Updated Engineer's Estimates – 10 Sets Hard Copy
- Final Drainage Report – 5 Sets Hard Copy
- Final Hazardous Materials Reports – 5 Sets Hard Copy
- Final Traffic Management Plan - 5 Sets Hard Copy
- Final Permit applications – RWQCB and BCDC

**18.0 TASK 18. FINAL DESIGN (100% PS&E)**

Task 18 consists of preparation of 100% Plans, Specifications, and Estimates for the YBI West-Side Bridges Retrofit Project. Agency comments from review of the 95% PS&E submittal will be incorporated. This submittal will be delivered as the Final PS&E submittal. This task involves the effort associated with preparing: 100% structural plans; 100% roadway plan sheets; 100% edited technical provisions; and an updated individual engineer's estimate for each of the eight projects. The project plans, specifications, and estimates will be developed such that the costs of each individual bridge projects can be tracked and processed independently.

Respond to Agency Comments from 95% PS&E Submittal

CONSULTANT shall incorporate agreed-upon comments from Caltrans, CCSF (SFDPW, SFPUC, SFWater, and MTA) and SFCTA into PS&E. A comment-response

matrix will be prepared that tracks all written comments and responses for each agency that submits comments

18.2 Prepare 100% Plan Sheets

CONSULTANT shall prepare 100% final plan sheets. Plans will incorporate agreed-upon comments from agency review of the 95% plan submittal, including constructability and bid-ability review comments from SFCTA’s construction management team.

18.3 Prepare 100% Technical Special Provisions

CONSULTANT shall prepare 100% Technical Special provisions. SSPs shall include agreed-upon comments from agency review of the 95% plan submittal including constructability and bid-ability review comments from SFCTA’s construction management team. SSPs will include front-end boilerplate agency that will administer the construction contract.

18.4 Prepare 100% Engineer’s Estimate

CONSULTANT shall prepare 100% Engineer’s Estimate. Estimate will incorporate agreed-upon comments from agency review of the 95% plan submittal.

18.5 Prepare and Submit 100% PS&E Package - CONSULTANT shall prepare 95% PS&E packages. PS&E packages will be provided to SFCTA, CCSF, and Caltrans for review. CONSULTANT anticipates hard copy submittals.

Deliverables:

- 100% PS&E Roadway Plans – 10 Sets 11” x 17” Sheets
- 100% Structure Plans - 10 Sets 11” x 17” Sheets
- 100% complete edited Technical Provisions – 10 Sets Hard Copy

**19.0 TASK 19. FINAL DESIGN (FINAL PS&E)**

Task 19 consists of preparation of FINAL Plans, Specifications, and Estimates for the YBI West-Side Bridges Retrofit Project. Agency comments from review of the 100% PS&E submittal will be incorporated. This package will be the Contract Bid Set. This task involves the effort associated with preparing: FINAL structural plans; FINAL roadway plan sheets; FINAL edited technical provisions; and FINAL engineer’s estimate for each of the six projects. The project plans, specifications, and estimates will be developed such that the costs of each individual bridge project can be tracked and processed independently.

Respond to Agency Comments from 100% PS&E Submittal

CONSULTANT shall incorporate agreed-upon comments from Caltrans, CCSF (SFDPW, SFPUC, SFWater, and MTA) and SFCTA into PS&E. A comment-response

matrix will be prepared that tracks all written comments and responses for each agency that submits comments.

19.2 Prepare Final Plan Sheets

CONSULTANT shall prepare Final plan sheets. Plans will incorporate agreed-upon comments from agency review of the 100% plan submittal including constructability and bid-ability review comments from SFCTA’s construction management team.

19.3 Prepare Final Technical Special Provisions

CONSULTANT shall prepare Final Technical Special provisions. SSPs shall include agreed-upon comments from agency review of the 100% plan submittal including constructability and bid-ability review comments from SFCTA’s construction management team.

19.4 Prepare Final Engineer’s Estimate

CONSULTANT shall prepare Final Engineer’s Estimate. Estimate will incorporate agreed-upon comments from agency review of the 100% plan submittal.

19.5 Prepare and Submit Final PS&E Package - CONSULTANT shall prepare Final PS&E packages. PS&E packages will be provided to SFCTA, CCSF, and Caltrans for review. CONSULTANT anticipates hard copy submittals.

Deliverables:

- Final PS&E Roadway Plans – 10 Sets 11” x 17” Sheets
- Final Structure Plans - 10 Sets 11” x 17” Sheets
- Final complete edited Technical Provisions – 10 Sets Hard Copy

Task 19 Milestone Schedule:

- Final PS&E Roadway Plans are scheduled to be delivered in December 2016

**20.0 TASK 20. RIGHT OF WAY CERTIFICATION**

Task 20 consists of effort necessary to obtain the agency permits, utility agreements, right of way certification, and construction funding to enable the project to be “Ready to List”.

Obtain Agency Permits

CONSULTANT shall coordinate, prepare exhibits, adapt the project design, attend meetings and make presentations as necessary to obtain the following agency permits:

- Bay Conservation and Development Commission Permit
  - Engineering Criteria Review Board (ECRB)
  - Design Review Board (DRB)
  - Commission
- United States Coast Guard (USCG) License Agreement



CONSULTANT shall coordinate with the USCG to reach agreement on the terms of the license agreement. Coordination will include stage construction and traffic handling.

- Regional Water Quality Control Board (RWQCB) Permit  
CONSULTANT shall coordinate with the RWQCB to obtain the permit authorizing construction of the project.

## 20.2 Right of Way Certification

CONSULTANT shall coordinate the effort necessary to obtain right of way certification. This Task includes project documentation of the Navy right of way transfer and utility agreements.

- Prepare Draft Utility Notice to Owners
- Prepare Draft Utility Agreements
- Prepare Draft Utility Certification
- Provide schedule management and recommendations where requested with regard to the right of way utility coordination and right of way certification process.
- Coordination, meetings, contacts and correspondence with project stakeholders
- Meeting with utility owners as needed
- Individual file maintenance
- Communication and approvals with Caltrans Utility Relocation Department
- Prepare Final Utility Notice to Owners, Utility Agreements, and Utility Certification. (Upon receiving approval from SFCTA and Caltrans, SFCTA will execute all required NTO, and utility agreements)
- Assist in obtaining Utility Certification
- Assist in obtaining TIDA Use Permit (if necessary)
- Prepare draft and final SFCTA-TIDA Access and Use Agreement
- Assist in obtaining R/W Certification (RWC) including preparing draft RWC for Caltrans and team review and approval. Coordinate for SFCTA comments to RWC and work with Team on revisions and editing to RWC subject to Caltrans review and approval. (It is assumed the Navy will transfer all the required R/W to TIDA or the City and County of San Francisco.)

## 20.3 Construction Funding

CONSULTANT shall coordinate with Caltrans and SFCTA to obtain E-76 Approval and project funding for the project. CONSULTANT shall:

- Prepare and Submit PS&E Checklist to Caltrans DLA
- Prepare and Submit Draft and Final Funding Request for Construction (Request for Allocation for construction phase). Task includes tracking and follow-up of Caltrans coordination and processing of HBP funds