## Final Agenda

### TBPOC URGENT MEETING

**June 4, 2015**  
No Executive Session  
**Regular Session:** 8:30AM-9:30AM  
Dial-in Number: 1(866) 803-2146; Access Code: 2474385

<table>
<thead>
<tr>
<th>Item Number/ Topic</th>
<th>Presenter</th>
<th>Time</th>
<th>Desired Outcome</th>
</tr>
</thead>
</table>
| 1. EXECUTIVE SESSION  
a. NA | NA | NA | NA |
| 2. REGULAR SESSION  
a. SAS Tower Anchor Rod Update  
1. Rod 4 Removal  
2. Water Level Monitoring and Testing  
3. Expert Peer Panel Proposal  
4. Testing Plan, Budget Status, and Cost Forecast  
b. Project Budget, Costs, Forecast, and Funds Request | Dan McElhinney, Caltrans  
Brian Maroney, Caltrans  
Steven Whipple, Caltrans | 40 min  
15 min | Information  
Information  
Approval  
Information |
| 3. OTHER BUSINESS  
a. Report on matters discussed and actions taken at Urgent Meeting  
b. Report on matters discussed and actions taken during Executive Session | NA  
Steve Heminger, BATA | NA  
5 min | Information |
| 4. GENERAL PUBLIC COMMENT | | | |

Next TBPOC Regular Meeting:  
**June 23, 2015, 10AM-1PM**  
Pier 7, Oakland, CA
Accessibility and Title VI: TBPOC provides services/accommodations upon request to persons with disabilities and individuals who are limited-English proficient who wish to address Committee matters. For accommodations or translations assistance, please call the Metropolitan Transportation Commission (MTC) at 510.817.5757 or 510.817.5769 for TDD/TTY. We require three working days' notice to accommodate your request.

Acceso y el Titulo VI: El TBPOC puede proveer asistencia/facilitar la comunicacion a las personas discapacitadas y los individuos con conocimiento limitado del ingles quienes quieran dirigirse a la Comité. Para solicitar asistencia, por favor llame a la Comisión Metropolitano de Transporte (MTC) al numero 510.817.5757 o al 510.817.5769 para TDD/TTY. Requerimos que solicite asistencia con tres dias habiles de anticipacion para poderle proveer asistencia.

Meeting Conduct: In the event that any public meeting conducted by TBPOC is willfully interrupted or disrupted by a person or by a group or groups of persons so as to render the orderly conduct of the meeting unfeasible, the Chair may order the removal of those individuals who are willfully disrupting the meeting. Such individuals may be subject to arrest. If order cannot be restored by such removal, the members of the committee may direct that the meeting room be cleared (except for representatives of the press or other news media not participating in the disturbance), and the session may continue on matters appearing on the agenda.
Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)

FR: Dan McElhinney, Chief Deputy District Director, Caltrans District 4
Brian Maroney, SFOBB Project Chief Engineer, Caltrans District 4

RE: Agenda No. - 2a1
   Item- SAS Tower Anchor Rod – Rod 4 Removal

Recommendation:
INFORMATION

Cost:
Previously approved capital outlay budget of $1 million for contractor rod work

Schedule:
Concluding in June 2015

Discussion:

In follow up to the TBPOC decision from the recent May 28th meeting, the Department proceeded with the scope of work related to the removal of rod 4 (#162-2-12) under the current SAS contract change order CCO 394. Work was performed under the previously approved TBPOC budget of $1 million capital outlay costs for contractor rod-related work as summarized below:

- American Bridge Fluor, JV (ABF) completed the rod 4 removal site preparation for water control and easier equipment access on June 1st (see photo and site map).

- METS consultant staff completed a UT test (rod length verification) of rod 4 and the adjacent rod (same plate) as requested prior to and after de-tensioning of rod and top plate removal on June 1st.

- UT test (rod length verification) results were as expected confirming these rods were not short in length.

- On June 2nd, ABF began and completed rod 4 removal by means of water jetting. Photos are attached showing rod 4 just after removal, including the entire bottom end.
of the rod with its threads. Stripping of the threads is apparent; however, there is no corrosion visible and there is no fracture of the rod.

The following is a summary for the completed anchor rod removal to date:

- Rod 1 removed in 2013 had stripped threads with no fractured end.
- Rod 2 was selected in 2014 in good condition to be removed only due to water history for related testing.
- Rod 3 was UT tested (rod length verification) to be short so it was removed earlier this year and found to have stripped threads with the nut down near the rod end, then a fractured surface below. There was no apparent corrosion on the threads or the fractured end surface.
- Rod 4 has only stripped threads and will now be prepared by METS staff for submittal for lab testing.

No other tower seismic anchor rods are planned for removal.

The next step is to update the testing plan, and once the peer review group is assembled gain their review and recommendations. A final testing plan and cost estimate will then be presented for TBPOC approval.

Concurrently, the Department, in coordination with their partnering agencies, will develop and propose in the near future a final tower anchor base dehumidification and long term maintenance plan, as needed.

**Background**

The Department has completed the first phase of the SAS tower seismic anchor rod investigation with test results showing more than 99 percent of rods that could be tested passed performance expectations and can withstand major earthquake forces. These anchor rods are just one of many seismic innovations on this bridge that help ensure resiliency of the structure for decades to come. The two rods that did not pass the test (rod 3 #155-1-1 previously removed and rod 4 #162-2-12 proposed for removal) once removed will be prepared by METS staff and sent to a laboratory for preservation and photography awaiting approval of additional testing to begin.

Over the past several weeks, Caltrans completed pull load testing on all 408 of the 424 tower anchor rods that can be tested. The pull load test involves a jacking device that threads on top of the rods and applies a range of force that is monitored to verify rod integrity. 406 tower rods, or 99 percent of rods subject to testing, passed the pull load
Memorandum

test. Two anchor rods (rod 3 and rod 4) did not pass the test and will be removed as TBPOC approved and sent to a laboratory to determine the reason for failure. Of the remaining rods at the base of the tower, 14 rods previously tensioned in place cannot be further tested because of inadequate access or amount of top rod threads available, and 2 rods (rod 1 and rod 2) were previously removed for laboratory analysis (see attached layout map).

The specific lab testing protocol for rod 3 and rod 4 testing is under development and will be reviewed by external experts and the Toll Bridge Program Oversight Committee before testing begins.

The tower seismic anchor rods are a supplemental design element added to enhance limiting minor damage during a major seismic event by preventing the tower from rising less than an inch. Only 3 rods (less than 1% of the total) did not pass pull load testing, and preliminary engineering analysis shows that even if all tower seismic anchor rods were compromised there would remain no safety issue during everyday use or during or after an earthquake.

Attachments:
Layout Plan of Tower Seismic Anchor Rods Pull Load Testing, June 2015
Photos of Rod 162-2-12 Pull Load Test Area, June 2015
Rod 1 - Removed May 2013
Rod 2 - Removed December 2014
Rod 3 - Removed May 2015
Rod 4 - Recommend Removal

Locations checked a second time with additional instrumentation - pass
Location checked a second time with additional instrumentation on 5/26/2015 - recommend rod removal
Upper Portion of Rod ID 162-2-12

Photos: SAS Seismic Anchor Rod 4 Removal (Threads are stripped, end is intact, not fractured)
June 2, 2015
Photos: SAS Seismic Anchor Rod 4 Removal
(Threads are stripped, end is intact, not fractured)
June 2, 2015
Memorandum

TO: Toll Bridge Program Oversight Committee  (TBPOC)

FR: Dan McElhinney, Chief Deputy District Director, Caltrans District 4
    Brian Maroney, SFOBB Project Chief Engineer, Caltrans District 4

RE: Agenda No. - 2a2
    Item- SAS Tower Anchor Rod –
    Water Level Monitoring and Testing Update

Recommendation:
INFORMATION

Cost:
NA

Schedule:
NA

Discussion:
Water Level Monitoring
As a follow up to the direction received in the May 28th TBPOC meeting, the Department will present preliminary rod sleeve water level monitoring information. METS consultants are monitoring the water levels weekly by borescope to measure water level height in the nearly two inch wide grout inspection holes.

In summary, about 304 (72%) holes are showing no water level change, 61 (14%) holes show minor change up to 6 inches, 15 (4%) holes show increases of 6 inches to 12 inches, and 44 (10%) holes show increases over 12 inches in water level height. Refer to the attached table summarizing water levels, a typical cross section elevation view, a location graph of T1 Area versus water level change, and two site maps of levels for sampled and not sampled holes.
Water Quality Testing
Per the TBPOC, the Department proceeded in May 2015 to identify 100 holes with enough volume for volumetric measurements and water quality testing. There were 87 sampled and sent to the lab. All 100 holes were dewatered to continue water level monitoring. The water quality information will be presented in detail at the June 23rd TBPOC meeting. Preliminary information from the lab on some samples indicates chloride levels at about half of the chloride level in bay water, which needs further investigation.

Attachments:
Summary Data for Water Level Measurements
Cross Sectional View of Tower Anchor Rods and Location of Water Level Measurements Taken
## Summary of Changes in Water Level

<table>
<thead>
<tr>
<th>Sampled Locations (5/12/15 to 5/29/15)</th>
<th>Areas</th>
<th>Total</th>
<th>0-1 inch (No Change)</th>
<th>2-6 inches</th>
<th>7-12 inches</th>
<th>&gt;12 inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete - Bay</td>
<td>East Shaft</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>North Shaft</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>South Shaft</td>
<td>14</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>West Shaft</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>NE Cell #1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NE Cell #2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NW Cell</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>SE Cell</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SW Cell #1</td>
<td>8</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SW Cell #2</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concrete - Steel Edge - Concrete - Bay</td>
<td>East Exterior</td>
<td>12</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>North Exterior</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>South Exterior</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>West Exterior</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>SAMPLED TOTAL</td>
<td>100</td>
<td>19</td>
<td>32</td>
<td>11</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The rate of change is based on the difference between the most recent water level and the water level measured following sampling.*

<table>
<thead>
<tr>
<th>Not Sampled Locations (4/24/15 to 5/29/15)</th>
<th>Areas</th>
<th>Total</th>
<th>0-1 inch (No Change)</th>
<th>2-6 inches</th>
<th>7-12 inches</th>
<th>&gt;12 inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete - Bay</td>
<td>East Shaft</td>
<td>34</td>
<td>34</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>North Shaft</td>
<td>29</td>
<td>26</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>South Shaft</td>
<td>23</td>
<td>24</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West Shaft</td>
<td>29</td>
<td>17</td>
<td>5</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>NE Cell #1</td>
<td>33</td>
<td>31</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NE Cell #2</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NW Cell</td>
<td>19</td>
<td>17</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SE Cell</td>
<td>22</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SW Cell #1</td>
<td>29</td>
<td>23</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SW Cell #2</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concrete - Steel Edge - Concrete - Bay</td>
<td>East Exterior</td>
<td>19</td>
<td>18</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>North Exterior</td>
<td>23</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>South Exterior</td>
<td>26</td>
<td>22</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West Exterior</td>
<td>19</td>
<td>17</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NON-SAMPLED TOTAL</td>
<td>324</td>
<td>285</td>
<td>29</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The rate of change is based on the assumption that on 4/24/15, all holes had zero standing water.*

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>424</th>
<th>364</th>
<th>61</th>
<th>15</th>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent (%)</td>
<td>100%</td>
<td>71.7%</td>
<td>14.4%</td>
<td>3.5%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>
Water Level Change Distribution 5/12/15 to 5/29/15 (Sampled Locations)

Water Level Change Distribution 4/24/15 to 5/29/15 (Not Sampled Locations)
Recommendation:
FOR APPROVAL

The Department requests approval on the scope and budget related to initiating a select expert consultant review panel for consultation on the overall tower anchor rod testing plan and protocol. A future and separate fund request for the testing plan will be presented at the conclusion of this initial planning phase.

Cost:
$550,000 supplemental capital outlay support

Schedule:
Anticipated duration of work is 2 months upon execution of amended A&E consultant contract.

Discussion:

During the April Toll Bridge Program Oversight Committee (TBPOC) meeting the TBPOC directed the Department to reassemble experts of the recent bolt review team along with additional bridge marine foundations subject matter experts, the Toll Bridge Seismic Safety Peer Review Panel (TBSSPRP) and representatives from the Federal Highway Administration (FHWA) to review recent information associated with the San Francisco-Oakland Bay Bridge (SFOBB) T1 tower seismic anchor rods and particularly make recommendations to the TBPOC as to what evaluations are appropriate. This memo is to communicate to the TBPOC that that team has been contacted and has agreed to participate. This memo further requests financial support for a review and planning phase funding package of $550,000 to pay for the review of the recent information and offer comments and recommendations.
Memorandum

If this effort is funded, then the above described group will review information associated with the T1 anchor rods, including the currently proposed test and evaluation plan. Any modifications to the plan will be incorporated and a cost estimate for the recommended plan will be generated for consideration by the TBPOC.

Included in the attachments are technical biographies of the Seismic Safety Peer Review Panel members and the proposed Tower Anchor Rod Augmented Project Team. FHWA has accepted to support the review efforts and is in the process of confirming the additional members that will participate in this project team.

Attachments:
Seismic Safety Peer Review Panel Member - Technical Biographies
Tower Anchor Rod Augmented Project Team – Technical Biographies
This document provides a summarized biography of the members of the Toll Bridge Program Seismic Safety Peer Review Panel.
Frieder Seible, Ph.D., P.E., M.NAE, M.CAE

Professor Seible is Academic Vice-President, Dean of the Engineering Faculty and Dean of the Information Technology Faculty at Monash University, in Melbourne Australia. Prior to this appointment he served two terms as Dean of the Jacobs School of Engineering at the University of California in San Diego (UCSD). He also served as founding chair of the department of Structural Engineering of UCSD from 1995 until 2001. He is a world-leader in bridge design and strategies to mitigate earthquake damage to buildings and bridges. Dr. Seible chairs the California Department of Transportation Seismic Advisory Board, and has served on or led many national and international committees on bridge design and retrofit for earthquake safety. He serves as a structural engineering consultant on many of the world's long-span bridges; his research achievements include over 600 publications and technical reports primarily related to seismic design of bridges and buildings as well as blast resistant design of critical structures.

Professor Seible's current research interests are in the area of evaluation and protection of critical infrastructure systems; analysis and design of reinforced/prestressed concrete bridges; evaluation and rehabilitation of existing bridge structures and buildings; development of new computer models to predict dynamic and static nonlinear response of reinforced and prestressed concrete structures under service loads, overloads and failure loads; verification of computer models by means of large or full-scale experimental testing; earthquake resistant design of reinforced concrete and concrete masonry structures; development of new large-scale structural testing techniques; seismic assessment and retrofit of bridges; application of Polymer Matrix Composites (PMC) in civil structures; blast assessment and hardening of structures; health monitoring of constructed infrastructure facilities; and terrorist threat/blast mitigation for critical infrastructure facilities; structural safety and functionality of High Speed Rail.

Dr. Seible is a member of the National Academy of Engineering (NAE), is an elected Foreign Fellow of the Chinese Academy of Engineering (CAE), has receive over 40 professional and industry awards, and holds eight honorary professorships.
John Fisher, Ph.D., P.E., M.NAE

Dr. Fisher is professor emeritus of civil engineering at Lehigh University and director emeritus of the ATLSS Engineering Research Center. Dr. Fisher is a graduate of Washington University, St. Louis, Missouri, with M.S.CE and Ph.D. degrees from Lehigh University. A structural engineer, Dr. Fisher is a specialist in structural connections, the fatigue and fracture of riveted, bolted, and welded structures, the behavior and design of composite steel-concrete members, and the performance of steel bridges. In 1986 he was elected a member of the National Academy of Engineering. In 1989 he was elected an Honorary Member of the American Society of Civil Engineers. He was the first academic to receive the Construction-Man-of-the-Year Award from ENR in 1987, and in 1999 was named one of the 125 engineers identified by ENR editors for outstanding contributions to the construction industry since 1874. In 1992 he was awarded the Frank B. Brown medal by the Franklin Institute for his contributions to structural engineering. In 1995 he was awarded the John A. Roebling Medal for lifetime Achievement in Bridge Engineering. In 1997 he was named the Distinguished Lecturer by the Transportation Research Board and the Portevin Lecturer by the International Institute of Welding. In 2000 he was awarded the John Fritz Medal for researching safety and performance of steel structures for the public good by the five Engineering Societies of the United Engineering Foundation, and the Transportation Research Board Roy W. Crum Distinguished Service Award for his contributions to bridge engineering and research. In 2001 the International Association of Bridge and Structural Engineering elected him the Laureate of the International Award of Merit in Structural Engineering. In 2002 the International Association of Bridge Maintenance and Safety awarded him for Bridge Safety. In 2006 he received the Geerhard Haaijer Award for Excellence in Education from the American Institute of Steel Construction. And in 2007 he was awarded the Outstanding Projects and Leaders (OPAL) Lifetime Achievement Award in Education by the American Society of Civil Engineers. Dr. Fisher has published over 300 articles, reports and books in scientific and engineering journals.
I. M. Idriss, Ph.D., P.E., M.NAE

Dr. Idriss a University of California at Davis professor emeritus of geotechnical engineering and independent consulting engineer, has over 50 years of experience in soil mechanics and foundation engineering with emphasis in geotechnical earthquake engineering. During that time, his geotechnical advice has been sought by government agencies and advisory panels around the world. He has been involved with the follow-up analysis of every major earthquake since the 1964 Alaska quake, including those at San Fernando, Mexico City, Northridge and Kobe; he has been part of the team of engineers that descends on a region in the aftermath of a major quake, to analyze damage and determine causes of structural collapse. His research on soil mechanics and foundation engineering has influenced the construction of dams, nuclear power plants, seaports, office buildings, residences, hospitals, railways and bridges around the world. In the wake of the Loma Prieta quake, Idriss was one of eight people named to Gov. George Deukmejian’s Board of Inquiry; the panel was assigned to find out why the Cypress section of I-80 and a section of the San Francisco-Oakland Bay Bridge had failed and how the state could prevent this from happening again. Dr. Idriss has authored or co-authored about 160 technical papers and research reports on subjects related to the geotechnical aspects of earthquake engineering (seismic response of soil deposits; earth structures including slopes, earth and rock fill dams; dynamic soil material properties; liquefaction; soil-structure interaction; and probabilistic deterministic assessment of characteristics of ground motions. The results of his research related to the nonlinear behavior of soils under cyclic loading conditions have been applied to assessing performance of soft sediments during earthquakes. He has been engaged in other research activities that relate to significant duration of earthquakes, simplified procedures for assessment of soil-structure interaction, probabilistic review and assessment of recorded ground motions and associated spectra, and application of probabilistic techniques in geotechnical practice. In 1999, Idriss received a UC Davis Distinguished Public Service Award, an honor that recognizes faculty members who have made public service contributions to the community, state, nation and world throughout their professional careers. This honor followed his 1989 election to the National Academy of Engineering. Other high honors he received include the H. Bolton Seed Medal, ASCE, 1995; Distinguished Member (ASCE, 2008); the Ralph B. Peck Award & Lecture (ASCE, 2010); and Honorary Member of the Earthquake Engineering Research Institute (EERI, 2012) to name a few. Dr. Idriss also served on the state of California’s Seismic Advisory Board and on peer advisory panels for all the Bay Area toll bridge retrofit projects.
This document provides a summarized biography of the members of the technical team assembled to support and advise the California Department of Transportation on the Self Anchored Suspension Bridge T1 Foundation Anchor Rods.
Herbert E. Townsend, Ph.D., P.E.

Dr. Townsend received a BS in Metallurgical Engineering from Drexel University in 1963, and a Ph.D. in Materials Science and Engineering from the University of Pennsylvania in 1967. He is a registered Professional Engineer, a Fellow of NACE and ASTM, and has authored or coauthored over 85 publications and 19 US Patents. From 1967 to 2001, he worked in the research department of Bethlehem Steel Corporation where he held the positions of Engineer, Supervisor, Manager, and Senior Consultant, and was generally active in the development of corrosion-resistant steel products. Significant achievements included: advancing our understanding of the stress corrosion cracking and hydrogen embrittlement of steel fasteners, wire, plate, and pipelines, and establishing the long-term atmospheric corrosion performance of galvanized, Galvalume, and weathering steels. He provided leadership in establishing Bethlehem’s laboratory capabilities in electrochemical testing and surface analysis, including EIS, Auger, XPS, and Raman spectroscopies. A major accomplishment was to lead a research team in developing the relationships between processing, microstructure, and properties that led to the technical and commercial success of Bethlehem's proprietary, hot-dip 55% Al-Zn-alloy coated sheet, Galvalume. He also chaired a joint automotive/steel task force in the successful development of the SAE J2334 accelerated laboratory corrosion test for coated sheet steel automobile body panels. He has been active in AISI, ASTM, NACE, and SAE, and has received numerous awards, including the prestigious NACE Speller Award for significant contributions to corrosion engineering. Upon retirement from Bethlehem Steel in 2001, he founded Townsend Corrosion Consultants, Inc., which provides consulting and expert testimony on the corrosion performance of low-alloy and coated steels for the construction and automotive industries.

Louis Raymond, Ph.D., P.E.

Dr. Raymond has been a pioneer leading the way to a safer world for the past 40 years by incorporating aerospace technology into non-aerospace industries. He received his B.S., and M.S. in Mechanical Engineering and Stress Analysis from Carnegie Mellon University in '54, 56 and his PhD Metallurgy, UC Berkeley in 1963. Dr. Raymond, ASTM, FIAE, worked for 20 years in the R & D Laboratories of the Aerospace Corporation and served as chairman of ASTM Committee F07 on Aerospace and Aircraft and Subcommittee F07.04 on Hydrogen Embrittlement. In 1980, he formed his own company, LRA Engineering Consulting and R&D Labs that specializes in fastener material selection, design and analysis. He has consulted on several bridge projects, including recent work on California’s Carquinez Bridge regarding zinc plated bolts, DOT Wisconsin Bridges (Prairie du Chien and Milwaukee Harbor Bridges), and DOI (Offshore Platforms). His company, LRA Engineering Consulting and R & D Labs, specializes in fastener material selection, design and analysis. In 2006, Dr. Raymond received the Industrial Fasteners Institute (IFI) Roy B. Trowbridge Technology Award, in recognition of significant contributions toward the understanding of hydrogen embrittlement through years of research into accelerated methods for measuring threshold stress and development of the incremental step load technique as a practical means for quantifying and controlling hydrogen embrittlement in fasteners.
Alan W. Pense, Ph.D., M.NAE

Dr. Pense received a BA from Cornell University and M.S. and Ph.D. Degree from Cornell University. He joined the faculty of Lehigh University and served the university as Department Chair, Dean of Engineering and as Provost and Vice President. He is a specialist in physical and mechanical metallurgy and his teaching and research are in these areas. He retired as Provost in 1997 and joined the staff of the Center for Advanced Technology for Large Structural Systems, a Center he helped create. He remains a Professor Emeritus at Lehigh University. He is an active member of the ASM International and the American Welding Society. He was elected a Fellow of both societies. During his career he has also received awards from both societies for his technical publications and lectures. He also received awards from Lehigh University for his teaching and leadership during his career as a faculty member and administrator. He has had an active career as consultant to government agencies and private companies, has served as an expert witness in court and has been a consultant to Universities in the US and overseas. He was elected to the National Academy of Engineering in 1992.

Karl H. Frank, Ph.D., P.E.

Dr. Frank is professor emeritus of The University of Texas and Chief Engineer of Hirschfeld Industries, the largest steel bridge fabricator in the U.S. He has over 40 years of experience in the design and behavior of steel bridges. His research formed the basis of the design of bolted and welded connections, composite plate girders, and fatigue behavior of connections and cables in bridges. He has been awarded by ASCE the J. James R. Croes Medal for his work on the corrosion protection of cable stays and the Raymond C. Reese Research Prize for his work on the fatigue behavior of fillet welds. He recently received a lifetime achievement award from the American Institute of Steel Construction for his work on the fatigue and fracture of steel structures. He was the director of the Ferguson Structural Engineering Laboratory and while at FHWA helped develop the fracture toughness requirements for bridge steels. He was a consultant on the I-35 Bridge collapse and the Sabo Bridge cable connection failure in Minneapolis, stress corrosion anchor bolt failures at the Doha airport, and fracture behavior of the BART tube during a seismic event. He currently serves on the peer review panel on the retrofit of the main span of the Golden Gate Bridge.
Sheldon W. Dean, Jr., Ph.D., P.E.

Dr. Dean received his doctorate from MIT in chemical engineering. He was employed by the International Nickel Company in their Bayonne Research Laboratory in the Corrosion Section for 3 years investigating the stress corrosion-cracking behavior of maraging steels, nickel alloys for nuclear power plant applications and several other projects. He then joined the Olin Metals Research Laboratory in New Haven where he served in several positions including supervising the Corrosion Group. Thereafter he joined Air Products and Chemicals, Inc. in Allentown, PA, in the Corporate Engineering and Safety Department where he headed the Corrosion and Materials Group for 26 years. He is currently the president of Dean Corrosion Technology, Inc., a consulting company specializing in corrosion in industry. Dr. Dean has been author of 109 articles on a variety of subjects mainly in the corrosion field. He has also been the editor or coeditor of ten books on corrosion and has written three monographs on subjects related to corrosion and corrosion testing. He was also the first editor of the Journal of ASTM International. He has twelve US patents, and has been the primary author of ten standards. He is a fellow of the following organizations: AIChE, ASTM International, NACE International, the Materials Technology Institute, and the American Institute of Chemists. He is a Professional Engineer certified by the State of Connecticut, and he is certified as a Corrosion Specialist by NACE International. He has won several prestigious awards including the NACE Frank Newman Speller Award for excellence in corrosion engineering, the ASTM Committee G-1 Francis LaQue Award for contributions in corrosion standards development, the ASTM Award of Merit, and the ASTM William Cavanaugh Award for contributions to the world-wide standardization process.

Jeffrey A. Gorman, Ph.D., P.E.

Dr. Gorman obtained a BCE in 1958 from Cornell University, after which he entered the Navy. In 1959, while in the Navy, he was assigned to Naval Reactors where he worked on design and materials issues related to nuclear propulsion plants. After leaving Naval Reactors, he did graduate work in engineering science at CalTech, with emphasis on materials science, receiving an MS in 1966 and a PhD in 1968. Since 1968 he has worked as a consulting engineer, predominantly on issues related to civilian nuclear power plants, with most of his work involving materials, corrosion, stress analysis, fracture mechanics, and failure analysis. In 1980, Dr. Gorman was a co-founder of Dominion Engineering, Inc. (DEI) which provides engineering services, mostly to the civilian power industry. He retired from the company at the end of 2005, but he continues to actively work for the company on a contract basis. A significant part of his consulting work while working for DEI, first as an employee and currently as a contractor, has been for the Electric Power Research Institute (EPRI). His work for EPRI has included preparation of many workshop proceedings involving steam generator technology, preparation of topical reports on materials and corrosion issues, and assisting in revision of water chemistry guidelines. He has also worked extensively for utilities and other industrial organizations on materials and corrosion issues, such as evaluation of the causes of failures of pressure vessels and piping, and developing predictions of the probable rate of failure of steam generator tubes.
Robert Heidersbach, Ph.D., P.E.

Dr. Heidersbach is a metallurgical engineer with an undergraduate degree from the Colorado School of Mines and a PhD from the University of Florida. He is a registered Professional Engineer in California in both metallurgical and corrosion engineering. He has worked in the construction industry as an Army Corps of Engineers officer in Germany and Vietnam, and, after graduate school, he was the corrosion and failure analysis metallurgist for the Corps at the Construction Engineering Research Laboratory (CERL) in Champaign, Illinois. He was responsible for the installation of the first scanning electron microscope at a Corps of Engineers laboratory. While at CERL he became involved in consulting and recommendations associated with high-strength steel fasteners for a variety of structures as well as becoming the founding chair of the National Association of Corrosion Engineers' Corrosion of Metals in Concrete Committee. In 1974 he became a faculty member in Ocean Engineering at the University of Rhode Island before moving to Oklahoma State University in 1981. He left OSU in 1986 to become the department head of the Materials Engineering program at Cal Poly-San Luis Obispo, where he retired in 2002. Ever since leaving his government job in Illinois, he has been actively involved in corrosion-related consulting and failure analysis. This includes consulting on five continents about a variety of issues and on structures ranging from corrosion in masonry buildings, highway bridges, the Statue of Liberty, and the NASA Kennedy Space Center. He is the author of one book, Metallurgy and Corrosion Control in the Oil and Gas Industry, and is recognized as a NACE Fellow for his research on corrosion.

Thomas Langill, Ph.D., P.E.

Dr. Langill received his BS an MS in Physics from John Carroll University, and his Ph.D. in Materials Science and Engineering from Northwestern University in 1980. Dr. Langill has been involved in the designing, building and testing of laser systems for use in military systems. He provided the materials research for the design of the first production laser diode array for use in a spacecraft laser communications systems. He has written many process specifications for military program materials and production sequences. Dr. Langill has been with the American Galvanizers Association for 20 years as its Technical Director. He has been active in helping shape the research programs for galvanizing programs. He has provided technical support for many Specifiers and engineers who have technical questions about galvanized steel or its use in a particular environment. He writes a regular feature in the American Galvanizers Association Magazine on problems related to hot dip galvanizing. He has authored and presents a seminar series on Processing Details in the Hot Dip Galvanizing Industry. He is the Chairman of the ASTM Subcommittee A05.13 that authors and edits specifications on hot-dip galvanizing of steel articles. He is a member of NACE, ASM, SSPC, ASCE, SME, ISS, and AWS. He is active in presenting papers on hot-dip galvanized steel as well as editing reference articles in ASM volumes and NACE publications on the galvanizing process. He has designed and written a course in training inspectors of hot-dip galvanized articles.
Douglas E. Williams, P.E.

Mr. Williams is a consulting metallurgical and welding engineer in the San Francisco Bay Area. He has over 43 years of experience in metalworking industries and specializes in materials, welding, inspection and quality control/assurance of structural steel and piping. Current clients include engineers, fabricators, owners and testing laboratories and cover the range of metallurgical and welding engineering from new bridge design, fabrication and erection, through CWI training and retrofit implementation to weld inspection. Doug is the consultant for welding issues to the T.Y.Lin – Moffatt & Nichol Joint Venture for the design the new East Span of the San Francisco-Oakland Bay Bridge, including the Skyway and Self-Anchored Suspension sections. He was the subcontractor’s welding engineer for field welding the orthotropic deck sections of the new Alfred Zampa (Carquinez) Bridge and has worked on other bridges in the Bay Area, Seattle, Mexico and elsewhere. He has worked in varied industries that include nuclear, pipeline, offshore structures, marine vessels, buildings and bridges. Doug has published papers in five major technical conferences including "Codifying Orthotropic Closed Rib Fabrication" for the Third Orthotropic Bridge Conference in 2013. Also, he was Chair for Ch. 6 "Test Methods for Evaluating Welded Joints" of the American Welding Society Welding Handbook, Vol. 1, 9th Ed., 2001. He is a Registered Professional Engineer (Metallurgy) in California, a Registered International Welding Engineer through IIW and an AWS Senior CWI.

John M. Kulicki, Ph.D., P.E., M.NAE

Dr. Kulicki is a graduate of Lafayette College and Lehigh University and has over forty years of experience in virtually all aspects of bridge analysis and design. He joined Modjeski and Masters in 1974 and is currently, Chairman Emeritus. His experience is derived from design, research, code development, and teaching. He led a 50-member team of experts in the development of the AASHTO LRFD Bridge Design Specifications. Dr. Kulicki was named one of ENR’s "Men Who Made Marks" in 1991 and received the George S. Richardson Medal at the 1996 International Bridge Conference for that work. He is the author of the AASHTO, "Guide Specifications for Load Factor Design of Trusses", for which he was named one of ENR’s "Men Who Made Marks" in 1984. In 2002 and 2003 he served as Vice-Chairman of the AASHTO/FHWA Blue Ribbon Panel on Bridge and Tunnel Security. In 2000 he was named “Engineer of the Year” for 2000 by the Central Pennsylvania Engineers Week Council, and received a “Special Citation” from the National Steel Bridge Alliance for contributions to the art and science of bridge engineering in 2001. In 2002 he received a “Life Time Achievement Award” from the American Institute of Steel Construction. Also in 2002 he was named “Engineer of the Year” by the Pennsylvania Society of Professional Engineers. In 2005, he received the “Bridge Design Award” from the Bridge Engineering Association and the Transportation Research Board’s Roy Crum Award, and was elected to the National Academy of Engineering in the Class of 2006. In 2008 he was named a Lifetime National Associate of the National Research Council. In 2009 he received the Richard S. Fountain Bridge Task Force Award from the AISI Bridge Task Force and the AASHTO Technical Committee 14, in 2010 he received the Walter P. Moore Award from the ASCE-SEI and the John A. Roebling Medal at the International Bridge Conference and in 2011 was selected to receive AISC’s Kimbrough Award.
Robert B. Bittner, P.E.

Mr. Bittner is a professional engineer with 44 years experience in construction engineering and project management on major marine structures worldwide including the Itaipu Dam in Brazil and the Oresund Tunnel connecting Denmark and Sweden. He is currently consultant to the Danish Government on a new 19 km immersed rail and highway tunnel to connect Denmark and Germany, the Femern Link. The focus of his work has been minimizing construction cost of major marine structures through the design and development of innovative construction methods and equipment. Mr. Bittner is currently President of Bittner-Shen Consulting Engineers, Inc, a firm specializing in the design of innovative marine structures including bridge foundations, marine terminals, offshore GBS structures, locks and dams. Prior to starting his own firm in 2009, Mr. Bittner was President of Ben C. Gerwick, Inc. While at Gerwick, he provided construction-consulting services worldwide and managed the design of several marine structures, including an innovative float-in dam on the Monongahela River in Pennsylvania for the US Army Corps of Engineers. Additionally, he led the Gerwick team that developed a new float-in cofferdam system that has been successfully used on the foundations for the New Bath-Woolwich Bridge in Maine, the New Carquinez Bridge in the San Francisco Bay Area, the recently completed Port Mann Bridge in Canada, and three major bridges in Asia. While at Gerwick, he also lead the design team that designed the 2 mile long Inner Harbor Navigation Canal (IHNV) Storm Surge Barrier for the U.S. Army Corps of Engineers in New Orleans. Mr. Bittner was Chairman of the Marine Foundations Committee for the Deep Foundation Institute (DFI) for 6 years from 2003 to 2008, and is currently President of DFI.

TEAM MEMBER FROM FHWA (TBD)
TO: Toll Bridge Program Oversight Committee (TBPOC)  
DATE: June 3, 2015

FR: Dan McElhinney, Chief Deputy District Director, Caltrans District 4  
Brian Maroney, SFOBB Project Chief Engineer, Caltrans District 4

RE: Agenda No. - 2a4  
Item- SAS Tower Anchor Rod – Testing Plan, Budget Forecast, and Funds Request

Recommendation:  
INFORMATION

Cost:  
See Below

Schedule:  
Anticipate 3 months to complete upon approval of testing plan by Peer Review Panel

Discussion:  
During the contractor’s work to repair grouting of the tower seismic anchor rods, which began in September 2014, additional investigation of a few rods both by field removal and lab testing was required as previously outlined. Attached is a draft Seismic Tower Anchor Rod Testing Program which will be presented to the requested peer review group, once approved and convened. These tests will be further discussed with the peer review group where some tests may be added and some may be revised or removed from this draft testing program by that process. The total capital outlay support (COS) expenditures for the unanticipated anchor rod grout and rod investigation since September 2014 through April 2015 (including state and consultants) is nearly $2.8 million. The forecast for May and June of 2015 COS for ongoing tower anchor rod investigation will bring the total to about $4.0 million COS for this fiscal year, which is estimated to be within the overall COS budget for FY 14/15. Capital outlay (CO) expenditures, including contractor work to load test rods and remove rod 3 and rod 4, is expected to be below $750,000 and within the $1 million CO approved allocation.

Attachments:  
Draft Tower Seismic Anchor Rod Testing Program (updated 6/2/2015)
### Tower Seismic Anchor Rod Supplemental Test Plan (In-Progress: Updated as of: 06/02/2015)

<table>
<thead>
<tr>
<th>Project Stage</th>
<th>Test Name</th>
<th>Test Purpose</th>
<th>Testing Completion %</th>
<th>APPROX. Testing Start Date</th>
<th>Est. Testing Completion Date</th>
<th>Initial Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART 1</strong></td>
<td><strong>Stage 1</strong></td>
<td>Anchor Rod Water Sampling</td>
<td>Check chloride contents for comparison with Bay Water (for accuracy of origin of water)</td>
<td>100%</td>
<td>09/2015</td>
<td>09/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Check for other chemical and biological components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 2</strong></td>
<td>Mechanical Testing</td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td>100%</td>
<td>01/2015</td>
<td>02/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 3</strong></td>
<td>Analysis of Geotechnical &amp; Chemical Analysis</td>
<td>Thickness determination, Microscope examination of grain.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 4</strong></td>
<td>SEM &amp; Optical Microscopy</td>
<td>Microscope examination of thread rods and shank.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 5</strong></td>
<td>Examination of Water Samples</td>
<td>Determine the diameter of the rod along the threaded length.</td>
<td>5%</td>
<td>05/2015</td>
<td>06/2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 6</strong></td>
<td>Small Specimen Tensile (Compression Test) (Thinned pieces and Blank)</td>
<td>To determine the internal corrosion cracking threshold level for the full diameter rods by using ASTM 436, accelerated incremental step load test method on small threaded specimens.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 7</strong></td>
<td>SEM &amp; Optical Microscopy</td>
<td>Microscope examination of thread rods and shank.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 8</strong></td>
<td>Examination of Water Samples</td>
<td>Determine the diameter of the rod along the threaded length.</td>
<td>5%</td>
<td>05/2015</td>
<td>06/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 9</strong></td>
<td>Small Specimen Tensile (Compression Test) (Thinned pieces only)</td>
<td>To determine the internal corrosion cracking threshold level for the full diameter rods by using ASTM 436, accelerated incremental step load test method on small threaded specimens.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 10</strong></td>
<td>SEM &amp; Optical Microscopy</td>
<td>Microscope examination of thread rods for 9 specimens.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015 (Compl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 11</strong></td>
<td>Microscopy Examination of 3 thinned and 1 unwashed shank</td>
<td>Compare thread root indications with examination of alltested bolts.</td>
<td>100%</td>
<td>05/2015</td>
<td>06/2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stage 12</strong></td>
<td>Anchor Rod Water Leaks Monitoring</td>
<td>Monitor and document water leaks.</td>
<td>Continuous Effort</td>
<td>06/2015</td>
<td>06/2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work for mechanical properties of the tower anchor rods such as tensile strength, hardness &amp; for other information such as impact toughness. The data provides for comparison to and information collected &amp; specified water.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Red items to be removed:** Start by UT testing, two other closely located tests will be tested for comparison.
Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)  DATE: June 3, 2015

FR: Dan McElhinney, Chief Deputy District Director, Caltrans District 4
Steve Whipple, SFOBB Principal Construction Manager, Caltrans District 4

RE: Agenda No. - 2b

Item- Project Budget, Costs, Forecast, and Funds Request

Recommendation:
Approval

Cost:
See Below

Schedule:
Completing FY 14/15 staffing/consultant support of contracts and anchor rod work

Discussion:
The TBPOC budget history for FY14-15 is summarized below for reference, and a program look-ahead chart handout on total CO and COS forecast through 2018 is attached. For this FY 14/15 the COS expenditures data now available through April 2015 totals for construction contracts support is $33.7M. In addition, the COS expenditures data through April 2015 is at least $2.8M for the ongoing unanticipated SAS tower anchor rod initial investigation, which includes TBPOC approved field and lab rod testing, expert peer reviews, staffing, and consultant support. Therefore, the total COS expenditures data through April 2015 is $36.5M. The FY budget approved by the TBPOC to date is $42.84M.

The project team managers from Caltrans METS, Construction, Design, and Program Management, reviewed all workload in detail beginning in January through June to reduce costs and focus on resource management. Construction project staffing on site and East Span support staff within the department have been reduced each month. Each consultant contract manager was asked to reconsider all workplans and estimates monthly, while also considering the expanded scope of work on tower
Memorandum

anchor rod investigation, including load testing all 422 rods and the additional field and lab testing expected.

As a result, the expenditures have reduced each month, and an action plan to finish the year within the current COS Budget was developed for May and June. The updated forecast to finish FY14/15 is currently between $42.5M and $43.0M, which is within 1% of the approved COS Budget for FY 14/15 (depending on accounting data system variables which will be known as final reports are completed in July/August 2015).

Therefore there is no supplemental funding request today. An updated accounting and forecast for FY14/15 and FY15/16 will be presented at the scheduled TBPOC meeting June 23, 2015.

Below is a summary of activities documented from past TBPOC meetings and decisions for reference relating to the 2014/15 FY capital outlay support budget:

May 11, 2015 (TBPOC Meeting):
A request for supplemental COS funding was not approved. The presentation was asking to consider the expanded scope of work on tower anchor rod investigation, including load testing all 422 rods and the additional field and lab testing expected, the updated forecast to finish FY14/15 which was $45.5M. It was recommended to supplement the FY 14/15 COS budget of $42.84M with $1.7M plus a $1M contingency to a TBPOC approved budget level of $45.5M - which included continued reduction of East Span contracts staff and consultant support, the additional tower seismic anchor rod investigation testing plan, and the $1M contingency based on developing workload needs anticipated in May and June 2015.

May 4, 2015 (TBPOC Urgent Meeting):
During the May 4, 2015 TBPOC urgent meeting, during contract completion strategy discussions the Department presented the possible need for additional tower anchor rod investigation testing, related water level and water quality testing, and impacts to the 2014/15 FY approved budget. The TBPOC approved an additional 2014/15FY COS budget of $440,000 for the TBSRP Program supplementing the approved budget from $42.4M to $42.84M. The Department is to present a full testing plan with scope, updated cost estimates, and timelines to be presented at the next TBPOC meeting for consideration.
April 17, 2015 (TBPOC Regular Monthly Meeting):
At the April 17, 2015 TBPOC meeting in Sacramento, Caltrans presented the COS update with COS expenditures data through March 2015 of $31.8M for construction contracts and an additional $1.7M expended for the ongoing unanticipated SAS tower anchor rod initial investigation related-work through March for this fiscal year. The total COS expenditures data through March 2015 is $33.5M. The PMT planned to review the FY 14/15 work plan of staffing and consultant contracts to further define options to maintain the current approved budget of $42.4M, and review the additional tower anchor rod investigation testing plan proposal cost estimates and cost risks. Caltrans has reduced consultants and state staff, reducing staff assignments and reassigning staff to locations of need and priorities. Challenges ahead that require additional staff support include work with anchor rod investigation, with Coast Guard, YBI ramps and TIDA work. Discussion included upcoming opportunity milestones that influence staffing assignments: completion of SAS contract and SAS tower anchor rod testing, and continued progress of cantilever demolition, and 504/288 contractor-suggested alternate construction methods. The TBPOC noted the biggest influence on change on COS depends on what is decided for the testing program of the tower base rods, which can be an additional $3-5M. Confirmed costs are to be presented at May TBPOC meeting.

April 1, 2015 (TBPOC Urgent Meeting)
During the April 1, 2015 TBPOC urgent meeting, the Department presented the possible need for additional tower anchor rod investigation testing, related peer reviews, and impacts to the 2014/15 FY approved budget. The TBPOC approved an additional 2014/15FY COS budget of $1M for the TBSRP Program from $41.4M to $42.4M. The Department is to present a full testing plan with scope, updated cost estimates, and timelines to be presented at the next TBPOC meeting for consideration.

March 5, 2015 (TBPOC Regular Monthly Meeting)
As requested, the Department presented an overall work plan for 2014/15 FY to match the $41.4M approved in January 2015, with updated expenditure data of $26.8M through to January 2015 including new expenditures data and budget impacts of unanticipated workload for the SAS anchor rod investigation. The discussion clarified the new work would need to initially utilize a portion of the current COS contingency to proceed with METS contract anchor rod UT and SEM testing- the Department was still in the process of evaluating the additional cost risks and planned to present updated information at the April TBPOC meeting. The Department was tracking the $41.4M approved budget.
January 27, 2015 (TBPOC Regular Monthly Meeting)
BATA, representing the PMT, presented the updated proposed COS mitigation plan, recommending a $3M augmentation to the existing approved COS 2014/15 FY budget from $38.4M to $41.4M. The TBPOC approved the updated proposed budget. The TBPOC requested for the PMT to return to the March TBPOC meeting to present a work plan to match the $41.4M with $1M in unallocated contingency.

December 1, 2014 (TBPOC Urgent Meeting)
The Department presented the COS mitigation plan to reduce overall COS 2014/15 FY forecast from $49.8M to $44.8M ($6.4M above the approved COS budget). The chair noted that BATA will present a counter offer to the Department’s COS mitigation plan for 2014/15 FY and for the rest of the program in an effort to result in a better forecasted figure.

November 4, 2014 (TBPOC Regular Monthly Meeting)
The Department presented the third quarter 2014 COS update that provided information on the 2014/15 FY forecasted amount of $49.8M against the 2014/15 FY approved budget of $38.4M ($11.4M above the approved COS budget). A number of unanticipated additional work was discussed that resulted in the budget variance. The TPBOC requested the Department to present a COS mitigation plan at a TBPOC conference call prior to the December 3rd TBPOC monthly meeting. (Conference call was held on December 1, 2014.)

April 11, 2014 (TBPOC Regular Monthly Meeting)
During the April 11th 2014 TBPOC Monthly meeting, the TBPOC approved a 2014/15FY COS budget of $38.4M for the TBSRP Program. The TBPOC also approved the Department’s request for an additional increase of $84.4M to the TBSRP COS total budget, resulting from $1221.6M to $1306M.

Attachments:
Capital Outlay and Capital Outlay Support Expenditures and Forecast Charts
### Toll Bridge Seismic Retrofit Program

#### CO and COS Cash Flow for East Span Projects

#### Expenditure thru March 2015

<table>
<thead>
<tr>
<th>Project</th>
<th>Capital ($ in millions)</th>
<th>CO Forecast ($ in millions)</th>
<th>COS ($ in millions)</th>
<th>COS Forecast ($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Bay Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0120F, SAS-Superstructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0120M, OTD Eastbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0120T, YBITS2-Cant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01350, YBITS3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01352, Superstructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01353, Marine Foundation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**

1) CO & COS Forecast are based on draft 1st. Quarter Data.

2) We project that the Current Approved Budget of $1305.5M will be exhausted by the end of March 2016.