TBPOC July 9, 2015

SUPPLEMENTAL PACKET
ITEM 4A

Budget Forecast

(CO/COS Forecast FY 15/16)
FY 15/16 Capital Outlay Support (COS) Budget Request
Agenda Item 4a
Outline

• New Workplan Development with Team
• CO and COS Cash Flow
• Schedules
• COS Budget Request
• Workplan by Contract
• Workplan for Anchor Rods
• FY 15/16 COS Budget Request
• $10M Review
• Recommendation
Toll Bridge Seismic Retrofit Program
CO and COS Cash Flow for East Span Projects
Expenditure thru March 2015

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 2018.
# TBSRP FY 15/16 COS BUDGET REQUEST
## WORKPLAN SUMMARY BY CONTRACT

<table>
<thead>
<tr>
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<td>0.5</td>
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<td>$1,246</td>
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</table>

**Total COS Budget Request** $31,400K

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**Notes:**

1. Assumptions in this COS Budget Request include no contingency or risk reserve for scope or schedule changes at this time, as these changes will only be presented as separate future budget requests if unmitigated risks, scope or schedule changes occur.

2. "Others" include: Dumbarton Public Access, YBI Landscape, YBITS 1 and West Approach Landscaping.
NEW WORKPLAN DEVELOPMENT

• Request expert managers to review all contracts
• Identify major activities/tasks in FY15/16
• Outline work ahead for each contract
• Estimate resources need based on scope
• Match needs efficiently with State or A&E Resources
• Group work where possible
• Focus on known workload and identify risks
NEW WORKPLAN DEVELOPMENT

• Task managers (Const, Env, Design) estimate effort and resources
  ✓ Consider project activities ahead and schedule
  ✓ Define workload hours
  ✓ Estimate staffing and A&E needs
  ✓ Assess cost efficiencies

• Task managers
  ✓ Deanna Vilcheck, YBITS2, OTD2, Marine Foundation & E3
  ✓ Bill Casey, 504/288 & SAS
  ✓ Brian Maroney, SAS Rods Investigation, A&E/METS
  ✓ Ade Akinsaya, SAS/Demo Design
  ✓ Ali Banani, PM COS QC/A&E Contracts
  ✓ Steve Hulsebus, Technical Support
  ✓ Stefan Galvez-Abadia, Environmental Support
  ✓ Steve Whipple, Corridor QA
YBITS2
TOTAL CAPITAL: $92.4M + $69.0M

Scope:

- Demolish the Yerba Buena Island Detour structure and the cantilever section
- Construct east bound on-ramp (EBOR) from YBI, bike path and improvements to the U.S. Coast Guard (USCG)

Construction Staff: $2.8M or 10.7 FTE

- Perform inspection of edge beam support construction and bike path erection
- Perform safety reviews to ensure public and work safety
- Ensure SWPPP compliance

A&E: $4.2M

- Provide environmental support for compliance with 7 state and federal agencies’ permits
- Inspect fabrication/painting of bike path handrail and supports

Risks:

- Environmental compliance and additional requirement for USCG license (expires 2016)
- Delay due to nesting birds
- Unanticipated discharges from construction activities or storm events
- Accommodation of public access after bike path opening
YBITS2 – FY 15/16 WORKPLAN

YBITS2 COS Estimate
$9.5M

A & E
$4.3M

Alta Vista
$1.7M

ENV
$0.7M

Others*
$0.9M

Field Const
10.7 PY
2.7 M

State
$5.2M
20.5PY

Other Div
9.8 PY
$2.5 M

MEP Integration
- Install/Terminant Water,
  Sewer & Air lines
- Complete lighting
  system on the main line
- Complete Arc Flash work
  & ground testing of elect system
- Dgn/Const/integration BASE system
- Final integration of BASE, TOS system

Design Support
- Address RFIs, CCO drawings
  & Reviewing shop drawings

* Others include HANNA, Caltrop, TYLin/MN.
504/288 DEMO
TOTAL CAPITAL: $103.5M

Scope:

• Demolish 1.3 miles of steel superstructure/columns. Five 504’ & fourteen 288’ steel truss spans.
• Lower truss sections and transport by barge to site on pier for dismantling and disposal

Construction Staff:  $3.6M or 14 FTE

• Perform safety reviews to ensure public and work safety
• Perform bird monitoring and inspect bird deterrents
• Ensure compliance for SWPPP and hazardous materials disposal

A&E:  $2.5M

• Provide environmental support for permit compliance
• Provide technical support and analysis for dismantling activities

Risks:

• Changes to as-built condition of existing structure that affect demolition means and methods
• Delay due to nesting birds, fish or marine mammals
• Unanticipated discharges from construction activities or storm events
• Unanticipated effects of hazardous materials on construction activities and public access
504/288 Demo COS Estimate
$7.1M

- A & E
  - $2.5M

- ENV
  - $2.2M

- Others*
  - $0.3M

- State
  - $4.6M
  - 18.2 PY

- Field Const
  - 14.0 PY
  - $3.6M

- Other Div
  - 4.2 PY
  - $1.0M

* Others include Alta Vista, Caltrop.

- Environmental Support
- Mitigation Support
- Tech support & Analysis for Dismantling activities
- Permit Applications & Amendments
- Hydroacoustic Monitoring
- Biological Monitoring
- Permit Compliance Report (field monitoring/reporting
- Bird Monitoring
- Construction Admin
- Review Submittals
- Hazardous Materials Disposal
- Electrical Removal
- AC/Concrete Deck Removal
- Temporary Works Construction
- Lowering of Truss Sections
- Truss Section Dismantling
- Environmental Support
- Public Affair
- Management
- Design Support
- Const. Support
- Safety Reviews
Scope: Demolish, over and in water, foundations E2 and E4-E22 by CMGC

Construction Staff: $0.8M or 3.3 FTE

- Provide support to prepare PS&E

A&E: $3.1M

- Provide environmental support for permit amendments, env. document and compliance
- Perform additional mitigation and monitoring
- Provide technical support and analysis for dismantling activities

Risks:

- Undetermined dismantling methodology
- Undetermined construction window
- Undetermined material disposal site
- Changes to as-built condition of existing structure that affect demolition means and methods
- Delay due to nesting birds, fish or marine mammals
MARINE DEMO – FY 15/16 WORKPLAN

Marine Demo COS Estimate
$6.2 M

A & E
$3.2 M

Kiewit/Manson
$0.8 M

ENV
$2.0 M

Others*
$0.4 M

Field Const
3.3 PY
$0.9 M

State
$3.0 M
11.6 PY

Design
5.0 PY
$1.3 M

Others
3.3 PY
$0.8 M

• CMGC effort

• Environmental Support
• Mitigation Support
• Tech support & Analysis for Dismantling activities
• Permit Applications & Amendments
• Hydroacoustic Monitoring
• Biological Monitoring
• Water quality
• Inter agency consultation
• Reporting/field monitoring

• Field Const. Support
• Management
• Scheduling
• Risk Management
• Design Support

• Submittals
• Remove Fndn.
• CCO Work

• Work with CMGC contractor to prepare design plans
• PM Coord. to split remaining contracts
• Prepare PCRs, Cost estimates & Specification
• PS&E packages for all remaining contracts
• Support Construction during construction activities

* Others include Caltrop, EMI.
Scope: Demolish the E3 foundation in the bay

Construction Staff: $1.2M or 3.6 FTE

- Prepare for foundation removal activities
- Administer CCOs
- Coordinate implosion with adjacent contracts and waterways

A&E: $1.2M

- Provide environmental support for permit amendments, env. Document and compliance
- Perform additional mitigation and monitoring
- Provide technical support and analysis for dismantling activities

Risks:

- Permits delay
- Changes to as-built condition of existing structure that affect demolition means and methods
- 1-month construction window
- Incomplete or partial demolition
- Delay due to nesting birds, fish or marine mammals
- Materials spill-over outside of approved footprint
PIER E3 DEMO – FY 15/16 WORKPLAN

E3 Demo COS Estimate
$3.1 M

A & E
$1.2 M

ENV
$0.7 M

Others*
$0.5 M

State
$1.9 M
7.3 PY

Field Const
3.6 PY
$0.9 M

Design
2 PY
$0.5 M

Others
1.7 PY
$0.5 M

• Environmental Support
• Mitigation Support
• Tech support & Analysis for Dismantling activities
• Permit Applications & Amendments
• Hydroacoustic Monitoring
• Biological Monitoring

• Field Const. Support
• Management
• Scheduling
• Risk Management
• Design Support

• Prep/Remove E3 Fndn Fndn
• Claims
• CCO Work
• Coordinate implosion

• Support cont. Specification
• Coord. With external agencies
• General cont. support
• Cost estimates for CCOs

* Others include Alta Vista, EMI.
Scope: Contract close-out

Construction Staff: $0.3M or 1.4 FTE

- Prepare proposed final estimate (PFE) and resolve contractor's exceptions
- Prepare District claim report for claim resolution process
- Complete as-built and archive construction records

A&E: $2.1M

- Provide support for contract close-out
- Prepare maintenance manual
- Complete redesign and provide support for W2 bike path brackets

Risks:

- Timely resolution of PFE exceptions, claims and close-out of contract
SAS – FY 15/16 WORKPLAN

SAS COS Estimate
$2.7 M

A & E
$2.1 M

TY Lin/MN
$1.1 M

Alta Vista
$0.15 M

Others*
$0.85 M

State
$0.6M
2.5 PY

Field Const
1.4 PY
$0.3M

Others
1.1 PY
$0.3 M

• Support Ongoing Tests IV (corrosion specialist)
• As-built plan changes
• Design Cable
• Travelers/Load Rating
• Redesign Bike path Brackets & Review shop drawings
• Project Admins
• Complete Maint. Manual

• Project closeout
• documentation

• Claims
• PB Design Support (As-Builts)

• Punchlist Work
• Material/Project Record Closeout
• Proposed Final Estimate/ Final Estimate
• Final Documentation
• Demobilization

• Public Affair
• Management
• Design Support
• Const. Support
• Mets Support

• Others include CH2M Hill, PB, Fugro-Earth Mechanic
Scope:

• Construct remaining approach structure from the toll plaza to the new span
• Construct the bicycle/pedestrian path, parking and final landscaping

**Construction Staff:** $0.2M or 0.9 FTE

• Ensure maintenance of bike path
• Complete plant establishment period
• Prepare proposed final estimate (PFE) and resolve contractor’s exceptions
• Complete as-built and archive construction records

**A&E:** $0.24M

• Provide support for contract close-out
• Prepare maintenance manual

Risks:

• Resolution of shore bird roosting habitat mitigation
• Resolution of permit requirement for parking lot and public access
• Timely resolution of PFE exceptions, claims and close-out of contract
OTD2 – FY 15/16 WORKPLAN

OTD2 COS Estimate $0.62M

A & E 0.24M
- As-builts, O&M Manuals

PB Design $0.24M

State $0.4M 1.5 PY

Field Const 0.9 PY $0.2M
- Bikepath Maintenance
- Toll Plaza (plant irrigation)
- Plant Establishment
- Punchlist Work
- Claim
- Material/Project Record Closeout
- CCO Work

Others 0.6 PY $0.2M
- Public Affair
- Management
- Design Support
- Const. Support
**Scope:** Perform investigations and form expert peer review panel for recommendation

- Work with expert peer review panel to provide recommendations
- Coordinate to testing and reviews

**A&E:** $1.25M

- Assemble expert peer review panel
- Complete initial rod testing and Rod 3 failure analysis

**Risk:**

- Implementation of recommendations from the expert group for the tower anchor rods will be provided separately for TBPOC approval in July and September 2015.
SAS TOWER ANCHOR RODS KNOWN WORKLOAD

Anchor Rods Investigation COS Estimate $1.5 M

- A & E $1.25 M
  - TY Lin $0.40 M
  - Alta Vista $0.85 M

- State $0.25 M 1 PY
  - Const. Support
  - METS Support
  - PIO
  - Design Support

- Seismic Anchor Rods Expert Group – Only the Recommendation Phase
- Rod Testing Approved to Date
- Rod 3 Failure Analysis
- Meetings/Presentation/Reports
## TBSRP FY 15/16 COS BUDGET REQUEST
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2. "Others" include: Dumbarton Public Access, YBI Landscape, YBITS 1 and West Approach Landscaping.
$10M COS REVIEW

• Prioritize the $10M COS:
  ✓ $1.5M Known Anchor Rod thru Sept.
  ✓ $0.62M OTD2 completion
  ✓ $0.74M Other contracts (Dumbarton, YBI Landscape, YBITS1, West Approach Landscape)
  ✓ $2.72M SAS Close-out ($4.92M subtotal)
  ✓ $3.1M E3 Pier Demo with November commitment ($8M subtotal)

• $2M left for all remaining needs of YBITS2, 504/288, …
• (YBITS2 needs $9.5M, 504/288 $7.1M)
• Suspend Marine Demo? ($6.2M)

Recommendation:
• Focus on task managers’ evaluation of FY work to complete contracts, PS&E and rod investigations.
Recommendation:

• Based on updated workplan and completed estimating process, it is recommended the TBPOC approve a reduced FY 15/16 COS Budget Request amount of $30 million for the on-going East Span projects and $1.5 million for the known SAS tower seismic anchor rod investigation underway as of July 1.
## Annual Budget Options

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<td>2</td>
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<td>3</td>
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<td>Environmental Inspector</td>
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<tr>
<td>6/2</td>
<td>Design Engineer</td>
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14 FTE
### East Span Expenditure, Forecast & Budget Trend (Semiannually)

First half of 2015 data is based on the first quarter 2015 Program Report.

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<tr>
<th>Period</th>
<th>Forecast</th>
<th>Current Appr. Budget</th>
<th>Expenditures</th>
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<tr>
<td>2nd 11</td>
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<tr>
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<tr>
<td>2nd 18</td>
<td>$1,373</td>
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Legend:
- **Forecast**
- **Current Appr. Budget**
- **Expenditures**

- TBPOC approved inclusion of COS risk in forecast.
ITEM 5a

YBITS 2 Contract Update
TBPOC Briefing
Yerba Buena Island Phase II
Contract Update
Yerba Buena Island Phase II
Yerba Buena Island Phase II

Abutment W11
Yerba Buena Island Phase II
Yerba Buena Island Phase II

United States Coast Guard Base Embankment Confinement System (ECS)
Questions
ITEM 5b

Pier E3 Demo Contract Update
TBPOC Briefing
E3 Foundation Removal
Contract Update
E3 Foundation Removal

Approximate Mudline: Elev. = -52.2 ft

- Green: Indicates existing
- Green with line: Indicates limits of removal using mechanical means
- Red: Indicates limits of blasting

Buttress

Elev. +8.9 ft
See Note
Elev. 0.0 ft
Elev. -6.0 ft

Elev. -51.5 ft

Elev. -77.1 ft

Dispose of concrete debris into caisson cells

Completed
Questions
ITEM 5c2
SAS Tower Anchor Rod Investigation Update
## SAS T1 Seismic Anchor Rod Expert Group

### Schedule

<table>
<thead>
<tr>
<th>2015</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
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<tr>
<td>6/19</td>
<td>MEETING</td>
<td>6/26</td>
<td>Team Comments Due</td>
<td>6/19</td>
</tr>
<tr>
<td>6/26</td>
<td>Incorp. Comments</td>
<td>7/3</td>
<td>2nd Teleconf. Meeting</td>
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<tr>
<td>7/3</td>
<td>MEETING</td>
<td>7/15</td>
<td>3 Days Workshop</td>
<td>7/31</td>
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<tr>
<td>7/17</td>
<td>Incorpor. Comments</td>
<td>7/16</td>
<td>Produce Draft Scope of Tests and Analysis</td>
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<td>7/24</td>
<td>Incorpor. Comments</td>
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<td>7/31</td>
<td>MEETING</td>
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<td>Scope, Schedule &amp; Cost for Sep. TBPOC Approval</td>
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### Items
- **Mission Statement & Status Update**
- **Team Comments Due**
- **2nd Teleconf. Meeting**
- **3 Days Workshop**
- **Verification on Workshop Comments & Recommendations**
SAS T1 Seismic Anchor Rod Expert Group

- Alan Pense, Ph.D., M.NAE
- Louis Raymond, Ph.D., P.E.
- Jeffrey A. Gorman, Ph.D., P.E.
- John Kulicki, Ph.D., P.E., M.NAE
- Robert H. Heidersbach, Ph.D., P.E.
- John Fisher, Ph.D., P.E.
- Frieder Seible, Ph.D., P.E.
- Herbert E. Townsend, Ph.D., P.E.
- Karl H. Frank, Ph.D., P.E.
- Robert Bittner, P.E.
- Sheldon W. Dean Jr., Sc.D., P.E.
- Thomas J. Langill, Ph.D.
- Douglas E. Williams, P.E.
- Greg Kolle et al., P.E., FHWA
- Brian Kozy, Ph.D., P.E., FHWA
# SAS T1 Seismic Anchor Rod Draft Test Plan

## Tower Seismic Anchor Rod Supplemental Test Plan (In-Progress - Updated as of: 06/15/2015)

<table>
<thead>
<tr>
<th>Test No.</th>
<th>Test Name</th>
<th>Test Photos</th>
<th>Test Phases</th>
<th>Test Phases</th>
<th>PC Test Start Date</th>
<th>PC Test Completion Date</th>
<th>Test Procedure</th>
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<tbody>
<tr>
<td>1</td>
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<td>A beam samples, reinforcement test, and test to determine the beam.</td>
<td>Completed for anchor tests and (completed after the anchor tests)</td>
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<td>1/2/2015</td>
<td>2/2015</td>
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<td>Reducing the test to a test of crushing and compressive testing of the anchor.</td>
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<td>1/2/2015</td>
<td>2/2015</td>
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7/10/2015
Recommendations

• Design Dehumidification System
• Protection System-Backfill Material
• Restart Raymond Testing Work
• Purchase Jacking Equipment
## Conversion Table for Seismic Anchor Rod Tension

### 3" Diameter Rods

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<thead>
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<th>Details</th>
<th>Fraction Fy</th>
<th>Fraction Fu</th>
<th>kN</th>
<th>kips</th>
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<tbody>
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### 4" Diameter Rods

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<td>0.37</td>
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</table>
Grade 40 Rebar - Theoretical Properties

Stress (ksi) vs. Strain graph with:
- Peak stress (Fu) = 70 ksi
- Yield stress (Fy) = 40 ksi
Full Size - Tower Rod 1 (150-1-2)

Note: Per ASTM A354, Grade BD for 3 inch diameter rod, minimum tensile strength (Fu) is 140 ksi and yield strength (Fy) is 115 ksi.
Reduced Section - Tower Rod from Rod 1 (150-1-2)

Note: Per ASTM A354, Grade BD for 3 inch diameter rod, minimum tensile strength (Fu) is 140 ksi and yield strength (Fy) is 115 ksi