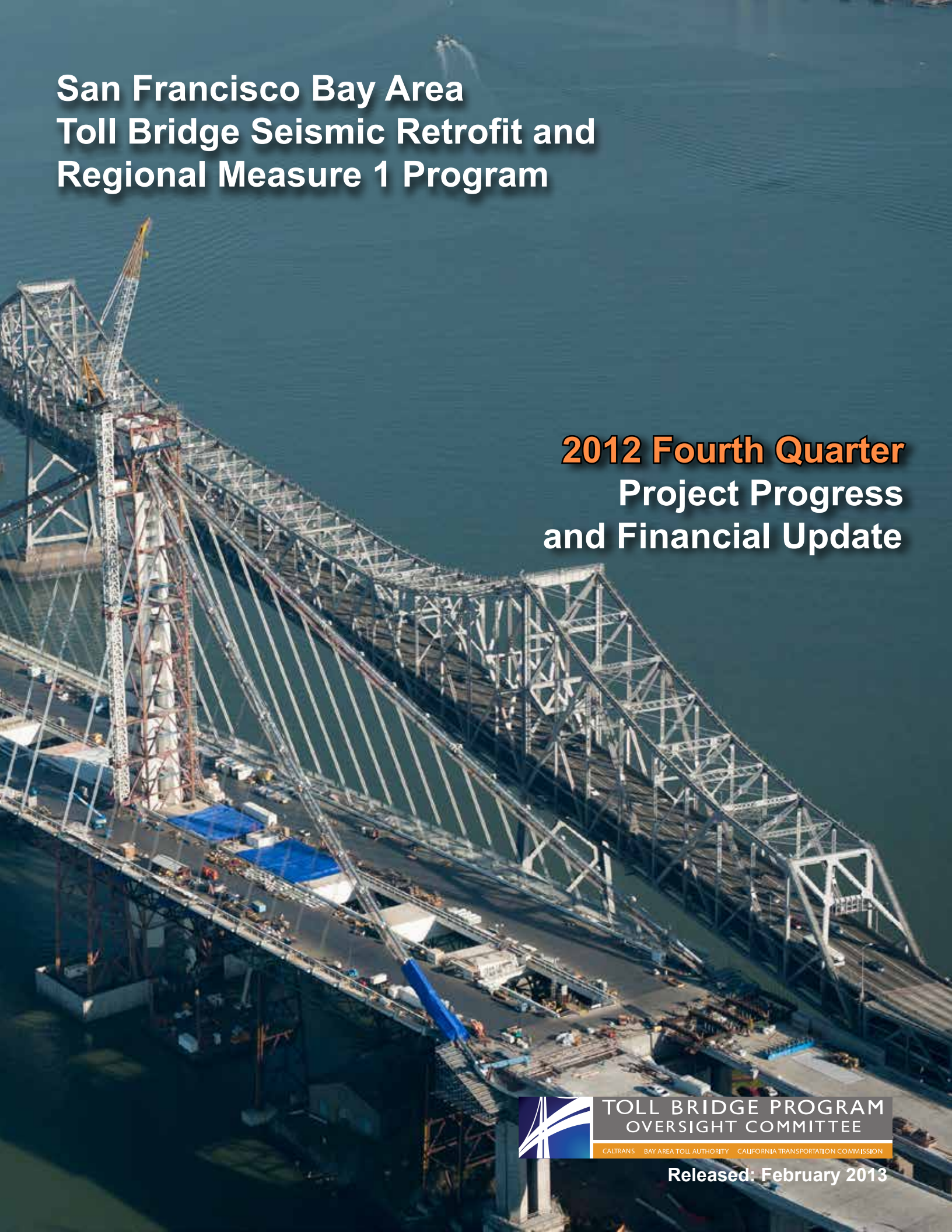
# San Francisco Bay Area Toll Bridge Seismic Retrofit and Regional Measure 1 Program



## 2012 Fourth Quarter Project Progress and Financial Update

TOLL BRIDGE PROGRAM
OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Released: February 2013

View from the Tower of the New San Francisco-Oakland Bay Bridge Self-Anchored Suspension Bridge with the Newly Installed Light Fixtures Looking West at Yerba Buena Island Transition Structures

Bridge Program Oversight Committee
Department of Transportation
Office of the Director
1120 N Street
P.O. Box 942873
Sacramento, CA 94273-0001

February 11, 2013

Mr. Gregory Schmidt
Secretary of the Senate
State Capitol, Room 3044
Sacramento, CA 95814

Mr. E. Dotson Wilson
Chief Clerk of the Assembly
State Capitol, Room 3196
Sacramento, CA 95814

Dear Messrs. Schmidt and Wilson:

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2012 Fourth Quarter Project Progress and Financial Update for the San Francisco Bay Area Toll Bridge Seismic Retrofit and Regional Measure 1 Programs (TBSRP), prepared pursuant to California Streets and Highways Code Section 30952.

The TBPOC is tasked to perform project oversight and control over the Toll Bridge Seismic Retrofit Program (TBSRP) and comprises the Director of the California Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA), and the Executive Director of the California Transportation Commission (CTC). This fourth quarter report includes project progress and activities for the Toll Bridge Seismic Retrofit Program through December 31, 2012, with more recent accomplishments and actions addressed in this letter.

On the new eastern span of the San Francisco-Oakland Bay Bridge, the contractor has completed the load transfer process of lifting the load of the roadway deck off its temporary supports and onto the main cable. Critical path activities remaining prior to opening the new bridge to traffic include wrapping of the main cable, painting, paving, striping, and installing and testing of mechanical, electrical, and plumbing systems. Work is also proceeding on schedule on the Yerba Buena Island and Oakland sides of the new bridge. The project remains on schedule for a Labor Day 2013 Seismic Safety Opening.

With regard to other seismic retrofit projects, the TBPOC is pleased to report that the Dumbarton Bridge was successfully seismically retrofitted ahead of schedule on January 4, 2013. The retrofit added new bridge joints, additional structural steel and new seismic isolation bearings to help the bridge withstand large earthquakes.

As of the end of the fourth quarter of 2012, the 50 percent probable draw on program contingency is $122 million. The potential draw ranges from about $50 million to $175 million. The current $329 million program contingency balance can be used to cover the costs of these identified risks. In accordance with the approved TBSRP Risk Management Plan, risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

The TBPOC is committed to providing the Legislature with comprehensive and timely reporting on the TBSRP. If there are any questions, or if any additional information is required, please do not hesitate to contact the members of the TBPOC.

Sincerely,

STEVE HEMINGER
TBPOC Chair
Executive Director
Bay Area Toll Authority

BIMLA G. RHINEHART
TBPOC Vice-Chair
Executive Director
California Transportation Commission

MALCOLM DOUGHERTY
Director
California Department of Transportation

Toll Bridge Program Oversight Committee
Department of Transportation
Office of the Director
1120 N Street
P.O. Box 942873
Sacramento, CA 94273-0001

February 11, 2013

Mr. Joseph Tavaglione, Chair
California Transportation Commission
1120 N Street, Room 2221
Sacramento, CA 95814

Mr. James C. Ghielmetti, Vice-Chair
California Transportation Commission
1120 N Street, Room 2221
Sacramento, CA 95814

Dear Messrs. Tavaglione and Ghielmetti:

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TBPOC Vice-Chair
Executive Director
California Transportation Commission

MALCOLM DOUGHERTY
Director
California Department of Transportation

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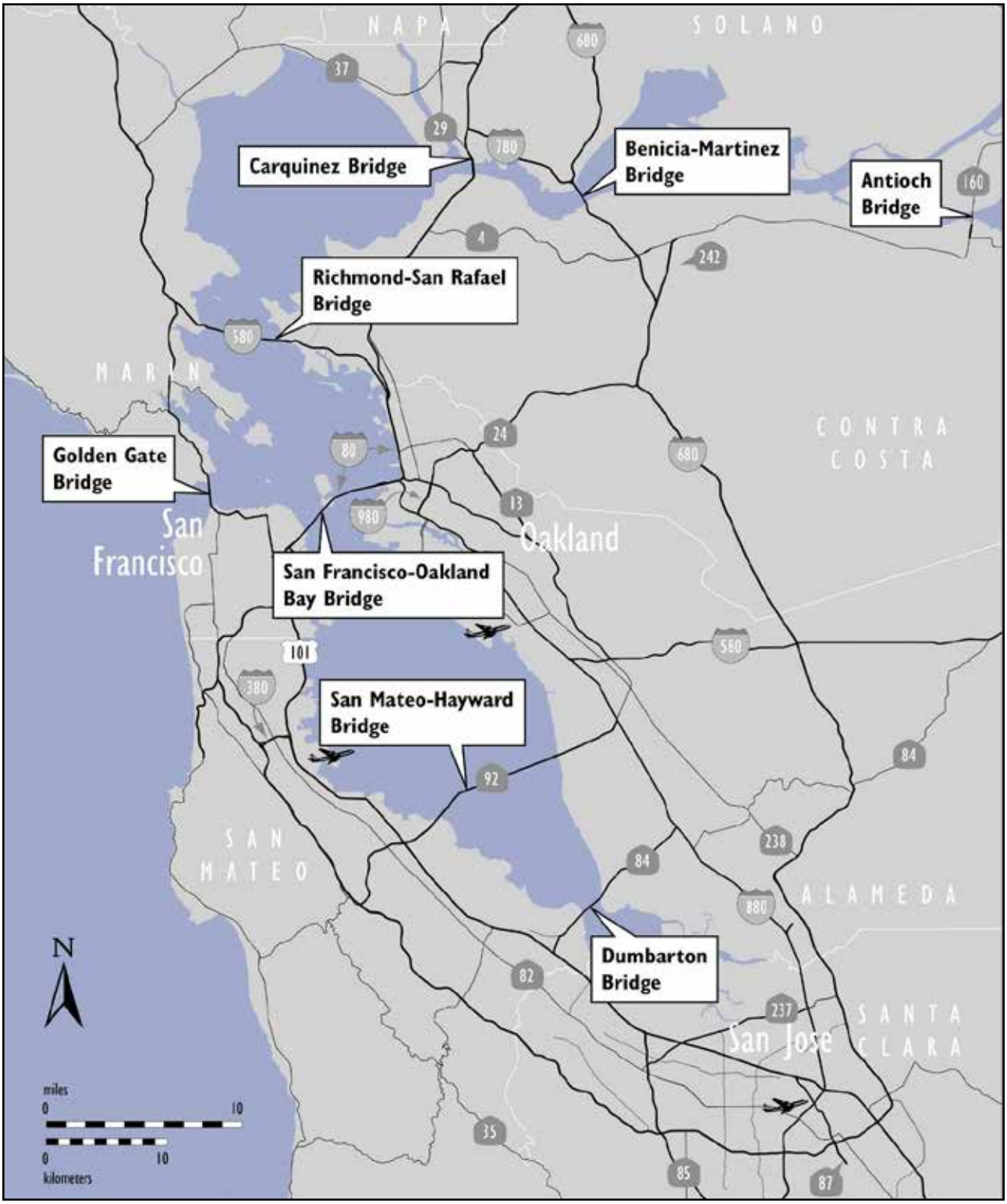
**Painting of San Francisco - Oakland Bay Bridge Suspension Bridge Suspender Cables**

# Map of Bay Area Toll Bridges




*** The Golden Gate Bridge is owned and operated by the Golden Gate Bridge, Highway and Transportation District.**

# Introduction

In July 2005, Assembly Bill (AB) 144 (Hancock) created the Toll Bridge Program Oversight Committee (TBPOC) to implement a project oversight and project control process for the new Benicia-Martinez Bridge and State Toll Bridge Seismic Retrofit Program (TBSRP) projects. The TBPOC consists of the Director of the California Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA) and the Executive Director of the California Transportation Commission (CTC). The TBPOC's project oversight and control processes include, but are not limited to, reviewing bid specifications and documents, reviewing and approving significant change orders and claims in excess of $1 million (as defined by the Committee), and keeping the Legislature and others apprised of current project progress and status.
In January 2010, Assembly Bill (AB) 1175 (Torlakson) amended the TBSRP to include the Antioch and Dumbarton Bridges seismic retrofit projects. The current TBSRP is as follows:

| Toll Bridge Seismic Retrofit Projects | Seismic Safety Status |
|---|---|
| Dumbarton Bridge Seismic Retrofit | Construction |
| Antioch Bridge Seismic Retrofit | Complete |
| San Francisco-Oakland Bay Bridge East Span Replacement | Construction |
| San Francisco-Oakland Bay Bridge West Approach Replacement | Complete |
| San Francisco-Oakland Bay Bridge West Span Seismic Retrofit | Complete |
| San Mateo-Hayward Bridge Seismic Retrofit | Complete |
| Richmond-San Rafael Bridge Seismic Retrofit | Complete |
| 1958 Carquinez Bridge Seismic Retrofit | Complete |
| 1962 Benicia-Martinez Bridge Seismic Retrofit | Complete |
| San Diego-Coronado Bridge Seismic Retrofit | Complete |
| Vincent Thomas Bridge Seismic Retrofit | Complete |

The New Benicia-Martinez Bridge is part of a larger program of toll-funded projects called the Regional Measure 1 (RM1) Toll Bridge Program under the responsibility of BATA and Caltrans. While the rest of the projects in the RM1 program are not directly under the responsibility of the TBPOC, BATA and Caltrans will continue to report on their progress as an informational item. The RM1 program includes:

| Regional Measure 1 Projects | Open to Traffic Status |
|---|---|
| Interstate 880/State Route 92 Interchange Reconstruction | Open |
| 1962 Benicia-Martinez Bridge Reconstruction | Open |
| New Benicia-Martinez Bridge | Open |
| Richmond-San Rafael Bridge Deck Overlay Rehabilitation | Open |
| Richmond-San Rafael Bridge Trestle, Fender & Deck Joint Rehabilitation | Open |
| Westbound Carquinez Bridge Replacement | Open |
| San Mateo-Hayward Bridge Widening | Open |
| State Route 84 Bayfront Expressway Widening | Open |
| Richmond Parkway | Open |

# SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS

The San Francisco-Oakland Bay Bridge Self-Anchored Suspension Bridge Main Cable Wrapping Operations

Yerba Buena Island Transition Structure Westbound Roadway Lighting Foundation Formwork and Conduit Installation

Self-Anchored Suspension Bridge Lighting Fixtures Installed on the Main Suspension Cable Back Span

## Toll Bridge Seismic Retrofit Program Risk Management

A major element of the 2005 AB 144, the law creating the TBPOC, was legislative direction to implement a more aggressive risk management program. Such a program has been implemented in stages over time to ensure development of a robust and comprehensive approach to risk management.

A comprehensive risk assessment is performed for each project in the program on a quarterly basis. Based upon those assessments, a forecast is developed using the average cost of risk. These forecasts can both increase and decrease as risks are identified, resolved or retired. Nonetheless, assurances have been made that the public is informed of the risks that have been identified and the possible expense they could necessitate.

The program contingency is currently $329 million in accordance with the TBPOC approved budget. As of the end of the fourth quarter of 2012, the 50 percent probable draw on program contingency is $122 million. The potential draw ranges from about $50 million to $175 million (see page 36).

The current program contingency balance is sufficient to cover the cost of currently identified risks. In accordance with the approved TBSRP Risk Management Plan, risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

## San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Replacement Project

## Self-Anchored Suspension (SAS) Bridge Superstructures Contract

A joint venture of American Bridge/Fluor (ABF) is constructing the signature Self-Anchored Suspension (SAS) section of the new east span of the San Francisco-Oakland Bay Bridge. The SAS is a self-anchoring suspension span with one main cable that anchors to the eastern end of the roadway deck, rather than to the ground anchorages. Now with all major bridge components in place, i.e. the tower, roadway deck, and main cable and suspenders, work is now to transfer the weight of the span from the temporary supports to the main cable, a complex time- and labor-intensive process known as load transfer.

Two hundred steel wire suspender ropes, attached to 100 cable bands along the single main cable, did the heavy lifting during load transfer. Sets of suspender ropes were gradually tensioned using hydraulic jacks; as each cable band carries two ropes, there are four hydraulic jacks (each exerting as much as 400 tons of force) at each corresponding location along the outside of the road-decks tensioning and pulling the ropes into position. Following load transfer, remaining critical activities include wrapping of the main cable, painting, paving, striping, and installing and testing of the bridge's mechanical, electrical, and plumbing systems. The TBPOC's goal is to open the bridge to traffic in both directions by September 2013.

YBITS Structure Eastbound On-Ramp Columns

## Yerba Buena Island Transition Structure (YBITS) #1 Contract

MCM Construction, Inc. is the prime contractor constructing the Yerba Buena Island Transition Structure #1 (YBITS #1) contract. Their work includes completing the remaining foundations and the bridge deck structure from the existing double deck Yerba Buena Island Tunnel to the SAS bridge.

MCM has substantially completed both the eastbound and westbound transition structures from the tunnel to the Hinge K area and transferred the remaining hinge area over to the SAS contractor on September 2, 2012.

## Yerba Buena Island Transition Structure (YBITS) #2 and Cantilever Demolition Contract

The YBITS #2 contract will demolish the detour viaduct after all traffic is shifted to the new bridge and will construct a new eastbound on-ramp to the bridge in its place. The contract also includes the cantilever truss demolition, eastbound on ramp and bike path construction. The contract was awarded to California Engineering Contractors Inc/Silverado Contractors Inc. Joint Venture on November 28, 2012. Initial startup activities are planned to begin in March 2013 with actual dismantling to start in September 2013, after the new Bay Bridge opening.

Ariel View of the San Francisco-Oakland Bay Bridge YBITS on the right and the Yerba Buena Island Detour on the left

# SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS

Oakland Touchdown #2 Eastbound Stemwall Formwork

Existing San Francisco-Oakland Bay Bridge Cantilever Section to be Dismantled as Part of the YBITS #2 Contract

Existing San Francisco-Oakland Bay Bridge Segment to Be Dismantled in Future Contract(s)

## Oakland Touchdown #2 Contract

Flatiron West, Inc. is the prime contractor constructing the Oakland Touchdown #2 contract that will complete the remaining portions of the Oakland Touchdown approach structures from the existing toll plaza to the new span. The westbound structure and portions of the eastbound structure (not in conflict with the existing span) were constructed under the Oakland Touchdown #1 contract. The OTD #2 construction contract started on June 25, 2012. The mainline structure work is scheduled to be completed in the first quarter of 2013 for bridge opening. After bridge opening, the contractor will complete landscaping of the area and constructing the remaining portion of the permanent bicycle/pedestrian pathway by 2014 that is in conflict with the existing bridge.

## Existing SFOBB Dismantling Contracts

To expedite the opening of a new eastbound on-ramp and the pedestrian/bicycle pathway from Yerba Buena Island, the TBPOC has decided to split the bridge dismantling project into at least two contracts. The dismantling of the superstructure of the main cantilever section of the existing bridge has been incorporated into the YBITS #2 contract, while the remaining portions of the existing bridge will be removed by separate contract(s) still in design.

## Antioch Bridge Seismic Retrofit

The major retrofit strategy for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents, and installing steel casings at all columns located at the Sherman Island approach slab bridge. Seismic safety opening was achieved on April 12, 2012 and contract was completed on July 13, 2012.

## Dumbarton Bridge Seismic Retrofit

The Dumbarton Bridge is a combination of three bridge types; reinforced concrete slab approaches supported on multiple pile extension columns, precast pre-stressed concrete girders and steel box girders supported on reinforced concrete piers. The retrofit strategy for the bridge includes superstructure and deck modifications and installation of isolation bearings. The Dumbarton Bridge was closed to traffic for the second time in 2012 during Labor Day weekend. A full bridge closure was necessary in order for crews to replace the existing expansion joint on the eastern side of the bridge at Pier 31 with a state-of-the-art seismic joint.

**Antioch Bridge**

# Toll Bridge Seismic Retrofit Program Cost Summary (Millions)

| | Contract Status | AB 144/SB 66 Budget (September 2005) | TBPOC Approved Changes | Current TBPOC Approved Budget (December 2012) | Cost to Date (December 2012) | Current Cost Forecast (December 2012) | Cost Variance | Cost Status |
|---|---|---|---|---|---|---|---|---|
| | | a | b | c = a + b | d | e | f = e - c | |
| SFOBB East Span Seismic Replacement | | | | | | | | |
| Capital Outlay Construction | | | | | | | | |
| Skyway | Completed | 1,293.0 | (55.8) | 1,237.2 | 1,237.3 | 1,237.2 | - | ● |
| SAS Marine Foundations | Completed | 313.5 | (38.7) | 274.8 | 274.8 | 278.6 | 3.8 | ● |
| SAS Superstructure | Construction | 1,753.7 | 293.1 | 2,046.8 | 1,749.1 | 2,050.6 | 3.8 | ● |
| YBI Detour | Completed | 131.9 | 334.2 | 466.1 | 466.2 | 473.3 | 7.2 | ● |
| YBI Transition Structures (YBITS) | | 299.3 | (3.9) | 295.4 | 184.8 | 322.3 | 26.9 | ● |
| YBITS 1 | Construction | | | 199.7 | 184.8 | 234.6 | 34.9 | ● |
| YBITS 2 Cantilever and Demo | Awarded | | | 92.4 | - | 84.4 | (8.0) | ● |
| YBITS Landscaping | Design | | | 3.3 | - | 3.3 | - | ● |
| Oakland Touchdown (OTD) | | 283.8 | 39.9 | 323.7 | 220.4 | 331.6 | 7.9 | ● |
| OTD 1 | Completed | | | 205.0 | 203.0 | 203.3 | (1.7) | ● |
| OTD 2 | Construction | | | 62.0 | 11.6 | 65.5 | 3.5 | ● |
| Detour | Completed | | | 51.0 | - | 48.8 | (2.2) | ● |
| OTD Electrical Systems | Design | | | - | - | 4.4 | 4.4 | ● |
| Submerged Electric Cable | Completed | | | 5.7 | 5.7 | 9.6 | 3.9 | ● |
| Existing Bridge Demolition | Design | 239.2 | (0.1) | 239.1 | - | 249.5 | 10.4 | ● |
| *Cantilever Section | Awarded | | | - | - | 57.6 | | ● |
| *504/288 Sections | Design | | | - | - | 85.3 | | ● |
| *Marine Foundations | Design | | | - | - | 106.6 | | ● |
| Stormwater Treatment Measures | Completed | 15.0 | 3.3 | 18.3 | 16.8 | 18.3 | - | ● |
| Other Completed Contracts | Completed | 90.4 | (0.5) | 89.9 | 90.0 | 90.5 | 0.6 | ● |
| Capital Outlay Support | | 959.3 | 262.3 | 1,221.6 | 1,105.3 | 1,278.6 | 57.0 | ● |
| Right-of-Way and Environmental Mitigation | | 72.4 | - | 72.4 | 51.7 | 80.4 | 8.0 | ● |
| Other Budgeted Capital | | 35.1 | (32.8) | 2.3 | 0.7 | 7.7 | 5.4 | ● |
| Total SFOBB East Span Replacement | | 5,486.6 | 801.0 | 6,287.6 | 5,397.1 | 6,418.6 | 131.0 | |
| Antioch Bridge Seismic Retrofit | | | | | | | | |
| Capital Outlay Construction and Mitigation | Completed | | 51.0 | 51.0 | 47.0 | 50.3 | (0.7) | ● |
| Capital Outlay Support | | | 31.0 | 31.0 | 23.5 | 23.8 | (7.2) | ● |
| Total Antioch Bridge Seismic Retrofit | | - | 82.0 | 82.0 | 70.5 | 74.1 | (7.9) | ● |
| Dumbarton Bridge Seismic Retrofit | | | | | | | | |
| Capital Outlay Construction and Mitigation | Construction | | 92.7 | 92.7 | 59.3 | 72.0 | (20.7) | ● |
| Capital Outlay Support | | | 56.0 | 56.0 | 41.1 | 56.0 | - | ● |
| Total Dumbarton Bridge Seismic Retrofit | | - | 148.7 | 148.7 | 100.4 | 128.0 | (20.7) | ● |
| Other Program Projects | | 2,268.4 | (63.6) | 2,204.8 | 2,164.0 | 2,192.2 | (12.6) | |
| Miscellaneous Program Costs | | 30.0 | - | 30.0 | 25.5 | 30.0 | - | ● |
| **Net Programmatic Risks** | | **-** | **-** | **-** | **-** | **32.6** | **32.6** | ● |
| **Program Contingency** | | **900.0** | **(571.1)** | **328.9** | **-** | **206.5** | **(122.4)** | ● |
| **Total Toll Bridge Seismic Retrofit Program** [2] | | **8,685.0** | **397.0** | **9,082.0** | **7,757.5** | **9,082.0** | **-** | |

# Toll Bridge Seismic Retrofit Program Schedule Summary

| | AB 144/SB 66 Project Completion Schedule Baseline (July 2005) | TBPOC Approved Changes (Months) | Current TBPOC Approved Completion Schedule (December 2012) | Current Completion Forecast (December 2012) | Schedule Variance (Months) | Schedule Status | Remarks/ Notes |
|---|---|---|---|---|---|---|---|
| | g | h | i=g+h | j | k=j-i | l | |
| SFOBB East Span Seismic Replacement | | | | | | | |
| Contract Completion | | | | | | | |
| Skyway | Apr 2007 | 8 | Dec 2007 | Dec 2007 | - | ● | See Page 24 |
| SAS Marine Foundations | Jun 2008 | (5) | Jan 2008 | Jan 2008 | - | ● | See Page 18 |
| SAS Superstructure | Mar 2012 | 29 | Aug 2014 | Aug 2014 | - | ● | See Page 19 |
| YBI Detour | Jul 2007 | 39 | Oct 2010 | Oct 2010 | - | ● | See Page 15 |
| YBI Transition Structures (YBITS) | Nov 2013 | 27 | Feb 2016 | Feb 2016 | - | | See Page 16 |
| YBITS 1 | | | Dec 2013 | Dec 2013 | - | | |
| YBITS 2 | | | Feb 2016 | Feb 2016 | - | ● | |
| Oakland Touchdown | Nov 2013 | 10 | Sep 2014 | Sep 2014 | - | ● | See Page 25 |
| OTD 1 | | | Jun 2010 | Jun 2010 | - | ● | |
| OTD 2 | | | Sep 2014 | Sep 2014 | - | ● | |
| Submerged Electric Cable | | | Jan 2008 | Jan 2008 | - | ● | |
| Existing Bridge Demolition | Sep 2014 | 18 | Dec 2015 | March 2017 | 15 | ● | |
| Stormwater Treatment Measures | Mar 2008 | | Mar 2008 | Mar 2008 | - | ● | |
| SFOBB East Span Bridge Opening and Other Milestones | | | | | | | |
| Westbound Seismic Safety Open | Sep 2011 | 27 | Dec 2013 | Sep 2013 | (3) | ● | |
| Eastbound Seismic Safety Open | Sep 2012 | 15 | Dec 2013 | Sep 2013 | (3) | ● | |
| Bike/Ped Pathway Open to YBI | | | Sep 2015 | Sep 2015 | - | ● | |
| Permanent Eastbound On Ramp Open | | | Sep 2015 | Sep 2015 | - | ● | |
| Oakland Detour Eastbound Open | | | May 2011 | May 2011 | - | ● | |
| Oakland Detour Westbound Open | | | Feb 2012 | Feb 2012 | - | ● | |
| OTD Westbound Access | | | Aug 2009 | Aug 2009 | - | ● | |
| YBI Detour Open | | | Sep 2009 | Sep 2009 | - | ● | See Page 15 |
| Antioch Bridge Seismic Retrofit | | | | | | | |
| Contract Completion | | | Jul 2012 | Jul 2012 | - | ● | See Page 34 |
| Seismic Safety Completion | | | Apr 2012 | Apr 2012 | - | ● | |
| Dumbarton Bridge Seismic Retrofit | | | | | | | |
| Contract Completion | | | Sep 2013 | Mar 2013 | (6) | ● | See Page 30 |
| Seismic Safety Completion | | | Sep 2013 | Jan 2013 | (6) | ● | |

● Within approved schedule and budget
● Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated
● Known project impacts with forthcoming changes to approved schedules and budgets

(1) Figures may not sum up to totals due to rounding effects.
(2) Construction administration of the OTD Detour is under the YBITS#1 contract.
(3) Construction administration of the Cantilever segment will be under the YBITS#2 contract.

# Regional Measure 1 Program Cost Summary (Millions)

| | Contract Status | BATA Baseline Budget (July 2005) | BATA Approved Changes | Current BATA Approved Budget (December 2012) | Cost to Date (December 2012) | Current Cost Forecast (December 2012) | Cost Variance | Cost Status |
|---|---|---|---|---|---|---|---|---|
| | | a | b | c = a + b | d | e | f = e - c | |
| Interstate 880/Route 92 Interchange Reconstruction | | | | | | | | |
| Capital Outlay Construction | Complete | 94.8 | 68.4 | 163.2 | 150.2 | 163.2 | - | ● |
| Capital Outlay Support | | 28.8 | 35.8 | 64.6 | 62.2 | 64.6 | - | ● |
| Capital Outlay Right-of-Way | | 9.9 | 7.3 | 17.2 | 14.7 | 17.2 | - | ● |
| Project Reserve | | 0.3 | (0.3) | - | - | - | - | |
| Total I-880/SR-92 Interchange Reconstruction | | 133.8 | 111.2 | 245.0 | 227.1 | 245.0 | - | |
| Other Completed Program Projects | | 1,978.8 | 182.6 | 2,161.4 | 2,089.3 | 2,161.4 | - | |
| **Total Regional Measure 1 Toll Bridge Program [1]** | | **2,112.6** | **293.8** | **2,406.4** | **2,316.4** | **2,406.4** | - | |

● Within approved schedule and budget
● Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated
● Known project impacts with forthcoming changes to approved schedules and budgets

[1] Figures may not sum up to totals due to rounding effects.

# Regional Measure 1 Program Schedule Summary

| | BATA Baseline Completion Schedule (September 2005) | BATA Approved Changes (Months) | Current BATA Approved Completion Schedule (December 2012) | Current Completion Forecast (December 2012) | Schedule Variance (Months) | Schedule Status | Remarks/Notes |
|---|---|---|---|---|---|---|---|
| | g | h | i=g+h | j | k=j-i | l | |
| Interstate 880/Route 92 Interchange Reconstruction | | | | | | | |
| Contract Completion | | | | | | | |
| Interchange Reconstruction | Dec 2010 | 9 | Sep 2011 | Sep 2011 | - | ● | See Page 45 |

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

Self-Anchored Suspension Bridge Roadway Lighting Installation

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge Seismic Retrofit Strategy

When a 250-ton section of the upper deck of the East Span collapsed during the 7.1-magnitude Loma Prieta Earthquake in 1989, it was a wake-up call for the entire Bay Area. While the East Span quickly reopened within a month, a critical question lingered: How could the Bay Bridge - a vital regional lifeline structure - be strengthened to withstand the next major earthquake? Seismic experts from around the world determined that to make each separate element seismically safe on a bridge of this size, the work must be divided into numerous projects. Each project presents unique challenges. Yet there is one common challenge - the need to accommodate the more than 280,000 vehicles that cross the bridge each day.

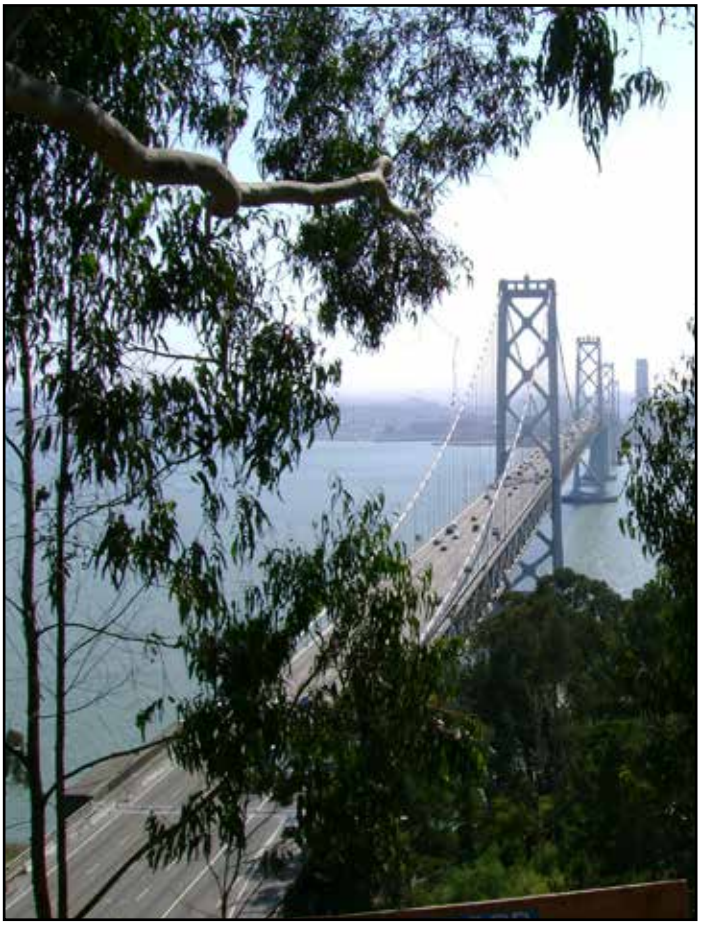
The San Francisco-Oakland Bay Bridge West Approach Overview

### West Approach Seismic Replacement Project
### Project Status: Completed 2009

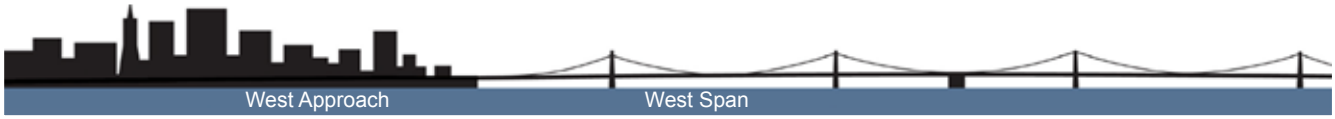
Seismic safety retrofit work on the West Approach in San Francisco, bounded on the west by Fifth Street and on the east by the anchorage of the west span at Beale Street, involved completely removing and replacing this one-mile stretch of Interstate 80, as well as six on-and off-ramps within the confines of the West Approach's original footprint. This project was completed on April 8, 2009.

### West Span Seismic Retrofit Project
### Project Status: Completed 2004

The West Span lies between Yerba Buena Island and San Francisco and is made up of two complete suspension spans connected at a center anchorage. Retrofit work included adding massive amounts of steel and concrete to strengthen the entire West Span, along with new seismic shock absorbers and bracing.



San Francisco-Oakland Bay Bridge West Span



## East Span Seismic Replacement Project
## Project Status: In Construction

Rather than a seismic retrofit, the two-mile long East Span is being completely rebuilt. When completed, the new East Span will consist of several different sections, but will appear as a single streamlined span. The eastbound and westbound lanes of the East Span will no longer include upper and lower decks. The lanes will instead be side-by-side, providing motorists with expansive views of the bay. These views will also be enjoyed by bicyclists and pedestrians, thanks to a new bike/pedestrian path on the south side of the bridge that will extend all the way to Yerba Buena Island. The new span is aligned north of the existing bridge to allow traffic to continue to flow on the existing bridge as crews build the new span.

The new span will feature the world's longest Self-Anchored Suspension (SAS) bridge that will be connected to an elegant roadway supported by piers (Skyway), which will gradually slope down toward the Oakland shoreline (Oakland Touchdown). A new transition structure on Yerba Buena Island (YBI) will connect the SAS to the YBI Tunnel and will transition the East Span's side-by-side traffic to the upper and lower decks of the tunnel and West Span.

When construction of the new East Span has been completed and vehicles have been safely rerouted to it, the original East Span will be demolished.

**The Self-Anchored Suspension Bridge Tower and Roadway Deck Showing Suspender Cable Installation in Progress**

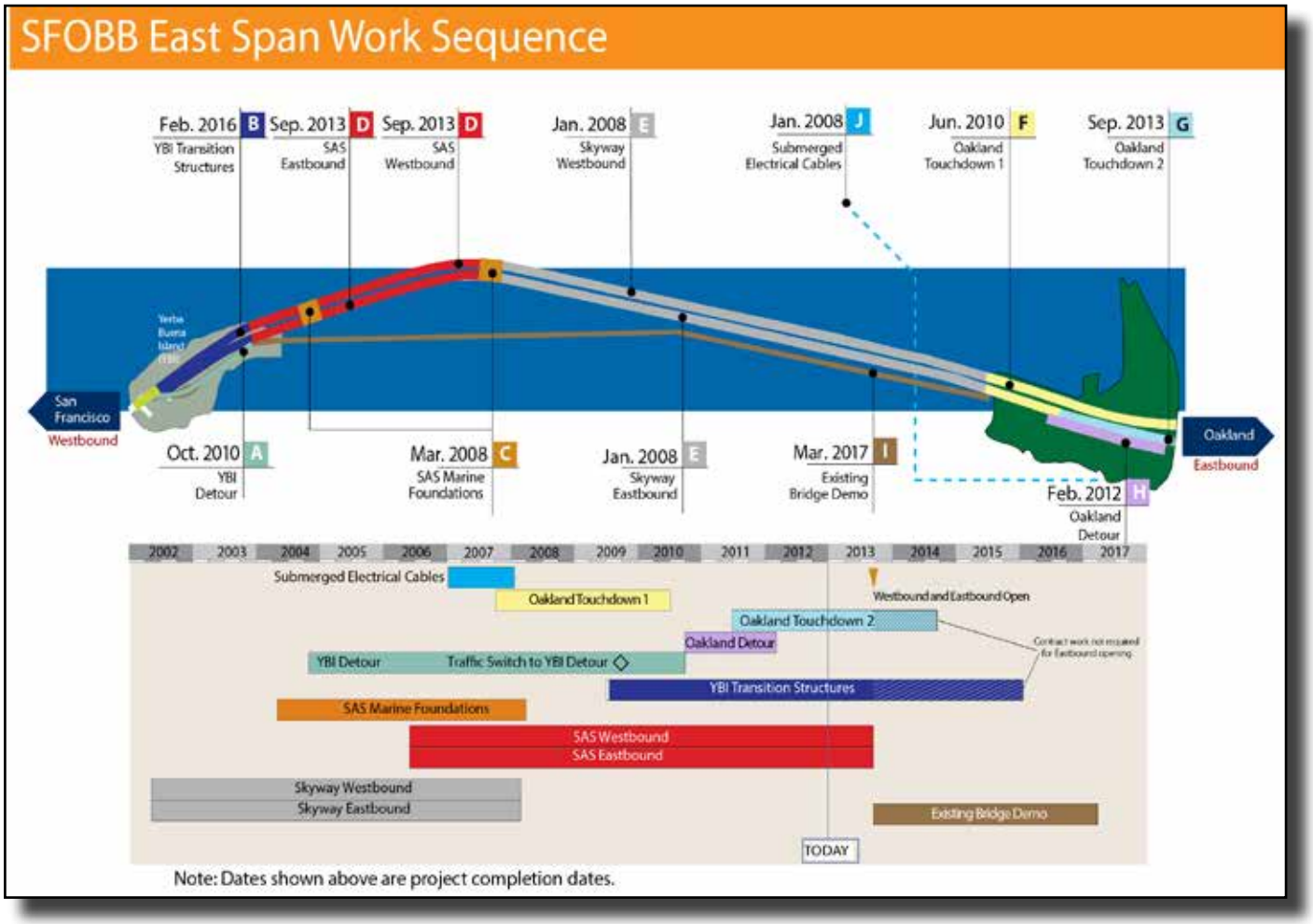
# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project Summary

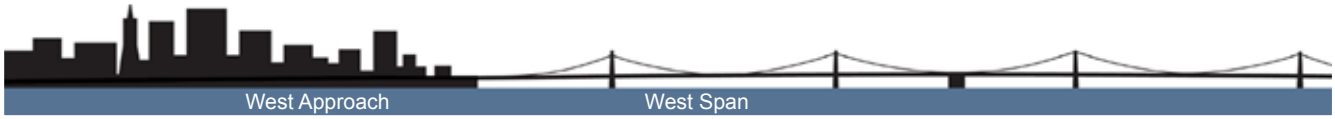
The new East Span bridge can be split into four major components - the Skyway, the Self-Anchored Suspension bridge in the middle, the Yerba Buena Island Transition Structures and Oakland Touchdown approaches. Each component is being constructed by one to three separate contracts that have been sequenced together to reduce schedule risk.

Highlighted below are the major East Span contracts and their schedules. The letter designation before each contract corresponds to contract descriptions in the report.

**Overview of the San Francisco-Oakland Bay Bridge East Span Construction Progress**





# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Yerba Buena Island Detour (YBID)

As with all of the Toll Bridge Seismic Retrofit Program's projects, crews built the Yerba Buena Island Detour (YBID) structure without disrupting traffic. To accomplish this task, YBID eastbound and westbound traffic was shifted off the existing roadway and onto a temporary detour over Labor Day weekend 2009. Drivers will use this detour, just south of the original roadway, until traffic is moved onto the new East Span.

### A YBID Contract

Contractor: C.C. Myers, Inc.

Approved Capital Outlay Budget: $466.1 M

Status: Completed October 2010

This contract was originally awarded in early 2004 to construct the detour structure for the planned 2006 opening of the new East Span. Because of a lack of funding, the SAS Superstructure contract was re-advertised in 2005 and the opening was rescheduled to 2013. To better integrate the contract into the current East Span schedule and to improve seismic safety and mitigate future construction risks, the TBPOC approved a number of changes to the contract, including adding the deck replacement work near the tunnel that was rolled into place over the Labor Day 2007 weekend advancing future transition structure foundation work and making design enhancements to the temporary detour structure. These changes increased the budget and forecast for the contract to cover the revised project scope and reduce project risks.

YBID East Tie-In Rolled in on Labor Day 2009 Weekend

West Tie-In Phase # 1 Rolled in on Labor Day Weekend 2007

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Yerba Buena Island Transition Structures (YBITS)

The new Yerba Buena Island Transition Structures contract (YBITS) will connect the new SAS bridge span to the existing Yerba Buena Island Tunnel, transitioning the new side-by-side roadway decks to the upper and lower decks of the tunnel. The new structures will be cast-in-place reinforced concrete structures that will look very similar to the already constructed Skyway structures. While some YBITS foundations and columns were advanced by the YBID contract, the remaining work is being completed under three separate YBITS contracts.

### B YBITS #1 Contract

Contractor: MCM Construction, Inc.
Approved Capital Outlay Budget: $199.7 M
Status: 80% Complete as of December 2012

MCM Construction, Inc. is the prime contractor constructing the Yerba Buena Island Transition Structure #1 (YBITS #1) contract. Their work includes completing the remaining foundations and the bridge deck structure from the existing double deck Yerba Buena Island Tunnel to the SAS bridge.

**Status:** MCM has substantially completed both the eastbound and westbound transition structures from the tunnel to the Hinge K area and transferred the Hinge K west area to the SAS contractor in early September and the Hinge K east area in early October 2012.

### YBITS #2 and Cantilever Demolition Contract

Approved Capital Outlay Budget: $92.4 M
Contractor: CEC & Silverado (JV)
Status: Contract Awarded

The YBITS #2 contract will demolish the detour viaduct after all traffic is shifted to the new bridge and will construct a new eastbound on-ramp to the bridge in its place. The new ramp will also provide the final link for bicycle/pedestrian access off the SAS bridge onto Yerba Buena Island. To expedite opening of a new eastbound on-ramp and the pedestrian/bicycle pathway from Yerba Buena Island, the TBPOC has decided to split the bridge dismantling project into at least two contracts. The dismantling of the superstructure of the main cantilever section of the existing bridge will be incorporated into the YBITS #2 contract, while the remaining portions of the existing bridge will be removed by separate contract or contracts yet to be determined.

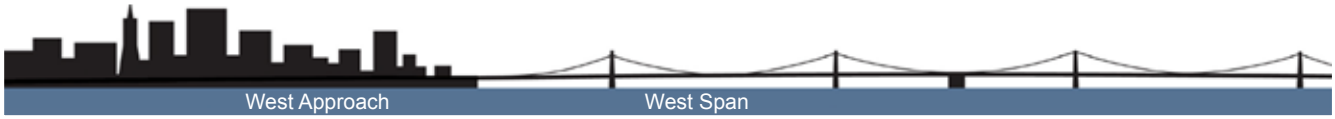
Status: The YBITS #2 contract, which includes the cantilever truss demolition, was awarded to California Engineering Contractors Inc/Silverado Contractors Inc. Joint Venture on November 28, 2012. The contractor's initial startup activities are planned to begin in March 2013 with actual dismantling to begin in September 2013, after the new Bay Bridge opening.

### YBITS Landscaping Contract

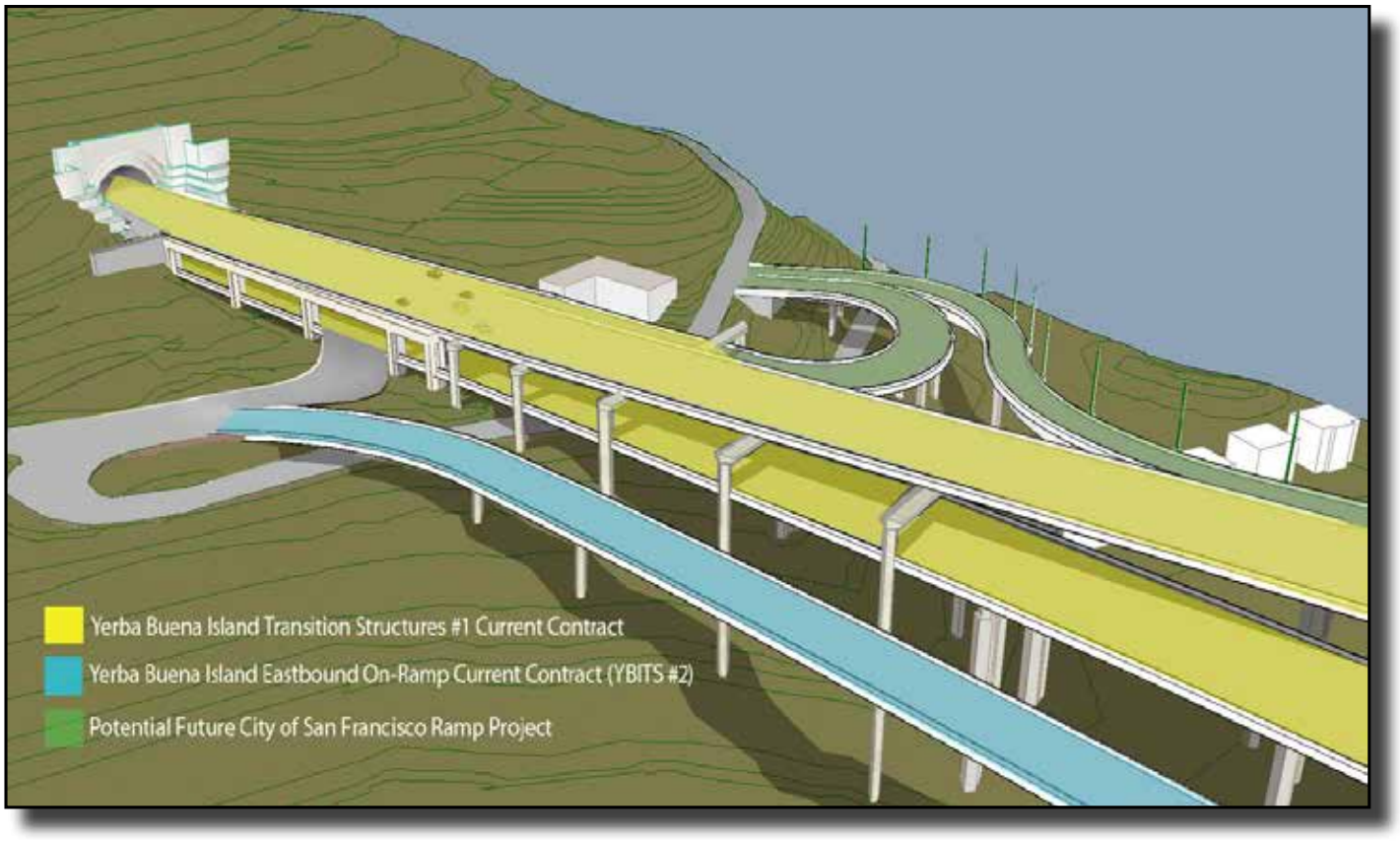
Contractor: TBD
Approved Capital Outlay Budget $3.3 M
Status: In Design

Upon completion of the YBITS #2 work, a follow-on landscaping contract will be executed to replant and landscape the area.





Aerial View of the Yerba Buena Island Transition Structures of the San Francisco-Oakland Bay Bridge




# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project Self-Anchored Suspension (SAS) Bridge

If one single element bestows world class status on the new Bay Bridge East Span, it is the Self-Anchored Suspension (SAS) bridge. This engineering marvel will be the world's largest SAS span at 2,047 feet in length, as well as the first bridge of its kind built with a single tower.

The SAS was separated into three separate contracts - construction of the land-based foundations and columns at pier W2; construction of the marine-based foundations and columns at piers T1 and E2; and construction of the SAS steel superstructure, including the tower, roadway and cabling. Construction of the foundations at pier W2 and at piers T1 and E2 was completed in 2004 and 2007, respectively.

## SAS Land Foundation Contract

Contractor: West Bay Builders, Inc.
Approved Capital Outlay Budget: $26.5 M
Status: Completed October 2004

The twin W2 columns on Yerba Buena Island provide essential support for the western end of the SAS bridge, where the single main cable for the suspension span will extend down from the tower and wrap around and under the western end of the roadway deck. Each of these huge columns required massive amounts of concrete and steel and are anchored 80 feet into the island's solid bedrock.

SAS Marine E2 Foundation and the Skyway Westbound Column

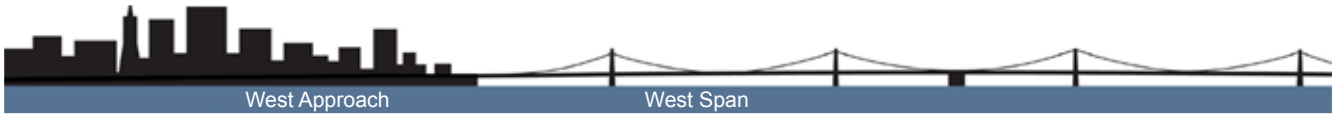
## C SAS Marine Foundations Contract

Contractor: Kiewit/FCI/Manson, Joint Venture
Approved Capital Outlay Budget: $274.8 M
Status: Completed January 2008

Construction of the piers at E2 and T1 (see rendering on facing page) required significant on-water resources to drive the foundation support piles down, not only to bedrock, but also through the bay water and mud.

The T1 foundation piles extend 196 feet below the waterline and are anchored into bedrock with heavily reinforced concrete rock sockets that are drilled into the rock. Driven nearly 340 feet deep, the steel and concrete E2 foundation piles were driven 100 feet deeper than the deepest timber piles of the existing east span in order to get through the bay mud and reach solid bedrock.





# D SAS Superstructure Contract

Contractor: American Bridge/Fluor Enterprises, Joint Venture
Approved Capital Outlay Budget: $2.05 B
Status: 88% Complete as of December 2012

The SAS bridge is not just another suspension bridge. Rising 525 feet above mean sea level and embedded in bedrock, the single-tower SAS span is designed to withstand a massive earthquake. Traditional main cable suspension bridges have twin cables with smaller suspender cables connected to them. While there will appear to be two main cables on the SAS, it is actually a single continuous cable. This single cable will be anchored within the eastern end of the roadway, carried over the tower and then wrapped around the two side-by-side decks at the western end.

The single-steel tower is made up of four separate legs connected by shear link beams, which function much like a fuse in an electrical circuit. These beams will absorb most of the impact from an earthquake, preventing damage to the tower legs.

Two hundred steel wire suspender ropes attached to 100 cable bands along the single main cable did the heavy lifting during load transfer. Sets of suspender ropes were gradually tensioned using hydraulic jacks. As each cable band carries two ropes, there are four hydraulic jacks (each exerting as much as 400 tons of force) at each corresponding location along the outside of the road decks tensioning and pulling the ropes into position. Following load transfer, remaining critical activities include wrapping of the main cable, painting, paving, striping, and installing and testing of the bridge's mechanical, electrical, and plumbing systems. The TBPOC's goal is to open the bridge to traffic in both directions by September 2013.

**Status:** Bike path support installation and cable wrapping continues and suspender painting is on going. Hinge A is almost complete and electrical, mechanical and piping installation continues.


Architectural Rendering of New Self-Anchored Suspension Span and Skyway

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Self-Anchored Suspension (SAS) Construction Sequence

### STEP 1 - CONSTRUCT TEMPORARY SUPPORT STRUCTURES

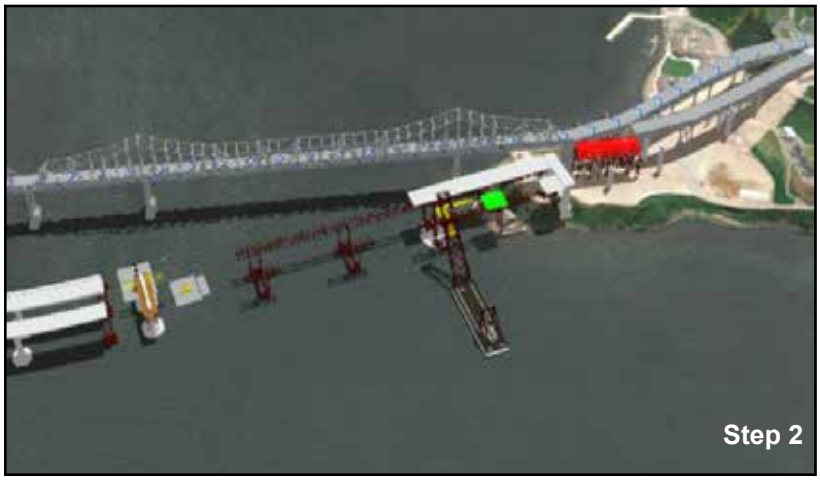
All temporary support foundations and structures were completed between the Skyway and Yerba Buena Island by September 2010 to support the westbound and eastbound roadway box erections.

**Status:** Removal of the westbound and eastbound temporary support structures (cradles) started on October 24, 2012, and is ongoing.


### STEP 2 - INSTALL ROADWAYS

All of the 28 steel roadway boxes and 17 crossbeams have been erected as of the end of October 2011.

**Status:** Roadway deck interior field painting and weld repair work for lifts 13 east and west and drop-in pieces lifts 12 east and west corner assemblies are almost complete. Mechanical, electrical and piping installation continues. Installation of Hinge A eastbound and westbound is ongoing. Hinge K eastbound soffit and rebar installation continues. Installation of eastbound and westbound architectural housing continues.




### STEP 3 - INSTALL TOWER

All tower legs, tower grillage, tower saddle and tower head were erected using the self-rising crane as of mid-August 2012.

**Status:** Tower base shear-plate welding NDT continues. Tower head grating platform installation continues. Installation of eastbound and westbound traveler rails started in early December 2012 and will continue into the first quarter of 2013. The tower trestle removal was completed in December 2012.

### STEP 4 - MAIN CABLE AND SUSPENDER INSTALLATION

The main cable haul started from the east end of the westbound roadway deck moving over the tower saddle, wrapping around pier W2 west deviation saddles and returning to the tower saddle to the east end of eastbound roadway deck where it is anchored. The cable band and suspender cables were then installed to lift the roadway deck off the temporary support structure.

**Status:** The suspender installation started in late May and was completed in August 2012. Load transfer began on September 4 and was completed on October 8, 2012. Cable wrapping started on the back span and main span on October 19, 2012, and is forecast for completion in January 2013. Tensioning of the suspender ropes and installation of the suspender collars began on October 30 and was completed in November 2012. Cleaning and painting of the upper suspenders began in mid October and will continue into early next year. Installation of the messenger cables started in mid-November and was completed in December 2012.


### STEP 5 - WESTBOUND AND EASTBOUND SEISMIC SAFETY OPENING

The new bridge will now open simultaneously in both the westbound and eastbound directions on Labor Day, September 2, 2013.

**Status:** The SAS, YBITS#2 and OTD#2 construction activities are ongoing in support of the seismic safety opening scheduled for September 2013.

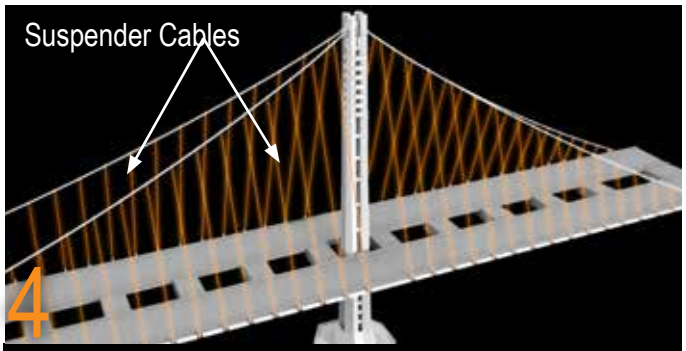
# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Self-Anchored Suspension (SAS) Superstructure Main Cable Completion Activities


### CABLE STRAND HAULING

Crews haul the 137 individual steel wire strands that comprise the nearly 1-mile long single main cable. The strands are adjusted and then anchored into the east end of the SAS.

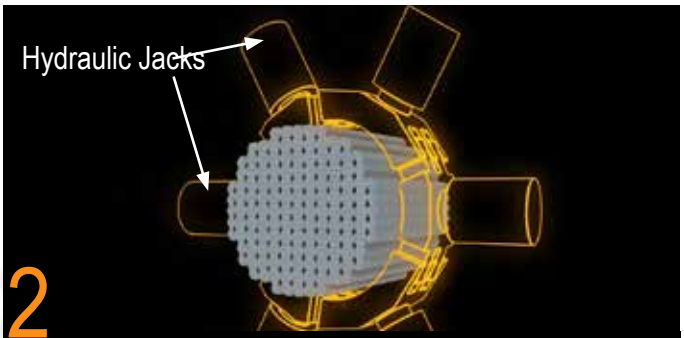
**Status: Complete**




### SUSPENDER CABLES INSTALLATION

Workers begin placing the suspender cables that connect the main cable to the road-decks. Not all of the suspender cables need to be attached before load transfer begins.

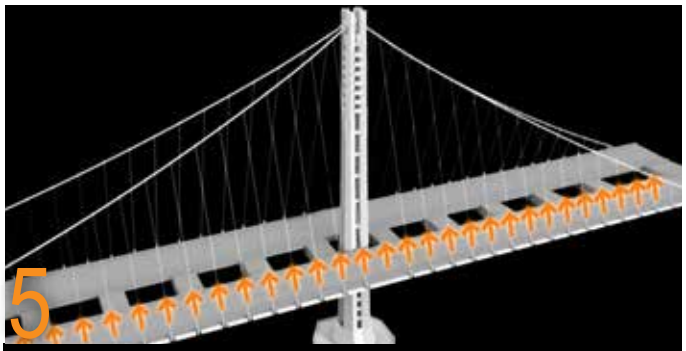
**Status: Complete**




### CABLE STRAND COMPACTING

Four compacting machines containing hydraulic jacks are used to compress the 137 steel wire strands into the shape of the main cable. Temporary bands are placed to maintain the shape.

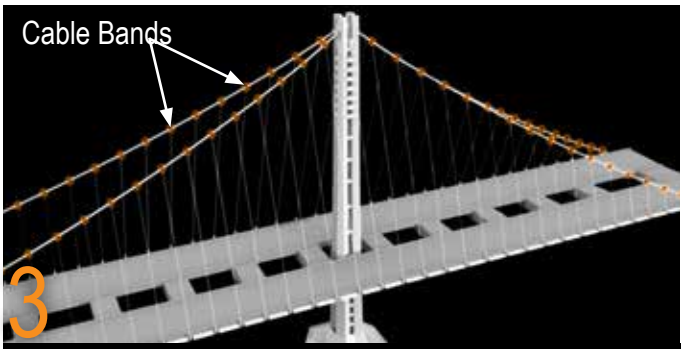
**Status: Complete**




### LOAD TRANSFER (see facing page)

Using the attached suspender cables, crews begin the process of transferring the weight of the span from the temporary supports under the bridge to the main cable.

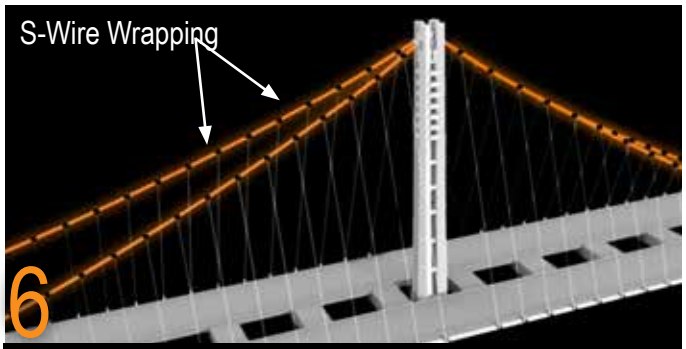
**Status: Complete**




### CABLE BANDS INSTALLATION

Crews installed 114 permanent steel cable bands along the main cable. These bands maintain the shape of the cable, and serve as anchor points for the suspender cables.

**Status: Complete**

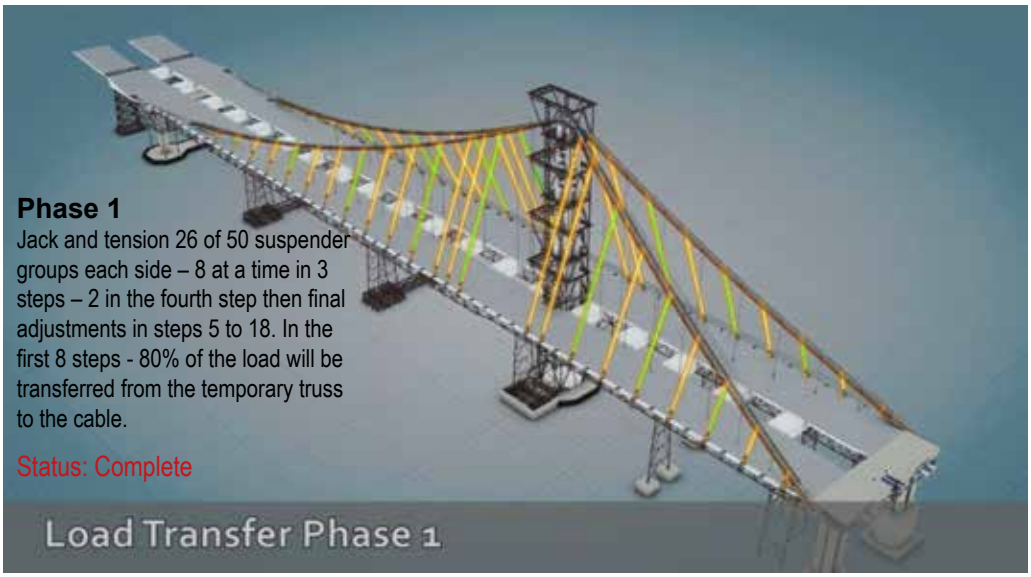



### S-WIRE WRAP

After load transfer, the main cable is wrapped in S-wire to protect the cable against corrosion. After the cable is wrapped, it is painted.

**Status: Started on 10/19/12 and is nearly complete**

# Load Transfer Sequence




**Phase 1**
Jack and tension 26 of 50 suspender groups each side – 8 at a time in 3 steps – 2 in the fourth step then final adjustments in steps 5 to 18. In the first 8 steps - 80% of the load will be transferred from the temporary truss to the cable.

Status: Complete


**Phase 2**
Jack and tension 3 more suspender groups out of 50 from each side to bring to a total of 29 of 50 each side.
Status: Complete


**Phase 3**
Jack and tension final 21 of 50 suspender groups each side to bring total suspenders tensioned to 50 out of 50 each side.
Status: Complete.

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Skyway

The Skyway, which comprises much of the new East Span, will drastically change the appearance of the Bay Bridge. Replacing the gray steel that currently cages drivers, a graceful, elevated roadway supported by piers will provide sweeping views of the bay.

### E Skyway Contract

Contractor: Kiewit/FCI/Manson, Joint Venture
Approved Capital Outlay Budget: $1.24 B
Status: Completed April 2008

Extending for more than a mile across Oakland mudflats, the Skyway is the longest section of the East Span. It sits between the new Self-Anchored Suspension (SAS) span and the Oakland Touchdown. In addition to incorporating the latest seismic-safety technology, the side-by-side roadway decks of the Skyway feature shoulders and lane widths built to modern standards.

The Skyway's decks are composed of 452 pre-cast concrete segments (standing three stories high), containing approximately 200 million pounds of structural steel, 120 million pounds of reinforcing steel, 200 thousand linear feet of piling and about 450 thousand cubic yards of concrete. These are the largest segments of their kind ever cast and were lifted into place by custom-made winches.

The Skyway marine foundation consists of 160 hollow steel pipe piles measuring eight feet in diameter and dispersed among 14 sets of piers. The 365-ton piles were driven more than 300 feet into the deep bay mud. The new East Span piles were battered or driven in at an angle, rather than vertically, to obtain maximum strength and resistance.

Designed specifically to move during a major earthquake, the Skyway features several state-of-the-art seismic safety innovations, including 60-foot-long hinge pipe beams. These beams will allow deck segments on the Skyway to move, enabling the deck to withstand greater motion and to absorb more earthquake energy.

**Status:** All light poles that have been fabricated are in the process of installation. All remaining light poles will be fabricated, delivered and installed by seismic safety opening.

**Rendering of the New San Francisco/Oakland Bridge Skyway and Self-Anchored Suspension Bridge**

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Oakland Touchdown

When completed, the Oakland Touchdown (OTD) structures will connect Interstate 80 in Oakland to the side-by-side decks of the new East Span. For westbound drivers, the OTD will be their introduction to the graceful new East Span. For eastbound drivers from San Francisco, this section of the bridge will carry them from the Skyway to the East Bay, offering unobstructed views of the Oakland hills.

The OTD approach structures to the Skyway will be constructed in three phases. The first phase, constructed under the OTD #1 contract, built the new westbound approach structure. Due to physical constraints with the existing bridge, the OTD #1 contract was only able to construct a portion of the eastbound approach. To facilitate opening the bridge in both directions at the same time, the second phase of work, performed by the Oakland Detour contractor, included widening the upper deck of the Oakland end of the existing bridge to allow for a traffic shift to the north that removes the physical constraint to completing the eastbound structure. This phase was completed in April 2012. The third phase, to be constructed by a future OTD #2 contract, will complete the eastbound lanes and provide the traffic switch to the new structure in both directions, thus allowing the bridge to open simultaneously in both directions.

### F Oakland Touchdown #1 Contract

Contractor: MCM Construction, Inc.
Approved Capital Outlay Budget: $205.0 M
Status: Completed June 2010

The OTD #1 contract constructed the entire 1,000-foot-long westbound approach from the toll plaza to the Skyway. When open to traffic, the westbound approach structure will provide direct access to the westbound Skyway. In the eastbound direction, the contract constructed a portion of the eastbound structure and all of the eastbound foundations that are not in conflict with the existing bridge.

**Status:** MCM Construction, Inc. completed OTD #1 westbound and eastbound phase 1 on June 8, 2010.

### G Oakland Touchdown #2 Contract

Contractor: Flatiron West, Inc.
Approved Capital Outlay Budget: $62.0 M
Status: 26% Complete as of December 2012

Flatiron West, Inc. is the prime contractor constructing the Oakland Touchdown #2 contract that will complete the remaining portions of the Oakland Touchdown Approach structures from the existing toll plaza to the new span. The contractor is also responsible for the construction of the bike path and final landscaping of the area.

**Status:** The contractor is working on the eastbound approach structure and is installing the soffit forms and rebar. Precast wall panels and placing of the lightweight concrete fill on the approach structure is ongoing and is scheduled to be completed in early 2013.

**Aerial View of the Eastbound Oakland Touchdown #2 Construction Progress**

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Existing East Span Bridge Demolition

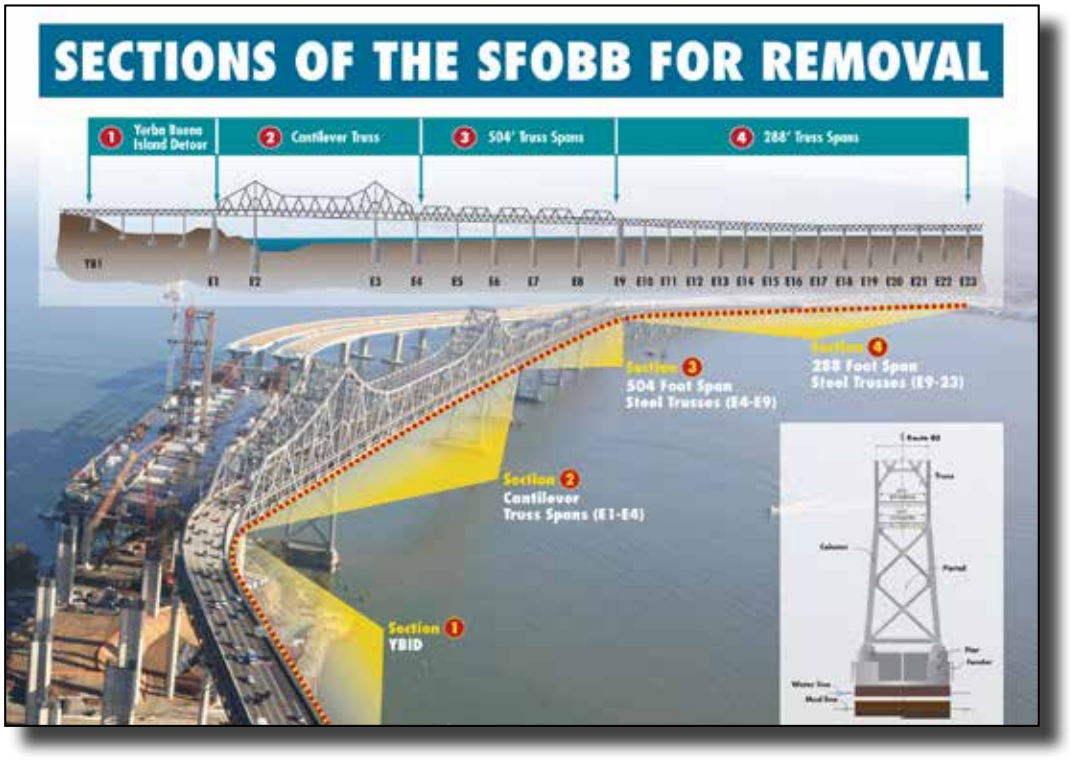
### I Existing SFOBB Dismantling Contracts

Approved Capital Outlay Budget: $239.1 M

To expedite the opening of a new eastbound on ramp and the pedestrian/bicycle pathway from Yerba Buena Island to the SAS and to maximize contractor efficiencies, the TBPOC has decided to split the dismantling of the existing bridge into multiple contracts. The dismantling of the superstructure of the main cantilever section of the existing bridge has been incorporated into the YBITS #2 contract. The dismantling of the remaining portions of the bridge will likely be performed under separate superstructure (above water) removal and marine foundation (below water) contracts. These contracts are still in design and may change in scope over time.

**Status:** The cantilever portion of the demolition contract was awarded to CEC and Silverado (JV) on November 28, 2012. Construction start-up activities are planned to begin in March 2013, with actual dismantling to begin after seismic safety opening in September 2013.


Dismantling Scope Included in the Future YBITS#2 Contract - YBI Detour E-1 column in center, Cantilever Bridge Deck at right



The New Yerba Buena Island Transition Structure on the right and the Existing Temporary YBI Detour Bridge on left

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## San Francisco-Oakland Bay Bridge East Span Replacement Project
## Other Contracts

A number of contracts needed to relocate utilities, clear areas of archeological artifacts and prepare areas for future work have already been completed. The last major contract will be the eventual demolition and removal of the existing bridge, which by that time will have served the Bay Area for nearly 80 years. Following is a status of some the other East Span contracts.

Archeological Investigations

### J Electrical Cable Relocation

Contractor: Manson Construction
Approved Capital Outlay Budget: $9.6 M
Status: Completed January 2008

A submerged cable from Oakland that is close to where the new bridge will touch down supplies electrical power to Treasure Island. To avoid any possible damage to the cable during construction, two new replacement cables were run from Oakland to Treasure Island. The extra cable was funded by the Treasure Island Development Authority.

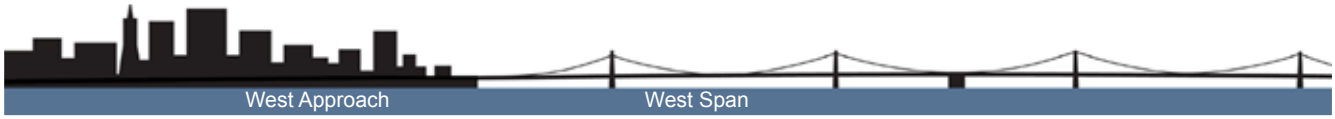
New YBI Electrical Substation

### Yerba Buena Island Substation

Contractor: West Bay Builders
Approved Capital Outlay Budget: $11.3 M
Status: Completed May 2005

This contract relocated an electrical substation just east of the Yerba Buena Island Tunnel in preparation for the new East Span.





## Stormwater Treatment Measures

Contractor: Diablo Construction, Inc.
Approved Capital Outlay Budget: $18.3 M
Status: Completed December 2008

The Stormwater Treatment Measures contract implemented a number of best practices for the management and treatment of stormwater runoff. Focused on the areas around and approaching the toll plaza, the contract added new drainage and built new bio-retention swales and other related constructs.

Stormwater Retention Basin

## East Span Interim Seismic Retrofit

Contractors: 1) California Engineering
2) Balfour Beatty
Approved Capital Outlay Budget: $30.8 M
Status: Completed October 2000

After the 1989 Loma Prieta Earthquake, and before the final retrofit strategy was determined for the East Span, Caltrans completed an interim retrofit of the existing bridge to prevent a catastrophic collapse of the bridge should a similar earthquake occur before the East Span was completely replaced. The interim retrofit was performed under two separate contracts that lengthened pier seats, added some structural members, and strengthened areas of the bridge so they would be more resilient during an earthquake.

Existing East Span Cantilever Section of the San Francisco-Oakland Bay Bridge

## Pile Installation Demonstration

Contractor: Manson and Dutra, Joint Venture
Approved Capital Outlay Budget: $9.2 M
Status: Completed December 2000

While large-diameter battered piles are common in offshore drilling, the new East Span is one of the first bridges to use them in its foundations. To minimize project risks and build industry knowledge, a pile installation demonstration project was initiated to prove the efficacy of the proposed technology and methodology. The demonstration was highly successful and helped result in zero contract change orders or claims for pile driving on the project.

Battered Pile Installation Demonstration

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Dumbarton Bridge Seismic Retrofit Project

Contractor: Shimmick Construction Company, Inc.

Approved Capital Outlay Budget: $92.7 M

Status: 89% Complete as of December 2012

The current Dumbarton Bridge was opened to traffic in 1982 linking the cities of Newark in Alameda County and East Palo Alto in San Mateo County. The 1.6-mile long bridge has six lanes (three in each direction) and an eight-foot-wide bicycle/pedestrian pathway. The bridge is a combination of three bridge types; reinforced concrete slab approaches supported on multiple pile extension columns, precast-prestressed concrete delta girders and steel box girders supported on reinforced concrete piers. The current retrofit strategy for the bridge includes superstructure and deck modifications and installation of isolation bearings.

Ravenswood Pier Pile Removal

**Status:** The main bridge structure between piers 16 through 31 is being raised approximately five inches in order for isolation bearings to be installed to separate the superstructure from the substructure during seismic events. In preparation, the bridge piers have been widened with reinforced concrete to accommodate the new bearings.

Along the reinforced concrete slab approaches, the bent caps have been extended and tied to new 48-inch diameter steel piles that have been installed to strengthen the bridge. Bent cap extensions along the east and west trestle approach are now complete.

Concrete has been placed and installation of jacking frames is complete at all of the 16 piers. The isolation bearing installation at piers 16 through 22 and piers 26 through 31 is complete. In addition, five bearings at pier 25 and 25 were installed, which totals 83 out of 96 bearings installed.

Work at the pumping plant is substantially complete. Fender rehabilitation work is ongoing at piers 23 and 24. Pier footing overlay concrete has been placed at piers 17 through 30.

Retrofitting of the existing piles at the Ravenswood pier and pier removal operation are ongoing. Removal of 34 our of 63 spans has been completed.

The Dumbarton Bridge was closed to traffic for the second time in 2012 during the Labor Day weekend. A full bridge closure was necessary in order for crews to replace the existing expansion joint on the eastern side of the bridge at Pier 31 with a state-of-the-art seismic joint. Seismic retrofit of hinge 21 and 25 is ongoing.

Repair to Settling Junction

Ravenswood Pier Demolition

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Other Completed Projects

In the 1990s, the State Legislature identified seven of the nine state-owned toll bridges for seismic retrofit. In addition to the San Francisco-Oakland Bay Bridge, these included the Benicia-Martinez, Carquinez, Richmond-San Rafael and San Mateo-Hayward bridges in the Bay Area, and the Vincent Thomas and Coronado bridges in Southern California. Other than the East Span of the Bay Bridge, the retrofits of all of the bridges have been completed as planned.

High-Rise Section of San Mateo-Hayward Bridge

### San Mateo-Hayward Bridge Seismic Retrofit Project
### Project Status: Completed 2000

The San Mateo-Hayward Bridge seismic retrofit project focused on strengthening the high-rise portion of the span. The foundations of the bridge were significantly upgraded with additional piles.

1958 Carquinez Bridge (foreground) with the 1927 Span (middle) under Demolition and the New Alfred Zampa Memorial Bridge (background)

### 1958 Carquinez Bridge Seismic Retrofit Project
### Project Status: Completed 2002

The eastbound 1958 Carquinez Bridge was retrofitted in 2002 with additional reinforcement of the cantilever thru-truss structure.

### 1962 Benicia-Martinez Bridge Seismic Retrofit Project
### Project Status: Completed 2003

The southbound 1962 Benicia-Martinez Bridge was retrofitted to “Lifeline” status with the strengthening of the foundations and columns and the addition of seismic bearings that allow the bridge to move during a major seismic event. The Lifeline status means the bridge is designed to sustain minor to moderate damage after a seismic event and to reopen quickly to emergency response traffic.

1962 Benicia-Martinez Bridge (right)

## Richmond-San Rafael Bridge Seismic Retrofit Project
## Project Status: Completed 2005

The Richmond-San Rafael Bridge was retrofitted to a "No Collapse" classification to avoid catastrophic failure during a major seismic event. The foundations, columns, and truss of the bridge were strengthened, and the entire low-rise approach viaduct from Marin County was replaced.

Richmond-San Rafael Bridge

## Los Angeles-Vincent Thomas Bridge Seismic Retrofit Project
## Project Status: Completed 2000

The Vincent Thomas Bridge is a 1,500-foot long suspension bridge crossing the Los Angeles Harbor in Los Angeles that links San Pedro with Terminal Island. The bridge was one of two state-owned toll bridges in Southern California (the other being the San Diego-Coronado Bridge). Opened in 1963, the bridge was seismically retrofitted as part of the TBSRP in 2000.

Los Angeles-Vincent Thomas Bridge

## San Diego-Coronado Bridge Seismic Retrofit Project
## Project Status: Completed 2002

The San Diego-Coronado Bridge crosses over San Diego Bay and links the cities of San Diego and Coronado. Opened in 1969, the 2.1-mile long bridge was seismically retrofitted as part of the TBSRP in 2002.

San Diego-Coronado Bridge

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Other Completed Projects

### Antioch Bridge Seismic Retrofit Project
### Project Status: Completed 2012

Serving the Delta region of the Bay Area, the Antioch Bridge takes State Route 160 traffic over the San Joaquin River, linking eastern Contra Costa County with Sacramento County. The current 1.8-mile-long steel plate girder bridge was opened in 1978 with one lane in each direction. The major retrofit measure for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents, and installing steel casings at all columns located at the Sherman Island approach slab bridge.

Antioch Bridge

Antioch Bridge Support Column Seismic Retrofit Project Completed

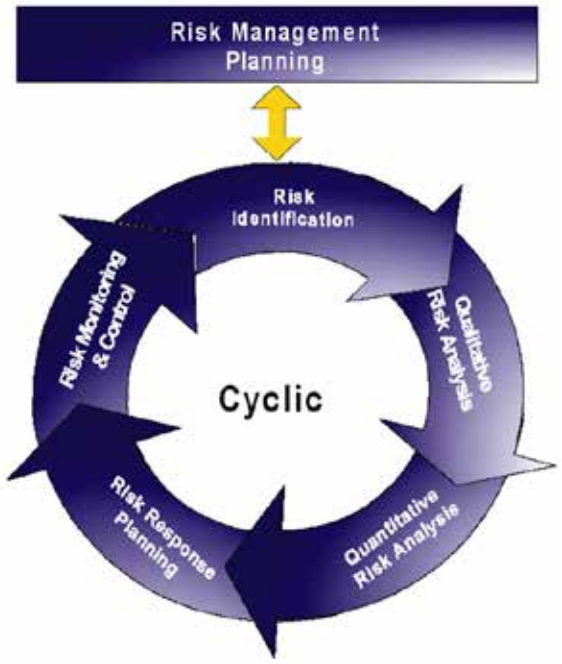
# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Risk Management Program Update

### Potential Draw On Program Reserve (Program Contingency)

The program contingency is currently $329 million in accordance with the TBPOC approved budget. As of the end of the fourth quarter of 2012, the 50 percent probable draw on program contingency is $122 million. The potential draw ranges from about $50 million to $175 million (refer to Figure 1).

The current program contingency balance is sufficient to cover the cost of currently identified risks. In accordance with the approved TBSRP Risk Management Plan, risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.




### RISK MANAGEMENT DEVELOPMENTS

The 50 percent probable remaining program contingency Balance (i.e., the approved TBPOC program contingency balance less the 50% probable draw) increased by $22 million this quarter.

Cost risks on the Self-Anchored Suspension Bridge (SAS) contract trended downward again this quarter primarily due to the completion of Phase 1 to 3 of load transfer. The schedule risks associated with completing the cable wrapping, electrical work and painting have decreased slightly this quarter. Mechanical Electrical Processes (MEP) installation on the main cable is taking longer than expected but the potential impacts are being mitigated, in part by providing additional environmental controls for the painting operations.

The next major activities on the critical path to bridge opening include completing wrapping the cable, painting the cable and suspenders, removal of cable temporary works, paving and striping the SAS and installing the cable electrical systems. Cable wrapping, cable electrical work and painting of the suspenders is progressing well. Removal of the cable temporary works is planned after electrical work is sufficiently completed. Risks associated with removal of the cable temporary works include difficulties in lowering components to the bridge deck, removal of attachments to the tower and deck, and repairs to the deck at the catwalk anchorages. The unique geometry of the cable system could potentially lead to access issues, and there is more hand painting than anticipated in the schedule. Painting is also weather-dependent, and delays could result if adverse weather conditions are encountered. Teams are actively engaged in each of these areas to mitigate the risks to the greatest extent possible.

Aggressive planning is underway for dismantling the marine foundations and trusses of the East Span. For the marine structures dismantling contract, the TBPOC approved a demonstration project that would remove the deep foundations using micro blasting. If these means and methods get approved, it would result in substantial cost and schedule savings, and a significant reduction in risks. Obtaining permits for the marine structures removal will be the most challenging portion of this contract because it involves underwater work in the San Francisco Bay. Caltrans has engaged various environmental, hydro-acoustic, and water quality experts to prepare the permitting documents and assist in mitigating the identified risks.

The presence of lead paint on the steel superstructure poses potential risks to worker safety and air quality. Caltrans is consulting with Cal-OSHA and the Bay Area Air Quality Management board to address this issue. Should these regulatory agencies make additional requirements of the project, those changes would be incorporated into the project documents so that all contractors could equitably price the added work.

The steel superstructure removal contract's environmental team has developed a strategy for moving the bridge's cormorant colony from its existing location to the new platforms erected on the Skyway structure. The strategy was reviewed and approved by the permitting agencies and the plan is being implemented. This action will reduce the risk of bird nesting delaying the steel superstructure dismantling work.

## RISK MANAGEMENT LOOK AHEAD

The corridor schedule is aggressive and there are risks to future activities on the critical path to bridge opening. The risk management team continues to monitor the SAS contract, YBITS #1 contract, and the updated corridor schedule in order to alert the TBPOC of approaching critical activities and to suggest mitigation responses for impending risks.

Various architectural enhancements and other project improvements are being assessed by the TBPOC and if approved, will be reflected in the potential draw on the program contingency curve in future quarters.

The Self-Anchored Suspension Bridge Newly Installed Light Fixtures

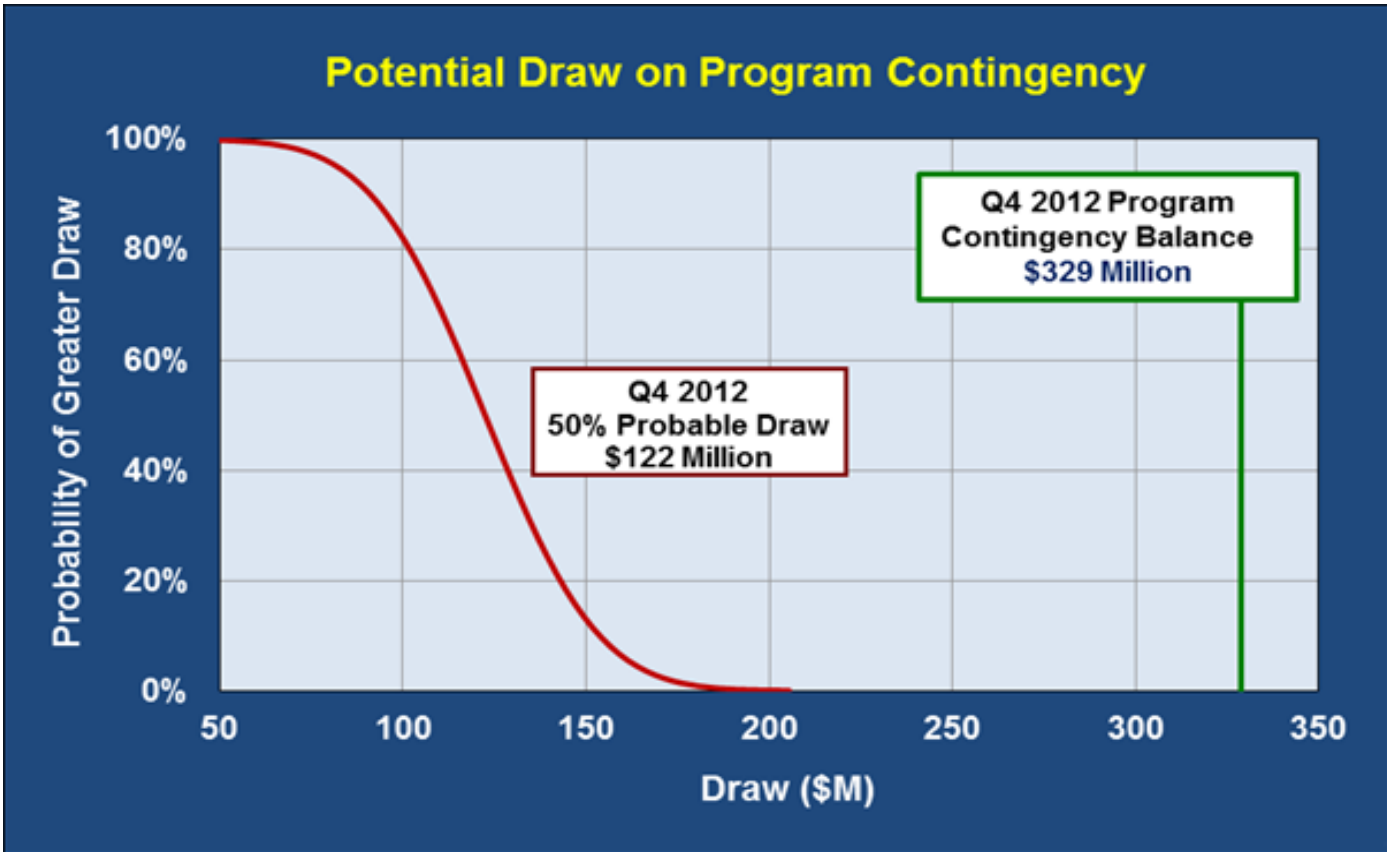



Figure 1 – Potential Draw on Program Contingency*

*Figure 1 Notes:
1. Proposed architectural enhancements and project improvements are excluded unless approved by the TBPOC.
2. Program Contingency may be used for other beneficial purposes than to cover risks. Therefore, the potential draw chart may not necessarily represent a forecast of the future balance of program contingency funds.

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Program Funding Status

AB 144 established a funding level of $8.685 billion for the TBSRP. As of December 31, 2010, seismic retrofitting of Antioch and Dumbarton Bridges became part of the Toll Bridge Seismic Retrofit Program with the passage of AB 1175, which provided another $750 million bringing the total funding to $9.435 billion. The program funding sources are shown in Table 1- Program Budget.

### Table 1—Program Budget as of December 31, 2012 ($ Millions)

| | | Budgeted | Funding Available & Contribution |
|---|---|---|---|
| **Financing** | | | |
| Seismic Surcharge Revenue AB 1171 | | 2,282.0 | 2,282.0 |
| Seismic Surcharge Revenue AB 144 | | 2,150.0 | 2,150.0 |
| Seismic Surcharge Revenue AB 1175 | | 750.0 | 750.0 |
| BATA Consolidation | | 820.0 | 820.0 |
| Subtotal - Financing | | 6,002.0 | 6,002.0 |
| Contributions | | | |
| Proposition 192 | | 790.0 | 789.0 |
| San Diego Coronado Toll Bridge Revenue Fund | | 33.0 | 33.0 |
| Vincent Thomas Bridge | | 15.0 | 6.9 |
| State Highway Account[1][2] | | 745.0 | 745.0 |
| Public Transportation Account[1][3] | | 130.0 | 130.0 |
| ITIP/SHOPP/Federal Contingency [4] | | 448.0 | 448.0 |
| Federal Highway Bridge Replacement and Rehabilitation (HBRR) | | 642.0 | 642.0 |
| SHA - East Span Demolition | | 300.0 | - |
| SHA - "Efficiency Savings"[5] | | 130.0 | 130.0 |
| Redirect Spillover | | 125.0 | 125.0 |
| Motor Vehicle Account | | 75.0 | 75.0 |
| **Subtotal - Contribution** | | 3,433.0 | 3,123.9 |
| **Total Funding** | | 9,435.0 | 9,125.9 |
| **Encumbered to Date** | | | 8,270.3 |
| **Remaining Unallocated** | | | 855.6 |
| **Expenditures :** | | | |
| Capital Outlay | | | 6,096.6 |
| State Operations | | | 1,648.7 |
| Antioch and Dumbarton Expenditures by BATA | | | 12.2 |
| | Total Expenditures | | **7,757.5** |
| **Encumbrances :** | | | |
| Capital Outlay | | | 486.1 |
| State Operations | | | 26.7 |
| | Total Encumbrances | | 512.8 |
| **Total Expenditures and Encumbrances** | | | **8,270.3** |

1) The California Transportation Commission adopted a new schedule and changed the PTA/SHA split on December 15, 2005.

(2) As of January 1, 2010, seismic retrofitting of Antioch and Dumbarton Bridges became part of the Toll Bridge Seismic Retrofit Program with the passage of AB 1175.

## Summary of the Toll Bridge Oversight Committee (TBPOC) Expenses

Pursuant to Streets and Highways Code Section 30952.1 (d), expenses incurred by Caltrans, BATA, and the California Transportation Commission (CTC) for costs directly related to the duties associated with the TBPOC are to be reimbursed by toll revenues. Table 3 -Toll Bridge Program Oversight Committee Estimated Expenses: July 1, 2005 through December 31, 2012 shows expenses through December 31, 2012 for TBPOC functioning, support, and monthly and quarterly reporting.

### Table 2—CTC Toll Bridge Seismic Retrofit Program Contributions Adopted December 2005
**Schedule of Contributions to the Toll Bridge Seismic Retrofit Program ($ Millions)**

| Source | Description | 2005-06 (Actual) | 2006-07 (Actual) | 2007-08 (Actual) | 2008-09 (Actual) | 2009-10 (Actual) | 2010-11 (Actual) | 2011-12 (Actual) | 2012-13 (Actual) | 2013-14 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AB 1171 | SHA | 290 | | | | | | | | | 290 |
| | PTA | 80 | 40 | | | | | | | | 120 |
| | Highway Bridge Replacement and Rehabilitation (HBRR) | 100 | 100 | 100 | 42 | | | | | | 342 |
| | Contingency | | | | 1 | 99 | 100 | 100 | 148 | | 448 |
| AB 144 | SHA* | 2 | 8 | | | | 53 | 50 | 17 | | 130 |
| | Motor Vehicle Account (MVA) | 75 | | | | | | | | | 75 |
| | Spillover | | 125 | | | | | | | | 125 |
| | SHA** | | | | | | | | | 300 | 300 |
| | Total | 547 | 273 | 100 | 43 | 99 | 153 | 150 | 165 | 300 | 1830 |

* Caltrans Efficiency Savings
** SFOBB East Span Demolition Cost

### Table 3—Toll Bridge Program Oversight Committee Estimated Expenses: July 1, 2005 through December 31, 2012 ($ Millions)

| Agency/Program Activity | Expenses |
|---|---|
| **BATA** | **2.4** |
| **Caltrans** | **2.7** |
| **CTC** | **2.6** |
| **Reporting** | **5.1** |
| **Total Program** | **12.8** |

The “Cormorant Condos” beneath the Skyway of the new San Francisco-Oakland Bay Bridge (Courtesy of Sherwood Design Engineers)

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## Quarterly Environmental Compliance Highlights

Overall environmental compliance for the San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Safety (ESSS) Project has been a success during the fourth quarter of 2012. The tasks for the current quarter are focused on mitigation, monitoring, and environmental permitting. Key successes in this quarter are as follows:

The Standard Tracking and Exchange Vehicle for Environmental (STEVE) System was updated regularly with permitting and compliance information for the SFOBB Project.

Bird monitoring was conducted weekly in all active construction areas. The goal of this monitoring is to document potential impacts to birds from construction activities. Monitors did not observe any indication that birds were disturbed due to the east span construction activities.

Peregrine falcon monitoring for the 2012/2013 nesting season began on December 6, 2012, and will continue through August 2013. Both members of the resident pair of peregrine falcons have been observed during most weekly surveys. There has been no indication that the pair has started nesting. Weekly surveys will continue and may increase to as many as six days a week as the nesting season progresses.

In preparation for the 2013 nesting season, Caltrans worked to develop a multifaceted bird -management strategy to prevent impacts to nesting birds during both construction and dismantling of the existing east span.
During the fourth quarter of 2012, a cormorant management program was developed in coordination with Caltrans construction to address the avoidance of impacts to nesting cormorants during bridge dismantling. This program comprises the enticement of cormorants to alternate nesting habitat on the new east span and deterrence of cormorant nesting on the existing east span. Monitoring will also be conducted during the 2013 nesting season to record various aspects of the cormorant nesting cycle on the existing east span.

SFOBB environmental compliance and storm water pollution prevention plan (SWPPP) inspections were conducted weekly at all active project sites. The project team continues to work closely with construction to ensure compliance with environmental permits and regulations and to improve best management practices.

Caltrans hosted a San Francisco Bay Conservation and Development Commission (BCDC) update meeting on October 15, 2012. This meeting was held to discuss new and outstanding BCDC permitting and compliance items for the SFOBB Project. Items discussed included the E3 Blasting Demonstration Project, improvements on the U.S. Coast Guard Base on Yerba Buena island, the temporary pedestrian / bicycle path connection at Oakland Touchdown, shorebird roosting habitat mitigation and existing east span marine foundation retention.

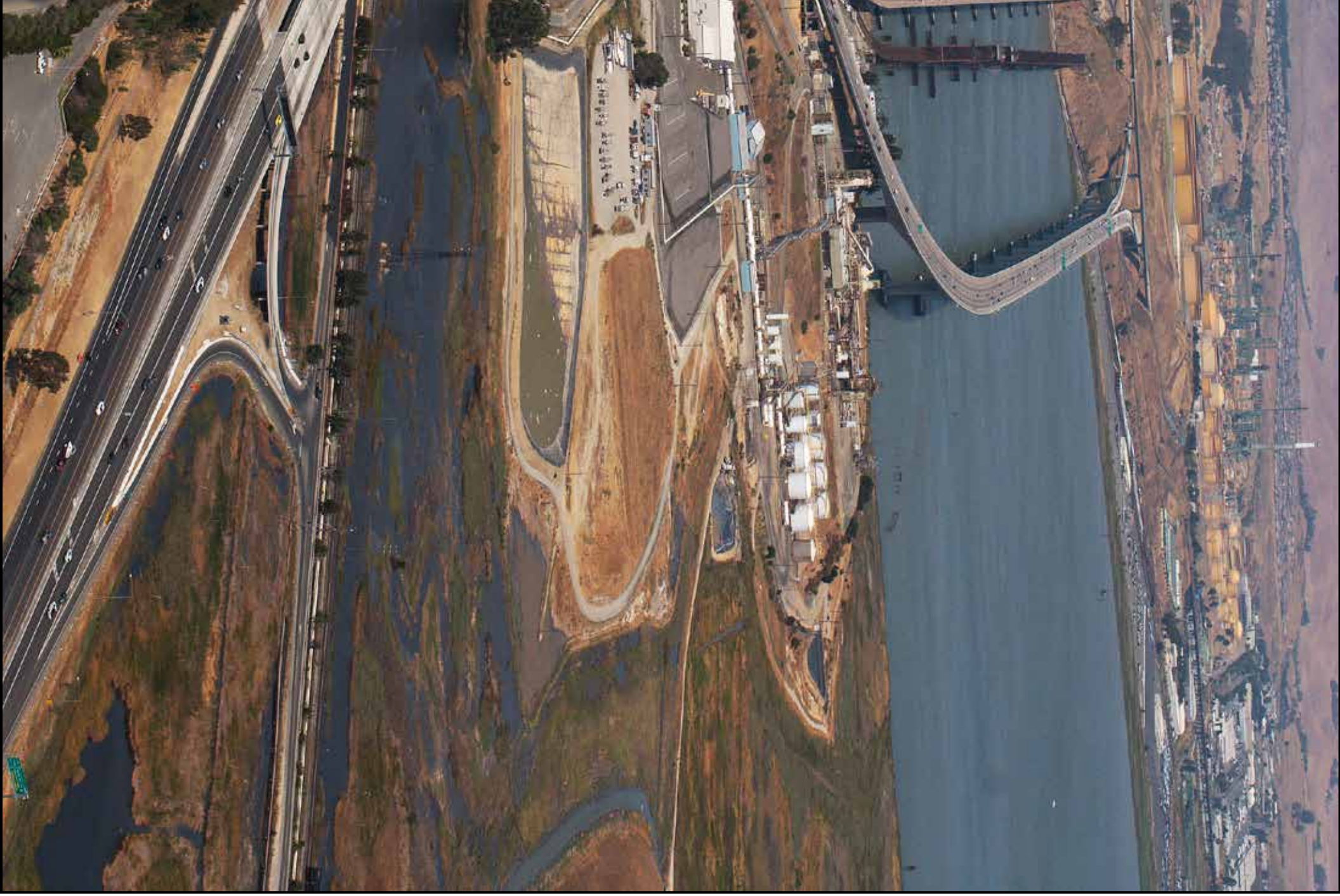
Caltrans held an interagency meeting regarding the E3 Blasting Demonstration Project on November 7, 2012. Various regulatory agencies attended the meeting including the California Department of Fish and Wildlife, Regional Water Quality Control Board, BCDC, United States Fish and Wildlife Service, United States Coast Guard (USCG) National Marine Fisheries Service (NMFS) and the United States Army Corps of Engineers. Caltrans discussed the preliminary aspects of the E3 Demonstration project and explained that there would be more information and meetings to follow as the scope is further developed. The final meeting minutes were distributed to all attending parties on November 26, 2012.

Caltrans prepared and submitted the Final Hydroacoustic and Bird Predation Monitoring Report for Pile Driving for a Temporary Access Trestle and Temporary Falsework at the Oakland Shoreline on December 6, 2012, to National Oceanic and Atmospheric Administration (NOAA) Fisheries.

Caltrans has been in contact with NMFS regarding the SFOBB Incidental Harassment Authorization (IHA) for the sake of marine mammals. On December 13, 2012, NMFS stated that the final IHA document was under review by the NMFS General Counsel and would be finalized in early January.

Caltrans is preparing amendment number 33 to BCDC, Permit No. 2001.008 (formerly permit No. 8-01). Proposed amendment 33 addresses two main items, which are (1) improvements to the USCG Base on Yerba Buena Island and (2) additional details regarding the public access improvements for the pedestrian / bicycle path on the new eastern span, and the Yerba Buena Island public access connector and terminus. The amendment should be finalized and submitted to BCDC in early January 2013.

Aerial View of the Benicia-Martinez Bridge



# REGIONAL MEASURE 1 TOLL BRIDGE PROGRAM

# REGIONAL MEASURE 1 PROGRAM

## Completed Projects

In November 1988, Bay Area voters approved Regional Measure 1 (RM 1), which authorized a standard auto toll of $1 for all seven state-owned Bay Area toll bridges to be used to reduce congestion in the bridge corridor.

### Richmond Parkway Construction Project
### Project Status: Completed 2001

The final connections to the Richmond Parkway from Interstate 580 near the Richmond-San Rafael Bridge were completed in May 2001.

### San Mateo-Hayward Bridge Widening Project
### Project Status: Completed 2003

This project expanded the low-rise concrete trestle section of the San Mateo-Hayward Bridge to allow for three lanes in each direction to match the existing configuration of the high-rise steel section of the bridge.

Widening of the San Mateo-Hayward Bridge Trestle on Left

### New Alfred Zampa Memorial (Carquinez) Bridge Project
### Project Status: Completed 2003

The new western span of the Carquinez Bridge, which replaced the original 1927 span, is a twin-towered suspension bridge with three mixed-flow lanes, a new carpool lane, shoulders and a bicycle/pedestrian pathway.

New Alfred Zampa Memorial (Carquinez) Bridge Soon after Opening to Traffic, with Crockett Interchange Still under Construction

### Bayfront Expressway (State Route 84) Widening Project
### Project Status: Completed 2004

This project expanded and improved the roadway from the Dumbarton Bridge touchdown to the US 101/ Marsh Road interchange by adding additional lanes and turn pockets and improving bicycle/pedestrian access in the area.

### Richmond-San Rafael Bridge Rehabilitation Projects
### Project Status: Completed 2006

Three major rehabilitation projects for the Richmond-San Rafael Bridge were completed. In 2001, the final connections to the Richmond Parkway were completed. In 2005, seismic retrofit, trestle and fender system replacement work was completed. In 2006, the bridge was resurfaced along with deck joint repairs.

New Richmond-San Rafael Bridge West Approach Trestle under Construction

## Benicia-Martinez Bridge Project
## Project Status: Completed 2007

The new Congressman George Miller Bridge opened to traffic in August 2007, taking its place alongside the existing 1962 Benicia-Martinez Bridge, which is named for Congressman Miller's father, the late George Miller, Jr. The new bridge carries five lanes of northbound Interstate 680 traffic, while the existing bridge is being upgraded to carry four lanes of southbound traffic and a new bicycle/pedestrian pathway.

The New Congressman George Miller Bridge (New Benicia-Martinez Bridge

## Benicia-Martinez Bridge Rehabilitation Project
## Project Status: Completed 2009

A two-year project to rehabilitate and reconfigure the original Benicia-Martinez Bridge began shortly after the opening of the new Congressman George Miller Bridge. The existing 1.2-mile roadway surface on the steel deck truss bridge was modified to carry four lanes of southbound traffic (one more than before) - with shoulders on both sides - plus a bicycle/pedestrian path on the west side of the span that connects to Park Road in Benicia and to Marina Vista Boulevard in Martinez. Reconstruction of the east side of the bridge and approaches was completed in August 2008. Reconstruction of the west side of the bridge and its approaches and construction of the bicycle/pedestrian pathway were completed in August 2009.

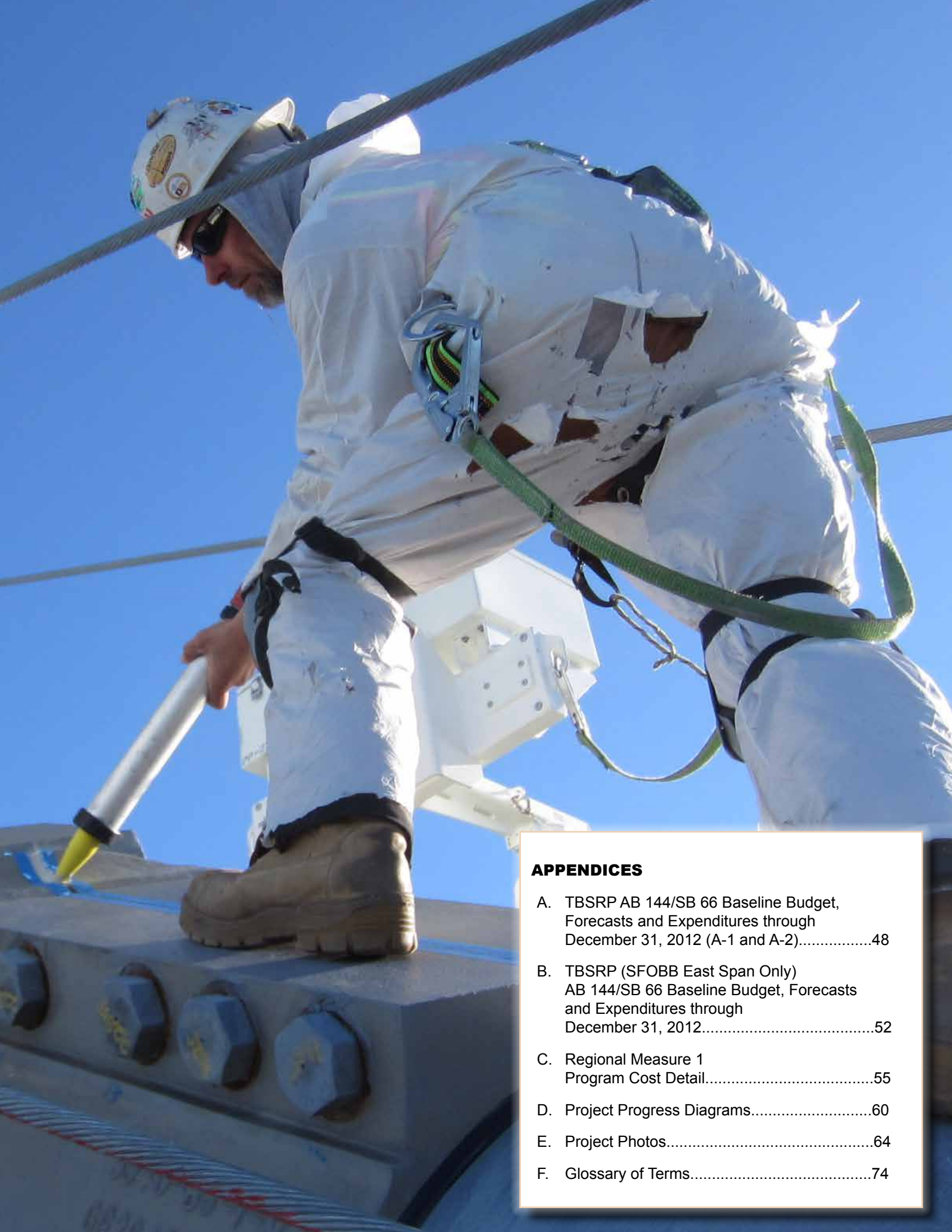
Benicia-Martinez Bridge Bicycle/Pedestrian Path

## Interstate 880/State Route 92
## Project Status: Completed 2011

This corridor was consistently one of the Bay Area's most congested during the evening commute. This was due in part to the lane merging and weaving that was required by the then-existing cloverleaf interchange. The new interchange features direct freeway-to-freeway connector ramps that now increase traffic capacity and improve overall safety and traffic operations in the area. With the new direct-connector ramps, drivers coming off of the San Mateo-Hayward Bridge can access Interstate 880 without having to compete with traffic headed onto east Route 92 from south Interstate 880.

Aerial View of Completed 880/92 Interchange Project

Self-Anchored Suspension Bridge Installed Light Fixture and Cable Band Caulking in Process



## APPENDICES

# Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions)

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| SFOBB East Span Replacement Project | | | | | | |
| Capital Outlay Support | 959.3 | 262.3 | 1,221.6 | 1,105.3 | 1,278.6 | 57.0 |
| Capital Outlay Construction | 4,492.2 | 571.5 | 5,063.7 | 4,291.1 | 5,132.3 | 68.6 |
| Other Budgeted Capital | 35.1 | (32.8) | 2.3 | 0.7 | 7.7 | 5.4 |
| Total | 5,486.6 | 801.0 | 6,287.6 | 5,397.1 | 6,418.6 | 131.0 |
| SFOBB West Approach Replacement | | | | | | |
| Capital Outlay Support | 120.0 | (1.0) | 119.0 | 119.2 | 119.0 | - |
| Capital Outlay Construction | 309.0 | 41.7 | 350.7 | 331.8 | 338.1 | (12.6) |
| Total | 429.0 | 40.7 | 469.7 | 451.0 | 457.1 | (12.6) |
| SFOBB West Span Retrofit | | | | | | - |
| Capital Outlay Support | 75.0 | (0.2) | 74.8 | 74.9 | 74.8 | - |
| Capital Outlay Construction | 232.9 | (5.5) | 227.4 | 227.4 | 227.4 | - |
| Total | 307.9 | (5.7) | 302.2 | 302.3 | 302.2 | - |
| Richmond-San Rafael Bridge Retrofit | | | | | | |
| Capital Outlay Support | 134.0 | (7.0) | 127.0 | 126.8 | 127.0 | - |
| Capital Outlay Construction | 780.0 | (90.5) | 689.5 | 667.5 | 689.5 | - |
| Total | 914.0 | (97.5) | 816.5 | 794.3 | 816.5 | - |
| Benicia-Martinez Bridge Retrofit | | | | | | - |
| Capital Outlay Support | 38.1 | - | 38.1 | 38.1 | 38.1 | - |
| Capital Outlay Construction | 139.7 | - | 139.7 | 139.7 | 139.7 | - |
| Total | 177.8 | - | 177.8 | 177.8 | 177.8 | - |
| Carquinez Bridge Retrofit | | | | | | |
| Capital Outlay Support | 28.7 | 0.1 | 28.8 | 28.8 | 28.8 | - |
| Capital Outlay Construction | 85.5 | (0.1) | 85.4 | 85.4 | 85.4 | - |
| Total | 114.2 | - | 114.2 | 114.2 | 114.2 | - |
| San Mateo-Hayward Retrofit | | | | | | - |
| Capital Outlay Support | 28.1 | - | 28.1 | 28.1 | 28.1 | - |
| Capital Outlay Construction | 135.4 | (0.1) | 135.3 | 135.3 | 135.3 | - |
| Total | 163.5 | (0.1) | 163.4 | 163.4 | 163.4 | - |
| Vincent Thomas Bridge Retrofit (Los Angeles) | | | | | | |
| Capital Outlay Support | 16.4 | - | 16.4 | 16.4 | 16.4 | - |
| Capital Outlay Construction | 42.1 | (0.1) | 42.0 | 42.0 | 42.0 | - |
| Total | 58.5 | (0.1) | 58.4 | 58.4 | 58.4 | - |
| San Diego-Coronado Bridge Retrofit | | | | | | |
| Capital Outlay Support | 33.5 | (0.3) | 33.2 | 33.2 | 33.2 | - |
| Capital Outlay Construction | 70.0 | (0.6) | 69.4 | 69.4 | 69.4 | - |
| Total | 103.5 | (0.9) | 102.6 | 102.6 | 102.6 | - |

# Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| Antioch Bridge | | | | | | |
| Capital Outlay Support | - | 31.0 | 31.0 | 17.3 | 23.8 | (7.2) |
| Capital Outlay Support by BATA | | | | 6.2 | | |
| Capital Outlay Construction | - | 51.0 | 51.0 | 47.0 | 50.3 | (0.7) |
| Total | - | 82.0 | 82.0 | 70.5 | 74.1 | (7.9) |
| Dumbarton Bridge | | | | | | |
| Capital Outlay Support | - | 56.0 | 56.0 | 35.1 | 56.0 | - |
| Capital Outlay Support by BATA | | | | 6.0 | | |
| Capital Outlay Construction | - | 92.7 | 92.7 | 59.3 | 72.0 | (20.7) |
| Total | - | 148.7 | 148.7 | 100.4 | 128.0 | (20.7) |
| Subtotal Capital Outlay Support | 1,433.1 | 340.9 | 1,774.0 | 1,635.4 | 1,823.8 | 49.8 |
| Subtotal Capital Outlay | 6,286.8 | 660.0 | 6,946.8 | 6,095.9 | 6,981.4 | 34.6 |
| Subtotal Other Budgeted Capital | 35.1 | (32.8) | 2.3 | 0.7 | 7.7 | 5.4 |
| Miscellaneous Program Costs | 30.0 | - | 30.0 | 25.5 | 30.0 | - |
| Subtotal Toll Bridge Seismic Retrofit Program | 7,785.0 | 968.1 | 8,753.1 | 7,757.5 | 8,842.9 | 89.8 |
| Net Programmatic Risks* | - | - | - | - | 32.6 | 32.6 |
| Program Contingency | 900.0 | (571.1) | 328.9 | - | 206.5 | (122.4) |
| Total Toll Bridge Seismic Retrofit Program [1] | 8,685.0 | 397.0 | 9,082.0 | 7,757.5 | 9,082.0 | - |

[1] Figures may not sum up to totals due to rounding effects.

# Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions)

| Bridge | AB 144 Baseline Budget | TBPOC Current Approved Budget | Expenditures to date and encumbrances as of 12/2012 see Note (1) | Estimated costs not yet spent or encumbered as of 12/2012 | Total Forecast as of 12/2012 |
|---|---|---|---|---|---|
| a | b | c | d | e | f = d + e |
| Other Completed Projects | | | | | |
| Capital Outlay Support | 144.9 | 144.6 | 144.6 | - | 144.6 |
| Capital Outlay | 472.6 | 471.9 | 472.8 | (1.0) | 471.8 |
| Total | 617.5 | 616.5 | 617.4 | (1.0) | 616.4 |
| Richmond-San Rafael | | | | | |
| Capital Outlay Support | 134.0 | 127.0 | 126.8 | 0.2 | 127.0 |
| Capital Outlay | 698.0 | 689.5 | 667.5 | 22.0 | 689.5 |
| Project Reserves | 82.0 | - | - | - | - |
| Total | 914.0 | 816.5 | 794.3 | 22.2 | 816.5 |
| West Span Retrofit | | | | | |
| Capital Outlay Support | 75.0 | 74.8 | 74.9 | (0.1) | 74.8 |
| Capital Outlay | 232.9 | 227.4 | 232.9 | (5.5) | 227.4 |
| Total | 307.9 | 302.2 | 307.8 | (5.6) | 302.2 |
| West Approach | | | | | |
| Capital Outlay Support | 120.0 | 119.0 | 119.2 | (0.2) | 119.0 |
| Capital Outlay | 309.0 | 350.7 | 346.7 | (8.6) | 338.1 |
| Total | 429.0 | 469.7 | 465.9 | (8.8) | 457.1 |
| SFOBB East Span - Skyway | | | | | |
| Capital Outlay Support | 197.0 | 181.2 | 181.2 | - | 181.2 |
| Capital Outlay | 1,293.0 | 1,237.2 | 1,237.3 | (0.1) | 1,237.2 |
| Total | 1,490.0 | 1,418.4 | 1,418.5 | (0.1) | 1,418.4 |
| SFOBB East Span - SAS - Superstructure | | | | | |
| Capital Outlay Support | 214.6 | 419.0 | 419.9 | 51.2 | 471.1 |
| Capital Outlay | 1,753.7 | 2,046.8 | 1,963.1 | 87.5 | 2,050.6 |
| Total | 1,968.3 | 2,465.8 | 2,383.0 | 138.7 | 2,521.7 |
| SFOBB East Span - SAS - Foundations | | | | | |
| Capital Outlay Support | 62.5 | 37.6 | 37.6 | - | 37.6 |
| Capital Outlay | 339.9 | 301.3 | 309.3 | (4.2) | 305.1 |
| Total | 402.4 | 338.9 | 346.9 | (4.2) | 342.7 |
| Small YBI Projects | | | | | |
| Capital Outlay Support | 10.6 | 10.2 | 10.2 | 0.4 | 10.6 |
| Capital Outlay | 15.6 | 15.2 | 15.5 | 0.2 | 15.7 |
| Total | 26.2 | 25.4 | 25.7 | 0.6 | 26.3 |
| YBI Detour | | | | | |
| Capital Outlay Support | 29.5 | 87.7 | 87.9 | (0.2) | 87.7 |
| Capital Outlay | 131.9 | 466.1 | 492.9 | (19.6) | 473.3 |
| Total | 161.4 | 553.8 | 580.8 | (19.8) | 561.0 |
| YBI- Transition Structures | | | | | |
| Capital Outlay Support | 78.7 | 106.4 | 92.2 | 22.8 | 115.0 |
| Capital Outlay | 299.4 | 295.4 | 360.6 | (38.3) | 322.3 |
| Total | 378.1 | 401.8 | 452.8 | (15.5) | 437.3 |

# Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions) Cont.

| Contract | AB 144 Baseline Budget | TBPOC Current Approved Budget | Expenditures to date and encumbrances as of 12/2012 see Note (1) | Estimated costs not yet spent or encumbered as of 12/2012 | Total Forecast as of 12/2012 |
|---|---|---|---|---|---|
| a | b | c | d | e | f = d + e |
| Oakland Touchdown | | | | | |
| Capital Outlay Support | 74.4 | 112.9 | 101.4 | 22.7 | 124.1 |
| Capital Outlay | 283.8 | 323.7 | 250.7 | 80.9 | 331.6 |
| Total | 358.2 | 436.6 | 352.1 | 103.6 | 455.7 |
| East Span Other Small Projects | | | | | |
| Capital Outlay Support | 212.3 | 206.6 | 197.9 | 8.7 | 206.6 |
| Capital Outlay | 170.8 | 141.3 | 118.4 | 36.3 | 154.7 |
| Total | 383.1 | 347.9 | 316.3 | 45.0 | 361.3 |
| Existing Bridge Demolition | | | | | |
| Capital Outlay Support | 79.7 | 59.9 | 3.6 | 41.1 | 44.7 |
| Capital Outlay | 239.2 | 239.1 | - | 249.5 | 249.5 |
| Total | 318.9 | 299.0 | 3.6 | 290.6 | 294.2 |
| Antioch Bridge | | | | | |
| Capital Outlay Support | - | 31.0 | 17.3 | 0.4 | 17.7 |
| Capital Outlay Support by BATA | | | 6.1 | - | 6.1 |
| Capital Outlay | - | 51.0 | 47.4 | 2.9 | 50.3 |
| Total | - | 82.0 | 70.8 | 3.3 | 74.1 |
| Dumbarton Bridge | | | | | |
| Capital Outlay Support | - | 56.0 | 35.3 | 14.7 | 50.0 |
| Capital Outlay Support by BATA | | | 6.0 | - | 6.0 |
| Capital Outlay | - | 92.7 | 67.6 | 4.4 | 72.0 |
| Total | - | 148.7 | 108.9 | 19.1 | 128.0 |
| Miscellaneous Program Costs | 30.0 | 30.0 | 25.5 | 4.5 | 30.0 |
| Total Capital Outlay Support | 1,463.2 | 1,803.9 | 1,687.6 | 166.2 | 1,853.8 |
| Total Capital Outlay | 6,321.8 | 6,949.2 | 6,582.7 | 406.4 | 6,989.1 |
| Program Total [1] | 7,785.0 | 8,753.1 | 8,270.3 | 572.6 | 8,842.9 |

(1). Funds allocated to project or contract for Capital Outlay and Support needs includes Capital Outlay Support total allocation for FY 06/07.
(2). BSA provided a distribution of program contingency in December 2004 based in Bechtel Infrastructure Corporation input. This Column is subject to revision upon completion of Department's risk assessment update.
(3) Total Capital Outlay Support includes program indirect costs.

[1] Figures may not sum up to totals due to rounding effects.

# Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions)

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| San Francisco-Oakland Bay Bridge East Span Replacement Project | | | | | | |
| East Span - SAS Superstructure | | | | | | |
| Capital Outlay Support | 214.6 | 204.4 | 419.0 | 404.0 | 471.1 | 52.1 |
| Capital Outlay Construction | 1,753.7 | 293.1 | 2,046.8 | 1,749.1 | 2,050.6 | 3.8 |
| Total | 1,968.3 | 497.5 | 2,465.8 | 2,153.1 | 2,521.7 | 55.9 |
| SAS W2 Foundations | | | | | | |
| Capital Outlay Support | 10.0 | (0.8) | 9.2 | 9.2 | 9.2 | - |
| Capital Outlay Construction | 26.4 | 0.1 | 26.5 | 26.5 | 26.5 | - |
| Total | 36.4 | (0.7) | 35.7 | 35.7 | 35.7 | - |
| YBI South/South Detour | | | | | | |
| Capital Outlay Support | 29.4 | 58.3 | 87.7 | 87.8 | 87.7 | - |
| Capital Outlay Construction | 131.9 | 334.2 | 466.1 | 466.2 | 473.3 | 7.2 |
| Total | 161.3 | 392.5 | 553.8 | 554.0 | 561.0 | 7.2 |
| East Span - Skyway | | | | | | |
| Capital Outlay Support | 197.0 | (15.8) | 181.2 | 181.2 | 181.2 | - |
| Capital Outlay Construction | 1,293.0 | (55.8) | 1,237.2 | 1,237.3 | 1,237.2 | - |
| Total | 1,490.0 | (71.6) | 1,418.4 | 1,418.5 | 1,418.4 | - |
| East Span - SAS E2/T1 Foundations | | | | | | - |
| Capital Outlay Support | 52.5 | (24.1) | 28.4 | 28.4 | 28.4 | - |
| Capital Outlay Construction | 313.5 | (38.7) | 274.8 | 274.8 | 278.6 | 3.8 |
| Total | 366.0 | (62.8) | 303.2 | 303.2 | 307.0 | 3.8 |
| YBI Transition Structures (see notes below) | | | | | | |
| Capital Outlay Support | 78.7 | 27.7 | 106.4 | 85.6 | 115.0 | 8.6 |
| Capital Outlay Construction | 299.3 | (3.9) | 295.4 | 184.8 | 322.3 | 26.9 |
| Total | 378.0 | 23.8 | 401.8 | 270.4 | 437.3 | 35.5 |
| * YBI- Transition Structures | | | | | | |
| Capital Outlay Support | | | 16.4 | 16.4 | 16.4 | - |
| Capital Outlay Construction | | | - | - | - | - |
| Total | | | 16.4 | 16.4 | 16.4 | - |
| * YBI- Transition Structures Contract No. 1 | | | | | | |
| Capital Outlay Support | | | 57.0 | 53.6 | 64.6 | 7.6 |
| Capital Outlay Construction | | | 199.7 | 184.8 | 234.6 | 34.9 |
| Total | | | 256.7 | 238.4 | 299.2 | 42.5 |
| * YBI- Transition Structures Contract No. 2 | | | | | | |
| Capital Outlay Support | | | 32.0 | 15.6 | 33.0 | 1.0 |
| Capital Outlay Construction | | | 92.4 | - | 84.4 | (8.0) |
| Total | | | 124.4 | 15.6 | 117.4 | (7.0) |
| * YBI- Transition Structures Contract No. 3 Landscape | | | | | | |
| Capital Outlay Support | | | 1.0 | - | 1.0 | - |
| Capital Outlay Construction | | | 3.3 | - | 3.3 | - |
| Total | | | 4.3 | - | 4.3 | - |

# Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| Oakland Touchdown (see notes below) | | | | | | |
| Capital Outlay Support | 74.4 | 38.5 | 112.9 | 97.4 | 124.1 | 11.2 |
| Capital Outlay Construction | 283.8 | 39.9 | 323.7 | 220.4 | 331.6 | 7.9 |
| Total | 358.2 | 78.4 | 436.6 | 317.8 | 455.7 | 19.1 |
| * OTD Prior-to-Split Costs | | | | | | |
| Capital Outlay Support | | | 21.7 | 20.0 | 21.7 | - |
| Capital Outlay Construction | | | - | - | - | 4.4 |
| Total | | | 21.7 | 20.0 | 21.7 | 4.4 |
| * OTD Submarine Cable(1) | | | | | | |
| Capital Outlay Support | | | 0.9 | 0.9 | 0.9 | - |
| Capital Outlay Construction | | | 5.7 | 5.7 | 9.6 | 3.9 |
| Total | | | 6.6 | 6.6 | 10.5 | 3.9 |
| * OTD No. 1 (Westbound) | | | | | | |
| Capital Outlay Support | | | 51.3 | 51.2 | 51.3 | - |
| Capital Outlay Construction | | | 205.0 | 203.0 | 203.3 | (1.7) |
| Total | | | 256.3 | 254.2 | 254.6 | (1.7) |
| * OTD No. 2 (Eastbound) | | | | | | |
| Capital Outlay Support | | | 22.5 | 18.2 | 35.6 | 13.1 |
| Capital Outlay Construction | | | 62.0 | 11.6 | 65.5 | 3.5 |
| Total | | | 84.5 | 29.8 | 101.1 | 16.6 |
| * OTD Touchdown 2 Detour(2) | | | | | | |
| Capital Outlay Support | | | 15.0 | 6.3 | 13.1 | (1.9) |
| Capital Outlay Construction | | | 51.0 | - | 48.8 | (2.2) |
| Total | | | 66.0 | 6.3 | 61.9 | (4.1) |
| * OTD Electrical Systems | | | | | | |
| Capital Outlay Support | | | 1.5 | 0.8 | 1.5 | - |
| Capital Outlay Construction | | | - | - | 4.4 | 4.4 |
| Total | | | 1.5 | 0.8 | 5.9 | 4.4 |
| Existing Bridge Demolition | | | | | | |
| Capital Outlay Support | 79.7 | (19.8) | 59.9 | 3.6 | 44.7 | (15.2) |
| Capital Outlay Construction | 239.2 | (0.1) | 239.1 | - | 249.5 | 10.4 |
| Total | 318.9 | (19.9) | 299.0 | 3.6 | 294.2 | (4.8) |
| * Cantilever Section | | | | | | |
| Capital Outlay Support | | | - | - | 16.8 | |
| Capital Outlay Construction | | | - | - | 57.6 | |
| Total | | | - | - | 74.4 | |
| * 504/288 Sections | | | | | | |
| Capital Outlay Support | | | - | 3.6 | 13.9 | |
| Capital Outlay Construction | | | - | - | 85.3 | |
| Total | | | - | 3.6 | 99.2 | |
| *Marine foundations | | | | | | |
| Capital Outlay Support | | | - | - | 14.0 | |
| Capital Outlay Construction | | | - | - | 106.6 | |
| Total | | | - | - | 120.6 | |
| YBI/SAS Archeology | | | | | | |
| Capital Outlay Support | 1.1 | - | 1.1 | 1.1 | 1.1 | - |
| Capital Outlay Construction | 1.1 | - | 1.1 | 1.1 | 1.1 | - |
| Total | 2.2 | - | 2.2 | 2.2 | 2.2 | - |

# Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2012 ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| YBI - USCG Road Relocation | | | | | | |
| Capital Outlay Support | 3.0 | (0.3) | 2.7 | 2.7 | 3.0 | 0.3 |
| Capital Outlay Construction | 3.0 | (0.2) | 2.8 | 2.8 | 3.0 | 0.2 |
| Total | 6.0 | (0.5) | 5.5 | 5.5 | 6.0 | 0.5 |
| YBI - Substation and Viaduct | | | | | | |
| Capital Outlay Support | 6.5 | (0.1) | 6.4 | 6.4 | 6.5 | 0.1 |
| Capital Outlay Construction | 11.6 | (0.3) | 11.3 | 11.3 | 11.6 | 0.3 |
| Total | 18.1 | (0.4) | 17.7 | 17.7 | 18.1 | 0.4 |
| Oakland Geofill | | | | | | - |
| Capital Outlay Support | 2.5 | 0.1 | 2.6 | 2.5 | 2.5 | (0.1) |
| Capital Outlay Construction | 8.2 | - | 8.2 | 8.2 | 8.2 | - |
| Total | 10.7 | 0.1 | 10.8 | 10.7 | 10.7 | (0.1) |
| Pile Installation Demonstration Project | | | | | | |
| Capital Outlay Support | 1.8 | - | 1.8 | 1.8 | 1.8 | - |
| Capital Outlay Construction | 9.3 | (0.1) | 9.2 | 9.3 | 9.3 | - |
| Total | 11.1 | (0.1) | 11.0 | 11.1 | 11.1 | - |
| Stormwater Treatment Measures | | | | | | |
| Capital Outlay Support | 6.0 | 2.2 | 8.2 | 8.2 | 8.2 | - |
| Capital Outlay Construction | 15.0 | 3.3 | 18.3 | 16.8 | 18.3 | - |
| Total | 21.0 | 5.5 | 26.5 | 25.0 | 26.5 | - |
| Right-of-Way and Environmental Mitigation | | | | | | |
| Capital Outlay Support | - | - | - | - | - | - |
| Capital Outlay & Right-of-Way | 72.4 | - | 72.4 | 51.7 | 80.4 | 8.0 |
| Total | 72.4 | - | 72.4 | 51.7 | 80.4 | 8.0 |
| Sunk Cost - Existing East Span Retrofit | | | | | | |
| Capital Outlay Support | 39.5 | - | 39.5 | 39.5 | 39.5 | - |
| Capital Outlay Construction | 30.8 | - | 30.8 | 30.8 | 30.8 | - |
| Total | 70.3 | - | 70.3 | 70.3 | 70.3 | - |
| Other Capital Outlay Support | | | | | | |
| Environmental Phase | 97.7 | 0.1 | 97.8 | 97.8 | 97.7 | (0.1) |
| Pre-Split Project Expenditures | 44.9 | - | 44.9 | 44.9 | 44.9 | - |
| Non-Project Specific Costs | 20.0 | (8.0) | 12.0 | 3.2 | 12.0 | - |
| Total | 162.6 | (7.9) | 154.7 | 145.9 | 154.6 | (0.1) |
| | | | | | | |
| Subtotal Capital Outlay Support | 959.3 | 262.3 | 1,221.6 | 1,105.3 | 1,278.6 | 57.0 |
| Subtotal Capital Outlay Construction | 4,492.2 | 571.5 | 5,063.7 | 4,291.1 | 5,132.3 | 68.6 |
| Other Budgeted Capital | 35.1 | (32.8) | 2.3 | 0.7 | 7.7 | 5.4 |
| | | | | | | - |
| Total SFOBB East Span Replacement Project | 5,486.6 | 801.0 | 6,287.6 | 5,397.1 | 6,418.6 | 131.0 |

[1] Figures may not sum up to totals due to rounding effects.

# Appendix C: Regional Measure 1 Program Cost Detail ($ Millions)

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| New Benicia-Martinez Bridge Project | | | | | | |
| New Bridge | | | | | | |
| Capital Outlay Support | | | | | | |
| BATA Funding | 84.9 | 7.2 | 92.1 | 92.0 | 92.1 | - |
| Non-BATA Funding | - | 0.1 | 0.1 | 0.1 | 0.1 | - |
| Subtotal | 84.9 | 7.3 | 92.2 | 92.1 | 92.2 | - |
| Capital Outlay Construction | | | - | | | - |
| BATA Funding | 661.9 | 94.6 | 756.5 | 753.7 | 756.5 | - |
| Non-BATA Funding | 10.1 | - | 10.1 | 10.1 | 10.1 | - |
| Subtotal | 672.0 | 94.6 | 766.6 | 763.8 | 766.6 | - |
| Total | 756.9 | 101.9 | 858.8 | 855.9 | 858.8 | - |
| I-680/I-780 Interchange Reconstruction | | | | | | |
| Capital Outlay Support | | | | | | |
| BATA Funding | 24.9 | 5.2 | 30.1 | 30.1 | 30.1 | - |
| Non-BATA Funding | 1.4 | 5.2 | 6.6 | 6.3 | 6.6 | - |
| Subtotal | 26.3 | 10.4 | 36.7 | 36.4 | 36.7 | - |
| Capital Outlay Construction | | | | | | |
| BATA Funding | 54.7 | 26.9 | 81.6 | 77.1 | 81.6 | - |
| Non-BATA Funding | 21.6 | - | 21.6 | 21.7 | 21.7 | 0.1 |
| Subtotal | 76.3 | 26.9 | 103.2 | 98.8 | 103.3 | 0.1 |
| Total | 102.6 | 37.3 | 139.9 | 135.2 | 140.0 | 0.1 |
| I-680/Marina Vista Interchange Reconstruction | | | | | | |
| Capital Outlay Support | 18.3 | 1.9 | 20.2 | 20.2 | 20.2 | - |
| Capital Outlay Construction | 51.5 | 4.9 | 56.4 | 56.1 | 56.4 | - |
| Total | 69.8 | 6.8 | 76.6 | 76.3 | 76.6 | - |
| New Toll Plaza and Administration Building | | | | | | |
| Capital Outlay Support | 11.9 | 3.8 | 15.7 | 15.7 | 15.7 | - |
| Capital Outlay Construction | 24.3 | 2.0 | 26.3 | 25.1 | 26.3 | - |
| Total | 36.2 | 5.8 | 42.0 | 40.8 | 42.0 | - |
| Existing Bridge & Interchange Modifications | | | | | | |
| Capital Outlay Support | | | | | | |
| BATA Funding | 4.3 | 13.7 | 18.0 | 18.0 | 18.0 | - |
| Non-BATA Funding | - | 0.9 | 0.9 | 0.8 | 0.9 | - |
| Subtotal | 4.3 | 14.6 | 18.9 | 18.8 | 18.9 | - |
| Capital Outlay Construction | | | | | | |
| BATA Funding | 17.2 | 32.8 | 50.0 | 37.2 | 50.0 | - |
| Non-BATA Funding | - | 9.5 | 9.5 | - | 9.5 | - |
| Subtotal | 17.2 | 42.3 | 59.5 | 37.2 | 59.5 | - |
| Total | 21.5 | 56.9 | 78.4 | 56.0 | 78.4 | - |
| Other Contracts | | | | | | |
| Capital Outlay Support | 11.4 | (0.9) | 10.5 | 9.7 | 10.5 | - |
| Capital Outlay Construction | 20.3 | 3.3 | 23.6 | 18.6 | 23.6 | - |
| Capital Outlay Right-of-Way | 20.4 | (0.1) | 20.3 | 17.0 | 20.3 | - |
| Total | 52.1 | 2.3 | 54.4 | 45.3 | 54.4 | - |

# Appendix C: Regional Measure 1 Program Cost Detail ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| New Benicia-Martinez Bridge Project continued... | | | | | | |
| Subtotal BATA Capital Outlay Support | 155.7 | 30.9 | 186.6 | 185.7 | 186.6 | - |
| Subtotal BATA Capital Outlay Construction | 829.9 | 164.5 | 994.4 | 967.8 | 994.4 | - |
| Subtotal Capital Outlay Right-of-Way | 20.4 | (0.1) | 20.3 | 17.0 | 20.3 | - |
| Subtotal Non-BATA Capital Outlay Support | 1.4 | 6.2 | 7.6 | 7.2 | 7.6 | - |
| Subtotal Non-BATA Capital Outlay Construction | 31.7 | 9.5 | 41.2 | 31.8 | 41.3 | 0.1 |
| Project Reserves | 20.8 | 1.6 | 22.4 | - | 22.3 | (0.1) |
| Total New Benicia-Martinez Bridge Project | 1,059.9 | 212.6 | 1,272.5 | 1,209.5 | 1,272.5 | - |
| Notes: | Includes EAs 00601_,00603_,00605_,00606_,00608_,00609_,0060A_,0060C_,0060E_,0060F_,0060G_,0060H_, and all Project Right-of-Way | | | | | |
| Carquinez Bridge Replacement Project | | | | | | |
| New Bridge | | | | | | |
| Capital Outlay Support | 60.5 | (0.3) | 60.2 | 60.2 | 60.2 | - |
| Capital Outlay Construction | 253.3 | 2.7 | 256.0 | 255.9 | 256.0 | - |
| Total | 313.8 | 2.4 | 316.2 | 316.1 | 316.2 | - |
| Crockett Interchange Reconstruction | | | | | | |
| Capital Outlay Support | 32.0 | (0.1) | 31.9 | 31.9 | 31.9 | - |
| Capital Outlay Construction | 73.9 | (1.9) | 72.0 | 71.9 | 72.0 | - |
| Total | 105.9 | (2.0) | 103.9 | 103.8 | 103.9 | - |
| Existing 1927 Bridge Demolition | | | | | | |
| Capital Outlay Support | 16.1 | (0.3) | 15.8 | 15.8 | 15.8 | - |
| Capital Outlay Construction | 35.2 | - | 35.2 | 35.1 | 35.2 | - |
| Total | 51.3 | (0.3) | 51.0 | 50.9 | 51.0 | - |
| Other Contracts | | | | | | |
| Capital Outlay Support | 15.8 | 0.9 | 16.7 | 16.5 | 16.7 | - |
| Capital Outlay Construction | 18.8 | (1.2) | 17.6 | 16.5 | 17.6 | - |
| Capital Outlay Right-of-Way | 10.5 | (0.1) | 10.4 | 9.9 | 10.4 | - |
| Total | 45.1 | (0.4) | 44.7 | 42.9 | 44.7 | - |
| Subtotal BATA Capital Outlay Support | 124.4 | 0.2 | 124.6 | 124.4 | 124.6 | - |
| Subtotal BATA Capital Outlay Construction | 381.2 | (0.4) | 380.8 | 379.4 | 380.8 | - |
| Subtotal Capital Outlay Right-of-Way | 10.5 | (0.1) | 10.4 | 9.9 | 10.4 | - |
| Project Reserves | 12.1 | (9.7) | 2.4 | - | 2.4 | - |
| Total Carquinez Bridge Replacement Project [1] | 528.2 | (10.0) | 518.2 | 513.7 | 518.2 | - |
| Notes | Other Contracts include EAs 01301_,01302_,01303_,01304_,01305_,01306_,01307_,01308_,01309_,0130A_,0130C_,0130D_,0130F_,0130G_,0130H_,0130J_,00453_,00493_,04700_,00607_,2A270_,and 29920_ and all Project Right-of-Way | | | | | |

[1] Figures may not sum up to totals due to rounding effects.

# Appendix C: Regional Measure 1 Program Cost Detail ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| Richmond-San Rafael Bridge Trestle. Fender, and Deck Joint Rehabilitation | | | | | | |
| Capital Outlay Support | | | | | | |
| BATA Funding | 2.2 | (0.8) | 1.4 | 1.4 | 1.4 | - |
| Non-BATA Funding | 8.6 | 1.8 | 10.4 | 10.4 | 10.4 | - |
| Subtotal | 10.8 | 1.0 | 11.8 | 11.8 | 11.8 | - |
| Capital Outlay Construction | | | | | | |
| BATA Funding | 40.2 | (6.8) | 33.4 | 33.3 | 33.4 | - |
| Non-BATA Funding | 51.1 | - | 51.1 | 51.1 | 51.1 | - |
| Subtotal | 91.3 | (6.8) | 84.5 | 84.4 | 84.5 | - |
| Project Reserves | - | 0.8 | 0.8 | - | 0.8 | - |
| Total | 102.1 | (5.0) | 97.1 | 96.2 | 97.1 | - |
| Richmond-San Rafael Bridge Deck Overlay Rehabilitation | | | | | | |
| Capital Outlay Support | | | | | | |
| BATA Funding | 4.0 | (0.7) | 3.3 | 3.3 | 3.3 | - |
| Non-BATA Funding | 4.0 | (4.0) | - | - | - | - |
| Subtotal | 8.0 | (4.7) | 3.3 | 3.3 | 3.3 | - |
| Capital Outlay Construction | 16.9 | (0.6) | 16.3 | 16.3 | 16.3 | - |
| Project Reserves | 0.1 | 0.3 | 0.4 | - | 0.4 | - |
| Total | 25.0 | (5.0) | 20.0 | 19.6 | 20.0 | - |
| Richmond Parkway Project (RM 1 Share Only) | | | | | | |
| Capital Outlay Support | - | - | - | - | - | - |
| Capital Outlay Construction | 5.9 | - | 5.9 | 4.3 | 5.9 | - |
| Total | 5.9 | - | 5.9 | 4.3 | 5.9 | - |
| San Mateo-Hayward Bridge Widening | | | | | | |
| Capital Outlay Support | 34.6 | (0.5) | 34.1 | 34.1 | 34.1 | - |
| Capital Outlay Construction | 180.2 | (6.1) | 174.1 | 174.1 | 174.1 | - |
| Capital Outlay Right-of-Way | 1.5 | (0.9) | 0.6 | 0.6 | 0.6 | - |
| Project Reserves | 1.5 | (0.5) | 1.0 | - | 1.0 | - |
| Total | 217.8 | (8.0) | 209.8 | 208.8 | 209.8 | - |
| I-880/SR-92 Interchange Reconstruction | | | | | | |
| Capital Outlay Support | 28.8 | 35.8 | 64.6 | 62.2 | 64.6 | - |
| Capital Outlay Construction | | | | | | |
| BATA Funding | 85.2 | 68.4 | 153.6 | 150.2 | 153.6 | - |
| Non-BATA Funding | 9.6 | - | 9.6 | - | 9.6 | - |
| Subtotal | 94.8 | 68.4 | 163.2 | 150.2 | 163.2 | - |
| Capital Outlay Right-of-Way | 9.9 | 7.3 | 17.2 | 14.7 | 17.2 | - |
| Project Reserves | 0.3 | (0.3) | - | - | - | - |
| Total | 133.8 | 111.2 | 245.0 | 227.1 | 245.0 | - |
| Bayfront Expressway Widening | | | | | | |
| Capital Outlay Support | 8.6 | (0.2) | 8.4 | 8.4 | 8.4 | - |
| Capital Outlay Construction | 26.5 | (1.5) | 25.0 | 24.9 | 25.0 | - |
| Capital Outlay Right-of-Way | 0.2 | - | 0.2 | 0.2 | 0.2 | - |
| Project Reserves | 0.8 | (0.3) | 0.5 | - | 0.5 | - |
| Total | 36.1 | (2.0) | 34.1 | 33.5 | 34.1 | - |

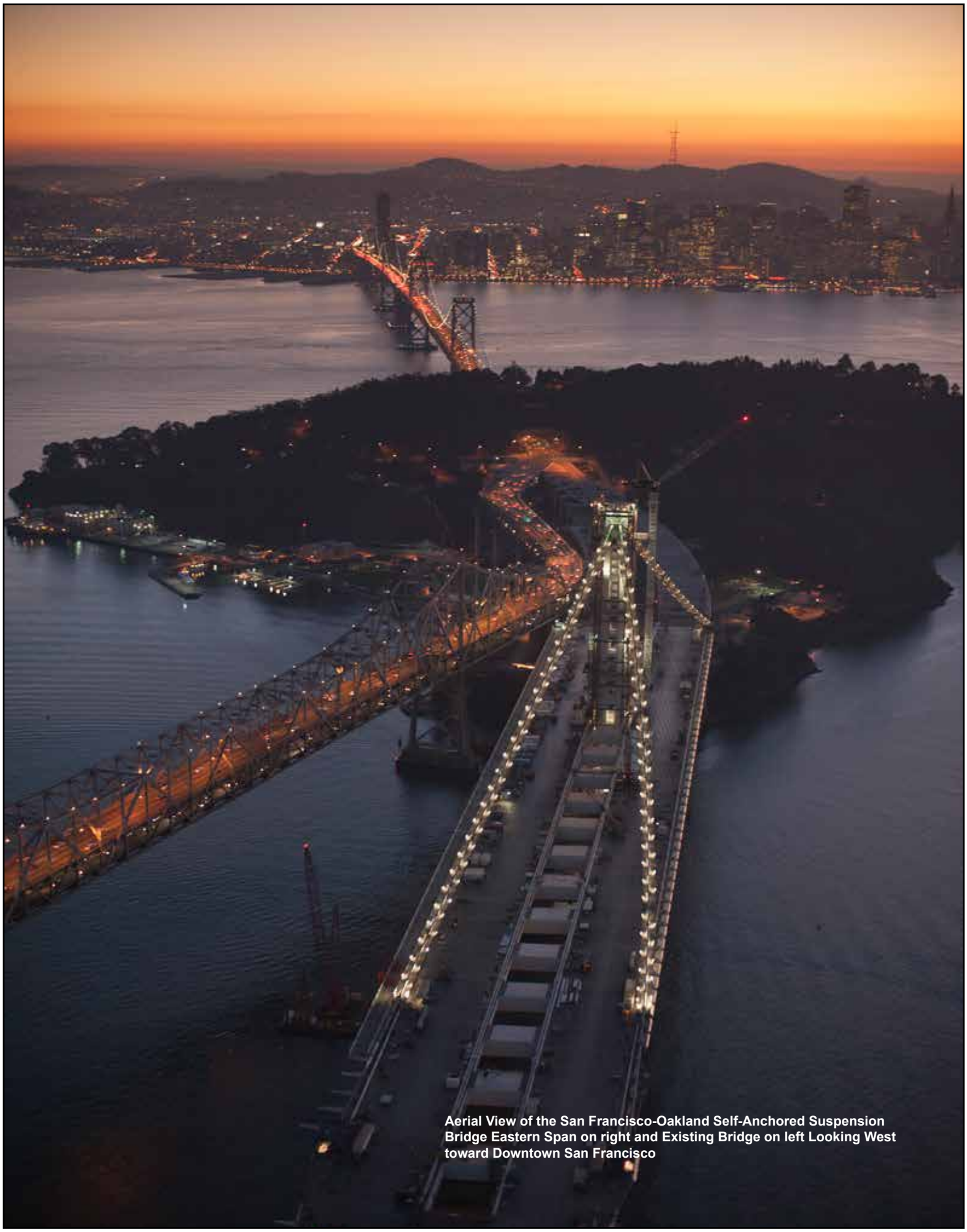
# Appendix C: Regional Measure 1 Program Cost Detail ($ Millions) Cont.

| Contract | AB 144 / SB 66 Budget (07/2005) | Approved Changes | Current Approved Budget (12/2012) | Cost to Date (12/2012) | Cost Forecast (12/2012) | At-Completion Variance |
|---|---|---|---|---|---|---|
| a | c | d | e = c + d | f | g | h = g - e |
| US 101/University Avenue Interchange Modification | | | | | | |
| Capital Outlay Support | 3.8 | - | 3.8 | 3.7 | 3.8 | - |
| Capital Outlay Construction | 3.8 | - | 3.8 | 3.7 | 3.8 | - |
| Total | | | | | | |
| | 358.3 | 64.7 | 423.0 | 419.5 | 423.0 | - |
| Subtotal BATA Capital Outlay Support | 1,569.8 | 217.5 | 1,787.3 | 1,754.0 | 1,787.3 | - |
| Subtotal BATA Capital Outlay Construction | 42.5 | 6.2 | 48.7 | 42.4 | 48.7 | - |
| Subtotal Capital Outlay Right-of-Way | 14.0 | 4.0 | 18.0 | 17.6 | 18.0 | - |
| Subtotal Non-BATA Capital Outlay Support | 92.4 | 9.5 | 101.9 | 82.9 | 102.0 | 0.1 |
| Subtotal Non-BATA Capital Outlay Construction | 35.6 | (8.1) | 27.5 | - | 27.4 | (0.1) |
| Project Reserves | 2,112.6 | 293.8 | 2,406.4 | 2,316.4 | 2,406.4 | - |
| Total RM1 Program | 2,112.6 | 293.8 | 2,406.4 | 2,316.4 | 2,406.4 | - |

Notes:

1 Richmond-San Rafael Bridge Trestle, Fender, and Deck Joint Rehabilitation Includes Non-TBSRP Expenses for EA 0438U_ and 04157_

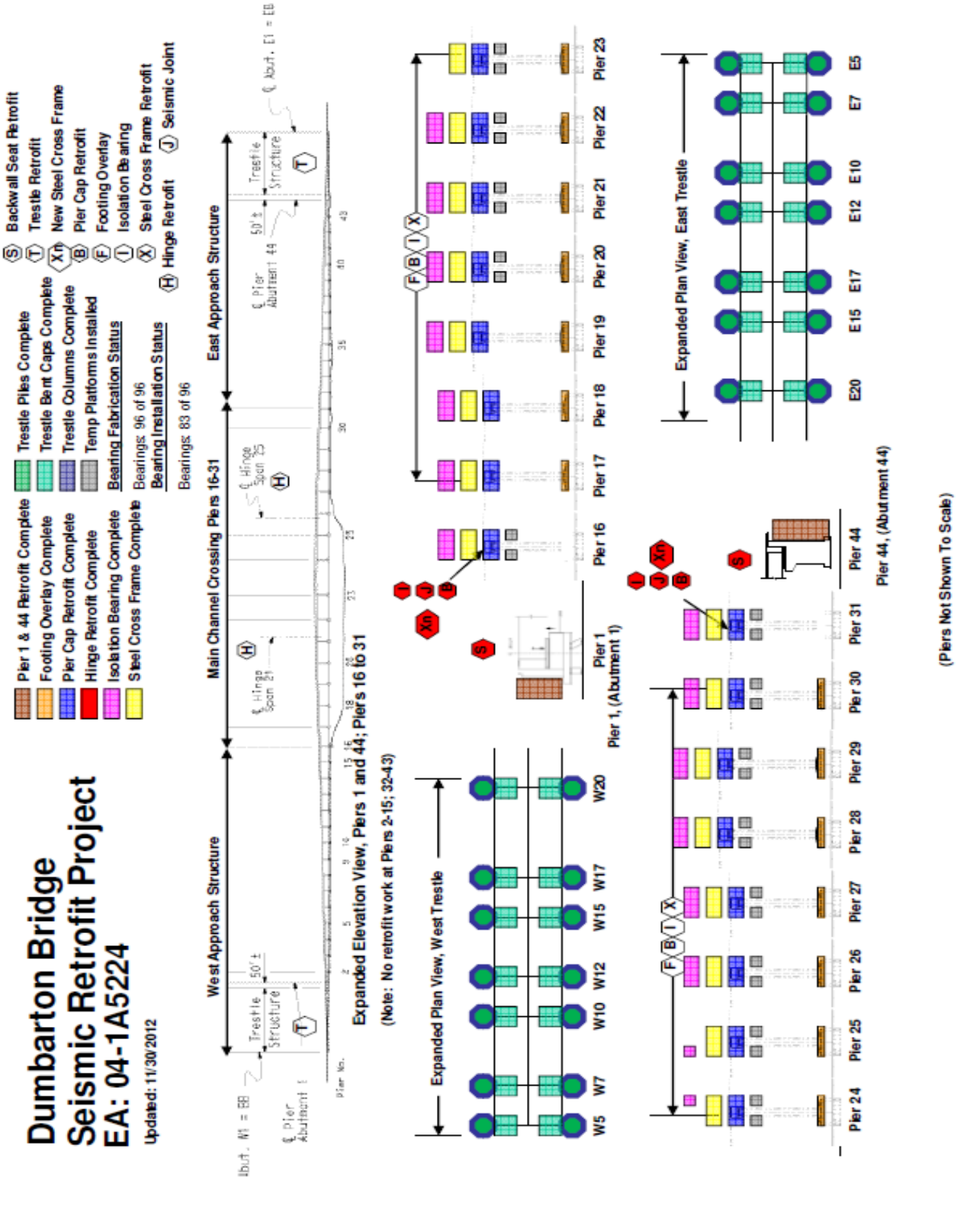
2 San Mateo-Hayward Bridge Widening includes EAs 00305_,04501_,04503_,04504_,04504_,04505_,04506_,04507_,04508_,04509_,27740_,27790_,04860_



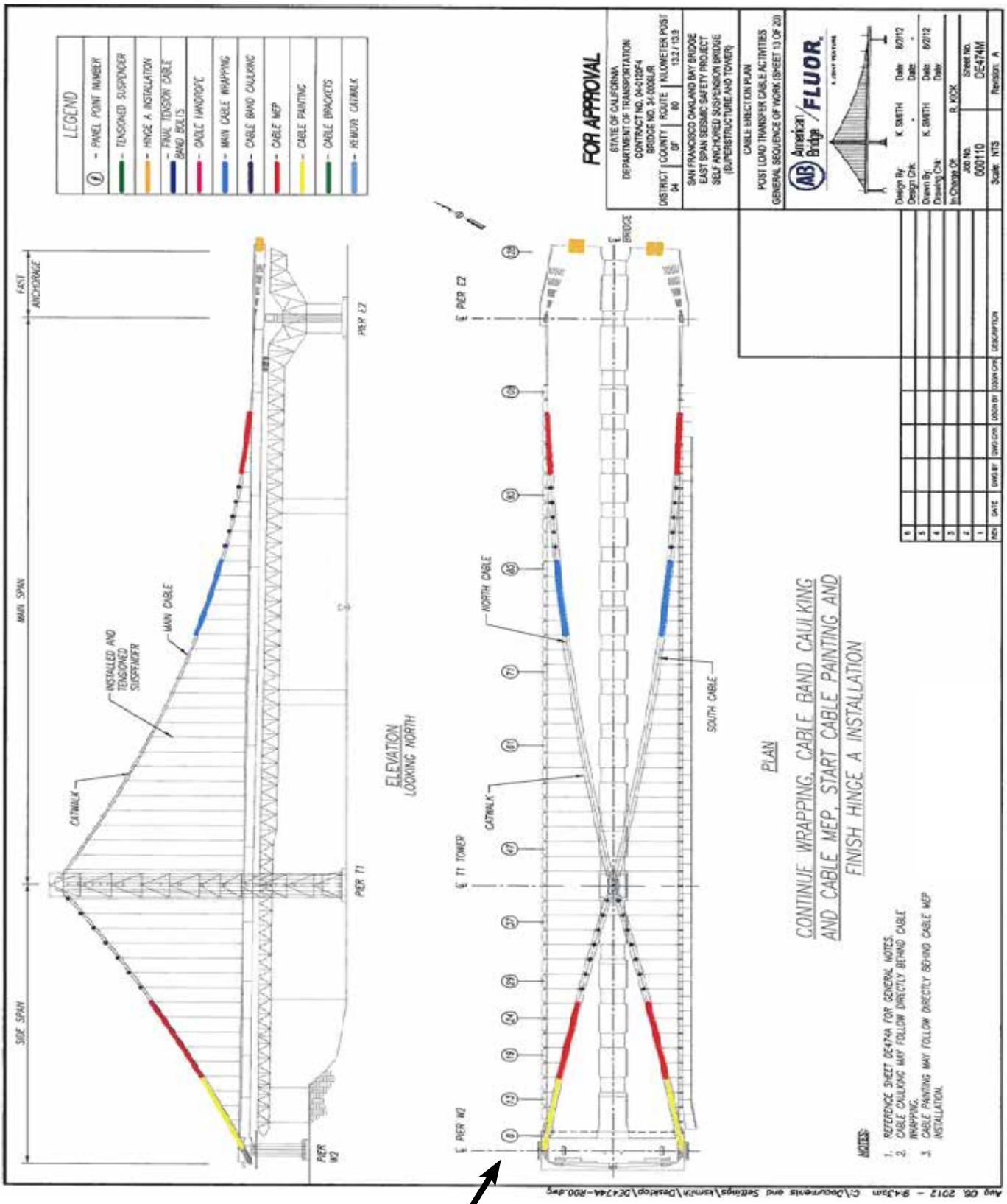
Aerial View of the San Francisco-Oakland Self-Anchored Suspension Bridge Eastern Span on right and Existing Bridge on left Looking West toward Downtown San Francisco

# Appendix D: Progress Diagrams
## Yerba Buena Island Transition Structures

## Appendix D: Progress Diagrams (cont.)
## Dumbarton Bridge



# Appendix D: Progress Diagrams
## SAS Late January Work Plan Activities




**Page 63 Photograph Perspective**

San Francisco-Oakland Self-Anchored Suspension Bridge Initial North and South Main Cable Backspan Painting Enclosure

The Self-Anchored Suspension Bridge Cable Wrapping Operations - Grinding the “S” Wire Wrap Cadweld

# Project Photos

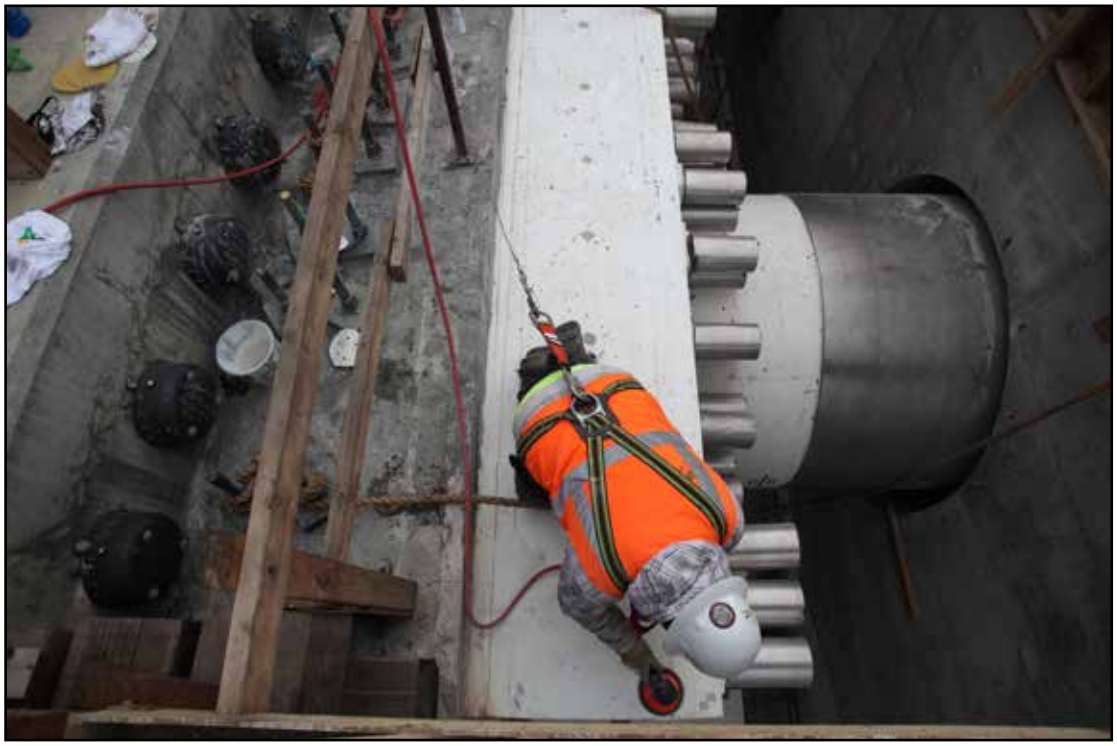
# Appendix E: Project Progress Photographs

## Self-Anchored Suspension Bridge Field Work

Self-Anchored Suspension Bridge Light Fixtures Installation

Self-Anchored Suspension Bridge Welding A Pipe Support at the Tower Head

Self-Anchored Suspension Bridge Cable Band Bracket in Place at South Mainspan



Self-Anchored Suspension Bridge westbound Hinge K Installed

Self-Anchored Suspension Bridge - Cleaning Zinc Paste of Main Cable North Mainspan

## Appendix E: Project Progress Photographs

## Westbound Oakland Detour

# Before Opening to Traffic

# After Opening to Traffic

# Appendix E: Project Progress Photographs

## Yerba Buena Island Transition Structure #1 Westbound

YBITS # 1 Retaining Wall #50

YBITS # Eastbound Bike Path Support Installation

View of YBID and YBITS #1 Eastbound and Westbound Roadway Decks from the SAS Tower

# Appendix E: Project Progress Photographs

## Antioch Bridge


Antioch Bridge - Pier 41 Girders on Temporary Jacks prior to Installation of Isolation Bearings

Antioch Bridge - Welding of Jacking Stiffeners at Existing Girder Web

# Appendix E: Project Progress Photographs

## Dumbarton Bridge

Dumbarton Bridge - Ravenswood Pier Staging for Footing Overlay Work

Dumbarton Bridge - Pier 26 Footing Overlay - All Footing Overlay Completed Except Piers 23 & 24

# Glossary of Terms

**AB 144/SB 66 BUDGET:** The planned allocation of resources for the Toll Bridge Seismic Retrofit Program, or subordinate projects or contracts, as provided in Assembly Bill 144 and Senate Bill 66, signed into law by Governor Schwarzenegger on July 18, 2005, and September 29, 2005, respectively.

**AB 144/SB 66 PROJECT COMPLETE BASELINE:** The planned completion date for the Toll Bridge Seismic Retrofit Program or subordinate projects or contracts.

**APPROVED CHANGES:** For cost, changes to the AB 144/SB 66 Budget or BATA Budget as approved by the Bay Area Toll Authority Commission. For schedule, changes to the AB 144/SB 66 Project Complete Baseline approved by the Toll Bridge Program Oversight Committee, or changes to the BATA Project Complete Baseline approved by the Bay Area Toll Authority Commission.

**AT COMPLETION VARIANCE or VARIANCE (cost):** The mathematical difference between the Cost Forecast and the Current Approved Budget.

**BATA BUDGET:** The planned allocation of resources for the Regional Measure 1 Program, or subordinate projects or contracts as authorized by the Bay Area Toll Authority as of June 2005.

**BATA PROJECT COMPLETE BASELINE:** The planned completion date for the Regional Measure 1 Program or subordinate projects or contracts.

**COST FORECAST:** The current forecast of all of the costs that are projected to be expended so as to complete the given scope of the program, project, or contract.

**COST TO DATE:** The actual expenditures incurred by the program, project or contract as of the month and year shown.

**CURRENT APPROVED BUDGET:** The sum of the AB 144/SB 66 Budget or BATA Budget and Approved Changes.

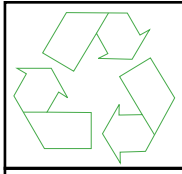
**HINGE PIPE BEAMS:** Pipes between roadway sections designed to move within their sleeves during expansion or contraction of the decks during minor events, such as changes in temperature. The beams are designed to absorb the energy of an earthquake by deforming in their middle or “fuse” section. Hinge pipe beams are also found at the western piers where the SAS connects to the YBITS (Hinge “K” pipe beams).

**PROJECT COMPLETE CURRENT APPROVED SCHEDULE:** The sum of the AB 144/SB 66 Project Complete Baseline or BATA Project Complete Baseline and Approved Changes.

**PROJECT COMPLETE SCHEDULE FORECAST:** The current projected date for the completion of the program, project, or contract.

**SCHEDULE VARIANCE or VARIANCE (schedule):** The mathematical difference expressed in months between the Project Complete Schedule Forecast and the Project Complete Current Approved Schedule.

**% COMPLETE:** % Complete is based on an evaluation of progress on the project, expenditures to date, and schedule.



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**Bay Area Management Consultants**
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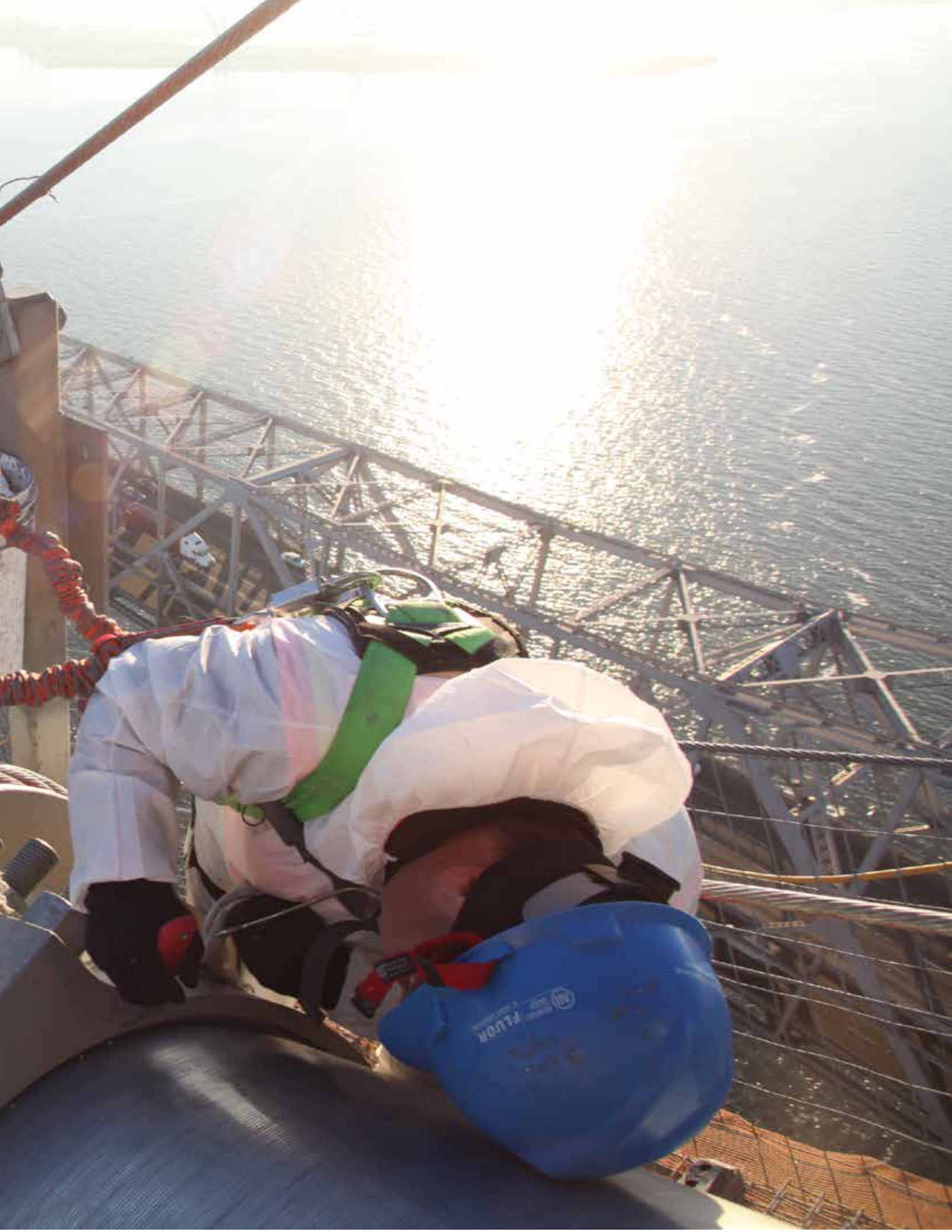
**The San Francisco-Oakland Bay Bridge Self-Anchored Suspension Bridge**
**Caulking Cable Band at south Mainspan**


FLUOR

**(Front Cover) The Self-Anchored Suspension Bridge Beginning the Placement of the Blue Main Cable Painting Enclosures**