

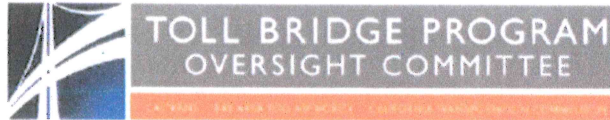
# San Francisco Bay Area Toll Bridge Seismic Retrofit Program

2017 Fourth Quarter  
Project Progress and Financial Update



CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

Released: February 2018



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

February 16, 2018

Mr. Daniel Alvarez  
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. Alvarez and Wilson:

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2017 Fourth Quarter Project Progress and Financial Update, for the San Francisco Bay Area Toll Bridge Seismic Retrofit and Regional Measure 1 Programs (TBSRP and RM1), prepared pursuant to California Streets and Highways Code Section 30952.

The TBPOC was established by Assembly Bill 144 in 2005 to oversee the delivery of the TBSRP and consists of the Executive Director of the Bay Area Toll Authority (BATA), the Director of the California Department of Transportation (Caltrans), and the Executive Director of the California Transportation Commission (CTC). With the opening of the new east span of the San Francisco-Oakland Bay Bridge (SFOBB) to traffic on September 2, 2013, all seven state-owned toll bridges in the Bay Area have now achieved seismic safety either via retrofit, or via replacement of existing structures.

In 2016, Caltrans obtained environmental approvals to remove marine foundations of the old east span (piers E6 through E18) by implosion and had planned implosions over the next two years. However, removal of the superstructure trusses advanced a year faster than expected in 2017 and provided Caltrans and its marine demolition contractor the opportunity to complete all implosions by the end of 2017. At the end of July 2017, Caltrans obtained the revised environmental approvals to implode the remaining piers by combining multiple pier implosions on demolition dates, saving a year of work and over \$10 million with a six-weekend implosion schedule completed September 2 through November 11, 2017.

Currently, the TBPOC is proceeding with opportunities to reuse marine foundations E2 along Yerba Buena Island and E21 to E23 along the Oakland shoreline for public access. Caltrans has initiated an environmental enhancement proposal and revalidation with resource agencies for approval. Caltrans is discussing operations and maintenance agreements with the East Bay Regional Parks District, the Treasure Island Development Authority, and the Bay Conservation and Development

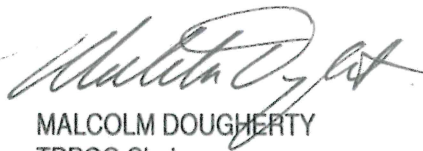
Commission for several walkway alternatives. The cost and benefits of repurposing the piers versus removal were important factors in the TBPOC's decision to move forward with public access facilities.

The legislature established the TBSRP to seismically retrofit seven state-owned long span toll bridges and provided an \$8.685 billion budget to accomplish the work. In 2010, the legislature added two additional long span bridges (Antioch & Dumbarton) to the TBSRP and augmented the program's budget by \$750 million, thus creating a nine bridge TBSRP with a \$9.435 billion budget. Based upon successful completion of the Antioch and Dumbarton Bridge seismic retrofits with substantial savings, and projected TBSRP risks for demolition of the old east span, the TBPOC reduced the TBPOC approved program budget by \$483 million, bringing the current TBPOC approved budget to \$8.952 billion.

On program risks, each contract has a contingency allowance within its budget. The sum of these contingency allowances is compared to the total of capital outlay, capital outlay support and program-wide risks. Any excess of the risks over the contingency allowances represents a potential draw on the program contingency. The program contingency is currently \$15 million in accordance with the TBPOC approved budget. As of the end of the fourth quarter of 2017, the 50 percent probable draw on program contingency is \$22 million. The potential draw ranges from a surplus of up to \$40 million to a deficit of up to \$90 million. Per the latest forecast, the \$8.952 billion TBPOC approved budget may be insufficient to cover the cost of identified risks and it is possible that BATA will need to allocate toll funds from its reserves to pay for the remaining TBSRP work.

The TBPOC is committed to providing the Legislature and the CTC 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,



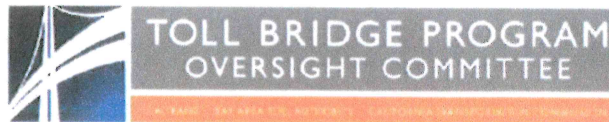
MALCOLM DOUGHERTY  
TBPOC Chair  
Director  
California Department of  
Transportation



STEVE HEMINGER  
Executive Director  
Bay Area Toll Authority



SUSAN BRANSEN  
Executive Director  
California Transportation Commission



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February 16, 2018

Mr. Bob Alvarado, Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

Ms. Fran Inman, Vice-Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

Dear Mr. Alvarado and Ms. Inman:

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Sincerely,



MALCOLM DOUGHERTY  
TBPOC Chair  
Director  
California Department of  
Transportation



STEVE HEMINGER  
Executive Director  
Bay Area Toll Authority



SUSAN BRANSEN  
Executive Director  
California Transportation Commission



## Program Management Team

Andrew Fremier  
Bay Area Toll Authority

Stephen Maller  
California Transportation Commission

Dan McElhinney  
Caltrans District 4 - Bay Area

Brian Maroney  
Caltrans, SFOBB Chief Engineer

**Cover:** SFOBB East and West Spans at Yerba Buena Island, looking east. *Photo by Caltrans.*

**Contents:** SFOBB East Span Skyway and original Piers E19 - E22 and Abutment 23, looking east. *Photo by Caltrans.*

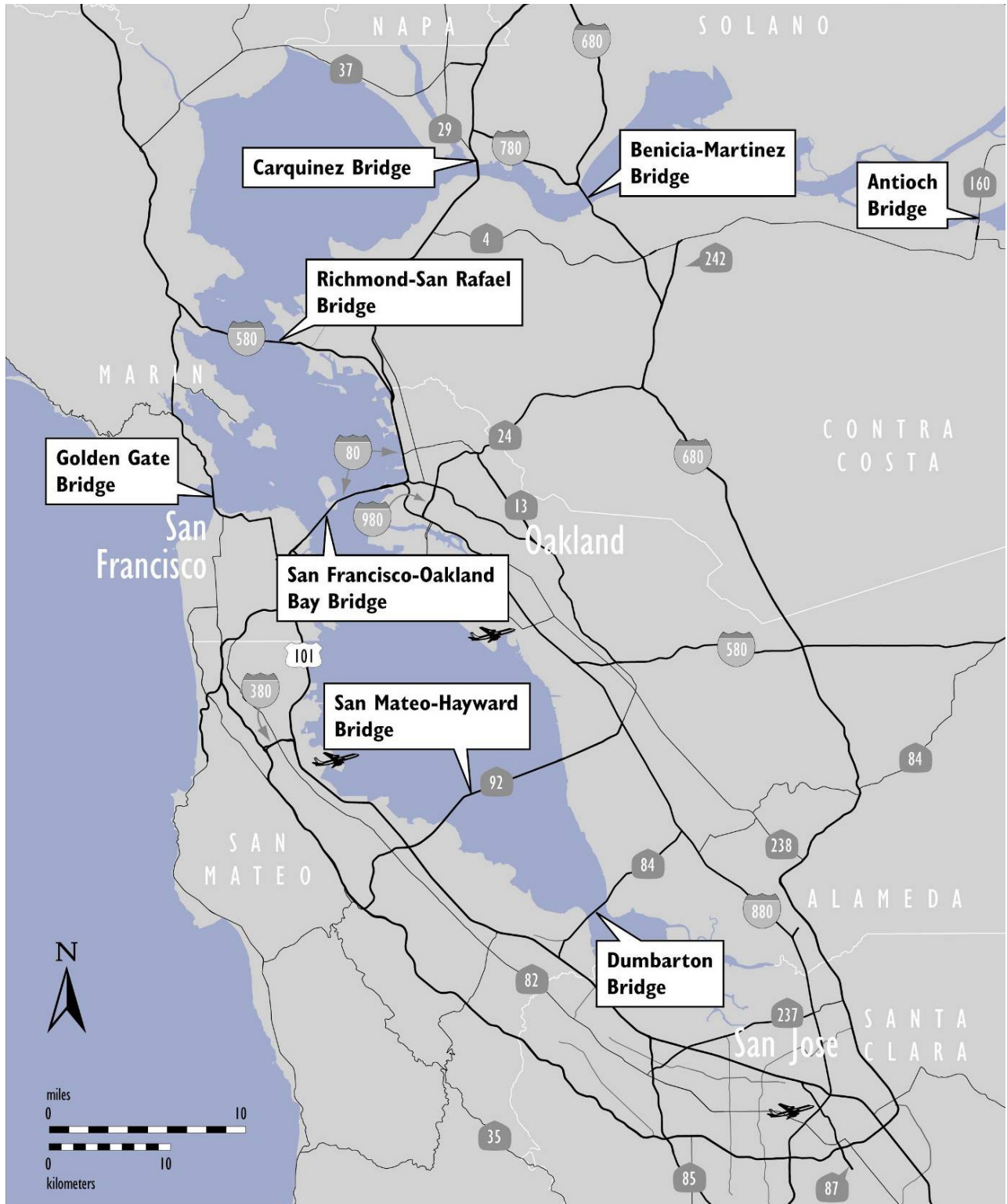
**Back cover:** SFOBB East and West Spans, looking west. *Photo by Caltrans.*

An aerial photograph of a large port area with numerous shipping containers and cranes, situated next to a body of water. In the foreground, a multi-lane highway bridge spans across the water, with several vehicles visible on it. The background shows a city skyline and distant mountains under a clear sky.

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## San Francisco Bay Area Toll Bridges



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



## San Francisco Bay Area Toll Bridges

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 TBPOC), 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	Complete
Antioch Bridge Seismic Retrofit	Complete
San Francisco-Oakland Bay Bridge East Span Replacement	Complete*
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 seismic safety opening of the bridge occurred in September 2013. Remaining work on the project is the removal of the old bridge structure.

## Toll Bridge Seismic Retrofit Program Cost Summary (Millions)

	Contract Status	AB 144/ SB 66/ AB 1175 Budget	TBPOC Approved Changes	Current TBPOC Approved Budget (Dec. 2017)	Cost to Date (Dec. 2017)	Current Cost Forecast (Dec. 2017)	Cost Variance	Cost Status
		a	b	c = a + b	d	e	f = e - c	
<b>SFOBB East Span Seismic Replacement</b>								
Capital Outlay Construction								
Skyway	Completed	1,293.0	(55.8)	1,237.2	1,235.6	1,236.1	(1.1)	●
SAS Tower Anchor Rod Grouting	Completed			12.0	8.7	8.9	(3.1)	●
SAS Marine Foundations	Completed	313.5	(38.7)	274.8	274.8	274.8	-	●
SAS Superstructure	Completed	1,753.7	281.1	2,034.8	1,973.4	2,036.9	2.1	●
YBI Detour	Completed	131.9	341.4	473.3	473.4	473.4	0.1	●
YBI Transition Structures (YBITS)		299.3	13.6	312.9	306.3	312.1	(0.8)	
YBITS 1	Completed			203.7	203.2	203.8	0.1	●
YBITS 2	Completed			109.2	103.0	108.3	(0.9)	●
Oakland Touchdown (OTD)		283.8	46.8	330.6	326.5	326.5	(4.1)	
OTD 1	Completed			205.3	202.8	202.8	(2.5)	●
OTD 2	Completed			72.6	71.2	71.2	(1.4)	●
Detour	Completed			47.0	46.7	46.7	(0.3)	●
Submerged Electric Cable	Completed			5.7	5.7	5.7	-	●
Existing Bridge Dismantling		239.2	82.3	321.5	263.0	329.6	8.1	●
Cantilever Section	Completed			69.0	68.5	69.0	-	●
504/288 Sections	Construction			103.5	77.2	81.8	(21.7)	●
Marine Foundations				149.0	117.3	178.7	29.7	●
Pier-3 Demonstration Project	Completed			17.5	16.8	16.8	(0.7)	●
Remaining Marine Foundations	Construction			131.5	100.5	161.9	30.4	●
E4 to E18 Pier Demolition	Completed			131.5	100.5	111.7	(19.8)	●
E2, E19 to E22 Pier Retention	Design			-	-	50.2	50.2	●
Stormwater Treatment Measures	Completed	15.0	3.3	18.3	16.9	16.9	(1.4)	●
Other Completed Projects	Completed	90.4	(0.5)	89.9	90.0	90.0	0.1	●
Capital Outlay Support		959.3	390.1	1,349.4	1,325.8	1,367.1	17.7	●
Right-of-Way and Envir. Mitigation		72.4	-	72.4	61.1	70.0	(2.4)	●
Other Budgeted Capital		35.1	(32.8)	2.3	0.7	0.7	(1.6)	●
<b>Total SFOBB East Span Replacement</b>		<b>5,486.6</b>	<b>1,042.8</b>	<b>6,529.4</b>	<b>6,356.0</b>	<b>6,542.9</b>	<b>13.5</b>	<b>●</b>
<b>Antioch Bridge Seismic Retrofit</b>								
Capital Outlay Support and Mitigation	Completed	-	24.1	24.1	24.1	24.2	0.1	●
Capital Outlay Construction		-	47.0	47.0	47.0	47.0	-	●
<b>Total Antioch Bridge Seismic Retrofit</b>		<b>267.0</b>	<b>71.1</b>	<b>71.1</b>	<b>71.1</b>	<b>71.2</b>	<b>0.1</b>	<b>●</b>
<b>Dumbarton Bridge Seismic Retrofit</b>								
Capital Outlay Support and Mitigation	Completed	-	46.0	46.0	47.4	47.5	1.5	●
Capital Outlay Construction		-	66.4	66.4	64.4	64.7	(1.7)	●
<b>Total Dumbarton Bridge Seismic Retrofit</b>		<b>483.0</b>	<b>112.4</b>	<b>112.4</b>	<b>111.8</b>	<b>112.2</b>	<b>(0.2)</b>	<b>●</b>
<b>Program Completed Projects</b>	<b>Completed</b>	<b>2,268.4</b>	<b>(74.1)</b>	<b>2,194.3</b>	<b>2,168.9</b>	<b>2,174.1</b>	<b>(20.2)</b>	
<b>Miscellaneous Program Costs</b>		<b>30.0</b>	<b>-</b>	<b>30.0</b>	<b>25.5</b>	<b>25.5</b>	<b>(4.5)</b>	●
<b>Net Programmatic Risks</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>33.0</b>	<b>33.0</b>	●
<b>Program Contingency*</b>		<b>900.0</b>	<b>(885.2)</b>	<b>14.8</b>	<b>-</b>	<b>-</b>	<b>(14.8)</b>	●
<b>Total Toll Bridge Seismic Retrofit Program*</b>		<b>9,435.0</b>	<b>(483.0)</b>	<b>8,952.0</b>	<b>8,733.5</b>	<b>8,959.1</b>	<b>7.1</b>	<b>●</b>

\*AB144/SB66 established a funding level of \$8.685 Billion in July 2005 for TBSRP, AB1175 added the retrofitting of the Antioch and Dumbarton Bridges in January 2010, providing another \$750 million in funding, bringing Total Toll Seismic Retrofit Program funding to \$9.435 Billion. Since 2010, \$483 million has been removed from the program, bringing the current TBPOC Approved Budget to \$8.952 Billion. The \$483 million removed consisted of:

Antioch Savings (4/12/10) \$137 million - Dumbarton Savings (9/02/10) \$216 million - Program Contingency Redirection (11/05/13) \$130 million, the current TBPOC approved Program Budget is \$8,952 million.

\*\* (Due to the rounding of numbers, the totals above are show within \$0.1).

## 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 (Dec. 2017)	Current Completion Forecast (Dec. 2017)	Schedule Variance (Months)	Schedule Status
	g	h	i=g+h	j	k=j-i	l
<b>SFOBB East Span Seismic Replacement</b>						
<b>Contract Completion</b>						
Skyway	Apr 2007	8	Dec 2007	Dec 2007	-	●
SAS Marine Foundations	Jun 2008	(5)	Jan 2008	Jan 2008	-	●
SAS Superstructure	Mar 2012	42	Sep 2015	Sep 2015	-	●
YBI Detour	Jul 2007	39	Oct 2010	Oct 2010	-	●
YBI Transition Structures (YBITS)	Nov 2013	36				
YBITS 1			Feb 2014	Feb 2014	-	●
YBITS 2			Oct 2017	Nov 2017	(1)	●
Oakland Touchdown	Nov 2013	10				
OTD 1			Jun 2010	Jun 2010	-	●
OTD 2			Sep 2015	Sep 2015	-	●
Submerged Electric Cable			Jan 2008	Jan 2008	-	●
Existing Bridge Dismantling	Sep 2014	51	Dec 2018	Dec 2017	-	●
Cantilever Section <sup>(2)</sup>			Jul 2015	Jul 2015	-	●
504/288 Sections			Mar 2018	Jun 2017*	9	●
Marine Foundations						
E3 Foundation Removal Demo Project			Jan 2016	Jan 2016	-	●
E4 - E18 Foundation Removal			Dec 2018	Dec 2017	12	●
E2, E19 to E22 Pier Retention			Mar 2019	Mar 2019	-	●
Stormwater Treatment Measures			Mar 2008	Mar 2008	-	●
<b>SFOBB East Span Bridge Opening and Other Milestones</b>						
Westbound Seismic Safety Open	Sep 2011	24	Sep 2013	Sep 2013	-	●
Eastbound Seismic Safety Open	Sep 2012	12	Sep 2013	Sep 2013	-	●
Bike/Ped Path to YBI Landing			Dec 2015	Oct 2016	-	●
Eastbound On-Ramp			Jun 2016	Jun 2016	-	●

\* Substantial completion date

- 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

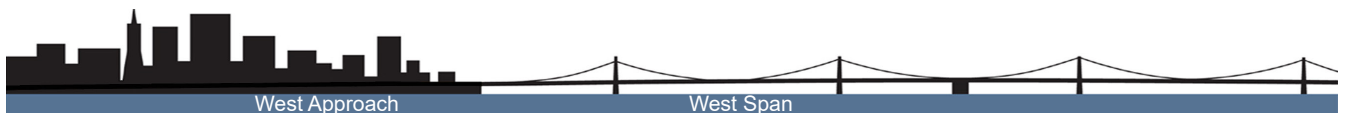
# San Francisco-Oakland Bay Bridge East Span Replacement Project

## Seismic Retrofit

Rather than a seismic retrofit, the two-mile long east span of the San Francisco-Oakland Bay Bridge has been completely rebuilt. The new east span consists of several different sections, yet appears as a single streamlined span. The eastbound and westbound lanes of the east span no longer include upper and lower decks. The lanes are side-by-side, providing motorists with expansive views of the bay. These views are also enjoyed by bicyclists and pedestrians, thanks to a new bicycle/pedestrian path on the south side of the bridge that will extend all the way to Yerba Buena Island. The new span features the world's longest Self-Anchored Suspension (SAS) bridge that connects to an elegant roadway supported by piers (Skyway), which gradually slopes down toward the Oakland shoreline (Oakland Touchdown).



**SFOBB East Span, looking west.**  
Work to remove E4 to E18 of original east span marine foundations is complete.  
*Photo courtesy of Caltrans.*



# San Francisco-Oakland Bay Bridge East Span Replacement Project

## Active Contracts

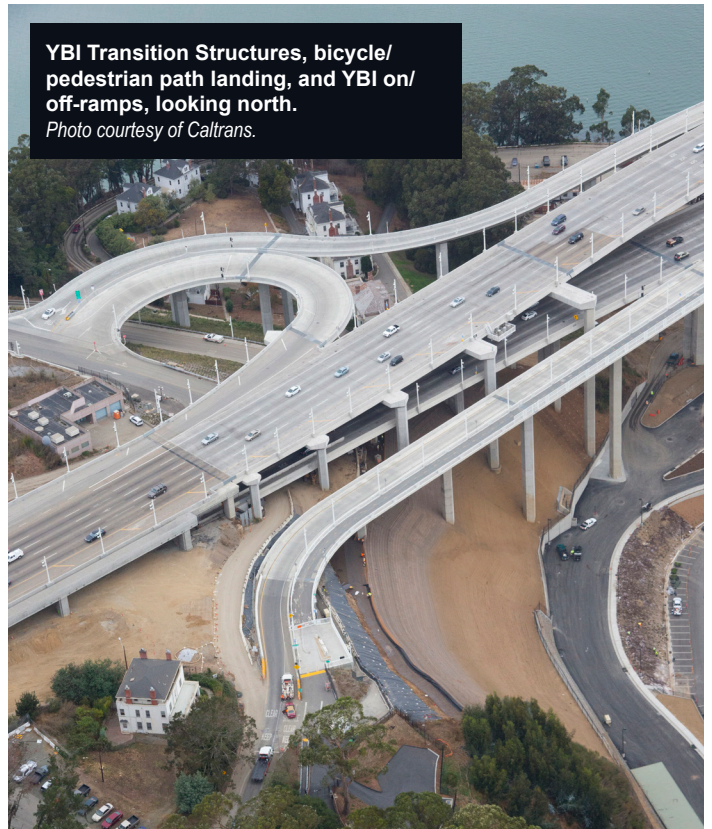
### YBITS 2 - Eastbound On-Ramp and Cantilever Dismantling

Approved Capital Outlay Budget: \$109.2 M  
 Contractor: CEC & Silverado, JV  
 Status: 100% Complete as of December 2017

The YBITS 2 contract involves dismantling the detour viaduct, constructing a new eastbound on-ramp to the bridge, completing the bicycle/pedestrian path to Yerba Buena Island, and dismantling the cantilever.

The contract was awarded to California Engineering Contractors Inc./Silverado Contractors Inc., Joint Venture on November 28, 2012. Startup activities and submittals began in March 2013, with actual dismantling starting after the seismic safety opening during Labor Day weekend in 2013.

**Status:** Cantilever removal was completed in July 2015. The eastbound on-ramp was opened on June 2, 2016. The pedestrian/bicycle path opened in October 2016. Construction was complete on November 29, 2017.



### 504'/288' Superstructure Dismantling

Approved Capital Outlay Budget: \$103.5 M  
 Contractor: CEC & Silverado JV  
 Status: 99% Complete as of December 2017

The contractor sequenced the bridge removal operations into seven phases of dismantling beginning with the upper deck and initial truss removal, followed by the removal of the 504' and 288' steel truss spans, and ending with the removal of the supporting steel columns.

**Status:** The first of five 504' main truss spans was lowered in February 2016. The last 504' section was lowered in August 2016. The first of fourteen 288' sections was lowered in November 2016. The last section was lowered in March 2017. The project reached substantial completion in June 2017.

# San Francisco-Oakland Bay Bridge East Span Replacement Project

## Marine Foundations Removal

Approved Capital Outlay Budget:

\$17.5 M for Pier E3

\$131.5 M for Piers E4 - E18

Contractor: Kiewit/Manson

The original east span of the San Francisco-Oakland Bay Bridge was supported by 21 in-water bridge piers, Piers E2 through E22, along with land based piers at Yerba Buena Island and Oakland. Part of this project is the demolition of Pier E3, which is located 1,535 feet east of Yerba Buena Island and on the east side of a 50-foot deep navigation channel.

The original authorization covered the dismantling of the piers via mechanical means such as saw cutting, flame cutting, mechanical splitting or pulverizing, and hydro-cutting, but did not cover the use of controlled implosion.

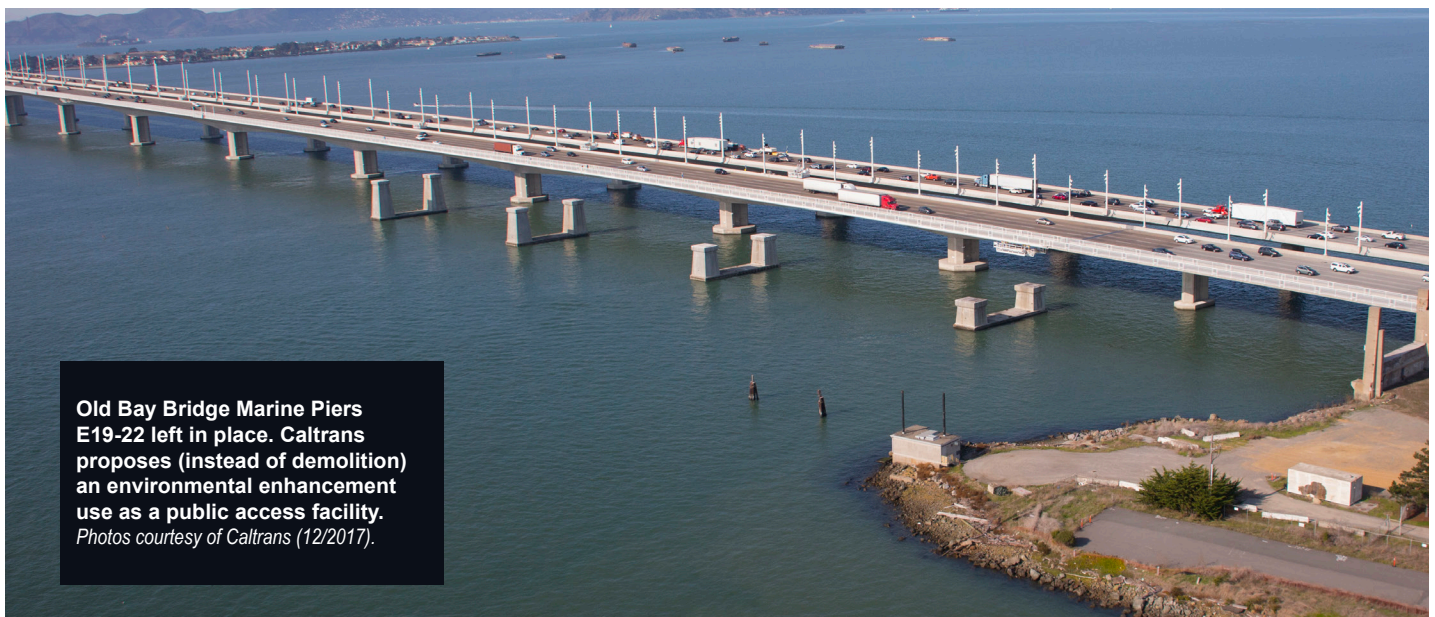
Caltrans proposed to remove Pier E3 as a pilot/ demonstration project for the effective use of controlled charges to remove the marine foundations of the original SFOBB. Dismantling of Pier E3 used controlled charges and was completed in four phases: 1) mechanical dismantling of pier cap and fender system, 2) drilling of bore holes into caisson and buttress walls and installing a blast attenuation system (BAS), 3) installing charges, activating the BAS and imploding the pier, and 4) management and removal of remaining dismantling pier debris. The pier was removed in November 2015 to -51 feet.

Mechanical dismantling would have required the installation of a cofferdam around Pier E3, which would have required 394 piles of various types. Pile driving alone would take approximately four years, while the four phases of the demonstration project would occur within six months. Using this method is a significant cost risk to the program.

The marine foundation removal is a CMGC (Construction Manager / General Contractor) contract and the selected CMGC contractor is a Kiewit Manson team (KM).

**Piers E4 - E18:** The contract was awarded to the KM team in April 2016. Marine foundations E5 and E4 were demolished by implosion in October 2016. Caltrans obtained environmental permits to remove marine foundations E4 through E18 by implosion. The removal of the superstructure trusses advanced faster than expected, and provided Caltrans and their marine demolition contractor the opportunity to complete all implosions by the end of this year. Caltrans is seeking permits from resource agencies to “retain in place” foundations E2, and E19 through E22 for a proposed public access project.

**Status:** Thirteen marine foundations (E6 through E18) were imploded over six weekends, every other week, between September 2, 2017 and November 11, 2017.



Old Bay Bridge Marine Piers E19-22 left in place. Caltrans proposes (instead of demolition) an environmental enhancement use as a public access facility. Photos courtesy of Caltrans (12/2017).



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

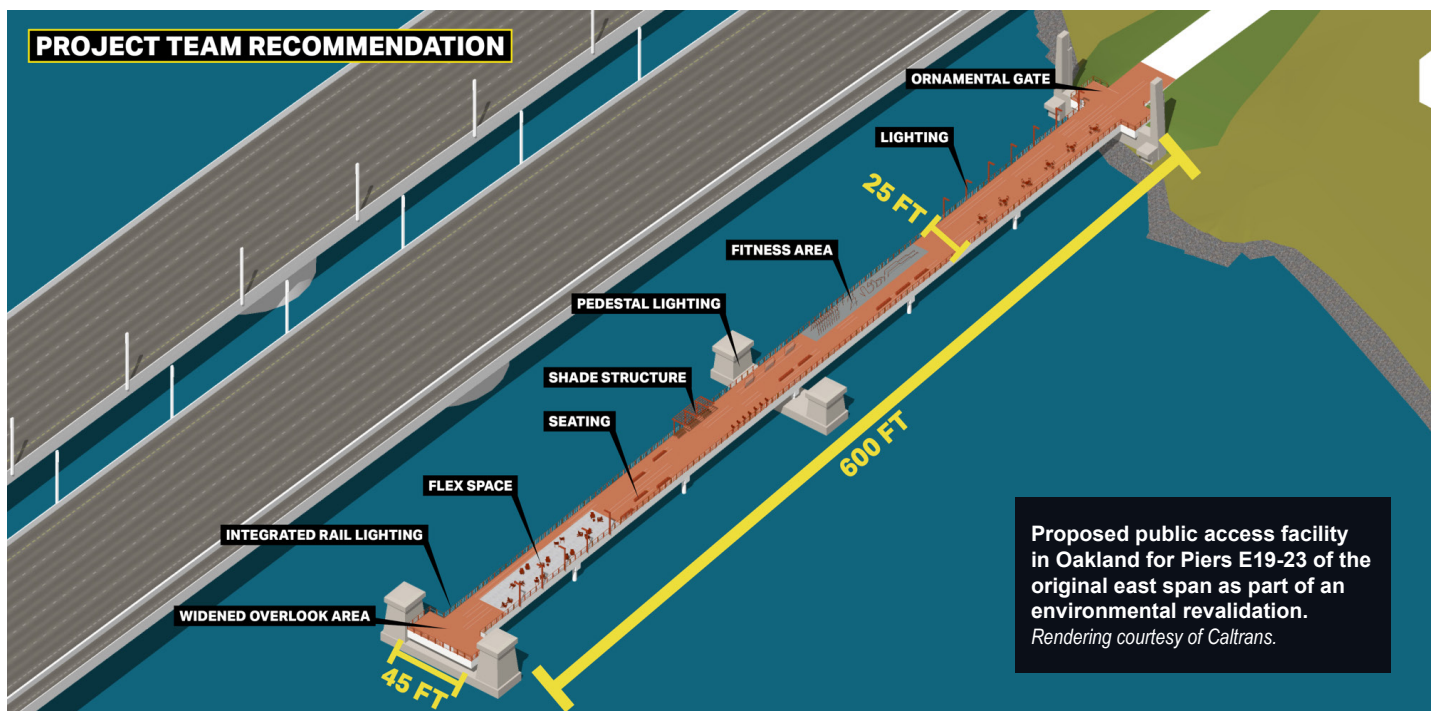
### Marine Foundation Pier Retention and Public Access Facilities

Proposed Capital Outlay Budget: \$52 M

Contractor: Kiewit/Manson

The Bay Bridge project environmental document and resource agency permits included removing all marine based piers of the old Bay Bridge east span. At the April 2017 and August 2017 TBPOC meeting the TBPOC members confirmed a decision to not demolish shoreline marine piers E2, E19-22 as part of ongoing CMGC construction pier removal and to begin the process for an environmental enhancement for public access facilities instead of demolition along both the YBI shoreline and Oakland shoreline. Upon the August 2017 TBPOC review of draft cost and the tasks schedule to complete the project in 2018, the project team began public discussions with stakeholders, contractor, and resource agencies responsible for permit approval and environmental document re/validation to timely design and include the environmental enhancement in the project (versus a separate project document adding 2 to 4 years to complete). The TBPOC request in August 2017 was for the PMT to complete a construction proposal for the December 2017 meeting, so CMGC negotiations could begin to complete cost definition and present to the TBPOC a contract to approve by March 1, 2018 for 2018 construction completion.

Major marine work is expected to begin on or near June 1, 2018 and be completed by December 31, 2018. With approval, the team will continue the final design, resource agency coordination, project environmental revalidation, and proceed on a construction contract process with the current marine foundation CMGC contractor to construct the environmental enhancement of retaining marine piers E2, E21-22 and removal of piers E19 and E20 for the purposes of public access and satisfaction of current environmental documents. A request for TBPOC approval will include an updated \$52 million not-to-exceed capital budget amount for the CMGC contract negotiation process to build both the YBI and Oakland shoreline public access improvements. A final construction contract recommendation and budget to build is expected to be presented to the TBPOC for final approval at the March 2018 TBPOC meeting.



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

### Self-Anchored Suspension Bridge Superstructure

Approved Capital Outlay Budget: \$2.05 B

Contractor: American Bridge/Fluor Enterprises, JV

Status: 100% Completed

The self-anchored suspension span (SAS) of the 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 appears to be two main cables on the SAS, it is actually a single continuous cable. This single cable is 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.



**SFOBB Self-Anchored Suspension Structure, looking north.**  
Photo courtesy of Caltrans.

**Status:** The TBPOC authorized Caltrans to close out the Self-Anchored Suspension (SAS) span contract with the joint venture of American Bridge/Fluor (ABF). The contract is to be closed out under the terms and conditions consistent with the findings of the July 2013 TBPOC meeting investigative report that found three parties – the contractor, designer, and Caltrans – responsible for the failure of the high-strength rods on the east pier (E2) of the SAS, and the \$24 million cost of the “saddle retrofit” repair. The contract was accepted in September 2015 and is currently under the Public Works Arbitration Program, where the contractor’s claim will be reviewed.

In May 2016, the Toll Bridge Program Oversight Committee (TBPOC) approved the re-grouting of the tower anchor rods based on recommendations from Caltrans and the peer review group. A contract for \$8.5 million was expeditiously awarded to the apparent low bidder on October 10, 2016. All re-grouting work was completed as of June 2017.



## Risk Management Program Update

### POTENTIAL DRAW ON PROGRAM RESERVE (PROGRAM CONTINGENCY)

Caltrans continues to implement comprehensive risk management on all TBSRP projects in accordance with AB 144. Cost Risk response efforts continue to focus on mitigating the estimated cost and schedule impacts of identified risks. The “bottom line” of cost risk analysis is whether the Program Contingency remains adequate to cover all identified risks.

Each contract has a contingency allowance within its budget. The sum of these contingency allowances is compared to the total of capital outlay, capital outlay support and program-wide risks. Any excess of the risks over the contingency allowances represents a potential draw on the program contingency. The program contingency, as of the fourth quarter 2017, is currently \$14.8 million in accordance with the TBPOC approved budget. As of the end of the fourth quarter of 2017, the 50 percent probable draw on program contingency is \$21.8 million. The potential draw ranges from about -\$40 million to \$90 million (refer to Figure 1). The \$21.8 million

probable draw on program contingency gives a forecast deficit of \$7.0 million at program completion to the current approved program budget. This represents a \$47.5 million improvement in the program’s bottom line since last quarter. **The bottom line trend has been improving for the last eight quarters, with the forecast deficit decreasing by \$136 million (95%) since it peaked at \$143.2 million in the third quarter of 2015.**

Since 2010, the TBPOC has approved the removal of \$483 million from the TBSRP budget (consisting of Antioch Savings (April 12, 2010) \$137 million, Dumbarton Savings (September 2, 2010) \$216 million and Program Contingency Redirection (November 5, 2013) \$130 million), bringing the current approved program budget to \$8.952 billion. The program contingency is currently insufficient to cover the cost of identified risks. It is likely that BATA will need to allocate additional toll funds from its reserves to pay for any residual deficit.

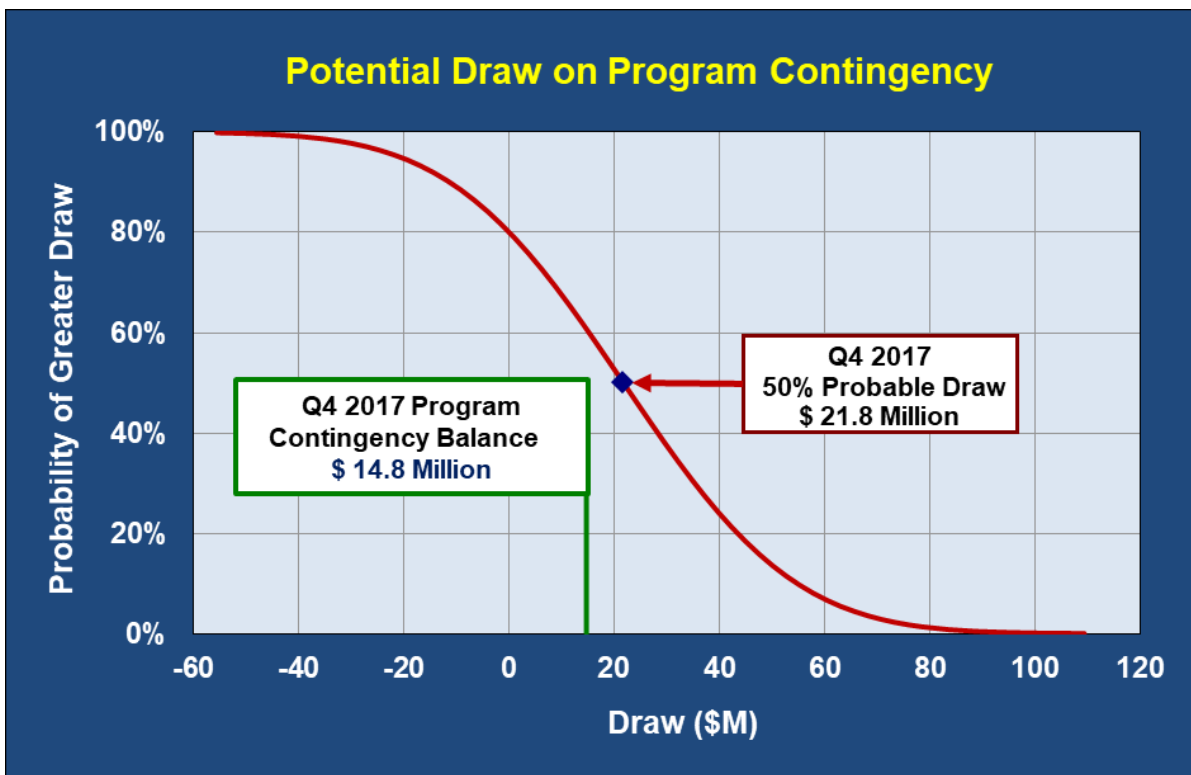


Figure 1 – Potential Draw on Program Contingency<sup>1</sup>

1. Proposed architectural enhancements and project improvements are excluded unless approved by the TBPOC.

## RISK MANAGEMENT DEVELOPMENTS

### SFOBB East Span Capital Outlay Support (COS) Budget

**Budget to Completion:** The fourth quarter 2017 COS forecast to completion is \$1,367.1 million, which results in a cost variance of \$17.7 million to the current budget. This is \$15.6 million improvement over the last quarter, and a \$37.7 million improvement over the fourth quarter 2015 forecast, when the COS forecast peaked at \$1,404.8 million. The current approved budget of \$1,349.4 million for SFOBB East Span COS will fund the program COS through the end of December 2018.

### Expenditures vs. Budget for 2017/18 Fiscal Year:

On August 28, 2017, the TBPOC approved a total COS budget of \$16.5 million for the 2017/18 fiscal year. An additional \$1 million for retention work on the E2, E19 to E23 Marine Foundations was also approved by the TBPOC at the same meeting. Finally, in the December 12, 2017 TBPOC meeting, the TBPOC approved an additional \$3 million for pursuing Pier Retention. This increases the final 2017/18 fiscal year COS budget to \$20.5 million (but by December 31, 2017 the \$3 million for Pier Retention has not yet been added to the budget). Total expenditures to date for 2017/18 are estimated at \$9.4 million, within the \$11 million in expected expenditures during this timeframe.

### Self-Anchored Suspension (SAS) Span Contract

**Contract Close Out:** The SAS contract was accepted on September 24, 2015. The estimate after acceptance included several deductions as credit for issues that Caltrans determined were the responsibility of the contractor. The proposed final estimate was forwarded to the contractor on November 5, 2015 and since the total amount paid exceeded the amount due by \$8.5 million, the contractor owed a payment to Caltrans for that amount. The contractor submitted his exceptions to the proposed final estimate on November 6, 2015.

The contractor documented twelve outstanding disputes totaling \$49.2 million in claims and filed for arbitration on May 23, 2016. The claims are now subject to the Public Works Contract Arbitration Program and could take many quarters to reach a conclusion.

### Yerba Buena Island Transition Structure #2 Contract

**Unstable Slopes:** Storm drain improvements made on Yerba Buena Island in the winter of 2016/2017 have been successful in preventing water from outside the Goat Slope getting to the exposed slope in early 2017. The slope stabilization work was completed in mid-November 2017 and the contract was accepted soon thereafter.

### Marine Foundation Removal Contract (E4 - E18)

#### Completed All Implosions (E6 through E18) in 2017:

The early completion of the 504/288 contract gave the Marine Structures Dismantling contract the opportunity to deliver the contract one year early. Negotiations with the Marine Structure Dismantling contractor had determined that the work could be completed in the 2017 season if the contractor was allowed to begin mechanical dismantling by March 1, 2017 and implode multiple footings during the 2017 three-month window.

By using cable saws to remove the concrete pedestals on the marine foundations, the contractor was allowed start mechanical demolition on March 1, 2017. Caltrans environmental staff received a written confirmation that no permit amendment was required to allow multiple pier implosions per event in the fall of 2017. Successfully getting all environmental concurrences allowed the project team to deliver the project one year early, leading to substantial risk reduction and COS savings.



Completed slope stabilization work on Yerba Buena Island.  
Photo courtesy of Caltrans.

### Marine Foundation Removal Contract (E2, E19 - E22)

**Pier Retention on YBI Shoreline:** At the December 12, 2017 TBPOC meeting the project team presented a “simple” pier retention project on YBI at E2 that would be similar in cost to the planned demolition of E2. The TBPOC approved proceeding with design of pier retention at E2, with a view to completing the design in the first quarter of 2018.

**Pier Retention Feasibility:** The project team had developed an advanced planning study to show the possibilities of incorporating the piers from the original SFOBB East Spans into new public access facilities. Caltrans proposes to invest in public access as an environmental enhancement to the project, as opposed to spending funds on pier demolition, by potentially building walkways from Abutment 23 to the end of Pier E-21 at the Oakland shoreline and from Torpedo Road to Pier E-2 at the Yerba Buena Island shoreline. The environmental team made presentations to the Bay Conservation and Development Commission (BCDC) and its Design Review Board on the feasibility of retaining these marine foundations. Discussions indicate the BCDC will consider the permit change, provided the marine access provided is commensurate with the amount of bay fill that would be allowed to be left in place. Once a plan for both the YBI and Oakland shorelines is developed and approved by the TBPOC, it will be submitted to the regulatory agencies for permitting.

The Toll Bridge Seismic Retrofit Program has included the cost of pier removal in the program budget. Any costs in excess of those incurred by pier retention would need the approval of the TBPOC or an alternative funding source found.

## RISK MANAGEMENT LOOK AHEAD

### SFOBB East Span COS Budget

**Budget Increase:** The current approved budget of \$1,349.4 million for the SFOBB East Span COS will need to be increased by the end of December 2018.

Before the end of June 2018, BATA will need to approve the TBPOC approved 2018/19 COS allocation and a commensurate increase in the overall SFOBB East Span COS budget.

### Self-Anchored Suspension Span Contract

The contract close-out effort will continue. The support cost budget will continue to accrue until final close-out is achieved.

### Yerba Buena Island Transition Structure #2 Contract

**Project Close Out:** The contract was accepted on November 28, 2017, there are no on-going disputes with the contractor and the project team plans to issue the final estimate in the first quarter of 2018.

### Marine Foundation Removal Contract (E4 - E18)

**Project Close Out:** The contract was accepted in December 2018, there are no on-going disputes with the contractor and the project team plans to issue the final estimate in the first quarter of 2018.

### Marine Foundation Removal Contract (E2, E19 - E22)

#### Pier Retention vs. Pier Demolition on Oakland

**Shoreline:** The project team will continue to advance a plan that shows the possibilities of incorporating the old piers into new public access. Building public access to the bay will increase the environmental enhancement of the project. The project team will refine memos of understanding with interested third parties on both the Oakland and YBI sides of the bridge as to maintenance and ownership of the piers in the future. Cost estimates will be updated and presented to the TBPOC for a final decision as to whether to demolish or retain the four piers on the Oakland shoreline. If the piers are to be demolished in 2018, it is imperative a decision to demolish is given at the January 23, 2018 TBPOC meeting or delay costs will start adding significantly to the cost of that work going forward.



Proposed Public Access Facility for Old Bay Bridge Pier E2 along YBI shoreline. Rendering courtesy of Caltrans.

## Program Funding Status

AB 144 established a funding level of \$8.685 billion for the TBSRP. 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, which provided another \$750 million bringing the total funding to \$9.435 billion. On April 9, 2010, the TBPOC approved a \$137 million reduction in the TBSRP program budget as a result of savings from the Antioch Bridge Retrofit. On September 2, 2010, the TBPOC approved a \$216 million reduction in the TBSRP program budget as a result of savings from the Dumbarton Bridge Retrofit. And finally, on November 5, 2013, the TBPOC approved a \$130 million reduction in the TBSRP program budget as a result of a reduction in the program contingency, bringing the current approved TBSRP budget to \$8.952 billion (see Appendix A-1). The program funding sources are shown in Table 1 - Program Budget.

<b>Table 1 - Program Budget as of December 31, 2017</b>		<b>Budgeted</b>	<b>Funding Available &amp; Contribution</b>
<b>Financing</b>			
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 <sup>(2)</sup>		750.0	750.0
BATA Consolidation		820.0	820.0
Subtotal - Financing		6,002.0	6,002.0
<b>Contributions</b>			
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 <sup>(1)</sup>		745.0	745.0
Public Transportation Account <sup>(1)</sup>		130.0	130.0
ITIP/SHOPP/Federal Contingency <sup>(3)</sup>		448.0	448.0
Federal Highway Bridge Replacement and Rehabilitation (HBRR) <sup>(3)</sup>		642.0	642.0
SHA - East Span Dismantling		300.0	300.0
SHA - "Efficiency Savings"		130.0	130.0
Redirect Spillover		125.0	125.0
Motor Vehicle Account		75.0	75.0
Subtotal - Contribution		3,433.0	3,423.9
<b>Total Funding</b>		<b>9,435.0</b>	<b>9,425.9</b>
<b>Encumbered to Date</b>			<b>8,779.6</b>
<b>Remaining Unallocated</b>			<b>646.3</b>
<b>Expenditures :</b>			
Capital Outlay			6,845.1
State Operations			1,873.3
Antioch and Dumbarton Expenditures by BATA			\$15.1
	<b>Total Expenditures</b>		<b>8,733.5</b>
<b>Encumbrances :</b>			
Capital Outlay			44.5
State Operations			1.7
	<b>Total Encumbrances</b>		<b>46.1</b>
<b>Total Expenditures and Encumbrances</b>			<b>8,779.6</b>
<p><sup>(1)</sup> The Vincent Thomas Bridge state funds contribution was finalized in legislation and statutes to be \$6.9 million and no additional funds were identified. The program has identified an opportunity for an additional funding of \$14.8 million from Toll Bridge excess right of way sales, which will be credited to be program in the coming quarters.</p> <p><sup>(2)</sup> The California Transportation Commission adopted a new schedule and changed the PTA/SHA split on December 15, 2005.</p> <p><sup>(2)</sup> 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.</p> <p><sup>(3)</sup> The Skyway contract is the only contract in the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project with federal funds. The Federal Aid Project No. is 0801(090) for the amount of \$321,645,209.22. No other federal funds will be used on this project in the future.</p>			

## Summary of the Toll Bridge Oversight Committee 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, 2017, 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 (Actual)	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
	<b>Total</b>	<b>547</b>	<b>273</b>	<b>100</b>	<b>43</b>	<b>99</b>	<b>153</b>	<b>150</b>	<b>165</b>	<b>300</b>	<b>1830</b>

\* Caltrans Efficiency Savings  
 \*\* SFOBB East Span Dismantling Cost. The last contribution of \$300 million from SHA was made in October 2013 as scheduled.  
 \*\*\* Actual as of December 31, 2017

**Table 3—Toll Bridge Program Oversight Committee  
Estimated Expenses: July 1, 2005 through December 31, 2017 (\$ Millions)**

Agency/Program Activity	Expenses
<b>BATA</b>	<b>3.0</b>
<b>Caltrans</b>	<b>3.8</b>
<b>CTC</b>	<b>3.3</b>
<b>Reporting</b>	<b>5.9</b>
<b>Total Program</b>	<b>16.0</b>

## Quarterly Environmental Compliance Highlights

Overall environmental compliance for the San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Safety Project (SFOBB Project) has been a success during the fourth quarter of 2017. The tasks for the quarter were focused on pier implosion compliance monitoring, pier retention permitting, contract closeout, and mitigation.

### Key Successes

Biological monitoring programs for marine mammals, birds, fish, in-water noise and water quality were implemented during all blast events to remove Piers E11 to E18. Additionally, bird monitoring was conducted weekly in compliance with the project's Bird Monitoring Plans. The goal of the weekly monitoring was to document potential impacts to birds from construction activities associated with the implosion of Piers E11 to E18.

The environmental team performed biological monitoring in support of the following implosion events: Piers E11, E12 and E13 (October 14, 2017), Piers E14, 15, and 16 (October 28, 2017) and Piers E17 and E18 (November 11, 2017). The Blast Attenuation System was deployed prior to the implosions and operated correctly during each implosion. Caltrans biologists monitored for birds, marine mammals, noise levels, and water quality prior to, during, and following each implosion. Caltrans also conducted fish sonar surveys, fish collection, and bird predation monitoring to assess impacts to fish. Hydrographic surveys were conducted following the implosions to aid in clean-up efforts. Overall, no impacts to special-status species were observed by biological monitors as a result of the implosion events associated with the removal of Piers E11 to E18.

The environmental team provided preliminary monitoring results from the Piers E11 to E18 implosion events to applicable regulatory agencies throughout the fourth quarter of 2017. A final report summarizing the monitoring results of the 2017 blasting season is in process and will be submitted to the regulatory agencies in February 2018.

The environmental team, at the request of BATA and the TBPOC, continued to support the analysis associated with retention and proposed public access enhancements for Pier E2 and Piers E19 to E23 of the SFOBB original east span during the fourth quarter of 2017. The environmental team attended meetings with local stakeholders to evaluate design options and negotiate funding and management agreements for the proposed Pier E19 to E23 public access enhancements. The pier retention concepts were presented to the Bay Conservation and Development Commission (BCDC), including its staff and Design Review Board, in multiple meetings throughout the fourth quarter of 2017. Meetings were also held with US Army Corps of Engineers, National Marine Fisheries Service, California Department of Fish and Wildlife, and Regional Water Quality Control Board. The environmental team also supported the project team for the December 12, 2017 TBPOC meeting, in which the pier retention concepts were evaluated.

The environmental team provided support for the close-out of the YBITS 2 and T1 grouting contracts. Environmental Commitment Records and final site walks were completed as part of contract close-out.

The environmental team continued to coordinate with local and state agencies regarding opportunities to satisfy the SFOBB Project shorebird roosting habitat mitigation requirement through a funding transfer. The environmental team continues to explore opportunities to fulfill this mitigation requirement in the BCDC permit.



**Proposed public access enhancements for Piers E19 - E23 of the original east span.**  
Renderings courtesy of Caltrans.





# APPENDICES

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B. TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2017.....	20
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## Appendix A-1: TBSRP AB 144/SB 66/AB 1175 Baseline Budget, Forecasts and Expenditures Through December 31, 2017, by bridge including program contingency (\$ Millions)

Contract	AB 144/SB 66/AB 1175	Approved Changes	Current Approved Budget (12/2017)	Cost to Date (12/2017)	Cost Forecast (12/2017)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>SFOBB East Span Replacement Project</b>						
Capital Outlay Support	959.3	390.1	1,349.4	1,325.8	1,367.1	17.7
Capital Outlay Construction	4,492.2	685.5	5,177.7	5,029.5	5,175.1	(2.6)
Other Budgeted Capital	35.1	(32.8)	2.3	0.7	0.7	(1.6)
<b>Total</b>	<b>5,486.6</b>	<b>1,042.8</b>	<b>6,529.4</b>	<b>6,356.0</b>	<b>6,542.9</b>	<b>13.5</b>
<b>SFOBB West Approach Replacement</b>						
Capital Outlay Support	120.0	(0.5)	119.5	119.4	119.5	-
Capital Outlay Construction	309.0	31.0	340.0	333.0	338.1	(1.9)
<b>Total</b>	<b>429.0</b>	<b>30.5</b>	<b>459.5</b>	<b>452.4</b>	<b>457.6</b>	<b>(1.9)</b>
<b>SFOBB West Span Retrofit</b>						
Capital Outlay Support	75.0	(0.2)	74.8	74.8	74.8	-
Capital Outlay Construction	232.9	(2.4)	230.5	230.5	230.5	-
<b>Total</b>	<b>307.9</b>	<b>(2.6)</b>	<b>305.3</b>	<b>305.3</b>	<b>305.3</b>	<b>-</b>
<b>Richmond-San Rafael Bridge Retrofit*</b>						
Capital Outlay Support	134.0	(7.0)	127.0	126.7	126.7	(0.3)
Capital Outlay Construction	698.0	(94.9)	685.1	668.1	668.1	(17.0)
<b>Total</b>	<b>914.0</b>	<b>(101.9)</b>	<b>812.1</b>	<b>794.8</b>	<b>794.8</b>	<b>-</b>
<b>Benicia-Martinez Bridge Retrofit</b>						
Capital Outlay Support	38.1	-	38.1	38.1	38.1	-
Capital Outlay Construction	139.7	-	139.7	139.7	139.7	-
<b>Total</b>	<b>177.8</b>	<b>-</b>	<b>177.8</b>	<b>177.8</b>	<b>177.8</b>	<b>-</b>
<b>Carquinez Bridge Retrofit</b>						
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	-
<b>Total</b>	<b>114.1</b>	<b>-</b>	<b>114.2</b>	<b>114.2</b>	<b>114.2</b>	<b>-</b>
<b>San Mateo-Hayward Bridge Retrofit</b>						
Capital Outlay Support	28.1	-	28.1	28.1	28.1	-
Capital Outlay Construction	135.4	(0.1)	135.3	135.3	135.3	-
<b>Total</b>	<b>163.5</b>	<b>(0.1)</b>	<b>163.4</b>	<b>163.4</b>	<b>163.4</b>	<b>-</b>
<b>Vincent Thomas Bridge Retrofit (Los Angeles)</b>						
Capital Outlay Support	16.4	-	16.4	16.4	16.4	-
Capital Outlay Construction	42.1	-	42.1	42.0	42.0	(0.1)
<b>Total</b>	<b>58.5</b>	<b>-</b>	<b>58.5</b>	<b>58.4</b>	<b>58.4</b>	<b>(0.1)</b>
<b>San Diego-Coronado Bridge Retrofit</b>						
Capital Outlay Support	33.5	-	33.5	33.2	33.2	(0.3)
Capital Outlay Construction	70.0	-	70.0	69.4	69.4	(0.6)
<b>Total</b>	<b>103.5</b>	<b>-</b>	<b>103.5</b>	<b>102.6</b>	<b>102.6</b>	<b>(0.9)</b>



## Appendix A-1: TBSRP AB 144/SB 66/AB 1175 Baseline Budget, Forecasts and Expenditures Cont. Through December 31, 2017, by bridge including program contingency (\$ Millions)

Contract	AB 144/SB 66/AB 1175	Approved Changes	Current Approved Budget (12/2017)	Cost to Date (12/2017)	Cost Forecast (12/2017)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Antioch Bridge</b>						
Capital Outlay Support	-	24.1	24.1	17.4	24.2	0.1
Capital Outlay Support by BATA	-			6.7		
Capital Outlay Construction	-	47.0	47.0	47.0	47.0	-
<b>Total</b>	<b>267.0</b>	<b>71.1</b>	<b>71.1</b>	<b>71.1</b>	<b>71.2</b>	<b>0.1</b>
<b>Dumbarton Bridge</b>						
Capital Outlay Support	-	46.0	46.0	39.5	47.5	1.5
Capital Outlay Support by BATA	-			7.9		
Capital Outlay Construction	-	66.4	66.4	64.4	64.7	(1.7)
<b>Total</b>	<b>483.0</b>	<b>112.4</b>	<b>112.4</b>	<b>111.8</b>	<b>112.2</b>	<b>(0.2)</b>
Subtotal Capital Outlay Support	1,682.9	202.9	1,885.7	1,862.8	1,904.4	18.7
Subtotal Capital Outlay	6,787.1	232.2	7,019.2	6,844.5	6,995.5	(23.7)
Subtotal Other Budgeted Capital	35.1	(32.8)	2.3	0.7	0.7	(1.6)
Miscellaneous Program Costs	30.0	-	30.0	25.5	25.5	(4.5)
Subtotal Toll Bridge Seismic Retrofit Program	8,535.0	402.2	8,937.2	8,733.5	8,926.1	(11.1)
Net Programmatic Risks**	-	-	-	-	33.0	33.0
Program Contingency	900.0	(885.2)	14.8	-	-	(14.8)
<b>Total Toll Bridge Seismic Retrofit Program***</b>	<b>9,435.0</b>	<b>(483.0)</b>	<b>8,952.0</b>	<b>8,733.5</b>	<b>8,959.1</b>	<b>7.1</b>
Forecast Deficit To Current TBPOC Approved Budget:					7.1	
Forecast Surplus To Total TBSRP Budget	410.8					
Forecast Deficit To Current TBPOC Approved Budget:			7.1			

\* Budget for Richmond-San Rafael Bridge includes \$16.9 million of deck joint rehabilitation work that considered to be eligible for seismic retrofit program funding.

\*\* Programmatic Risks: Consists of \$16.14 million in Q4 2017 Program Risk Register costs plus, \$16.9 in Richmond-San Rafael (R/SR) Bridge project contingency used for R/SR deck joint replacement.

\*\*\* AB144/SB66 established a funding level of \$8.685 Billion in July 2005 for TBSRP; AB1175 added the retrofitting of the Antioch and Dumbarton Bridges in January 2010, providing another \$750 million in funding, bringing Total Toll Seismic Retrofit Program funding to \$9.435 Billion. Since 2010, \$483 million has been removed from the program, bringing the current TBPOC Approved Budget to \$8.952 billion. The \$483 million removed consisted of:

- Antioch Savings (4/12/10) \$137 million
- Dumbarton Savings (9/02/10) \$216 million
- Program Contingency Redirection (11/05/13) \$130 million.

(Due to the rounding of numbers, the totals above are show within \$0.1)

## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures

Through December 31, 2017, by major contract, without program contingency (\$ Millions)

Bridge	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and encumbrances as of (12/2017) see Note (1)	Estimated costs not yet spent or encumbered as of (12/2017)	Total Forecast as of (12/2017)
a	b	c	d	e	f = d + e
<b>Other Completed Projects</b>					
Capital Outlay Support	144.9	144.9	144.6	-	144.6
Capital Outlay	472.6	472.6	471.9	(0.1)	471.8
<b>Total</b>	<b>617.5</b>	<b>617.5</b>	<b>616.5</b>	<b>(0.1)</b>	<b>616.4</b>
<b>Richmond-San Rafael</b>					
Capital Outlay Support	134.0	127.0	126.8	(0.1)	126.7
Capital Outlay	698.0	685.1	667.5	0.6	668.1
Project Reserves	82.0	-	-	-	-
<b>Total</b>	<b>914.0</b>	<b>812.1</b>	<b>794.3</b>	<b>0.5</b>	<b>794.8</b>
<b>West Span Retrofit</b>					
Capital Outlay Support	75.0	74.8	74.8	-	74.8
Capital Outlay	232.9	230.5	227.4	3.1	230.5
<b>Total</b>	<b>307.9</b>	<b>305.3</b>	<b>302.2</b>	<b>3.1</b>	<b>305.3</b>
<b>West Approach</b>					
Capital Outlay Support	120.0	119.5	119.5	-	119.5
Capital Outlay	309.0	340.0	332.2	5.9	338.1
<b>Total</b>	<b>429.0</b>	<b>459.5</b>	<b>451.7</b>	<b>5.9</b>	<b>457.6</b>
<b>SFOBB East Span -Skyway</b>					
Capital Outlay Support	197.0	181.2	181.2	-	181.2
Capital Outlay	1,293.0	1,237.2	1,237.3	(1.2)	1,236.1
<b>Total</b>	<b>1,490.0</b>	<b>1,418.4</b>	<b>1,418.5</b>	<b>(1.2)</b>	<b>1,417.3</b>
<b>SFOBB East Span -SAS- Superstructure</b>					
Capital Outlay Support	214.6	489.1	513.6	(0.2)	513.4
Capital Outlay	1,753.7	2,034.8	2,046.9	(10.0)	2,036.9
<b>Total</b>	<b>1,968.3</b>	<b>2,523.9</b>	<b>2,560.5</b>	<b>(10.2)</b>	<b>2,550.3</b>
<b>SFOBB East Span -SAS- Tower Anchor Rod Grouting</b>					
Capital Outlay Support	0.0	3.0	2.3	-	2.3
Capital Outlay	0.0	12.0	9.2	(0.3)	8.9
<b>Total</b>	<b>0.0</b>	<b>15.0</b>	<b>11.5</b>	<b>(0.3)</b>	<b>11.2</b>
<b>SFOBB East Span -SAS- Foundations</b>					
Capital Outlay Support	62.5	37.6	37.6	-	37.6
Capital Outlay	339.9	301.3	301.3	-	301.3
<b>Total</b>	<b>402.4</b>	<b>338.9</b>	<b>338.9</b>	<b>-</b>	<b>338.9</b>
<b>Small YBI Projects</b>					
Capital Outlay Support	10.6	10.2	10.2	-	10.2
Capital Outlay	15.7	15.2	15.2	-	15.2
<b>Total</b>	<b>26.2</b>	<b>25.4</b>	<b>25.4</b>	<b>-</b>	<b>25.4</b>
<b>YBI Detour</b>					
Capital Outlay Support	29.5	87.7	87.9	-	87.9
Capital Outlay	131.9	473.3	473.3	0.1	473.4
<b>Total</b>	<b>161.4</b>	<b>561.0</b>	<b>561.2</b>	<b>0.1</b>	<b>561.3</b>

## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures Cont.

Through December 31, 2017, by major contract, without program contingency (\$ Millions)

Contract	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and encumbrances as of (12/2017) see Note (1)	Estimated costs not yet spent or encumbered as of (12/2017)	Total Forecast as of (12/2017)
a	b	c	d	e	f = d + e
<b>YBI - Transition Structures</b>					
Capital Outlay Support	78.7	159.4	143.0	20.1	163.1
Capital Outlay	299.4	312.9	318.0	(5.9)	312.1
<b>Total</b>	<b>378.0</b>	<b>472.3</b>	<b>461.0</b>	<b>14.2</b>	<b>475.2</b>
<b>Oakland Touchdown</b>					
Capital Outlay Support	74.4	119.4	117.5	0.8	118.3
Capital Outlay	283.8	330.6	325.4	1.1	326.5
<b>Total</b>	<b>358.2</b>	<b>450.0</b>	<b>442.9</b>	<b>1.9</b>	<b>444.8</b>
<b>East Span Other Small Projects</b>					
Capital Outlay Support	212.3	197.9	197.9	-	197.9
Capital Outlay	170.8	141.3	126.5	9.4	135.9
<b>Total</b>	<b>383.1</b>	<b>339.2</b>	<b>324.4</b>	<b>9.4</b>	<b>333.8</b>
<b>Existing Bridge Demolition</b>					
	0.0				
Capital Outlay Support	79.7	63.9	36.8	18.6	55.4
Capital Outlay	239.2	321.5	225.7	103.9	329.6
<b>Total</b>	<b>318.9</b>	<b>385.4</b>	<b>262.5</b>	<b>122.5</b>	<b>385.0</b>
<b>Antioch Bridge</b>					
Capital Outlay Support	0.0	24.1	17.4	0.1	17.5
Capital Outlay Support by BATA	0.0		6.7	-	6.7
Capital Outlay	0.0	47.0	47.0	-	47.0
<b>Total</b>	<b>267.0</b>	<b>71.1</b>	<b>71.1</b>	<b>0.1</b>	<b>71.2</b>
<b>Dumbarton Bridge</b>					
Capital Outlay Support	0.0	46.0	39.6	-	39.6
Capital Outlay Support by BATA	0.0		7.9	-	7.9
Capital Outlay	0.0	66.4	64.7	-	64.7
<b>Total</b>	<b>483.0</b>	<b>112.4</b>	<b>112.2</b>	<b>-</b>	<b>112.2</b>
Miscellaneous Program Costs	30.0	30.0	25.5	-	25.5
Total Capital Outlay Support <sup>(2)</sup>	1,712.9	1,915.7	1,890.6	39.4	1,930.0
Total Capital Outlay	6,822.1	7,021.6	6,889.5	106.5	6,996.0
<b>Program Total</b>	<b>8,535.0</b>	<b>8,937.3</b>	<b>8,780.1</b>	<b>145.9</b>	<b>8,926.0</b>

(1) Total Capital Outlay Support includes program indirect costs.

(2) BSA provided a distribution of program contingency in December 2004 based on Bechtel Infrastructure Corporation input.

(3) Construction administration of the OTD Detour is under the YBITS1 contract. Encumbrance is included in YBITS1 contract.

(4) Construction administration of the cantilever segment is under the YBITS2 contract. Encumbrance is included in YBITS2 contract.

(Due to the rounding of numbers, the totals above are shown within \$0.1)

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures

Through December 31, 2017 (\$ Millions)

Contract a	AB 144 / SB 66 Budget (07/2005) c	Approved Changes d	Current Approved Budget (12/2017) e = c + d	Cost to Date (12/2017) f	Cost Forecast (12/2017) g	At- Completion Variance h = g - e
<b>San Francisco-Oakland Bay Bridge East Span Replacement Project</b>						
<b>East Span - SAS Superstructure</b>						
Capital Outlay Support	214.6	274.5	489.1	512.9	513.4	24.3
Capital Outlay Construction	1,753.7	281.1	2,034.8	1,973.4	2,036.9	2.1
<b>Total</b>	<b>1,968.3</b>	<b>555.6</b>	<b>2,523.9</b>	<b>2,486.3</b>	<b>2,550.3</b>	<b>26.4</b>
<b>SAS Tower Anchor Rod Grouting</b>						
Capital Outlay Support	0.0	-	3.0	2.0	2.3	(0.7)
Capital Outlay Construction	0.0	-	12.0	8.7	8.9	(3.1)
<b>Total</b>	<b>0.0</b>	<b>-</b>	<b>15.0</b>	<b>10.7</b>	<b>11.2</b>	<b>(3.8)</b>
<b>SAS W2 Foundations</b>						
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	-
<b>Total</b>	<b>36.4</b>	<b>(0.7)</b>	<b>35.7</b>	<b>35.7</b>	<b>35.7</b>	<b>-</b>
<b>YBI South/South Detour</b>						
Capital Outlay Support	29.5	58.3	87.7	87.9	87.9	0.2
Capital Outlay Construction	131.9	341.4	473.3	473.4	473.4	0.1
<b>Total</b>	<b>161.4</b>	<b>399.7</b>	<b>561.0</b>	<b>561.3</b>	<b>561.3</b>	<b>0.3</b>
<b>East Span - Skyway</b>						
Capital Outlay Support	197.0	(15.8)	181.2	181.2	181.2	-
Capital Outlay Construction	1,293.0	(55.8)	1,237.2	1,235.6	1,236.1	(1.1)
<b>Total</b>	<b>1,490.0</b>	<b>(71.6)</b>	<b>1,418.4</b>	<b>1,416.8</b>	<b>1,417.3</b>	<b>(1.1)</b>
<b>East Span - SAS E2/T1 Foundations</b>						
Capital Outlay Support	52.5	(24.1)	28.4	28.4	28.4	-
Capital Outlay Construction	313.5	(38.7)	274.8	274.8	274.8	-
<b>Total</b>	<b>366.0</b>	<b>(62.8)</b>	<b>303.2</b>	<b>303.2</b>	<b>303.2</b>	<b>-</b>
<b>YBI Transition Structures (see notes below)</b>						
Capital Outlay Support	78.7	80.7	159.4	142.5	163.1	3.7
Capital Outlay Construction	299.4	13.6	312.9	306.3	312.1	(0.8)
<b>Total</b>	<b>378.0</b>	<b>94.3</b>	<b>472.3</b>	<b>448.8</b>	<b>475.2</b>	<b>2.9</b>
<b>* YBI - Transition Structures</b>						
Sunk Cost			16.4	16.4	16.4	-
Cost Outlay Support BATA (Southgate Road)			6.4	0.5	6.4	-
<b>Total</b>			<b>22.8</b>	<b>16.9</b>	<b>22.8</b>	<b>-</b>
<b>* YBI - Transition Structures Contract No. 1</b>						
Capital Outlay Support			72.1	71.0	70.9	(1.2)
Capital Outlay Construction			203.7	203.2	203.8	0.1
<b>Total</b>			<b>275.8</b>	<b>274.2</b>	<b>274.7</b>	<b>(1.1)</b>
<b>* YBI - Transition Structures Contract No. 2</b>						
Capital Outlay Support			63.5	54.3	68.4	4.9
Capital Outlay Construction			109.2	103.0	108.3	(0.8)
<b>Total</b>			<b>172.7</b>	<b>157.4</b>	<b>176.7</b>	<b>4.1</b>
<b>* YBI - Transition Structures Contract No. 3 Landscape</b>						
Capital Outlay Support			1.0	0.3	1.0	-
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>1.0</b>	<b>-</b>	<b>1.0</b>	<b>-</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures

Through December 31, 2017 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2017)	Cost to Date (12/2017)	Cost Forecast (12/2017)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
Oakland Touchdown (see notes below)						
Capital Outlay Support	74.4	45.0	119.4	118.2	118.3	(1.1)
Capital Outlay Construction	283.8	46.8	330.6	326.5	326.5	(4.1)
<b>Total</b>	<b>358.2</b>	<b>91.8</b>	<b>450.0</b>	<b>444.7</b>	<b>444.8</b>	<b>(5.2)</b>
* OTD Prior-to-Split Costs						
Capital Outlay Support			20.1	20.0	20.0	(0.1)
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>20.1</b>	<b>20.0</b>	<b>20.0</b>	<b>(0.1)</b>
* OTD Submarine Cable(1)						
Capital Outlay Support			0.9	0.9	0.9	-
Capital Outlay Construction			5.7	5.7	5.7	-
<b>Total</b>			<b>6.6</b>	<b>6.6</b>	<b>6.6</b>	<b>-</b>
* OTD No. 1 (Westbound)						
Capital Outlay Support			51.2	51.2	51.2	-
Capital Outlay Construction			205.3	202.8	202.8	(2.5)
<b>Total</b>			<b>256.5</b>	<b>254.0</b>	<b>254.0</b>	<b>(2.5)</b>
* OTD No. 2 (Eastbound)						
Capital Outlay Support			37.6	37.4	37.4	(0.2)
Capital Outlay Construction			72.6	71.2	71.2	(1.4)
<b>Total</b>			<b>110.2</b>	<b>108.6</b>	<b>108.6</b>	<b>(1.6)</b>
* OTD Touchdown 2 Detour <sup>(2)</sup>						
Capital Outlay Support			8.1	8.0	8.0	(0.1)
Capital Outlay Construction			47.0	46.7	46.7	(0.3)
<b>Total</b>			<b>55.1</b>	<b>54.7</b>	<b>54.7</b>	<b>(0.4)</b>
* OTD Electrical Systems						
Capital Outlay Support			1.5	0.8	0.8	(0.7)
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>1.5</b>	<b>0.8</b>	<b>0.8</b>	<b>(0.7)</b>
Existing Bridge Dismantling						
Capital Outlay Support	79.7	(15.8)	63.9	35.6	55.4	(8.5)
Capital Outlay Construction	239.2	82.3	321.5	263.0	329.6	8.1
<b>Total</b>	<b>318.9</b>	<b>66.5</b>	<b>385.4</b>	<b>298.6</b>	<b>385.0</b>	<b>(0.4)</b>
* Bridge Dismantling Prior-to-Split Cost						
Capital Outlay Support			3.9	3.9	3.9	-
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>3.9</b>	<b>3.9</b>	<b>3.9</b>	<b>-</b>
* Cantilever Section						
Capital Outlay Support			1.6	1.6	1.6	-
Capital Outlay Construction			69.0	68.5	69.0	-
<b>Total</b>			<b>70.6</b>	<b>70.1</b>	<b>70.6</b>	<b>-</b>
* 504/288 Sections						
Capital Outlay Support			21.0	9.9	10.6	(10.4)
Capital Outlay Construction			103.5	77.2	81.8	(21.7)
<b>Total</b>			<b>124.5</b>	<b>87.1</b>	<b>92.4</b>	<b>(32.1)</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures

Through December 31, 2017 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2017)	Cost to Date (12/2017)	Cost Forecast (12/2017)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>*Marine Foundations</b>						
Capital Outlay Support			37.4	20.2	39.3	1.9
Capital Outlay Construction			149.0	117.3	178.7	29.7
<b>Total</b>			<b>186.4</b>	<b>137.5</b>	<b>218.0</b>	<b>31.6</b>
Sunk Cost for Marine Foundation			-	5.8	5.8	5.8
<b>Pier-3 Demonstration Project</b>						
Capital Outlay Support			-	4.0	4.0	4.0
Capital Outlay Construction			17.5	16.8	16.8	(0.7)
<b>Total</b>			<b>17.5</b>	<b>20.8</b>	<b>20.8</b>	<b>3.3</b>
<b>Remaining Marine Foundations<sup>2</sup></b>						
Capital Outlay Support			-	10.5	29.6	29.6
Capital Outlay Construction			131.5	100.5	161.9	30.4
<b>Total</b>			<b>131.5</b>	<b>111.0</b>	<b>191.5</b>	<b>60.0</b>
<b>Pier-E4 to Pier-E18</b>						
Capital Outlay Support			-	9.3	11.8	11.8
Capital Outlay Construction			131.5	100.5	111.7	(19.8)
<b>Total</b>			<b>131.5</b>	<b>109.8</b>	<b>123.5</b>	<b>(8.0)</b>
<b>Pier-E2 and Pier-E19 to Pier-E22</b>						
Capital Outlay Support			-	1.2	17.8	17.8
Capital Outlay Construction			-	-	50.2	50.2
<b>Total</b>			<b>-</b>	<b>1.2</b>	<b>68.0</b>	<b>68.0</b>
<b>YBI/SAS Archeology</b>						
Capital Outlay Support	1.1	-	1.1	1.1	1.1	-
Capital Outlay Construction	1.1	-	1.1	1.1	1.1	-
<b>Total</b>	<b>2.1</b>	<b>-</b>	<b>2.2</b>	<b>2.2</b>	<b>2.2</b>	<b>-</b>
<b>YBI - USCG Road Relocation</b>						
Capital Outlay Support	3.0	(0.3)	2.7	2.7	2.7	-
Capital Outlay Construction	3.0	(0.2)	2.8	2.8	2.8	-
<b>Total</b>	<b>6.0</b>	<b>(0.5)</b>	<b>5.5</b>	<b>5.5</b>	<b>5.5</b>	<b>-</b>
<b>YBI - Substation and Viaduct</b>						
Capital Outlay Support	6.5	(0.1)	6.4	6.4	6.4	-
Capital Outlay Construction	11.6	(0.3)	11.3	11.3	11.3	-
<b>Total</b>	<b>18.1</b>	<b>(0.4)</b>	<b>17.7</b>	<b>17.7</b>	<b>17.7</b>	<b>-</b>
<b>Oakland Geofill</b>						
Capital Outlay Support	2.5	-	2.5	2.5	2.5	-
Capital Outlay Construction	8.2	-	8.2	8.2	8.2	-
<b>Total</b>	<b>10.7</b>	<b>-</b>	<b>10.7</b>	<b>10.7</b>	<b>10.7</b>	<b>-</b>
<b>Pile Installation Demonstration Project</b>						
Capital Outlay Support	1.8	-	1.8	1.8	1.8	-
Capital Outlay Construction	9.2	(0.1)	9.2	9.3	9.3	-
<b>Total</b>	<b>11.0</b>	<b>(0.1)</b>	<b>11.0</b>	<b>11.1</b>	<b>11.1</b>	<b>-</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures

Through December 31, 2017 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2017)	Cost to Date (12/2017)	Cost Forecast (12/2017)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Stormwater Treatment Measures</b>						
Capital Outlay Support	6.0	2.2	8.2	8.2	8.2	-
Capital Outlay Construction	15.0	3.3	18.3	16.9	16.9	(1.4)
Total	21.0	5.5	26.5	25.1	25.1	(1.4)
<b>Right-of-Way and Environmental Mitigation</b>						
Capital Outlay Support	0.0	-	-	-	-	-
Capital Outlay & Right-of-Way	72.4	-	72.4	61.1	70.0	(2.4)
Total	72.4	-	72.4	61.1	70.0	(2.4)
<b>Sunk Cost - Existing East Span Retrofit</b>						
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	-
<b>Other Capital Outlay Support</b>						
Environmental Phase	97.7	0.1	97.8	97.8	97.8	-
Pre-Split Project Expenditures	44.9	-	44.9	44.9	44.9	-
Non-Project Specific Costs	20.0	(16.8)	3.2	3.2	3.2	-
Total	162.6	(16.7)	145.9	145.9	145.9	-
<b>Subtotal Capital Outlay Support</b>						
	959.3	390.1	1,349.4	1,325.8	1,367.1	17.7
<b>Subtotal Capital Outlay Construction</b>						
	4,492.2	685.5	5,177.7	5,029.5	5,175.1	(2.6)
<b>Other Budgeted Capital</b>						
	35.1	(32.8)	2.3	0.7	0.7	(1.6)
<b>Total SFOBB East Span Replacement Project</b>						
	5486.6	1,042.8	6,529.4	6,356.0	6,542.9	13.5

(<sup>1</sup>) Current contract allotment to install two submarine electrical cables is \$5.7 million. Additional non-program funding to support this allocation beyond the \$9.6 million of available programs funds has been made available by the Treasure Island Development Authority.

(<sup>2</sup>) Construction administration of the OTD Detour is under the YBITS#1 contract.

(<sup>3</sup>) Construction administration of the Cantilever segment is under the YBITS#2 contract.

(Due to the rounding of numbers, the totals above are shown within \$0.1).



**Pier E2 may be repurposed as a public access facility.**  
*Photo courtesy of Caltrans.*



## 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/AB1175 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 PROJECT COMPLETE BASELINE:** The planned completion date for the Regional Measure 1 Program or subordinate projects or contracts.

**CAPITAL OUTLAY SUPPORT (COS):** Cost of developing and administering a capital project.

**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.



*The information in this report is provided in accordance with California Government code Section 755. This document is one of a series of reports prepared for the Bay Area Toll Authority (BATA)/Metropolitan Transportation Commission (MTC) on the Toll Bridge Seismic Retrofit and Regional Measure 1 Programs.*

