San Francisco-Oakland Bay Bridge East Span Seismic Safety Project

Transportation Management Plan
For
WTI Phase I
YBI Viaduct Demolition and Replacement

California Department of Transportation
Presentation Outline

• Project Description
• Construction Activities
• Transportation Changes
• Transportation Management Plan (TMP) Strategies
• Post-Evaluation Study
Project Description
South-South Detours

SSD Required During Demo of Existing Structure and Construction of YBITS
West Tie-In Phase 1
West Tie-In Phase 1

Retrofit of YBI Viaduct Required for Structural Safety of SSD WTI-2

Retrofit is Essential Step for Overall Seismic Safety of East Span

California Department of Transportation
Existing YBI Viaduct Limits
YBI Viaduct Retrofit

• Retrofit by Replacement of Structure
• Design, Constructability, and Seismic Safety Advantages
• Construction Period
  – January to September 2007
  – FULL BRIDGE CLOSURE REQUIRED
    – LABOR DAY WEEKEND 2007
Local Traffic Changes on YBI

Beginning January 2007
YBI Ramp and Local Road Closures

**WB on ramp**
- Closed 1/12/2007
- Open 10/2007

**EB on ramp**
- Close 8/29/2007 (Two Days Before Full Bridge Closure)

**EB off ramp**
- Closed 1/25/2007
- Open 9/2013

**Southgate Rd**
- Closed 5/21/2007
- Open 10/2007

**WB off ramp connector to Hillcrest Rd / Southgate Rd**
- Closed 1/25/2007
- Open 9/2013
Local Traffic Detour
Westbound On Ramp
Local Traffic Detour
Eastbound Off Ramp
Local Traffic Detour
Westbound Off Ramp Connector to Hillcrest Road
Local Traffic Detour
Southgate Road
Local Traffic Detour
Eastbound On Ramp
Local Traffic Detour
Eastbound On Ramp (Continued)
Local Transit Changes

• MUNI 108 Bus
  – Continued service on West Span
  – New route
    • Use on/off ramps on west side of YBI
    • YBI via shuttle service (between Treasure Island Main Gate, Macalla Road, and USCG Station Gate)
Construction Activities

Demolition and Replacement
(Labor Day Weekend 2007)
81-HOUR FULL BRIDGE CLOSURE
FRI 8/31/07 8 PM to TUE 9/4/07 5 AM
Full Bridge Closure

- Close Bridge at 8 PM
- Open Bridge at 5 AM

Traffic Handling
- Friday: Viaduct Demolition
- Saturday: Lower Deck Clean-up
- Sunday: New Superstructure Installation
- Monday: Construction Staging
- Tuesday: Traffic Handling

California Department of Transportation
Existing Viaduct Dismantling Step 1

California Department of Transportation
Existing Viaduct Dismantling Step 6
Existing Viaduct Dismantling Step 7

California Department of Transportation

THE SAN FRANCISCO-OAKLAND BAY BRIDGE
SEISMIC SAFETY PROJECTS

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION
Existing Viaduct Dismantling Step 10

California Department of Transportation
Remaining Moving Apparatus Installation
New Viaduct Installation

California Department of Transportation
Joints Construction

California Department of Transportation

THE SAN FRANCISCO-OAKLAND BAY BRIDGE SEISMIC SAFETY PROJECTS

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION
Regional and Local Traffic Changes

FULL BRIDGE CLOSURE
Labor Day Weekend 2007
Regional Traffic Detours
Bay Area-wide Westbound Traffic Detours

North Detour

South Detour

Secondary South Detour
Regional Traffic Conditions
Regional Traffic Conditions

- Traffic diversion patterns observed in the eastbound direction during the Labor Day Weekend 2006 Bay Bridge eastbound closure, are expected to occur during the Labor Day Weekend 2007.
Flow Rates: NB 101 @ Golden Gate Bridge
Labor Day Weekend
Saturday 2005 vs 2006
Flow Rates: NB 101 @ Golden Gate Bridge
Labor Day Weekend
Sunday 2005 vs 2006

- **Sun-4-Sep-05**
- **Sun-3-Sep-06**

- EB Bay Bridge Closed

3 Lanes NB / 3 Lanes SB
4 Lanes NB / 2 Lanes SB
3 Lanes NB / 3 Lanes SB

5100 vph
3900 vph
Flow Rates: NB 101 @ Golden Gate Bridge
Labor Day Weekend
Monday 2005 vs 2006

EB Bay Bridge Closed

Mon-5-Sep-05  Mon-4-Sep-06

3900 vph
3200 vph
Flow Rates: EB 92 @ San Mateo-Hayward Bridge
Labor Day Weekend
Saturday 2005 vs 2006

EB Bay Bridge Closed

4300 vph

3000 vph
Flow Rates: EB 84 @ Dumbarton Bridge
Labor Day Weekend
Saturday 2005 vs 2006

CMS advises drivers to use SR-84
PCMS advises drivers to use SR-84

EB Bay Bridge Closed
North Detour Travel Time
Saturday 2005 vs. 2006

Max. delay: 50 min.

Change Golden Gate Bridge
lane configuration to 4 lanes NB / 2 lanes SB
North Detour Travel Time
Sunday 2005 vs. 2006

EB Bay Bridge Closed

Max. delay: 40 min.

3 Lanes NB / 3 Lanes SB
4 Lanes NB / 2 Lanes SB
3 Lanes NB / 3 Lanes SB

North Detour

Time
North Detour Travel Time
Monday 2005 vs. 2006

EB Bay Bridge Closed

No significant delay
South Detour Travel Time
Saturday 2005 vs. 2006

Max. delay: 46 min.

13:45

16:30

EB Bay Bridge Closed

South Detour

5-Sep-05  2-Sep-06

Max. delay: 46 min.
South Detour Travel Time
Sunday 2005 vs. 2006

Max. delay: 36 min.

EB Bay Bridge Closed

4-Sep-05  3-Sep-06

South Detour

Time

0:00  2:00  4:00  6:00  8:00  10:00  12:00  14:00  16:00  18:00  20:00  22:00  0:00
South Detour Travel Time
Monday 2005 vs. 2006

Max. delay: 12 min.
Maintaining YBI Access

• Between YBI and San Francisco via Bay Bridge West Span
• Between YBI and East Bay via San Francisco and Regional Traffic Detours or BART
Maintaining YBI Access

East Span Closed

West Span Open for YBI Residents and Weddings
Access through Sterling St on-ramp
Transbay Transit Changes

• Additional Services
  – BART and Ferry *(more information in the TMP Strategies – Demand Management section)*
  – MUNI 108 bus on regular weekday schedule, with YBI shuttle service

• Cancelled Services
  – AC Transit transbay trips
Transportation Management Plan (TMP) Strategies

FULL BRIDGE CLOSURE
Labor Day Weekend 2007
TMP Strategies

- Public Information
- Motorist Information
- Transportation Management
- Construction Strategies
- Demand Management
- Alternate Route Strategies
Public Information

• Outreach Sequence
  – Key Stakeholders
  – Elected Officials
  – Media
  – Public
Key Stakeholders Outreach

Beginning March 2007

• Key Stakeholders
  – County Transportation Authorities
  – City and County of San Francisco (CCSF)
  – City of Oakland
  – Treasure Island Development Authority (TIDA)
  – Cities of Hayward, Marin, Larkspur, San Rafael
  – Golden Gate Bridge
  – Major Professional Sport Teams
  – Oakland Art and Soul Festival
Elected Officials Outreach
Beginning April 2007

• Two Outreach Meetings
  – Invitations to the offices of Senators, all members of the Bay Area Congressional delegation, all Bay Area state Senators, all Assembly members from the Bay Area, Supervisors in all nine Bay Area counties, mayors in key Bay Area cities

• E-Alerts
The Bay Bridge Will Be Closed In Both Directions Over Labor Day Weekend!

**EXPECT REGIONAL TRAFFIC DELAYS**

Closures will affect traffic into and out of San Francisco and Oakland.

The entire Bay Bridge will be closed over Labor Day weekend 2007 in order to perform important seismic safety work on a section of the bridge slightly east of Yerba Buena Island.

We recognize that you may be planning ahead and would like to notify you about major work related to the Bay Bridge Seismic Safety Projects. This work will impact traffic coming into and going out of San Francisco and Oakland over the long weekend.

We will provide more details about the closure and other information within the coming months.

**HOW YOU CAN PLAN AHEAD**

- Avoid driving between San Francisco and the East Bay during Labor Day weekend.
- Allow extra time for travel.
- Use public transit.
- Use alternate bridges:
  - Golden Gate Bridge
  - Richmond-San Rafael Bridge
  - San Mateo-Hayward Bridge

**HOW WE ARE PLANNING**

We are coordinating with numerous public transit agencies, including Bay Area Rapid Transit (BART) and the San Francisco Municipal Railway (MUNI), as well as with local and regional bus and ferry service providers to plan scheduling and route changes. We are also actively exploring opportunities for augmenting service and providing as many transit alternatives as possible during the closure.

- BART will be running overnight service to select stations.
- Ferry service will be expanded on select routes.
- Treasure Island residents, employees, and visitors will be granted access to and from San Francisco by special permit.
- Transbay bus service will not be available.

**SOME PEOPLE HAVE ASKED, “WHY LABOR DAY WEEKEND?”**

Last year we were able to complete a complex phase of work during Labor Day weekend, while minimizing disruptions to motorists and the community.

This year, the work is even more challenging — requiring a closure of the bridge in both directions. We will use our experience from last year’s closure to perform this essential seismic safety work efficiently and with minimal inconvenience to the public.

**PUBLIC OUTREACH**

We will be making a concerted effort in the months ahead to keep the public informed about the upcoming bridge closure.

We will be reaching out to motorists, transit riders, holiday travelers, and affected residents and businesses through fact sheets, public service announcements, posters, banners, and signs. A telephone hotline number will be established during the closures. The media will also be kept up-to-date by phone, during and after the work.

As Labor Day weekend approaches, baybridgeinfo.org will provide important construction updates. 811 will be the official source for tip planning and traffic conditions.

**Stay Informed!**

Updated Closure Information available at:
www.baybridgeinfo.org
Be sure to sign up to receive our e-newsletter and alerts.

**CONTACT US**

Bay Bridge Public Information Office
311 Burma Road, Oakland, CA 94607
(510) 286-7112
info@baybridgeinfo.org

*California Department of Transportation*
Fact Sheet Sample (Continued)

THE YERBA BUENA ISLAND ROADWAY REPLACEMENT
A section of roadway—approximately the length of a football field—will be constructed on a movable support system south of the existing bridge. After the bridge has been closed to traffic in both directions, the existing portion of roadway will be demolished and the debris will be removed. Then tracks will be laid across the bridge’s lower deck and the new structure will be rolled into position. When the bridge reopens to traffic, motorists will probably not notice any visible difference. They will be driving on a retrofitted and upgraded section of roadway that will eventually connect the bridge’s new East Span, which is currently under construction, to the Yerba Buena Island Tunnel.

FULL BRIDGE CLOSURE
The bridge will be closed to traffic in both directions. The new section of roadway has been constructed south of the existing bridge.

EXISTING ROADWAY DEMOLITION
Demolition is completed on a 350-foot section of the bridge’s upper deck.

SPECIAL TRACKS ARE INSTALLED
Tracks are laid horizontally across the bridge’s lower deck, in alignment with tracks installed beneath the new roadway.

NEW ROADWAY INSTALLATION
The new roadway will be rolled into place along the tracks using a computer-controlled hydraulic system.

BRIDGE REOPENED TO TRAFFIC
The bridge will reopen to traffic after all of the work has been completed.

The Bay Bridge has served commuters for 70 years. A series of massive retrofit projects is now bringing it up to current earthquake standards.

We will be demolishing approximately 350 feet of the original westbound and upper deck roadway to the Yerba Buena Island Tunnel and installing a new, seismically upgraded structure. Both the upper and lower decks of the Bay Bridge will be closed to traffic during this work. This work is similar in many ways to the work that was successfully performed over Labor Day weekend 2006. However, this year, in addition to removing a section of the existing bridge, we will also be moving a new structure into place. All of this work must be completed before the bridge can reopen to traffic. When the bridge does reopen, most motorists will probably not notice any difference, but they will be driving on a new, seismically upgraded section of the bridge.

This work is part of the Bay Bridge Seismic Safety Projects to strengthen the bridge. Our website, www.baybridgeinfo.org, has a wealth of information about the Bay Bridge Seismic Safety Projects. Bookmark the site for traffic updates, photos, videos, and more! Be sure to sign up to receive our e-newsletter and alerts.

www.baybridgeinfo.org

Visit www.511.org or call 511 for transit planning.
Media Outreach
Beginning April 2007

• Media Outreach Sessions
  – San Francisco-Oakland Bay Area
  – Sacramento-San Joaquin Area
  – Southern California as requested

• Press Releases
  – Two weeks in advance
  – At completion of closure

• Public Information Officer Live Update
  – One week in advance
  – During Labor Day closure
  – After completion of closure
State-wide Public Outreach
Beginning April 2007

- Community Meetings
- Website
- Mailers and Flyers
- Banners
- Local Notification
- Telephone Hotline
- E-Alerts
- Public Service Announcements
- Out-of-Town Traveler Notification
- Transit Agency Coordination
- MTC 511 Coordination
- Information Letter to Caltrans Employees
- Coordination with Other Caltrans Districts
Community Meetings

- **Oakland / East Bay**
  - Chambers of Commerce
  - Event arenas
  - Emergency services
  - Hotel, Bar and Restaurant Associations
  - Port of Oakland
  - City of Oakland Event Planning Commission
  - Hospital HR

- **San Francisco**
  - Chambers of Commerce
  - Event arenas
  - Emergency services
  - Hotel, Bar and Restaurant Associations
  - SF Businesses at the Piers
  - SF Businesses
  - City of San Francisco Event Planning Commission
  - Hospital HR
Community Meetings

- **Airports**
  - Oakland International
  - San Francisco International
  - Mineta San Jose International
  - Sacramento International and Sonoma County

- **Treasure Island**
  - TIDA Board of Directors meetings
  - Monthly Treasure Island Community meetings
  - Monthly Job Corps

- **Key Businesses**
  - Genetech of South San Francisco
  - ATT & SBC
  - Charles Schwab
  - One Market
  - Equity Office
  - Boston Properties
  - Delivery, Mail, and Trucking Services
  - Other agencies as needed
THE BAY BRIDGE WILL BE CLOSED
LABOR DAY WEEKEND 2007
from 8:00 pm Friday evening, August 31 until 5:00 am Tuesday morning, September 4.

Welcome To The
San Francisco-Oakland Bay Bridge Seismic Safety Projects
This website is designed to offer a window into the historic work being done on the Bay Bridge— from the retrofitting of the original West Span, to the demolition and replacement of the West Approach, to the construction of the new Skyway and dramatic single tower Self-Anchored

Headlines

Full Bay Bridge Closure Labor Day Weekend 2007
The Bay Bridge will be closed 8:00PM Friday August 31st and will re-open Tuesday 5:00AM September
Mailers and Flyers

• Greater Emphasis on East Bay than in Previous Eastbound Only Closure

• Distribution to
  – Local / corridor businesses
  – Neighborhood newsletters and other publications
  – TIDA and Mayor’s Office staff
  – Residential neighbors, including Treasure Island / YBI residents
Mailers and Flyers

- Distribution to (Continued)
  - Taxis and shuttle services, airports, hotels, car rental agencies, visitor’s bureaus, the State Tourism Office, Chambers of Commerce and automobile associations
  - Hospitals, major employers, funeral homes, farmers markets, carpool centers, parking garages, shopping malls
Mailers and Flyers

• Distribution to (Continued)
  – Major regional and local entertainment and sports venues
  – Cities from San Luis Obispo to Sacramento in the target areas
  – Ferry, bus transit, and rail operators, transit centers, BART, the Water Transit Authority, and the San Francisco Metropolitan Transportation Agency
Mailers and Flyers

• Distribution to (Continued)
  – State and local offices of the California tourism agencies and convention bureaus
  – Approximately 5,000 organizations and private citizens on the Bay Bridge Public Information Office contact list
Transit Agency Coordination

- BART
- Muni
- AC Transit
- Caltrain
- Samtrans
- Golden Gate Transit
- Vallejo Ferry
- Alameda / Oakland Ferry
- Greyhound
- Amtrak
- Airport Shuttle Service
Motorist Information
Traveler Information

- Changeable Message Signs (CMS’s)
- Highway Advisory Radio (HAR)
  - Two weeks in advance
  - During full bridge closure: Real-time modification based on traffic conditions
Traveler Information

• 511 Services for Real-Time Traveler Information
• Updated Transit Information
Changeable Message Signs

• Regional Deployment
  – Fixed and portable CMS in San-Francisco-Oakland Bay Area (District 4) and neighboring Districts (1, 3, 5, 10)

• Local Deployment
  – Portable CMS on surface streets in various Cities
Highway Advisory Radio (HAR)

- 2 to 5 Mile Range
- 1-minute message
- Deployment in San-Francisco-Oakland Bay Area (District 4) and Neighboring Districts (1, 3, 10)
Transportation Management
Two Command Centers

- San Francisco SFgo Transportation Management Center
- SFOBB Command Center in Oakland
Command Center Staffing

- Caltrans
  - Executive Management
  - Transportation Management
  - Highway Operations
  - Construction
  - Public Information

- Police Departments

- Traffic Control Entities (CHP, SF Department of Parking & Traffic, City of Oakland, etc.)

- Emergency Services

- MTC / Bay Area Toll Authority (BATA)
Command Center Activities

• Real-time Traffic Detours Monitoring
• Near Real-time Traffic Impact Analysis
• Incident Monitoring
• Real-time Motorist Information
• Coordination & Information Exchange with Transportation Management Center (TMC)
• Daily Communication with Other Bridges on Detour Routes
Traffic Detours Monitoring Traffic Volumes (via Vehicle Detector Stations)

- **Eastbound**
  - NB US-101 just north of Golden Gate Bridge
  - NB US-101 just south of Sir Francis Drake Blvd off ramp
  - EB SR-92 just west of San Mateo-Hayward Bridge
  - EB SR-84 just west of Dumbarton Bridge

- **Westbound**
  - SB US-101 just north of Golden Gate Bridge
  - SB US-101 just south of Sir Francis Drake Blvd on ramp
  - WB SR-92 near San Mateo-Hayward Bridge toll plaza
  - WB SR-84 near Dumbarton Bridge toll plaza
Traffic Detours Monitoring
Travel Time (via 511)

• **Eastbound**
  – North detour: via NB US-101 @ Golden Gate Bridge toll plaza to EB I-580 to I-580/I-80 I/C
  – South detour: via SB US-101 @ I-280 I/C to EB SR-92 to NB I-880 to I-880/I-238 I/C

• **Westbound**
  – North detour: via NB I-580 @ I-80 I/C to WB I-580 to SB US-101 @ Golden Gate Bridge toll plaza
  – South detour: via SB I-880 @ I-238 I/C to WB SR-92 to NB US-101 @ I-280 I/C
Traffic Impact Analysis

• Based on detour routes monitoring results
  – Divert traffic from San Mateo-Hayward Bridge to Dumbarton Bridge
  – Advise EB SR-92 traffic to use alternate routes on surface streets
  – Advise NB US-101 traffic to use Bellam Blvd off ramp to EB I-580
Incident Monitoring

- During the full bridge closure, TMC will:
  - Review District-wide CHP / CAD incident logs
  - Identify logs for incidents along the mainline detour routes that are impacting traffic (stalls, accidents, debris, etc.)
  - Identify those that require action by Maintenance / field personnel
  - Coordinate and exchange information with the SFOBB Command Center and media
  - Activate / modify CMS / HAR messages
  - Use 511 to update motorists of traffic conditions
  - Issue Sigalerts as needed
Incident Management Tools

- Closed Circuit Television Cameras (CCTVs)
- Construction Zone Enhanced Enforcement Program (COZEEP)
- Caltrans Bridge Tow Truck Service
- Freeway Service Patrol (FSP)
- Local Traffic Control
Construction Strategies
Construction Strategies

- Experienced Contractors
- Construction Staging
- Continuous Construction Schedule Monitoring
- Command Center for Information Update

California Department of Transportation
Contingency Plan

- Additional Construction Equipment on Standby (Construction Contingency Plan)
- Emergency Public Information and Media Outreach Plan
- Emergency Transportation Response Plan
Demand Management
Additional BART Service

• Enhanced Daytime Service
  – During BART regular hours of operation
• All Night Service
  – During the hours when BART does not normally operate
    • Saturday 1 AM to 6 AM
    • Sunday 1 AM to 8 AM
    • Monday Holiday 1 AM to 6 AM
  – Hourly service to 14 stations
Additional Ferry Service

• Alameda-Oakland Ferry
  – Between Alameda, Oakland, and San Francisco

• Vallejo BayLink Ferry
  – Between Vallejo and San Francisco
  – Supplemental Vallejo Baylink 200 bus service
Additional Ferry Service

• Golden Gate Ferry
  – Between Larkspur and San Francisco
    • With added direct transit service (Route 42) between East Bay and the Golden Gate Larkspur Terminal
  – Between Sausalito and San Francisco
  – Between Larkspur and Sausalito
    • New direct ferry service
Alternate Route Strategies
Alternate Route Strategies

- Additional Temporary Traffic Capacity on Alternate Routes
- Additional Toll Collectors at Other Bridges
Temporary Additional Traffic Capacity

• SB I-880 / WB SR-92 Ramp
  – Add a lane on the ramp
  – Use inside shoulder for WB SR-92 through traffic
  – Close Hesperian Blvd off ramp
Post-Evaluation Study

- Summary of Changes to Scheduled Events
- Traffic Volumes
- Travel Time Delays
- Transit Ridership
- Operational Impacts Caused by Accidents
- Lessons Learned
Special Thanks

• Toll Bridge Program Oversight Committee
  – Will Kempton, Director, Caltrans
  – Andre Boutros, Acting Executive Director, California Transportation Commission
  – Steve Heminger, Executive Director, Metropolitan Transportation Commission/Bay Area Toll Authority

• Project Management Team
  – Tony Anziano, Toll Bridge Program Manager, Caltrans
  – Brian Maroney, Toll Bridge Program Deputy Manager, Caltrans
  – Stephen Maller, Deputy Director, California Transportation Commission
  – Andrew Fremier, Deputy Executive Director, Metropolitan Transportation Commission/Bay Area Toll Authority

• Caltrans Project Manager, Ken Terpstra