

# State Route 160 Antioch Bridge Seismic Retrofit Project



**Contractor's Outreach - February 11, 2010**

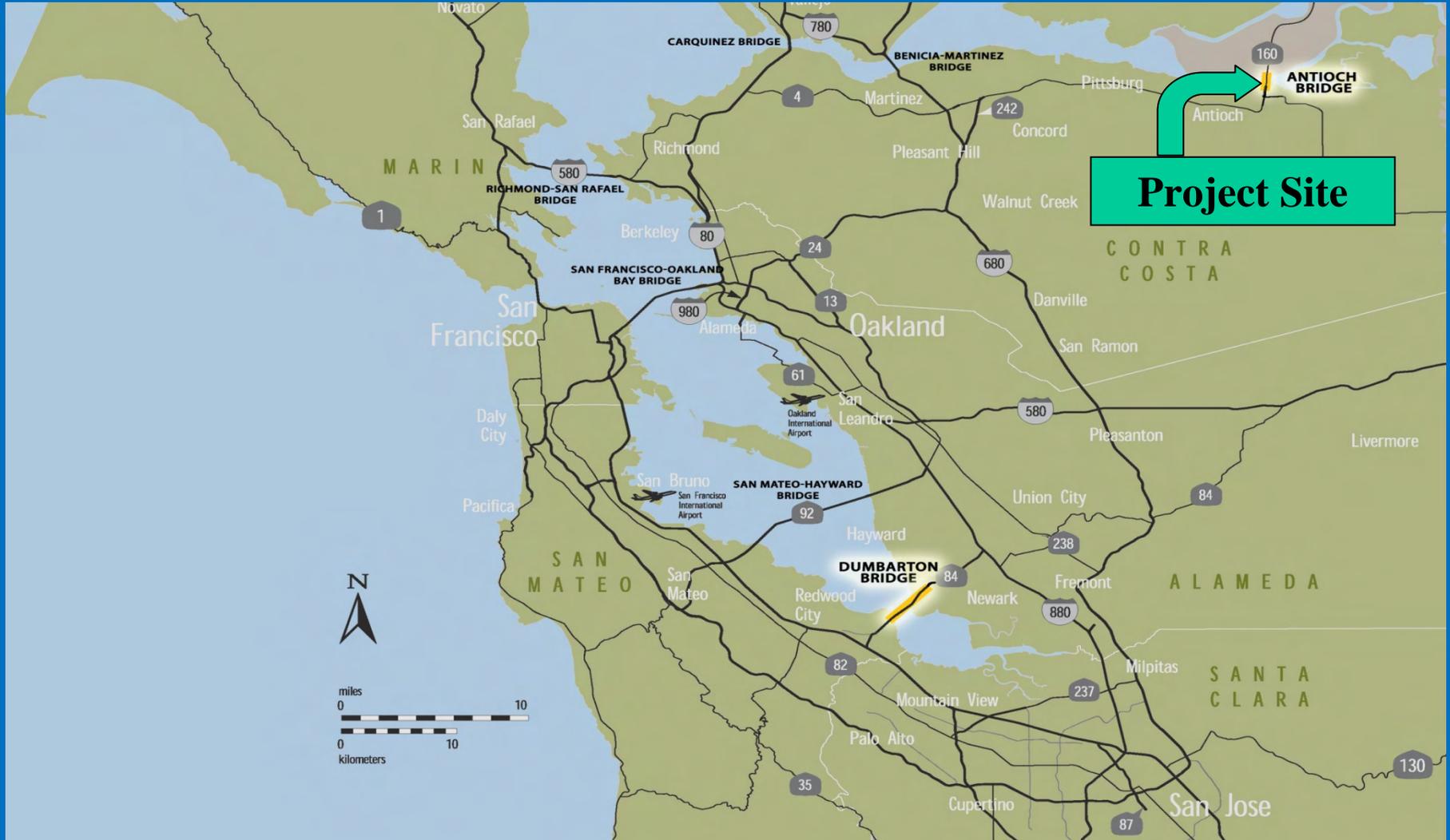
# State Route 160 Antioch Bridge Seismic Retrofit Project

## AGENDA

- Introduction
- Project Overviews
- Current Project Specifics
- Discussion

February 11, 2010

# Antioch Bridge Seismic Retrofit Project Location

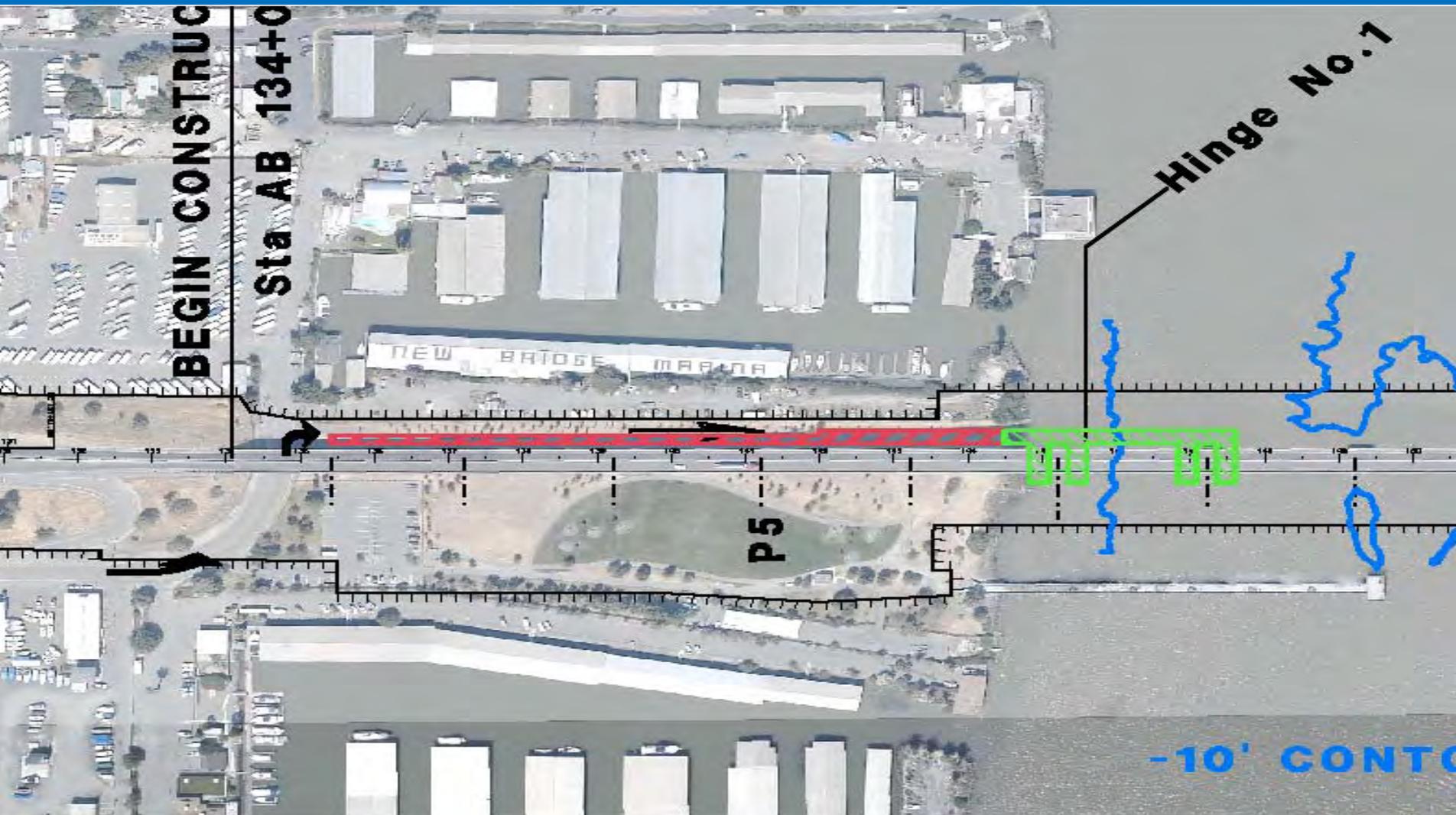


# Antioch Bridge Seismic Retrofit Project

- **LOCATION:** State Route 160 between Contra Costa and Sacramento counties
- **STRUCTURE:** Steel plate girder
- **LENGTH:** 1.8 miles
- **LANES:** 1 in each direction
- **ADT:** 15,000 (both directions)
- **VERTICAL CLEARANCE:** 135 feet
- **CHANNEL SPAN:** 460 feet
- **OPENED:** December 1978
- **SEISMIC:** Met seismic standard during design in mid 1970's



# Antioch Bridge Seismic Retrofit Project Temporary Access (Antioch)



# Antioch Bridge Seismic Retrofit Project Temporary Access (Sherman Island)

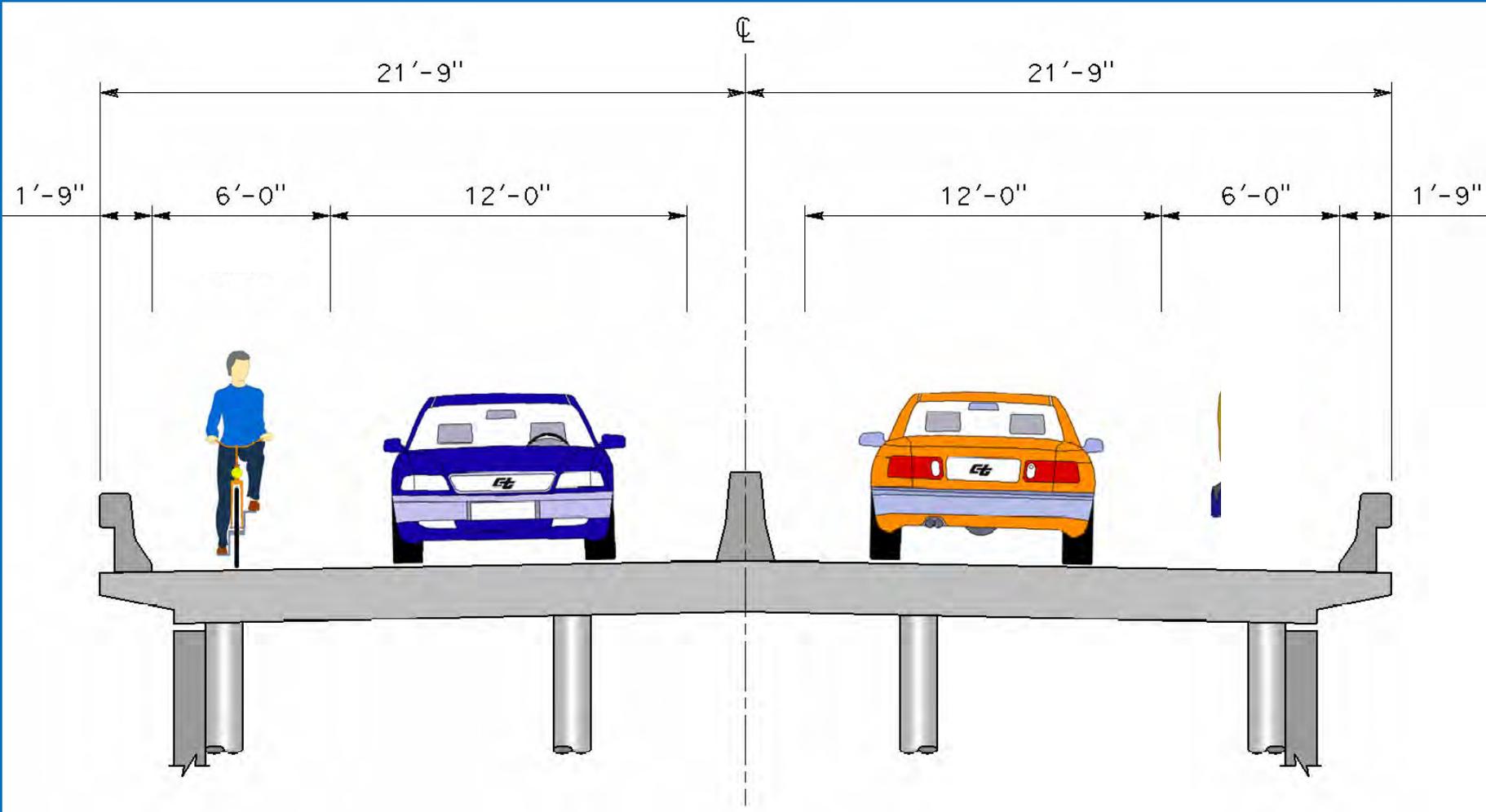


# Antioch Bridge Seismic Retrofit Project

## Current Configuration

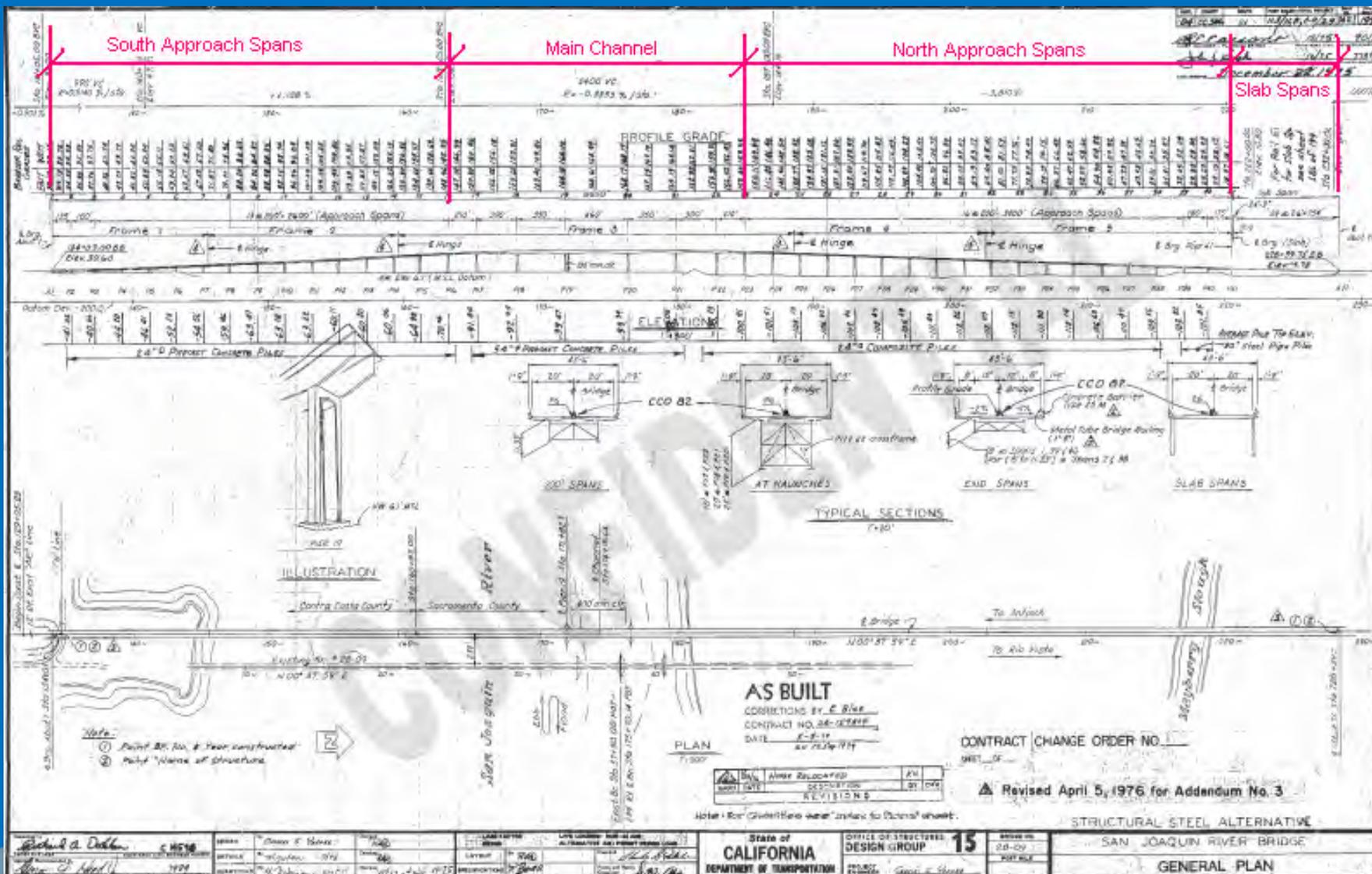
Westbound

Eastbound

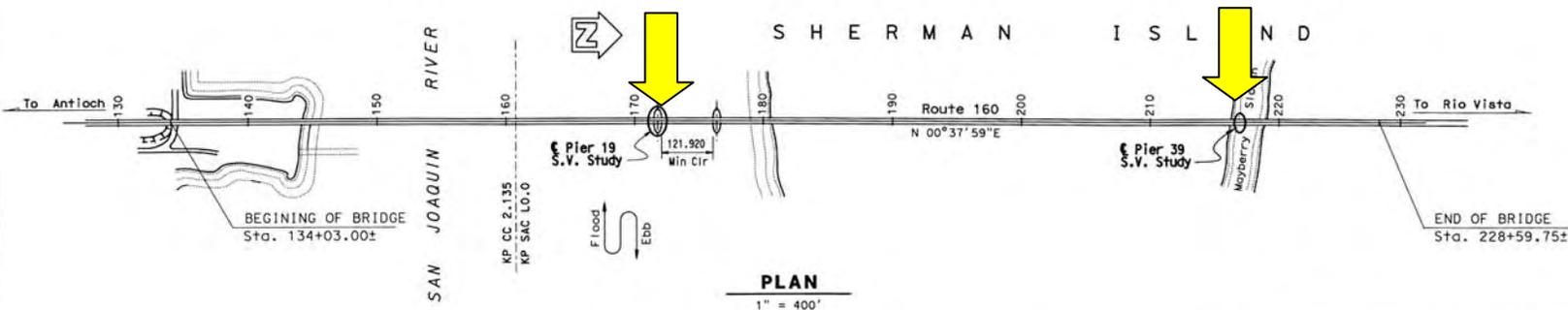
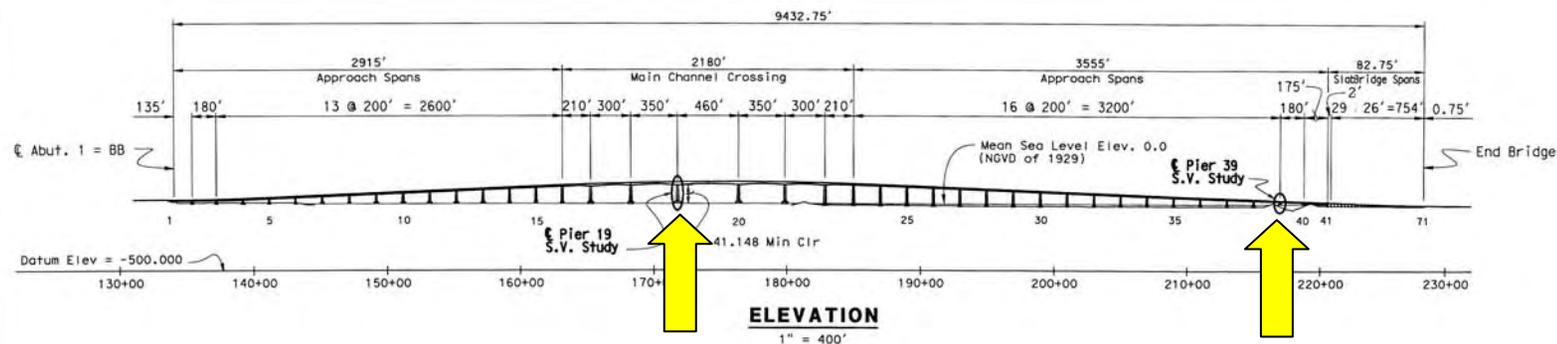


# Antioch Bridge Seismic Retrofit Project

## General Plan



# Antioch Bridge Seismic Retrofit Project



STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 1/1/99)	ORIGINAL SCALE 20 THICKS FOR REDUCED PLANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICE OFFICE OF EARTHQUAKE ENGINEERING	SEISMIC VULNERABILITY STUDY	
				ANTIOCH BRIDGE GENERAL PLAN	
BRIDGE NO. 28-0009			POST MILE 0.82		
DRAWING DATE (MM/DD/YYYY) 11/01/01			SHEET NO.		
DRAWING REVISIONS			REVISION NO. (MM/DD/YYYY)		
FILE # 00.00tenaccp01.dgn			DATE		



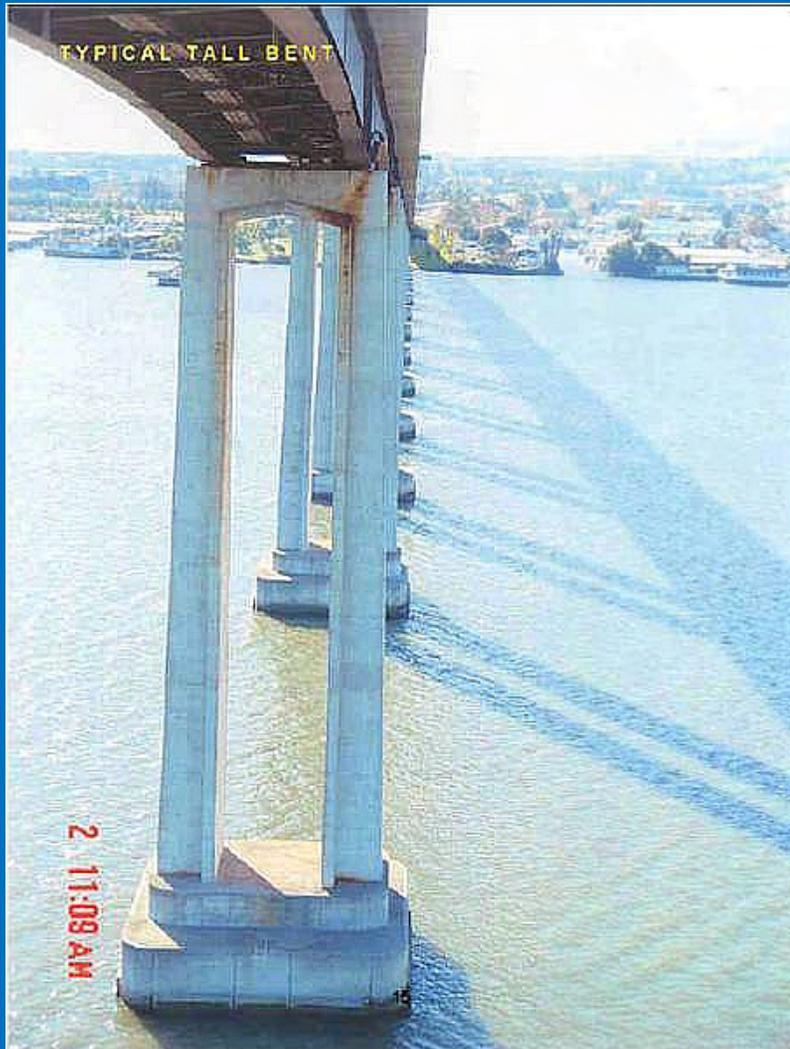
# Antioch Bridge Seismic Retrofit Project Approach Structure North Side



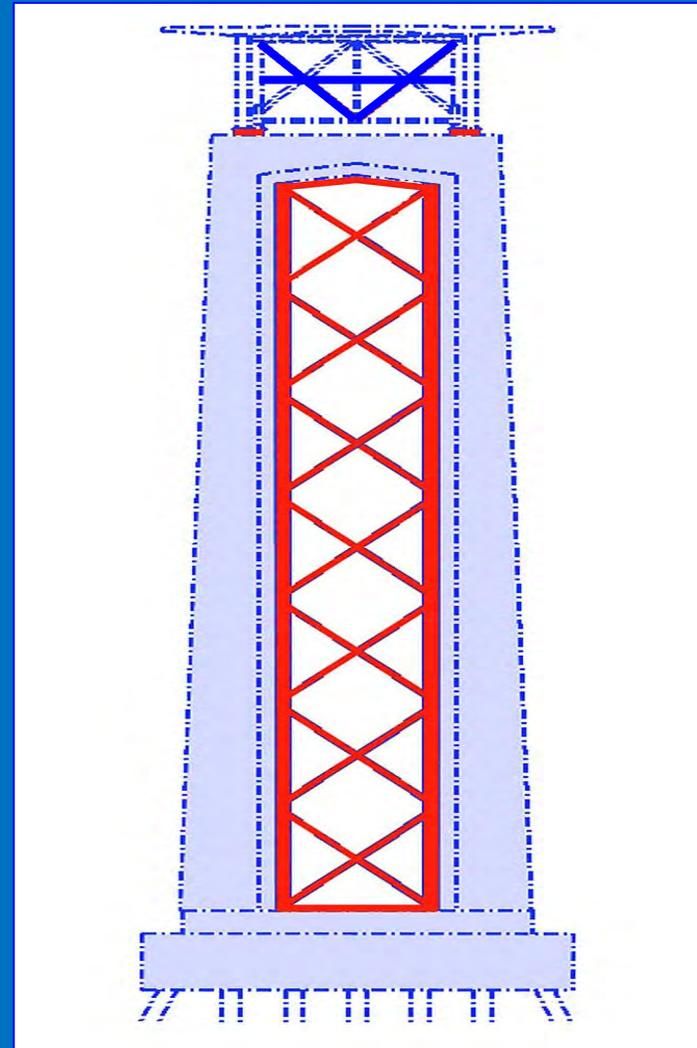
# Antioch Bridge Seismic Retrofit Project

## Tall Piers

Current



Future

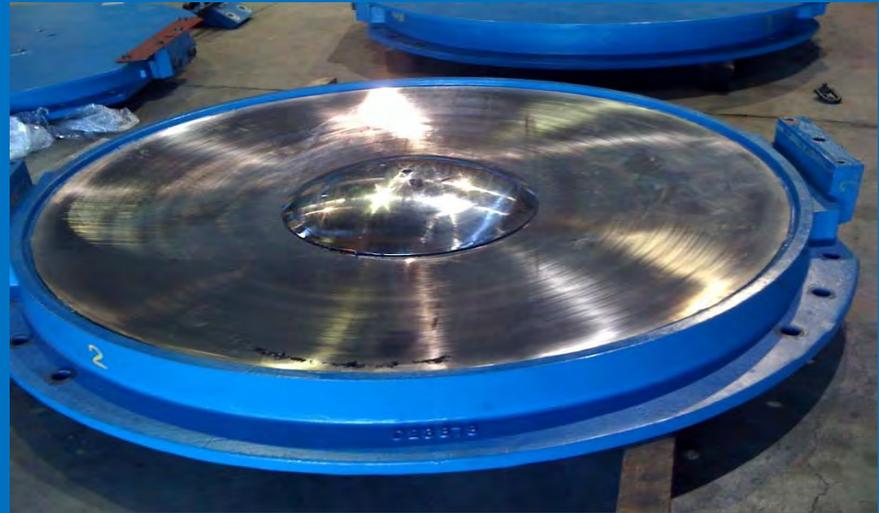


# Antioch Bridge Seismic Retrofit Project

## Cross Bracing



# Antioch Bridge Seismic Retrofit Project

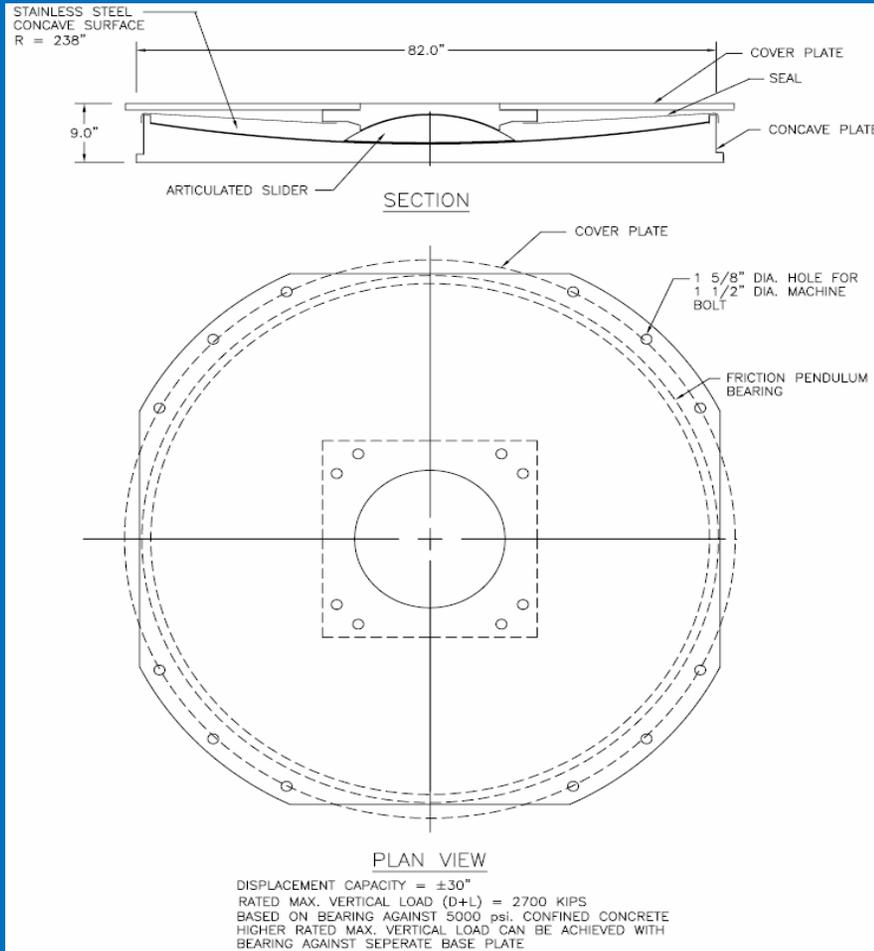


**Friction Pendulum Bearings**



# Antioch Bridge Seismic Retrofit Project

## Isolation Bearings

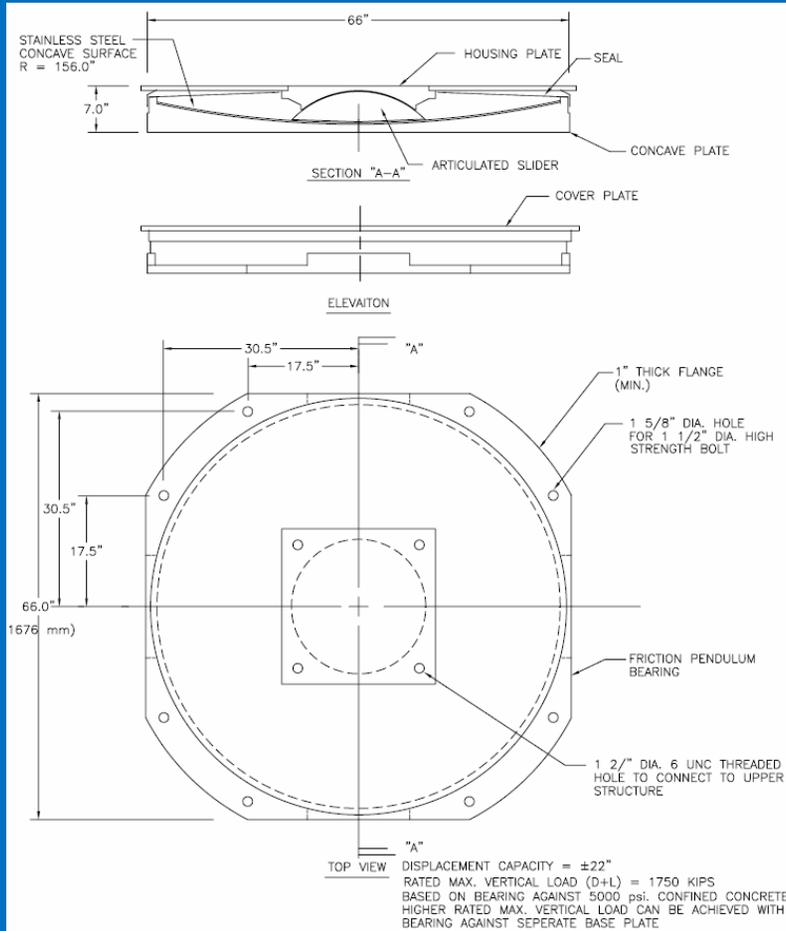


- Low Profile Friction Pendulum Isolation Bearing
- By Earthquake Protection System



# Antioch Bridge Seismic Retrofit Project

## Isolation Bearing



# Antioch Bridge Seismic Retrofit Project

## Project Schedule

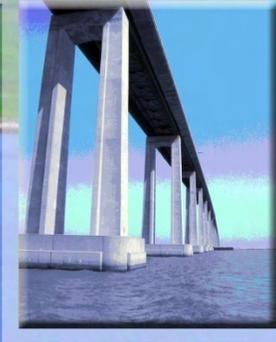
Milestone	Projected Completion Date
Advertise	December 2009
Bid Opening	March 2010
Award Contract	April 2010

## Trestle Retrofit

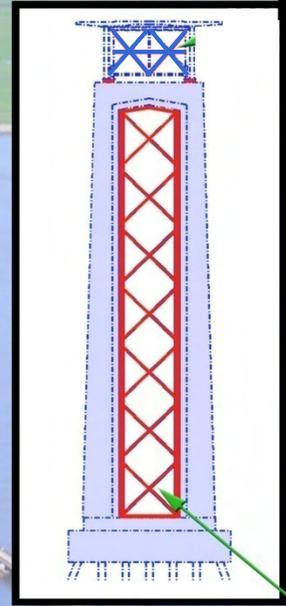


Remove existing concrete curtain walls to reduce seismic displacement

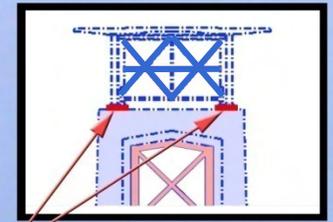
## Pier Retrofit



## Cross-Bracings

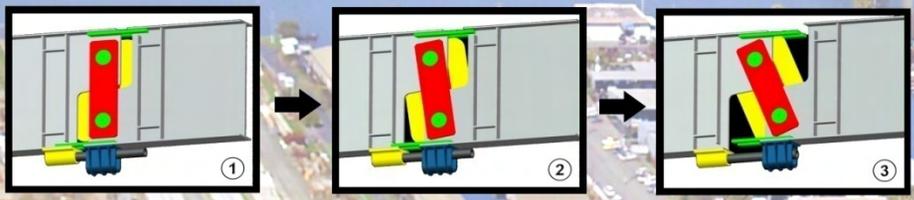


## Isolation Bearing

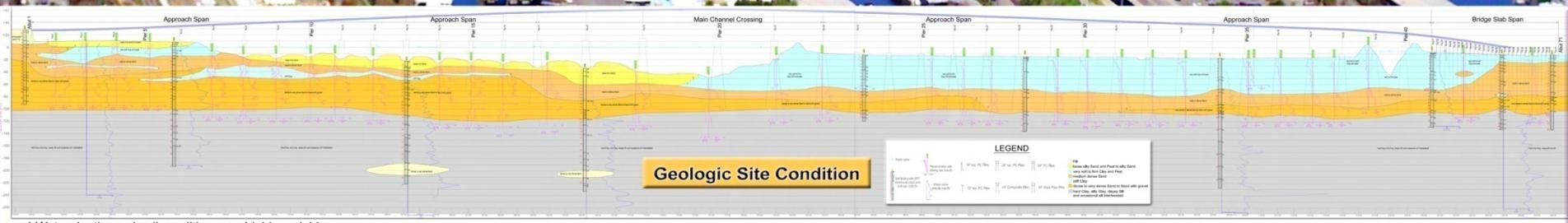


- Install Isolation Bearings to protect piers and foundations (all piers)
- Install Cross-bracings (tall piers)

## Hinge Retrofit



Add new seismic restraining device to protect pin and hanger systems



\*Water depths and soil conditions are highly variable.

# **Antioch Bridge Seismic Retrofit Project**

## **Environmental Outline**

- **Project Components**
- **Project Permits**
- **Regulated Species**
- **Work Windows**
- **Pre-construction Bird Exclusion**

# Environmental Permits

## **California Department of Fish and Game (CDFG)**

- **Lake and Streambed Alteration Agreement (1602)**
- **Incidental Take Permit (2081)**

## **United States Army Corps of Engineers (USACE)**

- **Clean Water Act Section 404 Permit (Nationwide Permit 3)**

## **Central Valley Regional Water Quality Control Board (RWQCB)**

- **Clean Water Act Section 401 Permit and Water Quality Certification**

## **United States Fish and Wildlife Service (USFWS)**

- **Biological Opinion/Incidental Take Statement**

## **National Marine Fisheries Service (NMFS)**

- **Biological Opinion/Incidental Take Statement**
- **Incidental Harassment Authorization**

Violation of permit/agreement could result in work stoppage



# Regulated Species

- **Giant Garter Snake**
- **Western Pond Turtle**
- **North Western Pond Turtle**
- **Delta Smelt**
- **Longfin Smelt**
- **Central Valley Steelhead**
- **Sacramento Splittail**
- **Sacramento Perch**
- **Sacramento River Winter Run Chinook Salmon**
- **Central Valley Spring Run Chinook Salmon**
- **Green Sturgeon**
- **Mason's Lilaeopsis**
- **Suisun Marsh Aster**
- **California Sea Lion**
- **Harbor Seal**
- **Bird species protected under MBTA and CA FGC including, but not limited to:**
  - **Burrowing Owl, Barn Owl, Cliff Swallow**

# Work Window

## Bird Nesting Season:

February 1 – August 31

## Sherman Island:

May 1 – September 30

- Includes vegetation removal
- Once access roads and staging areas in place, not subject to this restriction

## In-Water Work:

August 1 – October 31

- Applies to all in-water work associated with the installation and removal of the temporary trestle. Barge and boat traffic are exempt.

# Pre-Construction Bird Exclusion

**Bird exclusions being conducted by the Department at the following locations:**

- **Between Abutment No. 1 and Pier 9**
- **Between Pier 41 and Station 236+50.00**

**Materials will be removed or turned over to Contractor when awarded (Contractor's choice).**

**Contractor is responsible for Bird Management.**

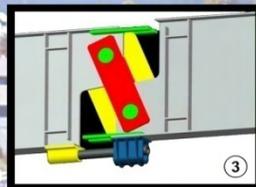
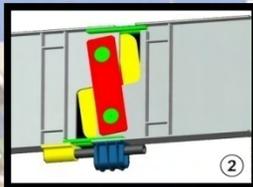
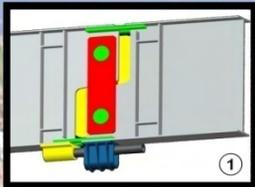
# Discussion

## Trestle Retrofit



Remove existing concrete curtain walls to reduce seismic displacement

## Hinge Retrofit

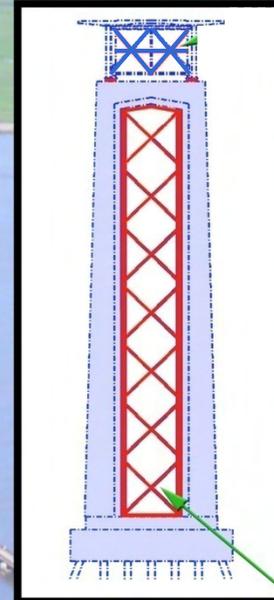


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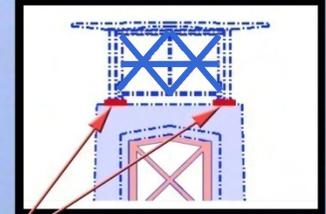
## Pier Retrofit



## Cross-Bracings

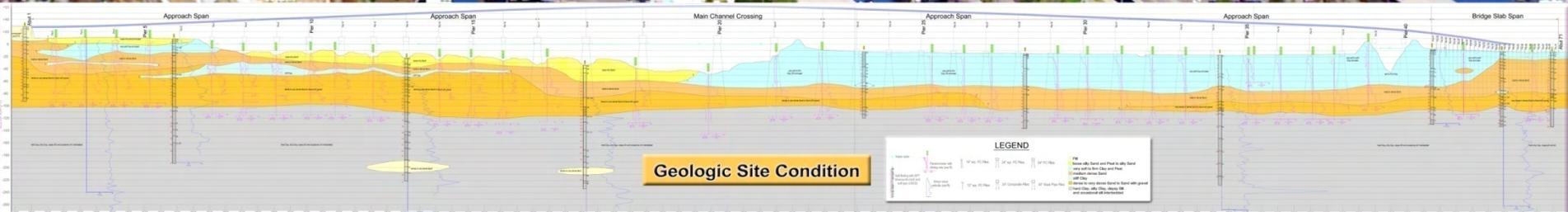


## Isolation Bearing



Install Isolation Bearings to protect piers and foundations (all piers)

Install Cross-bracings (tall piers)



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