

APPENDIX D

**State Route 37 Corridor Planning and  
Environmental Linkages Study  
Alternatives Identification Memorandum**

# Memorandum

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**Subject:** **STATE ROUTE 37 CORRIDOR PLANNING AND ENVIRONMENTAL LINKAGES STUDY  
ALTERNATIVES IDENTIFICATION**

This memorandum summarizes a part of the planning process led by California Department of Transportation (Caltrans) District 4 within the *State Route 37 Corridor Planning and Environmental Linkages Study* (SR 37 PEL Study).

This memorandum is intended to document how Caltrans' PEL Study Project Management Team (PEL Study Team) identified a slate of initial alignments to bring forward into the Level 1 screening process as prospective alternatives. This memorandum also builds on two previous memoranda associated with the SR 37 PEL Study: (1) Vision/Goals & Purpose and Need, and (2) Evaluation Criteria.

## Source Documents

In the years leading up to the 2021 initiation of the SR 37 PEL Study, Caltrans, along with several other regional agencies and organizations, published a range of studies and reports concerning the long-term viability of the State Route (SR) 37 corridor given the threat of sea-level rise (SLR). Long-term projections of SLR show significant portions of the corridor and surrounding area being permanently inundated within decades, thus rendering SR 37 impassable.

Some of the studies and reports covered the entirety of the SR 37 corridor (from U.S. Highway [US] 101 to Interstate [I]-80 in Vallejo), whereas others focused on either smaller portions of the corridor or on the consideration of other modal choices.

Table 1 lists and briefly summarizes the key findings of these studies.

**Table 1. SR 37 Corridor Studies Consulted**

Study/Report Name	Lead Agency	Month/Year Published	Major Findings/Recommendations relevant to SR 37 PEL Study
Transportation Concept Report	Caltrans District 4	January 2015	Identified conceptual alternatives for the entire SR 37 corridor, focusing on elevating the roadway between US 101 and Mare Island
SR 37 Corridor Financial Opportunities Analysis Final Report	Project Finance Advisory Ltd., on behalf of SR 37 PLT, ESC, and Policy Committee	November 2017	Examined the costs of prospective causeway and embankment options as well as the potential for tolling to create a revenue stream
SR 37 Transportation and Sea Level Rise Corridor Improvement Plan	MTC-led consortium of regional agencies; Caltrans District 4	February 2018	Examined major concepts: accommodating, protecting, and retreating from expected sea level rise
The Grand Bayway Design Roadmap	Common Ground	May 2018	Considered several modal alternatives and recommended that the existing SR 37 be replaced by a scenic causeway elevated on columns 20 feet high as well as enhanced public access into natural area.
SR 37 Alternatives Assessment Report for the Ultimate Project	MTC	April 2019	Proposed five alternatives, including retreat alignments to north and causeway options along existing SR 37 corridor.
Passenger Rail Service Novato to Suisun City	SMART	May 2019	Examined feasibility of rail upgrades and improvements needed to enable SMART to institute passenger service along its owned railroad tracks to Suisun City (Capitol Corridor connection)
SR 37 Corridor Adaptation Study	Transportation Authority of Marin/Marin County	February 2020	Examined conceptual strategies to increase the resiliency of the SR 37 corridor between US 101 and the Petaluma River (Sonoma County line)
SR 37 Project Study Report-Project Development Support	Caltrans District 4	June 2021	Identified a mix of alternatives and conceptual alignment options both within and retreating from the SR 37 corridor.
SR 37 DAA	MTC	Expected spring 2022	Building on 2019 Alternatives Assessment Report, the DAA more closely examines prospective on- and off-corridor alternatives between US 101 and Mare Island.

Caltrans = California Department of Transportation; DAA = Design Alternatives Assessment; MTC = Metropolitan Transportation Commission; SMART = Sonoma-Marin Area Rail Transit; SR = State Route; US = U.S. Highway

## 1. Initial Alignments and Modes

### 1. Terminology

In the planning context, the terms “alignment” and “alternatives” are related but not interchangeable. For the purposes of the PEL Study, the PEL Study Team is adapting the definitions used in the 2022 Design Alternatives Analysis (DAA).

An *alignment* is a line on a map, which may or may not follow an existing transportation corridor. An alignment is one-dimensional, considering only the general location on the map, it does not include any consideration of roadway width, the composition of the roadway prism, the profile of the roadway (in other words, its relationship to the existing grade of the earth), or any other such details.

An *alternative* consists of an *alignment*, **plus** the following:

- Cross-section (the width of the transportation corridor made up of a combination of number of general purpose or high-occupancy vehicle lanes, transit-only lanes, shoulders, barriers, and pedestrian and bike pathway)
- Profile (e.g., causeway or bridge, embankment, retained fill, at grade)
- Connection points with adjoining roadways or access points (e.g., interchange, intersection)

An alternative may also include other components, such as a rail corridor or dedicated bus lane, detail on shoulder use (e.g., peak period use of shoulders) public access details, and any project features that help avoid or reduce environmental impacts.

As is discussed further in the Level 1 Screening Memo, the PEL Study Team opted to conduct the Level 1 evaluation with alignments. The Level 1 evaluation criteria are focused on measuring whether alignments could meet project Purpose and Need. On careful review, the PEL Study Team confirmed that there was ample information available at the *alignment* stage to inform the Level 1 evaluation. The PEL Study Team further noted that Level 2 and Level 3 screening would be conducted with *alternatives*. Following Level 1 Screening, the alignments carried forward would be developed into full alternatives, allowing Level 2 and Level 3 screening to be conducted with alternatives. Please refer to the three subsequent memoranda which detail Level 1, 2, and 3 screening efforts respectively.

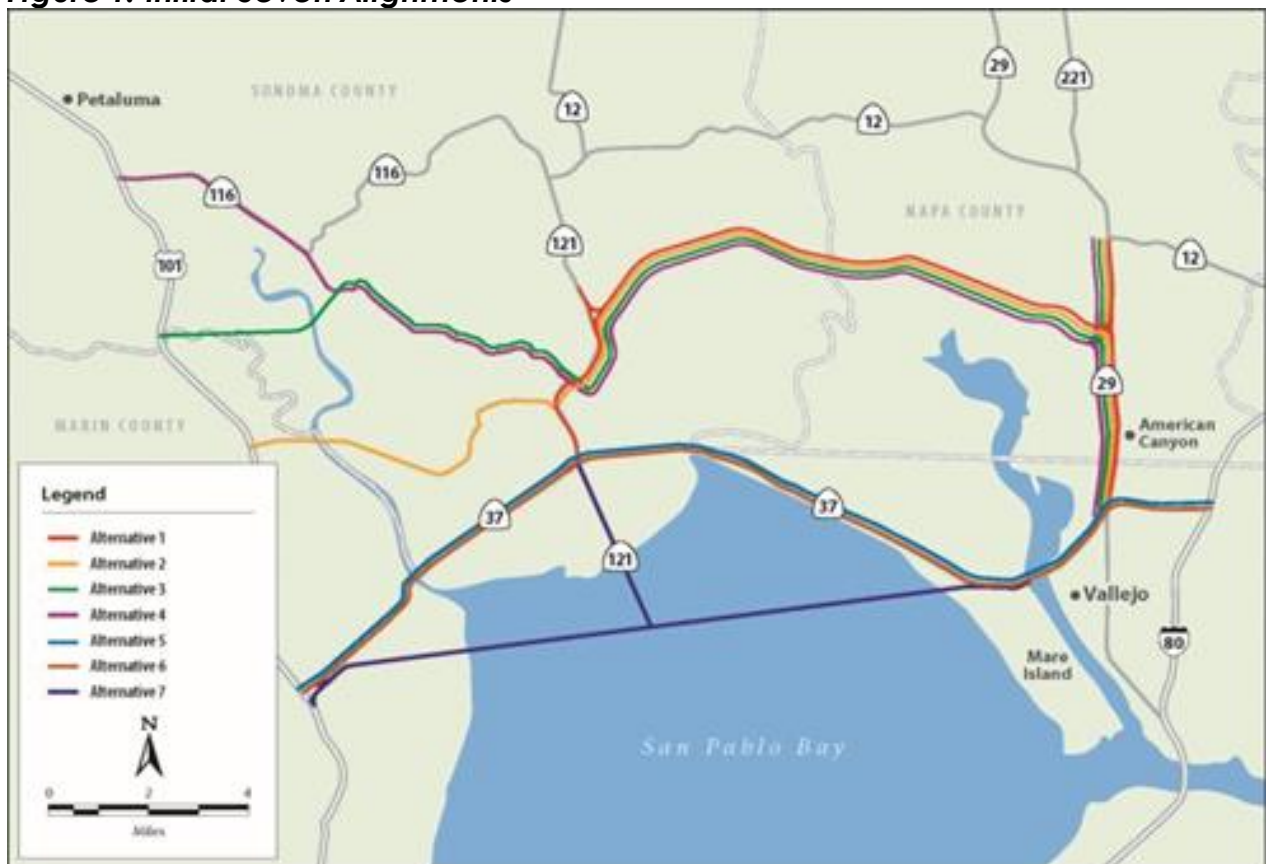
## 2. Initial Alignments

As shown in Table 1, the studies and reports considered a variety of proposed new alignments and conceptual alternatives both within and outside the existing SR 37 corridor.

The PEL Study team identified a number of commonalities among these new alignments and conceptual alternatives.

Accordingly, following the finalization of project purpose and need and the identification of initial evaluation criteria, the PEL Study Team drew from these previous studies and reports to compile an initial list of *alignments* to carry forward for consideration as prospective alternatives. Figure 1 shows these initial seven alignments. Table 2 lists details on each of the initial seven alignments.

**Figure 1. Initial Seven Alignments**



**Table 2. Description of Initial Alignments**

<b>Alignment #</b>	<b>Description (West to East)</b>
1	This alignment would follow the existing SR 37 corridor from US 101 to SR 121, then turn north along SR 121 for about 3 miles, then would turn east on new roadway that would generally parallel SMART-owned railroad until reaching SR 29 in American Canyon.
2	This alignment would begin along US 101 north of the current SR 37 interchange and continue east onto a new 4.5-mile-long bridge that would cross over marshland, the Petaluma River, and agricultural fields before intersecting Lakeville Highway. The roadway would continue east at grade tracing an existing private road for 2.5 miles until reaching SR 121, where it would continue east on a new roadway paralleling SMART-owned railroad to meet SR 29 (similar to Alignment 1).
3	This alignment would begin along US 101 near San Antonio Creek and continue east onto a new 3.3-mile-long bridge that would cross over marshland, the Petaluma River, and agricultural fields before intersecting Lakeville Highway. The roadway would continue east at grade tracing an existing private road for 6.3 miles until reaching SR 121; from SR 121 it would follow the same route east as Alignments 1 and 2.
4	The alignment would begin at the US 101/SR 116 interchange in Petaluma and follow existing SR 116/Lakeville Highway eastward for 5.2 miles, passing Stage Gulch Road, and then from this point continue east along the same path as Alignments 1, 2, and 3.
5	This alignment would follow the existing SR 37, but assumes the road would be reconstructed near the existing alignment on either an embankment fill, an elevated structure, or a combination of both (hybrid). Reconstruction would include bridge replacements and intersection/interchange modifications.
6	This alignment would also follow the existing SR 37 and utilize the existing roadway; the road would be protected in place by a new or enhanced levee system (with some floodgates). This alignment assumes the completion of other proposed corridor projects that would provide two general purpose lanes in each direction for the full length of the corridor.
7	This alignment would follow a new west-east elevated structure beginning at the US 101/SR 37 interchange in Marin County, continuing east over existing marshland and the San Pablo Bay and connecting directly to the Napa River Bridge west approach. A second, intersecting elevated structure would extend SR 121 from its current terminus near Sears Point about 3 miles south over land and water to connect via interchange over San Pablo Bay.

SMART = Sonoma-Marín Area Rail Transit; SR = State Route; US = U.S. Highway

### **3. Modes**

Even with the above-noted decision to focus the Level 1 evaluation at the alignment level, the PEL Study Team sought to include consideration of modal choices to further help assure that resultant alternatives would meet project Purpose and Need.

From a variety of sources, including feedback from ongoing stakeholder and public outreach efforts, the PEL Study Team developed a menu of potential additional modal choices beyond conventional roads, which could be incorporated into one or more of the various alignments as alternatives.

The PEL Study Team further stipulated that based on Caltrans policies, any entirely new or substantially upgraded alignment would incorporate safe pedestrian and bicycle facilities. These would be incorporated either as part of the corridor (e.g., barrier-protected bicycle lane) or near but off-corridor (e.g., Class I bicycle path). The PEL Study Team acknowledged that the existing SR 37 corridor did not serve pedestrian or bicycle users, but that any major investment in the corridor would include means for safe pedestrian and bicycle use. The PEL Study Team further acknowledged that the substantial geographic distance between Novato and Vallejo did not lend itself to a reasonable expectation that pedestrian or bicycle facilities could substantially reduce automotive use, but noted that pedestrian and bicycle use offered other important values (mainly recreational opportunities).

Given the policy to include safe pedestrian and bicycle facilities as part of any major new investment, for the purposes of this Level 1 evaluation, other modes were examined with a focus on those considered to have potential to increase person-throughput or reduce vehicle miles traveled across the corridor. The PEL Study Team thus sought input from the Technical Working Groups (TWG) on which modes appeared most promising for incorporation into alternatives. This “menu” of modes is shown in Figure 2 and detailed below. In addition to the “menu” of modal infrastructure, the PEL Study Team noted that tolling could be an element of an alternative.

**Figure 2. Modal “Menu”**



- *Floating bridge*  
Given the expectation of SLR in the area, the idea of a floating bridge was suggested that could potentially adapt to changing sea level.
- *Ferries*  
Some TWG participants noted the existing ferry terminal in Vallejo and ferry use elsewhere in the Bay Area and suggested that ferries be considered a potential option.
- *Passenger rail*  
Sonoma-Marín Area Rail Transit (SMART), which currently operates along the US 101 corridor, also owns track that parallels SR 37 and SR 121 and that reaches Napa County. As part of its long-range planning, SMART has envisioned running passenger service along these tracks, extending tracks and service to Suisun City, where it could connect to existing Capitol Corridor (Amtrak) tracks.
- *Auto train*  
With an eye towards a possible future in which regional travel habits could be quite different from those of the past century, a participant suggested a primarily rail-based solution across San Pablo Bay. Similar in concept to Amtrak’s auto train service on the east coast and similar



services in Europe, drivers would drive their vehicles onto frequently running trains, that would cross San Pablo Bay, where drivers would exit and continue motoring to their destinations.

- *Bus*  
While Caltrans is not a transit operator and no regular commute buses serve the SR 37 corridor, the PEL Study Team sought feedback on the inclusion of bus-preferential lanes (including bus rapid-transit-style bus-only lanes and preferential use of shoulders).
- *Tunnel*  
Though acknowledged to be costly to construct, a tunnel option was suggested as a mode that is expected to be resilient in the event of SLR.

## **2. Technical Working Group Review of and Feedback on Initial Alignments and Modal Choices**

The PEL Study Team has sought to make the three TWGs very hands-on and engaged with Caltrans in the PEL Study process. Just as the PEL Study Team presented the draft evaluation criteria to the TWGs with the intent of seeking important feedback to integrate, the PEL Study Team sought to do the same with the initial alignments.

To this end, the PEL Study Team presented the seven initial alignments (Figure 1 and Table 2) as well as a menu of mode choices (Section 2.2, *Modes*) to the working groups in a number of meetings:

- Design, Environmental, and Traffic TWG meetings—December 2021
- Stakeholder Working Group (SWG) meeting—December 2021

### **1. Alignments**

Overall, TWG and SWG feedback on the proposed range of alignments was generally positive.

This positivity may stem in some part from the fact that the alignments were drawn from several recent corridor studies (Table 1). No TWG or SWG member stated in December 2021 that any of these alignments were unworthy of consideration.

However, some TWG members, particularly in the Design TWG, asked whether another alignment should be added. Referring to the SLR forecasts prepared by the San Francisco Bay Conservation and Development Commission in its online *Adapting to Rising Tides Bay Shoreline Flood Explorer*, it was observed that all of

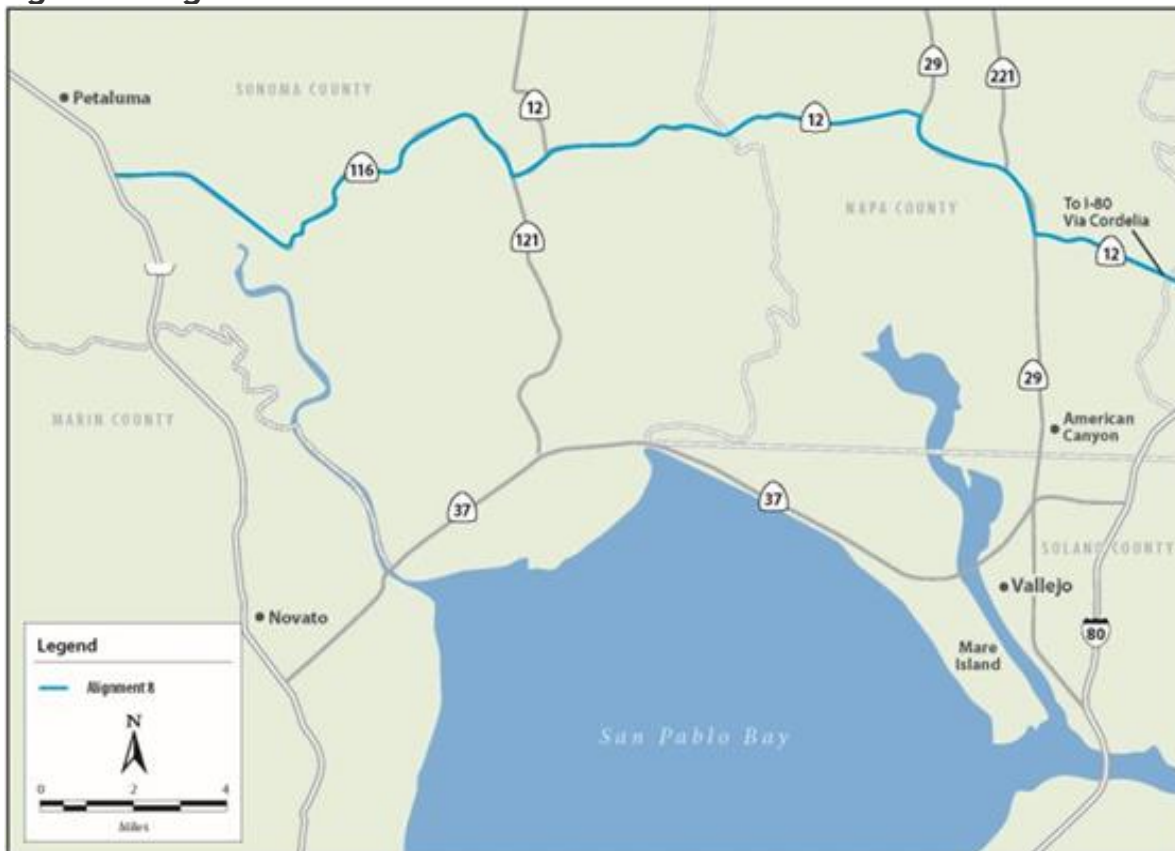
the proposed seven alignments were at least partially within an area expected to be inundated by SLR of 8 to 10 feet. However, it was further observed that the existing SR 116/12 (which runs from Petaluma on the west to SR 29 and Cordelia Junction on the east) would be outside the expected inundation area.

Accordingly, TWG members suggested that this corridor be included in the PEL Study as a further northern retreat option. TWG members noted this alignment would be worthy of study for two reasons:

1. It would fully follow an existing transportation corridor, in contrast to several alignments (1, 2, 3, 4, and 7) that would be constructed in full or in part where no transportation corridor currently exists.
2. It would be located entirely outside of the current limit of the San Pablo Bay wetlands and is outside the area expected to be inundated by rising sea levels.

The PEL Study Team welcomed this feedback and duly added new Alignment 8, as shown in Figure 3 and described in Table 3.

**Figure 3. Alignment 8**



**Table 3. Alignment 8 Description**

Alignment #	Description (West to East)
8	From Petaluma, the alignment would use existing SR 116 east (Lakeville Highway/Stage Gulch Road/Arnold Drive); to Schellville on SR 121 east, and join SR 12 (Carneros Highway/Sonoma Highway) and continue east to I-80 at Cordelia Junction

I = Interstate; SR = State Route

## 2. Modal Choices

Feedback regarding prospective modal choices was somewhat more limited. Working Group members emphasized the need for alternatives to automobile travel, yet some expressed concern about the potential for tolling to disproportionately affect lower-income people in the area, many of whom rely on SR 37 to connect to employment. The PEL Study Team also reminded the Working Group members that the intent was to consider different modal choices in the formulation of alternatives, which would follow the Level 1 screening of alignments.

In the meantime, the PEL Study Team confirmed that it would continue to engage the TWGs and SWG in considering the alignments through the Level 1 evaluation criteria.

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