DESIGN ALTERNATIVES ASSESSMENT AND SUPPORT FOR

STATE ROUTE 37 (SR 37)
ULTIMATE SEA LEVEL RISE
RESILIENT CORRIDOR

(US 101 TO SR 121)

January 2022 | POLICY COMMITTEE MEETING
AGENDA

01 Range of Alternatives Evaluated

02 Assessment Overview

03 Draft Assessment & SWG by Alternative
West Reach US 101 to SR 121
- On – SR 37 Alternative A1A - Hybrid
- On – SR 37 Alternative A1B - Causeway
- Over-Bay Alternative A2
- Bahia/Atherton Alternative A3
- Burdell/Hog Island Alternative A4

Central Reach SR 121 to Mare Island
- On – SR 37 Alternative B1A - Hybrid
- On – SR 37 Alternative B1B - Causeway
- Over-Bay Alternative B2
### Overview of Description Elements

<table>
<thead>
<tr>
<th>Overview of Description Elements</th>
<th>West Reach: US 101 to SR 121 (West Reach)</th>
<th>SR 121 to Mare Island (Central Reach)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative A1A On-SR 37 - Embankment</td>
<td>Alternative B1A On-SR 37 - Embankment</td>
</tr>
<tr>
<td>Acres of new right-of-way needed</td>
<td>23</td>
<td>54</td>
</tr>
<tr>
<td>Total Length in miles (From US 101 to SR 121)</td>
<td>7.4</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>9.5</td>
</tr>
<tr>
<td>Length in miles of Causeway</td>
<td>1.9</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>5.9</td>
<td>3.3</td>
</tr>
<tr>
<td>Length in miles of Embankment</td>
<td>4.1</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Length in miles of At-grade</td>
<td>1.5</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Assumptions**

- 1 General-Purpose lane and 1 HOV lane in either direction – approx. 100-foot cross section.
- Assume existing SR 37 infrastructure remains for some unspecified period, but old bridges are replaced if new alternative is using the right-of-way (A1A, A1B, etc.).
- Rail can be accommodated in all alternatives, may or may not be relocated

**Short-term - Cannot Land-Lock Lands:**

Property rights are protected through Common Law, state law, and the Constitution. State and federal laws protect the productive use of property – removing a roadway would render access to be restricted from continued use of the land. In other words, property cannot not be rendered idle due to lack of access.

**Long-term** – inundation may render adjacent land uses obsolete.
## METHODOLOGY OVERVIEW – Example of Metric / Measurements

<table>
<thead>
<tr>
<th>Theme Category/ Criteria Subject</th>
<th>US 101 to SR 121 (West Reach)</th>
<th>SR 121 to Mare Island (Center Reach)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Built Environment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Noise/Vibration (Built Environment)</strong> BE1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Receptors within 500 feet of Alignment</td>
<td>Approx. 40</td>
<td>Approx. 40</td>
</tr>
<tr>
<td>Distance to closest sensitive receptor (feet)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Likely Extent of Pile Driving for causeway (miles)</td>
<td>1.5</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Visual (Built Environment)</strong> BE2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caltrans’ Questionnaire to Determine level of Visual Impact Assessment</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td><strong>Hazardous Materials (Built Environment)</strong> BE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of open sites within or immediately adjacent to the footprint</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Conversion of Land use (Built Environment)</strong> BE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acres of Converted Land Use to Transportation Use</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td># of Parcels with a Portion Converted to Transportation Use</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td><strong>Community Compatibility (Built Environment)</strong> BE5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Residential Parcels Affected</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
This is not meant to be read in detail.

The color-coded ratings are intended to provide a transparent tool to identifying where alternatives perform similarly, and where there are trade-offs.

This is a planning level evaluation. Are there differentiators at-a-glance?

Is there enough information to narrow the range of alternative to carry forward?
## DRAFT ASSESSMENT - ON SR 37 – HYBRID ALTERNATIVE

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Big Advantages</th>
<th>Substantial Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALTERNATIVE A1A (COMPAARED WITH OTHER WEST REACH ALTS)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On SR 37 - Alternative A1A - Hybrid</td>
<td>- Low acres of right-of-way needed (23 ac)</td>
<td>- Performs poorly for most natural resources in the long term</td>
</tr>
<tr>
<td></td>
<td>- Performs relatively well for natural resources in the near term</td>
<td>- Worst emissions during construction (DSCM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Potentially detrimental to cultural resources</td>
</tr>
</tbody>
</table>

### SWG Input Received for A1A:
- Surprised by
  - Poor performance for most natural resources in the long term
  - Worst emissions during construction
- Likely to result in significant environmental impacts, high mitigation requirements, and constructability challenges
- Requires *enormous amounts of clean fill* to build
- Berms affect the migration of tidal wetlands northward across the SR-37 alignment
- Potential impacts of deep soil mixing on groundwater and sediment transport
- Costs associated with deep soil mixing anticipated to be high

* DSCM: Deep-soil cement mixing
DRAFT ASSESSMENT - ON SR 37 – CAUSEWAY ALTERNATIVE

<table>
<thead>
<tr>
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<th>Big Advantages</th>
<th>Substantial Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>On – SR 37 Alternative A1B - Causeway</td>
<td>Lowest acres of new right-of-way needed (9 ac) - Performs best on transportation-related (access) - Performs best for natural resources</td>
<td>30 Percent higher cost than least costly alternative</td>
</tr>
</tbody>
</table>

SWG Input Received for A1B:
- Surprised by
  - A1B performed so well across the board
  - High impacts for tidal wetlands and waters.
  - Relatively cost-effective compared to other alternatives
  - Relative costs of causeway compared to embankment differ from those previously presented
- Ratings captured the superior performance of the causeway
- Impacts of causeway on tidal wetlands are much less than stated if use Clean Water Act definition
- Most positive mentions to carry forward
- Most practicable and constructible alternatives, and most likely to minimize the near-term and long-term environmental impacts of an SR 37 facility
- No votes to dismiss from consideration
### DRAFT ASSESSMENT - OVER-BAY ALTERNATIVES

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Big Advantages</th>
<th>Substantial Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT. A2 COMPARED WITH OTHER WEST REACH ALTERNATIVES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative A2, Over-Bay</td>
<td>Performs best on VMT for some origin-destination pairs</td>
<td>3 times higher cost than least costly alternative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worst for tidal wetlands and waters/ critical habitat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worst for ecological connectivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New &amp; raised transportation corridor = worst visual impacts and change of access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Affects both SPB National Refuge and SPB Wildlife Preserve</td>
</tr>
</tbody>
</table>

### SWG Input Received for A2:

- Surprised by
  - high impacts for tidal wetlands - Seems counter-intuitive that an alternative that primarily spans open water would have such a poor rating for impacts to tidal wetlands |
  - high impact associated with the ROW in park/recreation/refuge properties |
  - large property acquisition needs |
  - performs so poorly in many measurements |
- Several dismissed this alternative from further consideration listing high costs and visual impacts |
- Some would like to carry forward A2, but refine design to reduce direct impacts to waters of the State (including wetlands)
### Alternatives Big Advantages Substantial Disadvantages

**ALTS. A3 AND A4 COMPARED WITH OTHER WEST REACH ALTERNATIVES**

- **A4 – Burdell/ Hog Island**
  - Crosses the shortest distance over future floodplain (but near high-value resources, see disadvantages)
  - **Least costly alternative**
  - Performs **worst** on natural resources
  - Performs **worst** on built environment criteria
  - **Most** new ROW needed (236 ac)
  - **Least** transportation benefits
  - Overall, relatively poor performance compared to other alternatives

- **A3 – Bahia/ Atherton**
  - Performs similarly to A4, but:
  - No advantages greater than A4, but performs slightly less poorly on criteria ratings

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**SWG Input Received for A3 and A4:**

- *Least supported* for carrying forward because
  - permanent impacts to mature marsh,
  - require acquisition of considerable private and public lands,
  - result in significant ecological impacts and mitigation requirements

- **A4 seems less desirable**
  - greatest acres of new right-of-way needed
  - longer distance to access US 101

- **A3 seems less desirable**
  - serious wetland impacts

- **A4 would seem to avoid the floodplain, but may not justify the greater distance over on-SR 37 Alts**

- Both go through CDFW Petaluma Wildlife Area. A3 goes through Marin County Rush Creek Preserve. A4 is adjacent to SMART mitigation area.
Common Points:

• Most supported Alternative A1B - On-SR 37 Causeway for the following reasons:
  • Hydrologic and wildlife connectivity
  • Benefits associated with maintaining current alignment
  • Lowest lifecycle cost
  • Most likely to minimize the near-term and long-term environmental impacts

• Most felt that it was premature to dismiss alternatives, however...

• Majority of Commenters do not support A3 and A4 for the following reasons:
  • Higher ROW needs
  • Impacts to wetlands and marsh area
  • Least transportation benefits
QUESTIONS??

THANK YOU VERY MUCH!

METROPOLITAN TRANSPORTATION COMMISSION

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