Transit Lanes and LRT Alternatives on SR 85

SR 85 Corridor Policy Advisory Board
April 25, 2016
SR 85 PAB Alternatives

1. No Action
2. One-Lane Express Lane on SR 85
3. Two-Lane Express Lanes on portion of SR 85
4. Transit Lane Alternatives
5. Light Rail Transit Alternatives
### Summary

#### Transit Lanes Alternatives
- **4A** – Add one new **Transit** lane (each direction) in median and retain **HOV** lanes
- **4B** – Add one new **Transit** lane (each direction) in median and replace HOV lane with one **Express** lane (each direction)
- **4C** – Add one new **Transit Lane with Stations and P&Rs** in (each direction) in median and retain **HOV** lanes

#### LRT Alternatives
- **5A** – Add new **LRT** system in median and retain **HOV** lanes
- **5B** – Add new **LRT** system in median and replace HOV lane with one **Express** lane (each direction)

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Transit Lanes</th>
<th>BRT</th>
<th>LRT</th>
<th>HOV Lanes</th>
<th>Express Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A Transit Lane &amp; HOV</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4B Transit Lane &amp; Express Lanes</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4B Transit Lane with Stations</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5A LRT &amp; HOV</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5B LRT &amp; Express Lanes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Summary

- This is a concept level analysis to provide the PAB with information evaluating transit alternatives on SR 85
- A corridor alternatives analysis of 2-3 years is required to make “project decisions”
- A transportation investment study of this type would involve all levels of agencies – federal, state, and local cities – and require extensive technical work and community outreach
- Information presented is “illustrative” to inform the PAB of the potential and the challenges of the alternatives that will be discussed
Assumptions

- Caltrans Highway Design Manual and Advisory Design Standards
- VTA Design Criteria Manual for LRT Standards
- Alternatives designed to fit within available right of way
- Service levels constant for alternatives to allow comparison
- Horizon year of 2040 used for analysis
- Maintenance and storage costs assumed in alternatives
- VTA operating cost for bus and LRT
Evaluation Tools

• VTA Travel Demand Forecasting Model
• Engineering concept level reconnaissance from HMM
• Costs estimates based on most recent bus and LRT projects in California
SR 85 Express Bus Alternative
AM Peak Period Service Pattern

Green = Northbound AM Peak Service
Red = Southbound AM Peak Service

Band Width is Proportional to Number of Buses in Service
4A - One Transit Lane Each Direction and Retain HOV Lane
4B - One Transit Lane Each Direction and Convert HOV Lanes with Express Lanes
4A & 4B Cross-Section (North of I-280)
5A – Median Running LRT and Retain HOV Lane
5B – Median Running LRT and Convert HOV Lanes with Express Lanes
5A & 5B Cross-Section (South of I-280) At-Grade
5A & 5B Cross-Section (South of I-280)
At-Grade Under Structures
5A & 5B Cross-Section (North of I-280) Aerial

MINIMUM EXISTING ROW 135' (FREMONT - HOMESTEAD)

EXISTING ROAD WIDTH 112'

20' MIN

Hwy 85 NORTH BOUND

10' 12' 12' 12' 20' 12' 12' 12' 10'

100' 40'

SOUTH BOUND

Plan View

[Map of the area showing the cross-section]
Cost Detail
Transit Lane Alternatives (4A & 4B)

<table>
<thead>
<tr>
<th>Category</th>
<th>Retain HOV</th>
<th>Replace HOV with Express Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Infrastructure</td>
<td>$335 million</td>
<td>$395 million</td>
</tr>
<tr>
<td>2. Vehicles</td>
<td>$90 million</td>
<td>$90 million</td>
</tr>
<tr>
<td>3. Professional Services</td>
<td>$80 million</td>
<td>$100 million</td>
</tr>
<tr>
<td>4. Contingency (40%*)</td>
<td>$170 million</td>
<td>$175 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$675 million</strong></td>
<td><strong>$760 million</strong></td>
</tr>
</tbody>
</table>

* 40% contingency is not added to all categories/subcategories
## Cost Detail
### LRT Alternatives (5A & 5B)

<table>
<thead>
<tr>
<th>Category</th>
<th>Retain HOV</th>
<th>Replace HOV with Express Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Infrastructure</td>
<td>$1,995 million</td>
<td>$2,045 million</td>
</tr>
<tr>
<td>2. Vehicles</td>
<td>$65 million</td>
<td>$65 million</td>
</tr>
<tr>
<td>3. Professional Services</td>
<td>$635 million</td>
<td>$650 million</td>
</tr>
<tr>
<td>4. Contingency (40%*)</td>
<td>$1,080 million</td>
<td>$1,080 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$3,775 million</strong></td>
<td><strong>$3,840 million</strong></td>
</tr>
</tbody>
</table>

* 40% contingency is not added to all categories/subcategories
Alternative Capital Cost Summary

- 4A
- 4B
- 5A
- 5B

- Contingency
- Prof. Services
- Vehicles
- Infrastructure

Project Cost (Millions $)
Operating Cost

<table>
<thead>
<tr>
<th>Alternative</th>
<th>4A</th>
<th>4B</th>
<th>5A</th>
<th>5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Cost</td>
<td>$60 Million</td>
<td>$40 Million</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Bar chart showing operating costs for alternatives 4A/4B and 5A/5B]
Daily Ridership

<table>
<thead>
<tr>
<th>Alternative</th>
<th>4A</th>
<th>4B</th>
<th>5A</th>
<th>5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Boardings</td>
<td>11,000</td>
<td>16,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The bar chart shows the daily boardings for different alternatives. The chart indicates that Alternative 5B has significantly higher daily boardings compared to Alternative 4A/4B.
LRT Daily Boardings by Station – 2040

Total Daily Boardings:
16,000
Systemwide Mode of Access - 2040

Total Daily Boardings: 16,000

- Park and Ride: 27%
- Walk: 31%
- Transfer: 37%
- Kiss and Ride: 5%
# Parking Assumptions

<table>
<thead>
<tr>
<th>Station</th>
<th>Park &amp; Ride Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4A/4B</td>
</tr>
<tr>
<td>Ohlone/Chynoweth</td>
<td></td>
</tr>
<tr>
<td>Camden</td>
<td></td>
</tr>
<tr>
<td>Winchester</td>
<td></td>
</tr>
<tr>
<td>Saratoga</td>
<td></td>
</tr>
<tr>
<td>DeAnza</td>
<td></td>
</tr>
<tr>
<td>Stevens Creek</td>
<td></td>
</tr>
<tr>
<td>SR82/ECR</td>
<td></td>
</tr>
<tr>
<td>Central Expressway</td>
<td></td>
</tr>
<tr>
<td>Google 1 (Plymouth)</td>
<td></td>
</tr>
<tr>
<td>Google 2 (Amphitheater)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>
Thank You
Existing Cross-Section (North of I-280)
Cost Assumptions

Transit & LRT Alternatives

Local
- VTA SR 85 Express lane project
- VTA Build Alternative Two single Express Lane Alternatives
- Measure B Highway Expansion Programs (County of Santa Clara)
- Historical Data from local applicable projects

National
- RSMeans Online Construction Data (various)

Transit Alternatives

National
- LADOT Short Range Transit Plan
- Minnesota DOT

LRT Alternatives

Southern California
- Metro Crenshaw/LAX Transit corridor Preliminary Engineering Costs
- Metro Regional Connector Transit Corridor Project
- Perris Valley Line (PVL) Metrolink extension for Riverside County

California
- California High Speed Train (CHST) 15% cost estimate
BOARD MEMORANDUM

TO: Santa Clara Valley Transportation Authority
State Route 85 Corridor Policy Advisory Board

THROUGH: General Manager, Nuria I. Fernandez

FROM: Director of Planning and Program Development, John Ristow

SUBJECT: Progress Report on SR 85 PAB Work Program

FOR INFORMATION ONLY

BACKGROUND:

The State Route 85 Corridor Policy Advisory Board (PAB) is conducting a Phase 1 Transportation Options Study to evaluate existing conditions, identify transportation options, evaluate them, and develop policy recommendations for the VTA Board of Directors. The work program for the Phase 1 study is structured to allow sufficient time to further develop transportation options that could be presented to the VTA Board of Directors in time for possible inclusion in the November 2016 Envision Silicon Valley ballot measure. Due to the extensive level of effort required to conduct the work program and the extremely short timeframe within which to do it, VTA staff will present a work program progress update at each PAB meeting.

DISCUSSION:

April 25, 2016 Meeting - Receive reports on 1) Transit Lane Alternatives, 2) Light Rail Transit Alternatives.

May 23 2016 Meeting - 1) Opportunity for staff to answer questions on the transit alternatives and perhaps present data on variations of those alternatives, 2) PAB Discussion/Action on advancing one or more alternatives to the VTA Board of Directors for inclusion in the Envision Silicon Valley ballot measure.

June 20, 2016 Meeting - 1) Status Report on VTA Board actions on Envision Silicon Valley projects, 2) Continuation of discussion regarding PAB recommendations to the VTA Board, if necessary, 3) Discussion of PAB work program for the remainder of 2016. For reference, a diagram of the original work program, with revisions, is shown as Attachment A.

Prepared By: Steven Fisher
Memo No. 5539
Establish Objectives
Establish Scope and Schedule
Identify Transportation Options
Guide Transportation Options Analysis
Prioritize Transportation Option List
Select Options for Board Consideration

SR-85 PAB

Nov-Dec 2015

Establish Objectives
Establish Scope and Schedule
Identify Transportation Options

Jan-Feb 2016

Guide Transportation Options Analysis

Mar-May 2016

Prioritize Transportation Option List
Select Options for Board Consideration

Aug 2016

VTA Board Selects Envision Silicon Valley Projects

Election (Nov 2016)

Phase 2 Alternatives Analysis

VTA Staff & Consultant

Assist PAB in Establishing Objectives and Identifying Transportation Options

Initial Screening
Analyze Transportation Options

Prepare Matrix for PAB Evaluation
Assist PAB in Selection of Transportation Options