



*BOARD COMMITTEE TRANSMITTAL*

**February 8, 2010**

**To:** Members of the Board of Directors

**From:** Wendy Knowles, Clerk of the Board

**Subject:** Report on Traffic and Revenue Analysis for the San Diego Freeway (Interstate 405) Improvement Project and Contract Amendment

Highways Committee Meeting of February 1, 2010

**Present:** Directors Bates, Cavecche, Dixon, Glaab, Hansen, and Mansoor

**Absent:** Director Pringle

**Committee Vote**

This item was passed by all Committee Members present.

**Committee Recommendations**

- A. Authorize staff to continue the analysis of four build alternatives for the San Diego Freeway (Interstate 405) Improvement Project through the environmental phase.
- B. Authorize the Chief Executive Officer to negotiate and execute an amendment to Agreement No. C-8-0693 with Parsons Transportation Group, in an amount not to exceed \$4.5 million, for additional services to perform preliminary engineering and environmental studies for the two additional alternatives through the environmental phase, bringing the total contract value to \$14,105,417.



**February 1, 2010**

**To:** Highways Committee

**From:** Will Kempton, Chief Executive Officer

**Subject:** Report on Traffic and Revenue Analysis for the San Diego Freeway (Interstate 405) Improvement Project and Contract Amendment

### **Overview**

Staff is presenting information from the traffic and revenue analysis conducted to determine the financial viability of an express-lane facility on the San Diego Freeway (Interstate 405). The express lanes alternative is one of four alternatives under consideration in the environmental phase of the Measure M2 improvement project. Based on the preliminary traffic and revenue analysis which indicates the express lanes can be a financially viable alternative, staff recommends that this alternative be developed further through the environmental phase. Board of Directors' approval is requested to authorize the Chief Executive Officer to negotiate and execute an amendment to the agreement with Parsons Transportation Group for additional services to perform preliminary engineering and environmental studies for two additional alternatives for the San Diego Freeway (Interstate 405) Improvement Project.

### **Recommendations**

- A. Authorize staff to continue the analysis of four build alternatives for the San Diego Freeway (Interstate 405) Improvement Project through the environmental phase.
- B. Authorize the Chief Executive Officer to negotiate and execute an amendment to Agreement No. C-8-0693 with Parsons Transportation Group, in an amount not to exceed \$4.5 million, for additional services to perform preliminary engineering and environmental studies for the two additional alternatives through the environmental phase, bringing the total contract value to \$14,105,417.

---

***Background***

The Measure M2 (M2) San Diego Freeway (Interstate 405) Improvement Project proposes to add new lanes to Interstate 405 from the Costa Mesa Freeway (State Route 55) to the San Gabriel River Freeway (Interstate 605), generally within the existing right-of-way (ROW).

On January 26, 2009, the Orange County Transportation Authority (OCTA) Board of Directors (Board) approved staff's recommendation to consider four alternatives. Alternative 1 proposes to add one general purpose lane in each direction, and Alternative 2 proposes to add two general purpose lanes in each direction. Alternative 3, the express lanes alternative, would add one general purpose lane and one express lane in each direction; the new express lane and existing high-occupancy vehicle (HOV) lane would be operated as a two-lane express facility in each direction. Alternative 4 would identify improvements related to adding one general purpose lane in each direction that match the currently available funding through the M2 Program.

Alternatives 3 and 4 were included to address the significant funding gap between the available funding for the project and the estimated cost to add one or two general purpose lanes.

OCTA staff and the consultant team have evaluated the viability of the four build alternatives. The outcome of identifying what improvements could be built for the currently available funding (Alternative 4) and analyzing and minimizing the ROW impacts associated with the two-lane alternatives (Alternatives 2 and 3) was presented to the OCTA Board on August 24, 2009. Information on the financial viability of the express lanes alternative is provided below.

***Discussion***

The analysis to date shows that the cost of Alternative 1, one lane in each direction, is approximately \$1.7 billion, while the alternative of adding two lanes in each direction is \$1.9 billion. These figures represent year-of-expenditure dollars, assuming construction begins in year 2016. Given that the M2 revenues for this project are currently estimated to be \$600 million over the life of the M2 Program, an option is to seek alternative or innovative funding to construct the project. Therefore, the concept of express lanes is being considered.

A traffic and revenue analysis has been prepared to evaluate the potential of an express facility on Interstate 405 to generate revenue. The traffic and revenue analysis considered two access scenarios and two HOV operating scenarios. The analysis assumed direct access to the express lanes facility on Interstate 405 from the San Joaquin Transportation Corridor (State Route 73) at the south end and from the Garden Grove Freeway (State Route 22) and Interstate 605 at the north end. For the scenarios that include intermediate access to the express lanes, two access points were assumed, one at Brookhurst Street/Talbert Avenue and one at Goldenwest Street/Bolsa Avenue. Four scenarios were evaluated for traffic volumes and the potential to generate revenue: HOVs with 2+ free (carpools with 2 or more occupants would not pay a toll to use the express lanes) with no intermediate access between State Route 73 and Interstate 605, HOVs with 2+ free with two intermediate access points, HOVs with 3+ free (carpools with 3 or more occupants would not pay a toll to use the express lanes ) with no intermediate access, and HOVs with 3+ free with two intermediate access points.

The results show there is only a slight difference between the annual revenue projected for the scenarios where no intermediate access is provided versus those where intermediate access is provided; however, the scenarios that include intermediate access show a potential for generating more revenue. There is a significant difference in potential annual revenues between the HOV 2+ free scenarios and the HOV 3+ free scenarios. The scenario where HOV 2+ vehicles would use the express lanes for free and intermediate access is provided could generate \$45 million annually. In this case, 81 percent of the express lanes users are carpools, leaving 19 percent of the express facility capacity available for toll payers. The scenario where HOV 3+ vehicles would be free and intermediate access is provided could generate nearly \$200 million annually because only 21 percent of the express lanes users are carpools, leaving 79 percent of the express facility capacity available for those who choose to pay a toll.

The bonding capacity of the HOV 2+ free scenarios could support construction costs ranging from \$300 million to \$500 million. The bonding capacity of the HOV 3+ free intermediate access scenario could support construction costs in the range of \$1.4 billion to \$1.8 billion. The estimated cost of the express lanes alternative is \$2.2 billion, making the funding gap \$1.6 billion. This indicates that an HOV 2+ free operation leaves a \$1.2 billion funding gap, while an HOV 3+ free operation can fund the project.

As shown in slide six of the PowerPoint presentation included with this report, M2 provides some traffic congestion relief with the addition of one general purpose

lane in Alternative 1, but the HOV lane is expected to have the same travel speed as the general purpose lanes. HOV lanes are currently congested during peak periods, and with the projected increase in traffic, will not continue to provide travel time and air quality benefits in the future with the current vehicle occupancy requirement. Alternatives 2 and 3 will provide better mobility and more throughput because two lanes of capacity would be added in each direction. The overall mobility in the corridor is improved with the express lanes alternative because the added general purpose lane with Alternative 3 will have better mobility than the added general purpose lane with Alternative 1. In addition, there will be two uncongested express lanes at free flow speeds with Alternative 3. The express lanes facility could significantly alleviate congestion on Interstate 405 by providing additional capacity and additional choices to commuters for increased mobility and trip reliability, as well as the means to fund those improvements and thereby deliver the travel benefits to the public earlier. The express lanes alternative will also be a benefit to the 2-passenger carpools that choose to use the general purpose lanes because these lanes will have better speeds than the general purpose lanes in Alternative 1. The express lanes alternative includes the addition of one general purpose lane in each direction to fulfill our M2 commitment.

On August 24, 2009, staff reported to the Board that all four of the build alternatives, including the two lane options, minimize potential ROW impacts and are therefore viable from a ROW standpoint. Staff now has information that supports the financial viability of the express lanes alternative. Four public scoping meetings were held in the cities of Fountain Valley, Huntington Beach, Rossmoor, and Westminster in late September/early October 2009. At these well-attended scoping meetings (over 400 attended in total), staff presented information about the project and the four alternatives and collected written input to be considered as the environmental technical studies are performed on all four build alternatives.

The current contract with Parsons Transportation Group (PTG) includes engineering and environmental work to be performed only for Alternatives 1 and 2 through the final project report and environmental document. The contract also includes a preliminary analysis of the ROW and financial viability of the express lanes alternative (Alternative 3) and a preliminary assessment of the improvements that could be delivered for the currently available funding (Alternative 4). Now that the traffic and revenue analysis has been completed, indicating that the express lanes are financially viable, further evaluation should be considered. The contract with PTG will need to be amended to include additional engineering and environmental work to carry the two additional alternatives, including the express lanes alternative, through the final project

report and environmental document. This work will also include a more detailed traffic and revenue analysis.

The total contract amendment is estimated at \$4.5 million to complete preliminary engineering and all of the required environmental technical studies for Alternatives 3 and 4. The existing contract is for \$9.6 million. This contract was structured to perform preliminary analysis of four alternatives and detailed analysis of only two alternatives. All four alternatives continue to be viable and staff's recommendation is to carry the alternatives through more detailed analysis. If Alternative 4 can be later folded into one of the other build alternatives and eliminated as a standalone alternative, the contract amendment could be reduced by approximately \$1 million. Further reductions in scope of work and cost may occur if engineering and/or environmental work is curtailed for any of the other build alternatives after some initial environmental studies are completed. Staff therefore requests Board approval to negotiate and execute a contract amendment, in a not-to-exceed amount of \$4.5 million.

Staff will return to the Board with future reports on the project. The next report will provide information for the Board's consideration in determining operational and tolling policies related to a potential express lanes facility on Interstate 405. A subsequent report will provide information on options to implement the project, including the use of design-build and the potential for public-private partnership.

### ***Procurement Approach***

This procurement was handled in accordance with OCTA's procedures for professional architectural and engineering services. The original Agreement No. C-8-0693 was awarded on March 17, 2009, in the amount of \$9,605,417.

Agreement No. C-8-0693 is based on PTG providing project report and environmental document preparation consulting services for two alternatives related to the widening of Interstate 405. Supplemental services are now required to conduct similar studies on two additional alternatives. These additional services require an amendment to Agreement No. C-8-0693, in an amount not to exceed \$4.5 million.

**Fiscal Impact**

The additional work described in Amendment No. 1 of Agreement No. C-8-0693 was partially included in OCTA's Fiscal Year 2009-10 Budget, Development Division, Account 0017-7519-FK101-N2Y (\$1,500,000), and the remaining amount transferred from Account 0017-7831-TR001-N37 (\$3,000,000), funded through M2.

**Summary**

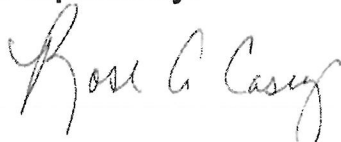
Board approval is requested to authorize the Chief Executive Officer to negotiate and execute Amendment No. 1 to Agreement No. C-8-0693 with PTG, in an amount not to exceed \$4.5 million, for additional services to perform preliminary engineering and environmental studies for two additional alternatives for the Interstate 405 Improvement Project.

Staff is also providing information from the traffic and revenue analysis performed for the Interstate 405 Improvement Project to be received and filed.

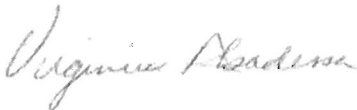
**Attachments**

- A. Agreement No. C-8-0693 Fact Sheet
- B. Amendment No. 1, Scope-of-Work, Project Report and Environmental Services for Proposed Improvements to San Diego Freeway (Interstate 405), Executive Summary

**Prepared by:**

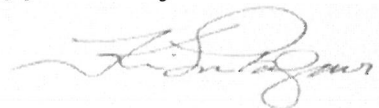


Rose Casey, P.E.  
Program Manager  
(714) 560-5729



Virginia Abadessa  
Director, Contracts Administration &  
Materials Management  
(714) 560-5623

**Approved by:**



Kia Mortazavi  
Executive Director,  
Development  
(714) 560-5741

**AGREEMENT NO. C-8-0693 FACT SHEET**

1. March 17, 2009, Agreement No. C-8-0693, in the amount of \$9,605,417, approved by the Board of Directors.
  - Provide project report and environmental document preparation consultant services for widening the San Diego Freeway (Interstate 405).
2. February 8, 2010, Amendment No. 1 to Agreement No. C-8-0693, in an amount not to exceed \$4,500,000, pending approval by the Board of Directors.
  - Add funding for additional services to perform preliminary engineering and environmental studies for two additional alternatives through the environmental phase.

Total committed to Parsons Transportation Group after approval of Amendment No. 1 to Agreement No. C-8-0693 will be: \$14,105,417.



**Amendment No. 1**  
**Scope-of-Work**  
**Project Report and Environmental Services for**  
**Proposed Improvements to San Diego Freeway (Interstate 405)**  
**Executive Summary**

The proposed Amendment would expand the Scope-of-Work. The current Scope-of-Work provides for the preparation of a Project Report and Environmental Document (Environmental Impact Statement/Environmental Impact Report) covering two Build Alternatives on the San Diego Freeway (I-405). The proposed Scope-of-Work will increase the number of Build Alternatives from two to four. It will also increase the number of freeway miles from 12.5 to 26.0, including 12.5 miles of transitions.

The current Scope-of-Work covers Build Alternatives 1 and 2, which would add one and two general purpose lanes in each direction, respectively, from Euclid Street to the I-605 interchange. The proposed Scope-of-Work covers Build Alternatives 3 and 4. Build Alternative 3 would add one toll lane to the existing carpool lane in each direction which would be managed together. Build Alternative 3 also adds a general purpose lane in each direction north of Euclid Street to I-605. Build Alternative 4 would provide an additional general purpose lane at various locations from Euclid Street to I-605 and improve various interchanges.

The proposed Scope-of-Work includes an increase in the freeway mileage to be covered. The current Scope-of-Work covers 12.5 miles from Hyland Street to I-605. The proposed Scope-of-Work would add 13.5 miles of additional freeway mileage. The additional 13.5 miles include six additional miles along I-405 and 7.5 miles of transition areas along SR-73, SR-22 East, and I-605.

The proposed Scope-of-Work combined with the current Scope-of-Work would cover all of the Build Alternatives included in the Scoping Meetings held in September and October 2009 pursuant to the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The proposed Scope-of-Work provides for the following services covering the two additional Build Alternatives:

- Mapping and Surveys for 11 additional freeway miles
- Plans and Profiles
- Draft and Final Mandatory and Advisory Fact Sheets
- Structure Advance Planning Studies for four additional bridges
- Cost Estimates
- Impacted Utilities delineated on utility plans
- Preliminary Cost Estimate of Utility Relocations/Impacts
- Right-of-way Data Sheets
- Identification of Major Drainage Improvements on Layout Plans
- Traffic Management Plan with Construction Staging/Traffic Handling Concepts
- Express Facility Operations Plan
- Phase II Toll and Revenue Estimate

- High Occupancy Vehicle Report

The proposed Scope-of-Work also provides for the expansion of the following documents, technical studies, and deliverables to include the additional two Build Alternatives:

- Modified Access Report
- Technical Memo on Geotechnical Impacts to Costs
- Draft and Final Value Analysis Study Report
- Storm Water Data Report
- Administrative and Final Draft Project Report
- Administrative and Final Project Report
- Draft and Final Floodplain Evaluation Report
- Draft and Final Water Resources and Hydrology Technical Study
- Draft and Final Air Quality Technical Study
- Draft and Final Traffic/Circulation Impact Report
- Draft and Final Initial Site Assessment
- Draft and Final Visual Impact Assessment
- Draft and Final Noise Study
- Draft and Final Noise Abatement Decision Report
- Historic Property Survey Report
- Archaeological Survey Report
- Historic Resources Evaluation Report
- Native American Coordination
- Draft and Final Section 4(f) and 6(f) Evaluation
- Draft and Final Natural Environment Study
- Draft and Final Paleontology Literature Study
- Draft and Final Relocation Impact Report
- Draft and Final Community Impact Assessment
- Topography/Geology/Soils/Seismic Analysis Report
- Energy Analysis
- Draft and Final Growth Inducement and Cumulative Impacts Analysis
- Screencheck, Draft, and Final Draft Environmental Impact Report/Environmental Impact Statement
- Screencheck, Draft, and Final Final Environmental Impact Report/Environmental Impact Statement

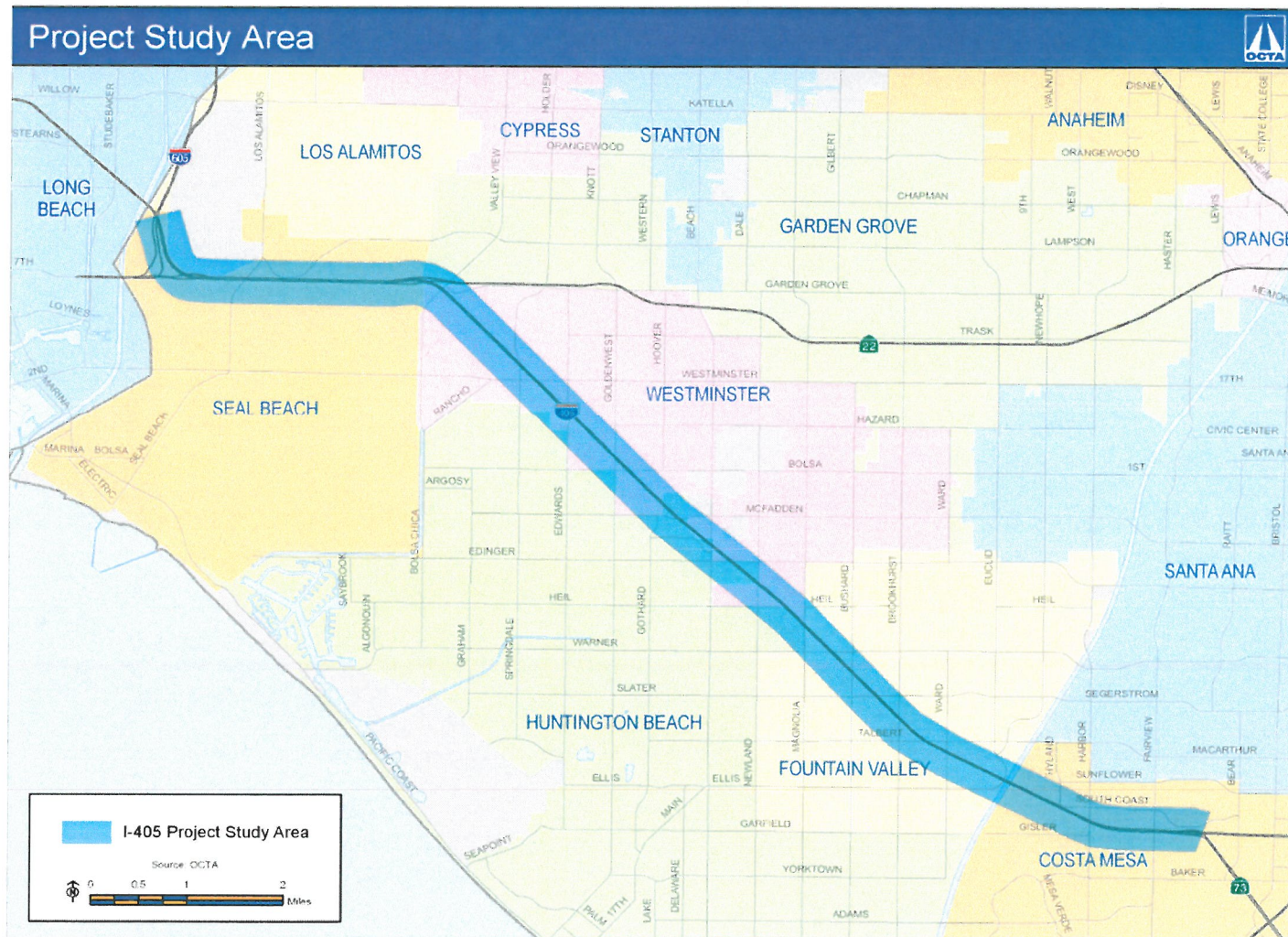


***Report on Traffic and Revenue Analysis for the  
San Diego Freeway (Interstate 405)  
Improvement Project  
and Contract Amendment***



**Orange County Transportation Authority  
Highways Committee Meeting  
February 1, 2010**

# Interstate 405 Project Location



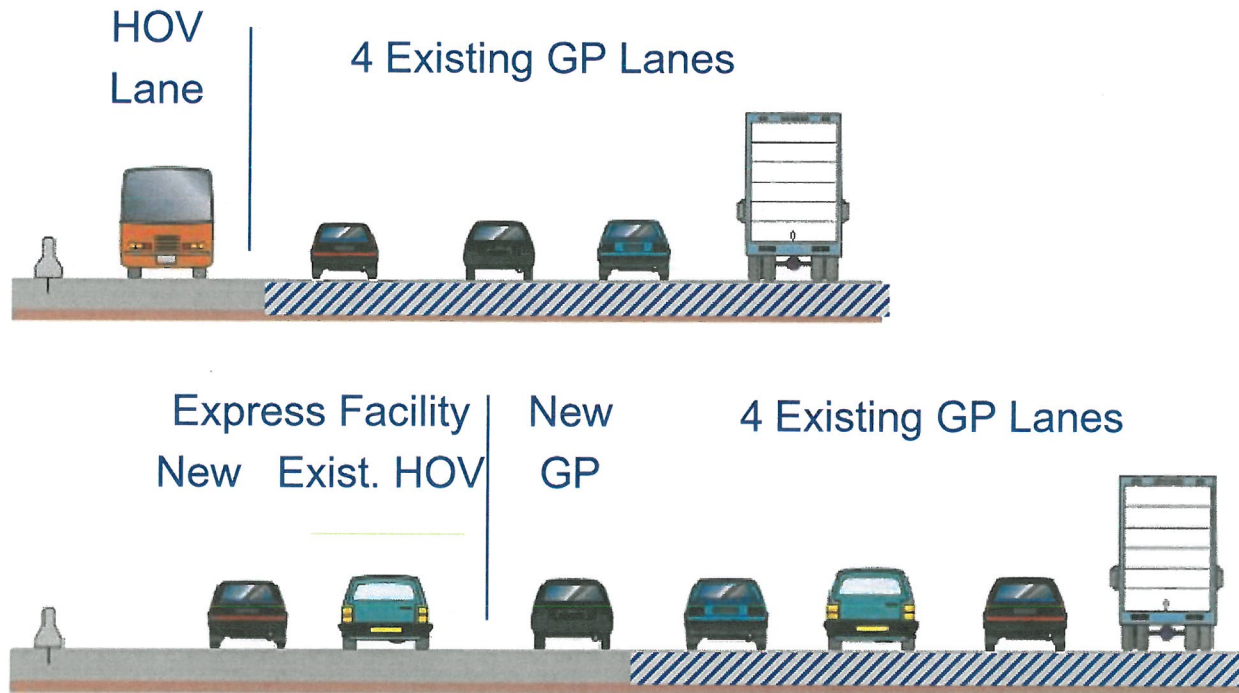
# *Study Alternatives*

- Add one lane each way  
(\$1.7 billion)
- Add two lanes each way  
(\$1.9 billion)
- Available funding <\$600 million
- Alternatives not currently funded

# ***Added Alternatives***

- Nominal improvements within available funding  
(\$600 million)
- Two-lane Express Lane toll facility  
(\$2.2 billion)

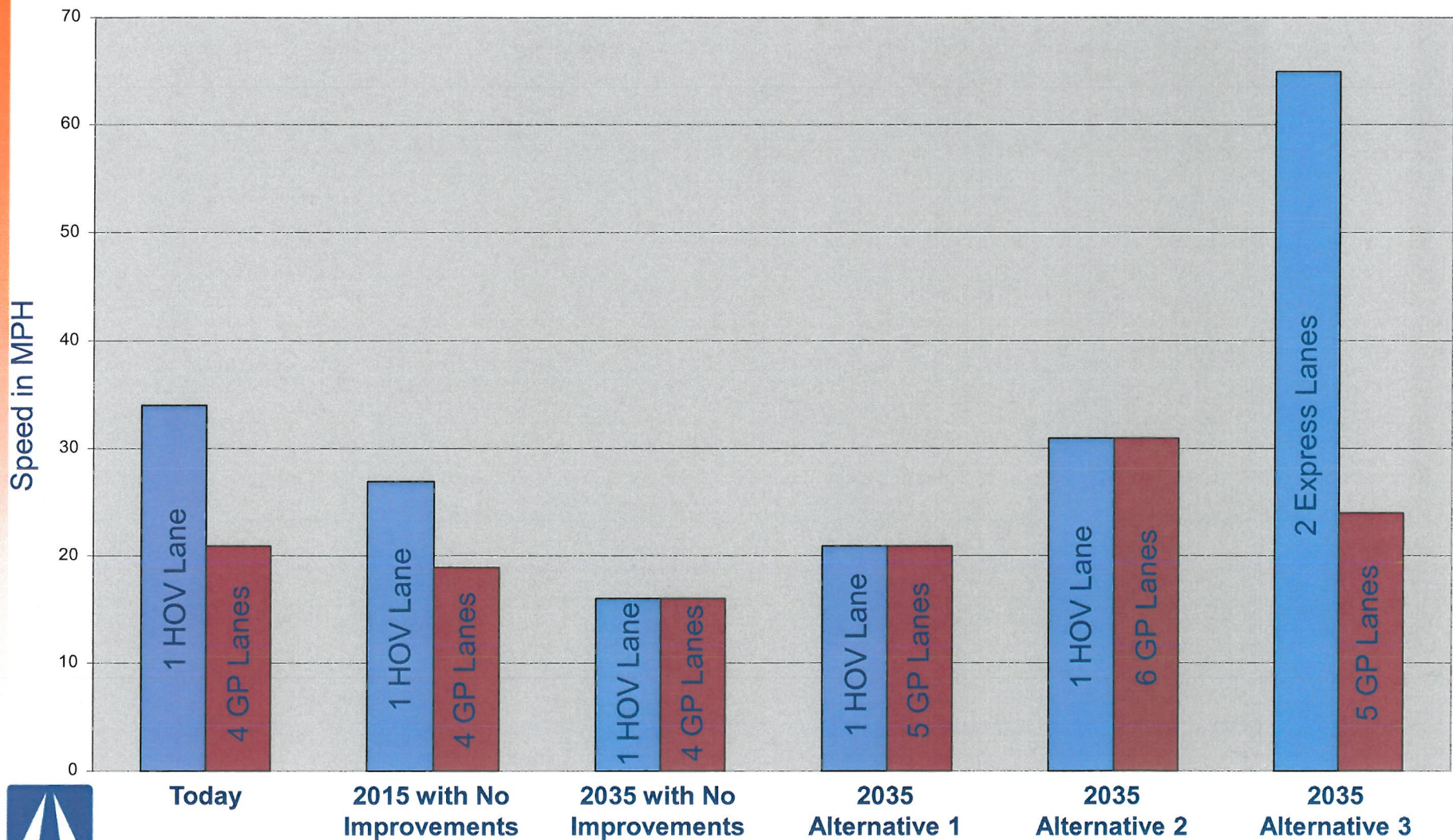
# Express Lanes Configuration



Express alternative:

- accommodates both HOV and toll operations
- improves mobility in GP lanes
- may fund other improvements

# Expected PM Peak Speeds by Lane Type



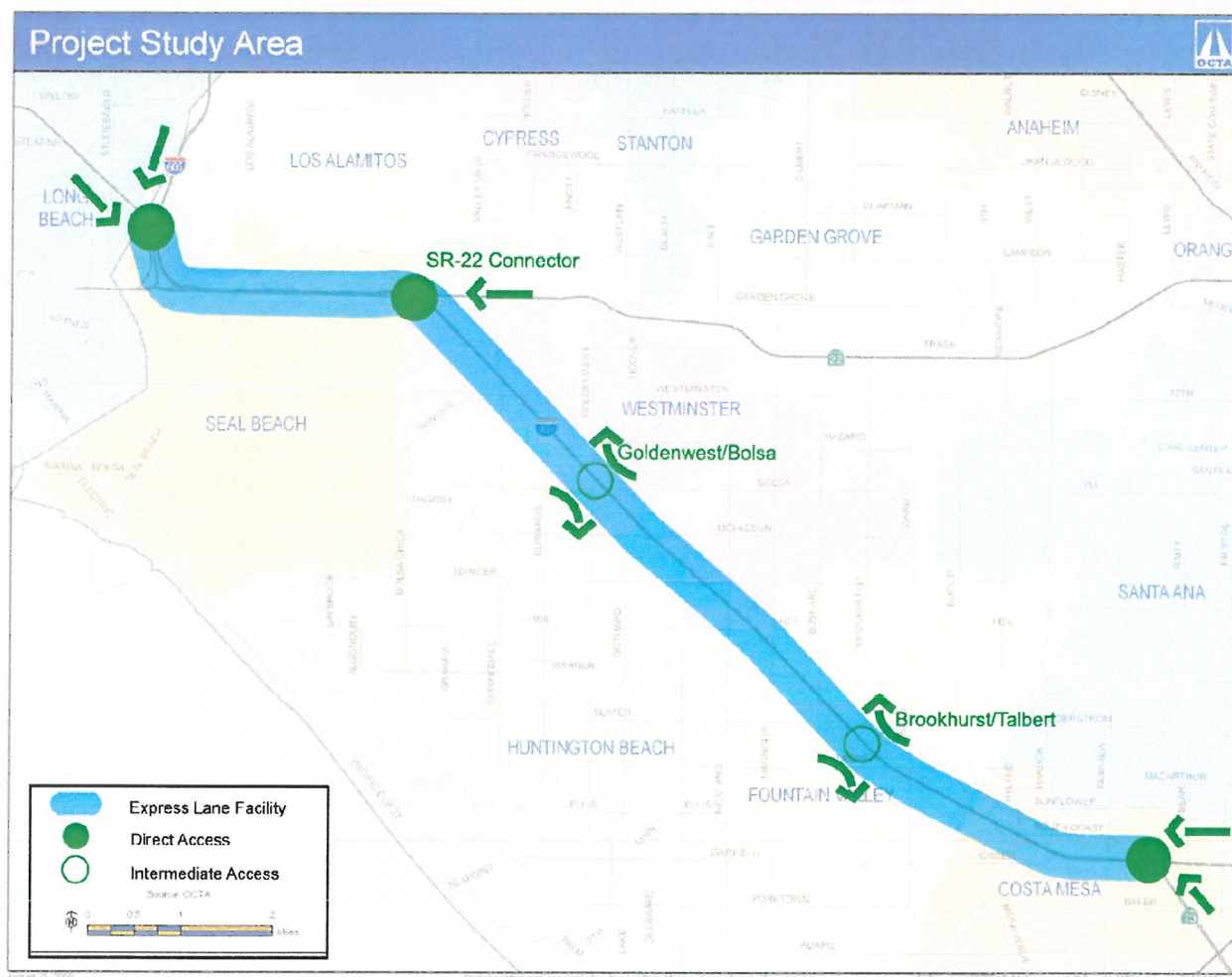
\*Based on estimates, further study required.



# *Traffic and Revenue Study*

- Phase 1: indicates financial viability, based on existing traffic data and model
- Phase 2: more refined traffic and revenue estimation to be initiated later in environmental phase
- Phase 3: investment-grade analysis

# Proposed Access Points



# Summary of Annual Revenue Forecasts

Scenario	Annual Revenue
HOV 2+ Free	\$45.1 million
HOV 3+ Free	\$196.7 million

# Construction Costs Supported by Revenue

Scenario	Bonding Capacity
HOV 2+ Free	\$300 million-\$500 million
HOV 3+ Free	\$1.4 billion-\$1.8 billion

# ***Express Lanes Financial Viability***

## Alternative 3: Express Lanes

- Funding gap

$\$2.2 \text{ billion} - \$600 \text{ million} = \mathbf{\$1.6 \text{ billion}}$

- Revenue potential range

- HOV 2+ Free  $\mathbf{\$0.3 \text{ billion} - \$0.5 \text{ billion}}$
- HOV 3+ Free  $\mathbf{\$1.4 \text{ billion} - \$1.8 \text{ billion}}$

# ***Initial Conclusions***

- One and two lane alternatives are not currently funded
- 2+ HOV free option will not raise sufficient funds to address shortfall
- 3+ HOV free could raise sufficient funds to build two new lanes

# *Re-cap of Progress to Date*

- One and two lane alternatives can generally fit within existing ROW
- Express lanes alternative could provide needed funds
- Four public scoping meetings conducted
  - Good attendance (400+)
  - Active Q&A sessions
  - Concerns remain about local ROW impacts

# Next Steps

- Prepare environmental technical studies on the build alternatives
- Amend consultant contract to include technical studies for the additional alternatives
- Return to Board to discuss:
  - Preliminary findings from environmental studies
  - Potential reduction in number of build alternatives
  - Operating scenarios for Express Lanes