

# **Metro**

*Los Angeles County Metropolitan Transportation Authority  
One Gateway Plaza  
3rd Floor Board Room*



**Metro**<sup>®</sup>

## **Agenda - Final**

**Wednesday, May 17, 2017**

**11:00 AM**

**One Gateway Plaza, Los Angeles, CA 90012,  
3rd Floor, Metro Board Room**

### **Ad Hoc Congestion, Highway and Roads Committee**

*John Fasana, Chair*

*Ara Najarian, Vice Chair*

*Kathryn Barger*

*Jacquelyn Dupont-Walker*

*Janice Hahn*

*Carrie Bowen, non-voting member*

*Phillip A. Washington, Chief Executive Officer*

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(ALSO APPLIES TO BOARD COMMITTEES)

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A member of the public may address the Board on agenda items, before or during the Board or Committee's consideration of the item for one (1) minute per item, or at the discretion of the Chair. A request to address the Board should be submitted in person at the meeting to the Board Secretary. Individuals requesting to speak on more than three (3) agenda items will be allowed to speak up to a maximum of three (3) minutes per meeting. For individuals requiring translation service, time allowed will be doubled.

Notwithstanding the foregoing, and in accordance with the Brown Act, this agenda does not provide an opportunity for members of the public to address the Board on any Consent Calendar agenda item that has already been considered by a Committee, composed exclusively of members of the Board, at a public meeting wherein all interested members of the public were afforded the opportunity to address the Committee on the item, before or during the Committee's consideration of the item, and which has not been substantially changed since the Committee heard the item.

The public may also address the Board on non-agenda items within the subject matter jurisdiction of the Board during the public comment period, which will be held at the beginning and/or end of each meeting. Each person will be allowed to speak for up to three (3) minutes per meeting and may speak no more than once during the Public Comment period. Speakers will be called according to the order in which the speaker request forms are received. Elected officials, not their staff or deputies, may be called out of order and prior to the Board's consideration of the relevant item.

In accordance with State Law (Brown Act), all matters to be acted on by the MTA Board must be posted at least 72 hours prior to the Board meeting. In case of emergency, or when a subject matter arises subsequent to the posting of the agenda, upon making certain findings, the Board may act on an item that is not on the posted agenda.

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- a. Disorderly behavior toward the Board or any member of the staff thereof, tending to interrupt the due and orderly course of said meeting.
- b. A breach of the peace, boisterous conduct or violent disturbance, tending to interrupt the due and orderly course of said meeting.
- c. Disobedience of any lawful order of the Chair, which shall include an order to be seated or to refrain from addressing the Board; and
- d. Any other unlawful interference with the due and orderly course of said meeting.

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**NOTE: ACTION MAY BE TAKEN ON ANY ITEM IDENTIFIED ON THE AGENDA**

## CALL TO ORDER

## ROLL CALL

5 AUTHORIZE the Chief Executive Officer (CEO) to execute a three (3) year agreement for **FY18, FY19 & FY20 with the California Highway Patrol (CHP) to provide services in support of the Metro Freeway Service Patrol (FSP) program**, in the amount of \$4,755,495. [2017-0243](#)

6 AUTHORIZE Contract Modification No. 42 (CCO 42) by **State of California Department of Transportation (Caltrans) for the construction contract of the Segment 5 of I-5 South Capacity Improvements Project from Orange County Line to I-605** under the Funding Agreement No. MOU.P0004292A-3, in the total amount of \$1,700,000 within the LOP budget. [2017-0151](#)

Attachments: [ATTACHMENT A - LOCATION MAP](#)  
[ATTACHMENT B - ORR & DAY BRIDGE](#)

### (ALSO ON CONSTRUCTION COMMITTEE)

7 AUTHORIZE Contract Modification No. 115 (CCO 115) by **State of California Department of Transportation (Caltrans) for the construction contract of the Segment 4 of I-5 South Capacity Improvements Project from Orange County Line to I-605** under the Funding Agreement No. MOU.P0004292A-3, in the total amount of \$577,500 within the LOP budget. [2017-0229](#)

Attachments: [ATTACHMENT A - LOCATION MAP](#)  
[ATTACHMENT B - ORR AND DAY BRIDGE](#)

### (ALSO ON CONSTRUCTION COMMITTEE)

29

[2017-0097](#)

RECEIVE AND FILE **status update on the State Route 710 (SR 710) North Project environmental process** including explanation of the performance measures/scoring and methodology used to compare and contrast various alternatives studied in the environmental process leading to recommendation of the Preferred Alternative.

**Attachments:**      [ATTACHMENT A- SR 710 North Project Study Area.pdf](#)  
[ATTACHMENT B- SR 710 North Project Performance Evaluation Matrix](#)  
[ATTACHMENT C SR 710 North Single Bore Fwy Tunnel Fact Sheet](#)  
[ATTACHMENT D-SR 710 North TSM-TDM Alternative.pdf](#)

## Adjournment

Consideration of items not on the posted agenda, including: items to be presented and (if requested) referred to staff; items to be placed on the agenda for action at a future meeting of the Committee or Board; and/or items requiring immediate action because of an emergency situation or where the need to take immediate action came to the attention of the Committee subsequent to the posting of the agenda.

**Board Report**

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**File #:** 2017-0151, **File Type:** Contract

**Agenda Number:** 6

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**AD-HOC CONGESTION, HIGHWAY AND ROADS COMMITTEE**

**MAY 17, 2017**

**CONSTRUCTION COMMITTEE**

**MAY 18, 2017**

**SUBJECT: I-5 SOUTH CAPACITY IMPROVEMENTS FROM ORANGE COUNTY LINE TO I-605  
(FUNDING AGREEMENT NO. MOU.P0004292A-3) - SEGMENT 5**

**ACTION: AUTHORIZE CONTRACT MODIFICATION**

**RECOMMENDATION**

AUTHORIZE Contract Modification No. 42 (CCO 42) by **State of California Department of Transportation (Caltrans) for the construction contract of the Segment 5 of I-5 South Capacity Improvements Project from Orange County Line to I-605** under the Funding Agreement No. MOU.P0004292A-3, in the total amount of \$1,700,000 within the LOP budget.

**ISSUE**

Segment 5 of the I-5 South Capacity Improvements Project is between San Gabriel River and Orr & Day Road in the Cities of Norwalk and Santa Fe Springs (Attachment A - Location Map). Segment 5 scope of work includes the demolition of the Orr & Day Bridge (the Bridge) over the Union Pacific (UP) railroad tracks.

During the demolition process, UP introduced a new requirement prohibiting the debris of the demolished bridge from falling directly onto the track protection system. Therefore Caltrans was required to modify the demolition method for the Bridge from conventional cracking of concrete onto the track protection system to saw cut & remove to comply with this new requirement.

CCO 42 is to cover the cost of additional effort to remove the Bridge.

The total amount of CCO 42 exceeds \$500,000 and requires Board authorization per the Staff Delegations of Contract Action Approval and Award Authority Memo, dated February 23, 2010.

**DISCUSSION**

In the original construction bid package, the Contractor submitted the common industrial and conventional method of bridge removal for the Bridge, which is to crack the bridge onto the track protection system and remove the debris. However, the submittal was rejected by UP based on a new requirement that stipulates no objects to fall directly onto the track protection system.

The Contractor, Caltrans, Metro and UP considered multiple possible alternatives and determined that saw-cutting and removing the Bridge in segments will provide for bridge stability and track protection, minimize impact to freight schedule, and fulfill the new UP requirement.

The approved methodology will be performed in two stages. In order to maintain the Bridge stability during the removal, the first stage is to saw-cut the bridge deck in designated depth into sections. The second stage will saw-cut each segment through the Bridge and remove the Bridge by sections. The same methodology will be used to remove the Bridge abutments.

CCO 42 is for the second stage of the Bridge removal. Due to the complexity of the removal process, a force account analysis was used to determine the cost.

### Findings

Authorization of CCO 42 in the amount of \$1,700,000 will allow Caltrans to complete demolition of the Bridge and prevent project delay.

### **DETERMINATION OF SAFETY IMPACT**

There is no impact to public safety by approving this action.

### **FINANCIAL IMPACT**

#### Impact to Budget

The current LOP budget of Segment 5 is \$211,671,000 of which \$95,566,000 is Federal funds (CMAQ), \$72,017,000 is State funds (RIP, GF-STIP, TCRP and SHOPP), and \$44,088,000 is local Prop C and Measure R funds. Funding of \$3,000,000 for FY 17 for this project is included in Account 54001 Subsidies to Others, in Cost Center 0442, under Project Number 460340. The change identified will not increase the project budget for the current fiscal year.

The total \$1.7 million cost of CCO 42 is within the FY 17 budget and overall LOP budget. Since this is a multi-year project/contract, the Senior Executive Officer and the Project Manager in Highway Program will be accountable for budgeting the cost in future years. Funding for this work will be provided from Measure R 20% Highway Capital funds, within the I-5 South Capacity Improvements from Orange County Line to I-605 (Line 27 of Measure R Expenditure Plan). This fund is not eligible for Metro bus and rail operations or capital projects.

### **ALTERNATIVES CONSIDERED**

The Board may choose not to approve the staff's recommendation. However, this disapproval would result in schedule delays and cost increases.

**NEXT STEPS**

Upon Board's approval of the recommended action, Metro staff will coordinate with Caltrans to expedite the changes to allow the project to move forward.

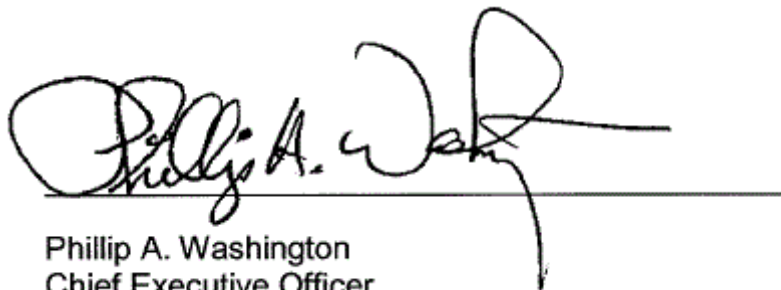
**ATTACHMENTS**

Attachment A - Location Map

Attachment B - Orr & Day Bridge

Prepared by: Victor Gau, Director of Engineering, Highway Program (213) 922-3031  
Abdollah Ansari, Senior Executive Officer, Highway Program (213) 922-4781  
Bryan Pennington, Deputy Chief Program Management Officer (213) 922-7449

Reviewed by: Richard F. Clarke, Chief Program Management Officer (213) 922-7557

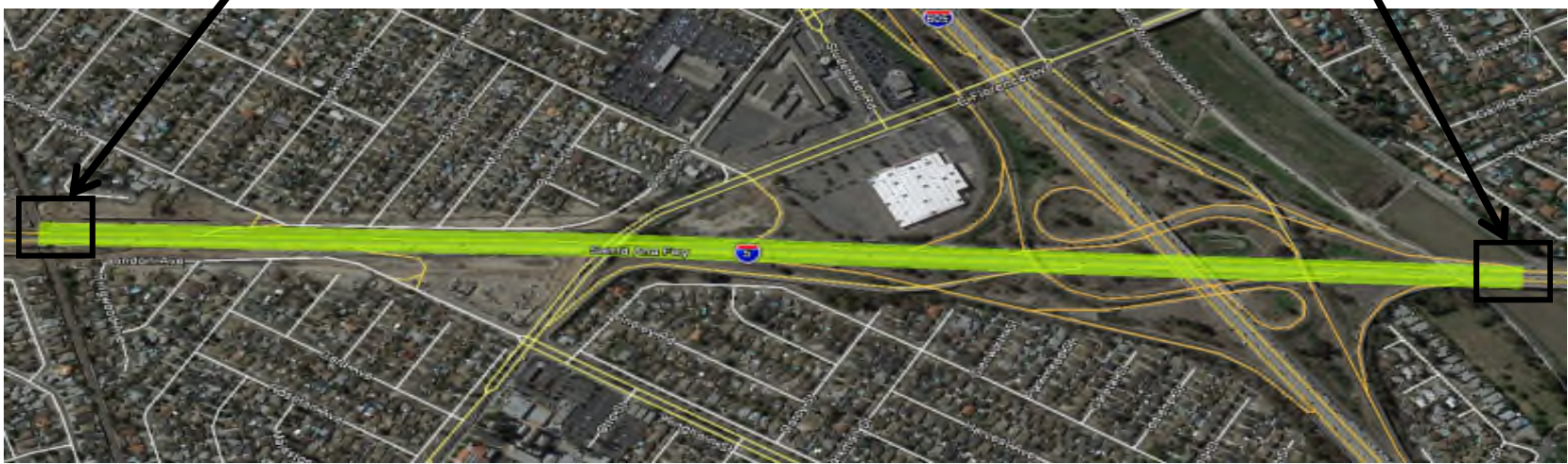


Phillip A. Washington  
Chief Executive Officer

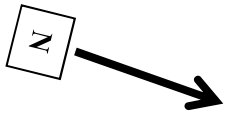


**Orr & Day  
Bridge  
(Attachment B)**

**San Gabriel  
River**



**LOCATION MAP**



**Attachment A**



**ORR & DAY BRIDGE**

**Board Report**

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**File #:** 2017-0229, **File Type:** Contract**Agenda Number:** 7

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**AD-HOC CONGESTION, HIGHWAY AND ROADS COMMITTEE  
MAY 17, 2017  
CONSTRUCTION COMMITTEE  
MAY 18, 2017****SUBJECT: I-5 SOUTH CAPACITY IMPROVEMENTS FROM ORANGE COUNTY LINE TO I-605  
(FUNDING AGREEMENT NO. MOU.P0004292A-3)- SEGMENT 4****ACTION: AUTHORIZE CONTRACT MODIFICATION****RECOMMENDATION**

AUTHORIZE Contract Modification No. 115 (CCO 115) by **State of California Department of Transportation (Caltrans) for the construction contract of the Segment 4 of I-5 South Capacity Improvements Project from Orange County Line to I-605** under the Funding Agreement No. MOU.P0004292A-3, in the total amount of \$577,500 within the LOP budget.

**ISSUE**

Segment 4 (I-5 at Imperial Highway) and Segment 5 (I-5 at Florence Avenue) of the I-5 South Capacity Improvements Project are two adjacent projects. The Imperial Highway Project is from Orr & Day Road to Silverbow Avenue and the Florence Avenue Project is between Orr & Day Road and the San Gabriel River. (Attachment A - Location Map)

The construction stage 2C of Segment 4, which was designed to move the traffic to the outside lanes of the freeway in both directions to accommodate construction of inside lanes, was scheduled to begin on March 10, 2016 according to the updated baseline schedule approved by Caltrans. However, due to delays in the completion of the Orr & Day Bridge widening in Segment 5, traffic could not be switched as scheduled. Consequently, the start of construction stage 2C of Segment 4 was pushed back 212 work days from March 10, 2016 to February 1, 2017.

**DISCUSSION**

The start of construction stage 2C of Segment 4 depended on the completion of the Orr & Day Bridge widening in Segment 5.

The construction of Segment 5 was initially delayed by utility relocations. Furthermore, the review of the falsework and placement plans of Orr and Day Bridge widening by Union Pacific took longer than specified in the contract documents. The completion of the Orr & Day Bridge widening in Segment 5

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delayed the construction stage 2C of Segment 4 (the Imperial Project) from March 10, 2016 to February 1, 2017.

The Time Impact Analysis (TIA) submitted by the Contractor was analyzed and approved by Caltrans for 212 work days. Within these 212 work days, there were 17 rainy days and 20 non-compensable days, resulting in 175 compensable days at \$3,300 per day of the time related overhead (TRO) resulting in \$577,500 payable to the Contractor.

The total amount of CCO 115 exceeds \$500,000 and requires Board authorization per the Staff Delegations of Contract Action Approval and Award Authority Memo, dated February 23, 2010.

### Findings

Authorization of CCO 115 in the amount of \$577,500 will allow Caltrans to compensate the Contractor and avoid additional costs including interest payable on outstanding balance.

### **DETERMINATION OF SAFETY IMPACT**

There is no impact to public safety by approving this action.

### **FINANCIAL IMPACT**

#### Impact to Budget

The current LOP budget for Segment 4 of I-5 South Capacity Improvements from Orange County Line to I-605 is \$323,285,000 of which \$289,384,000 is State funds (RIP, GF-STIP, CMIA, TCRP and ITIP), and \$33,901,000 is local Prop C and Measure R funds. Funding of \$2,200,000 for FY 17 for this project is included in Account 54001 Subsidies to Others, in Cost Center 0442, under Project Number 460339. The change identified will not increase the project budget for the current fiscal year.

The total \$577,500 cost of CCO 115 is within the overall LOP budget, and will be paid from the Project State Funds. Therefore, there is no impact to Metro budget.

### **ALTERNATIVES CONSIDERED**

The Board may choose not to approve the staff's recommendation. However, this disapproval would result in cost increases.

### **NEXT STEPS**

Upon Board's approval of the recommended action, Metro staff will coordinate with Caltrans to expedite the changes to allow the project to move forward.


**ATTACHMENTS**

Attachment A - Location Map

Attachment B - Orr and Day Bridge

Prepared by: Victor Gau, Director of Engineering, Highway Program (213) 922-3031  
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Phillip A. Washington  
Chief Executive Officer



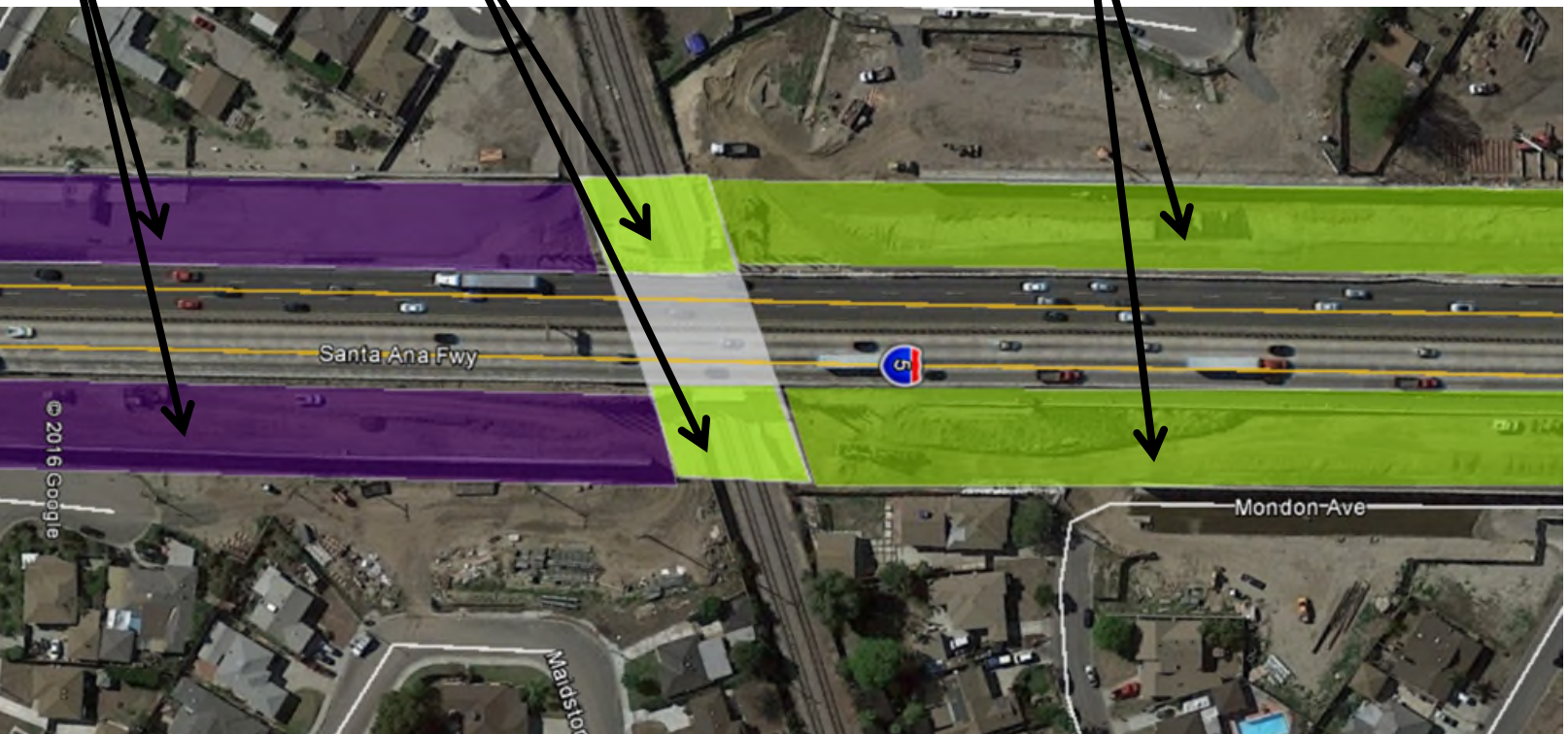
**LOCATION MAP**



**Segment 5  
Florence Avenue**

**Orr & Day Bridge**

**Segment 4  
Imperial Highway**



Florence Avenue  
Project Widening  
Portion

Orr & Day Bridge  
Widening Portion

Imperial Highway  
Project Widening  
Portion  
(Stage 2C)

ORR & DAY BRIDGE



## Board Report

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File #: 2017-0097, File Type: Informational Report

Agenda Number: 29

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**REVISED**  
**AD-HOC CONGESTION, HIGHWAY AND ROADS COMMITTEE**  
**MAY 17, 2017**

**SUBJECT: SR 710 NORTH PROJECT UPDATE**

**ACTION: RECEIVE AND FILE**

**RECOMMENDATION**

RECEIVE AND FILE **status update on the State Route 710 (SR 710) North Project environmental process** including explanation of the performance measures/scoring and methodology used to compare and contrast various alternatives studied in the environmental process leading to recommendation of the Preferred Alternative.

**ISSUE**

The current SR 710 environmental process started in 2011 to address the significant traffic congestion and the resulting community impacts along the missing segment of the 710 freeway between I-10 and I-210. The Study Area, as depicted in Attachment A of this report, extended more than 100 square miles and encompassed east/northeast Los Angeles and western San Gabriel Valley. This study was continuation of prior efforts dating back to the 1970s.

After comparing and weighing the benefits and impacts of a range of multi-modal alternatives, reviewing the comments received during the public circulation of the State Route 710 North Draft Environmental Impact Report/ Environmental Impact Statement (SR 710 North Draft EIR/EIS), and completing the performance evaluation for each of the alternatives (Attachment B), the technical studies completed over the past few years clearly capture the mobility benefits included in the Single Bore Freeway Tunnel (SBFT), with tolls and truck restrictions (no heavy trucks over 33,000 **lbs tons**) . This alternative reduces regional and local congestion associated with north-south travel demand within the study area, and delivers the best transportation performance and benefits with the least environmental impacts.

Caltrans is the lead agency responsible for compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Under CEQA, Caltrans will certify that the SR 710 North Project complies with the requirements of CEQA, prepare Facts and Findings, and if necessary, prepare a Statement of Overriding Considerations (SOC) for impacts that cannot be



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mitigated below a level of significance; and certify that the Findings and SOC have been considered prior to project approval. Caltrans will then file a CEQA Notice of Determination (NOD) with the State Clearinghouse that will identify whether the SR 710 North Project will have significant impacts, if mitigation measures were included as conditions of project approval, Findings were made, and an SOC was adopted.

Under NEPA assignment, Caltrans, as lead agency, will document and explain its decision regarding the selected Preferred Alternative, the project impacts, and mitigation measures in a Record of Decision (ROD).

### BACKGROUND

In 2008, upon passage of Measure R, funds in the amount of \$780,000,000 were earmarked for the SR 710 North project.

In 2011, Metro, in partnership with Caltrans, initiated project scoping, a robust public outreach program, alternative analyses and other technical work leading to the preparation of the SR 710 North environmental document.

In 2012, five alternatives were advanced to the Draft EIR/EIS for further study - (1) No Build, (2) Transportation System Management/Transportation Demand Management (TSM/TDM) operational improvements, (3) Bus Rapid Transit (BRT), (4) Light Rail Transit (LRT), and (5) a Freeway Tunnel with design and operational variations.

Also in 2012, two advisory committees, the SR 710 North Technical Advisory Committee and the SR 710 North Stakeholder Outreach Advisory Committee, were established to ensure stakeholder input on a wide range of planning and technical issues during the development of the environmental document. The SR 710 North Advisory Committee members represented technical staff and elected officials from local agencies within the study area.

On March 6, 2015, Caltrans approved the release and circulation of the Draft EIR/EIS for public comments. Five public hearings were convened.

In June 2015, an analysis of cost and benefits (CBA) for the SR 710 North study alternatives was made available to the public.

Approximately, 8000 comments including written comments, formal letters, emails, speaker/comment cards, verbal testimonies, and online submittals were received on the Draft EIR/EIS by Caltrans prior to the close of the public comment period on August 5, 2015. Of the public comments received, 1328 comments supported and 237 comments opposed the freeway tunnel alternative. All comments received during the public comment period will be addressed in the SR 710 North Final EIR/EIS.

More than 300 meetings and/or briefings with community groups/organizations, members of the public and elected officials (state and federal representatives) have been held since the initiation of the SR 710 North Study.

The following summarizes the SBFT design and key features.

#### Single Bore Freeway Tunnel

As described in the SBFT fact sheet (Attachment C), the freeway tunnel connects the existing southern stub of State Route 710 in Alhambra to the existing northern stub of Route 710 in Pasadena. The tunnel design consists of a single two-level bored tunnel with two lanes on each level - one in each direction - for a total of four travel lanes. The tunnel will have an inside diameter of 53.5 feet (and outside diameter of 58.5 feet) and will be from 40 feet to 250 feet below the surface. While the majority of the tunnel is expected to be constructed using a tunnel boring machine (TBM), the end segments of the tunnel are expected to be constructed using the cut-and-cover construction method. Ventilation structures will be constructed at both ends of the tunnel. There will be no intermediate interchanges or ventilation structures along the tunnel alignment. The preliminary construction cost estimate is \$3.15 billion (in 2014 dollars) of which approximately \$50 million is earmarked for TSM/TDM improvements related to the freeway tunnel alternative.

In general, the SBFT design reflects state-of-the-art tunnel systems and incorporates the latest ground control and monitoring techniques (used in conjunction with the TBMs) to minimize the potential for settlement and vibration. Innovative traffic and traveler information systems are proposed for the SBFT to protect and inform motorists and enhance the driving experience. Incident response teams will be stationed at both ends of the tunnel in the Operations and Maintenance Center to respond immediately in the event of an incident in the tunnel.

The TSM/TDM component of the freeway alternative consists of strategies and improvements that increase the efficiency and capacity of the existing transportation system. As described in TSM/TDM fact sheet (Attachment D), the TSM strategies include Intelligent Transportation Systems (ITS) improvements, local street and intersection improvements, and active traffic management. The TDM strategies include new and expanded bus service, bus service improvements and active transportation improvements. Two TSM projects (e.g. Valley Boulevard to Mission Road Connector and the extension of St. John Avenue between Del Mar Boulevard and California Boulevard) with potential conflict with major future investments in this corridor were excluded from the list of improvements in Attachment D.

The following summarizes the results of the performance evaluation that was conducted for the No Build, TSM/TDM, BRT, LRT and Freeway Tunnel Alternatives. It is worth noting the Freeway Tunnel Alternative that was studied consisted of two design variations and six operational variations (three

for each design) as shown in the table below.

Single Bore	Dual Bore
Tolls (no vehicular restrictions)	
Tolls and Truck Restriction (no heavy trucks over 33,000 <b>lbs</b> tons)	No Tolls and no vehicular restrictions
Tolls and Express Bus Service (no vehicular restrictions)	No Tolls and Truck Restriction (no heavy trucks over 33,000 <b>lbs</b> tons)

\*Vehicles carrying flammable or hazardous materials will be prohibited in the tunnel for all scenarios.

State Route 710 North Project Performance Evaluation Summary of Results

As shown in Attachment B, performance evaluation factors were established, in consultation with the SR 710 North advisory committees, to evaluate how well each alternative addresses the Project Purpose and Need. A scale from 1 to 10 was used to compare the alternatives with respect to the performance evaluation factors between the alternatives.

Performance evaluation results indicated that both tunnel alternatives:

- Showed above average performance compared to the other alternatives that reported below average performances when transportation objectives (e.g. minimize travel time; improve connectivity and mobility; and reduce congestion on local street system) and the corresponding performance measures were evaluated.
- Provided substantial benefits in terms of reducing congestion, particularly on local streets compared to the transit alternatives, which showed negligible operational improvements on the overall transportation network (freeway and local/arterial roadways).
- Showed considerable increase in transit ridership. The transit alternatives provided a better performance related to the increased transit ridership objective when compared to the other alternatives, with minimal benefits reported for the overall transportation network.
- Demonstrated positive effect on minimizing environmental (human and natural) impacts by avoidance, or practical and feasible mitigation measures to off-set impacts.
- Showed considerable advantage over the other alternatives when evaluating the remaining non-transportation related objectives (e.g. minimizing right of way impacts and maximizing cost efficiency of public investments).

**FINANCIAL IMPACT**

This is a status update report and required no action by the Board and, therefore, will have no financial impacts.

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**NEXT STEPS**

With the SR 710 North Project environmental process nearing completion, emphasis will be placed on addressing all comments received during the public review process and completing the Final EIR/EIS in accordance with NEPA and CEQA guidelines and mandates. It is anticipated the Final EIR/EIS will be signed by the first quarter of 2018 and that Caltrans will certify the project by filing the NOD and ROD. This will conclude the environmental phase of the SR 710 North Project.

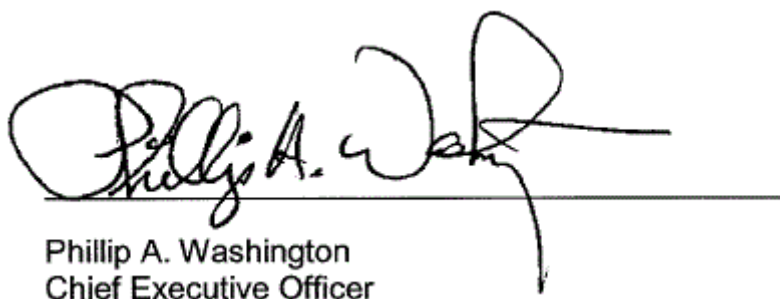
Staff will report back to the Metro Board of Directors in November/December 2017.

**ATTACHMENTS**

- ATTACHMENT A - State Route 710 North Project Study Area
- ATTACHMENT B - State Route 710 North Project Performance Evaluation Matrix
- ATTACHMENT C - State Route 710 North Single Bore Freeway Tunnel Fact Sheet
- ATTACHMENT D - State Route 710 North Transportation System  
Management/Transportation Demand Management (TSM/TDM)  
Alternative Fact Sheet

Prepared by: Michelle Smith, Sr. Director, (213) 922-3057  
Abdollah Ansari, Sr. Executive Officer, (213) 922-4781  
Bryan Pennington, Deputy Chief Program Management Officer, (213) 922-7449

Reviewed by: Richard F. Clarke, Chief Program Management Officer, (213) 922-7557



Phillip A. Washington  
Chief Executive Officer

# State Route 710 North Project

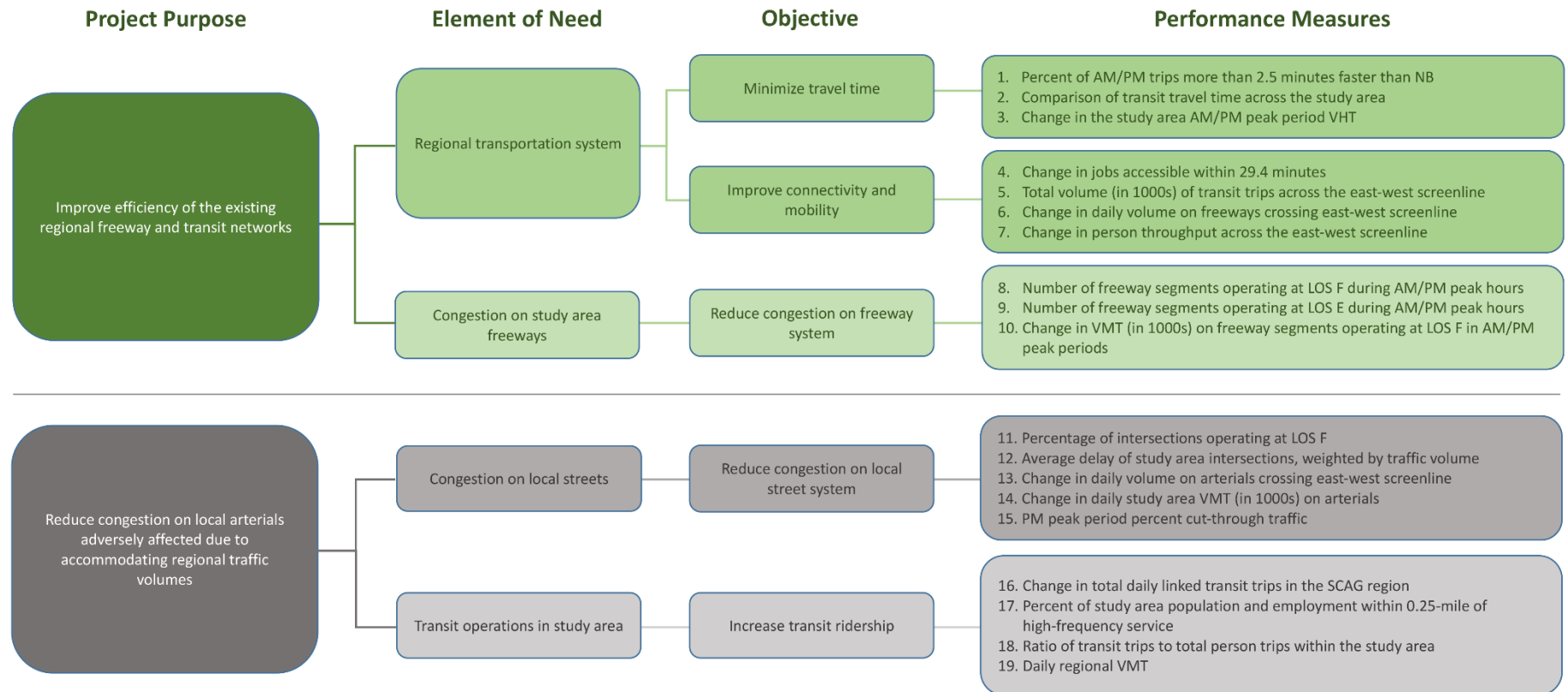
## STUDY AREA



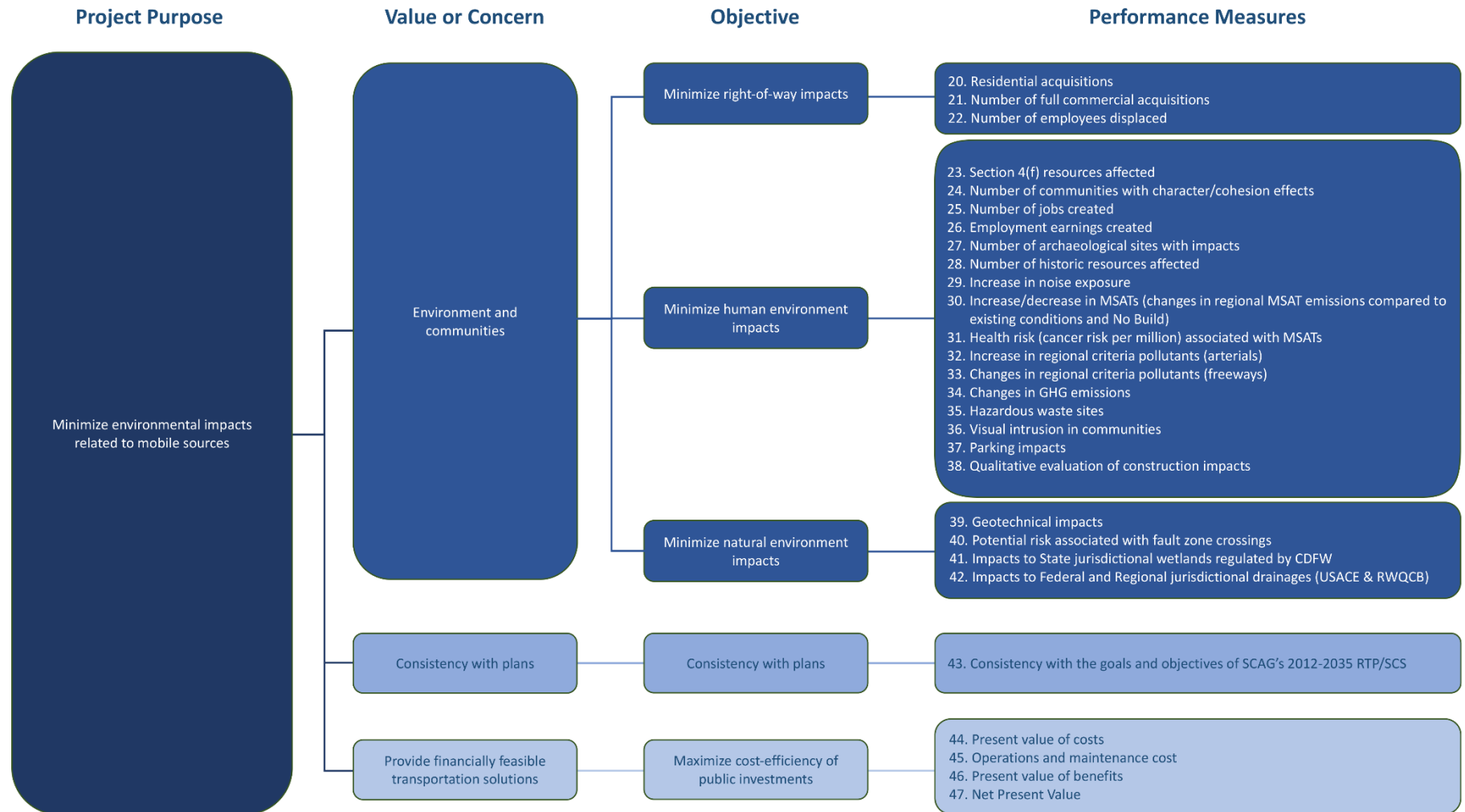
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# State Route 710 North Project Performance Evaluation Matrix



# State Route 710 North Project Performance Evaluation Matrix (Cont'd)



### State Route 710 North Project Performance Evaluations Summarized by Objective

Element of Need	#	Objective	Single-Bore Tunnel					Dual Bore Tunnel				
			NB	TSM/ TDM	BRT	LRT	Toll	No Trucks	Express Bus	No Toll	No Toll No Trucks	Toll
<b>OVERALL AVERAGE</b>			6	6	6	5	7	7	7	7	7	7
Regional Transportation System	1	Minimize Travel Time	1	2	3	4	6	7	7	7	7	8
	2	Improve Connectivity and Mobility	1	2	3	3	7	6	6	7	8	8
Congestion on Study Area Freeways	3	Reduce Congestion on Freeway System	5	4	5	4	4	5	4	5	5	5
Congestion on Local Streets	4	Reduce Congestion on Local Street System	1	1	1	1	6	6	6	10	10	9
Transit Operations in Study Area	5	Increase Transit Ridership	5	6	7	7	6	5	6	5	6	6
Environment and Communities	6	Minimize Right-of-Way Impacts	10	9	8	1	9	9	9	9	9	9
	7	Minimize Human Environment Impacts	7	5	5	5	7	7	7	7	7	7
	8	Minimize Natural Environment Impacts	10	10	10	9	6	6	6	5	5	5
Consistency with Plans	9	Consistency with Plans	10	10	10	10	10	10	10	10	10	10
Provide Financially Feasible Transportation Solutions	10	Maximize Cost Efficiency	6	6	5	3	7	7	7	4	5	3





# State Route 710 North

## SINGLE BORE FREEWAY TUNNEL FACT SHEET

### Description

The Single Bore Freeway Tunnel (SBFT) connects the existing southern stub of State Route 710 in Alhambra, to the existing northern stub of Interstate Route 710, south of the Interstate 210/State Route 134 interchange in Pasadena. The alignment is approximately 6.3 miles long, and consists of a bored tunnel (4.2 miles), short (0.7 miles) cut-and-cover tunnel segments at the south and north termini, and at-grade (1.4 miles) segments; with no intermediate interchanges or vertical ventilation shafts.

The SBFT has the highest net present value at approximately \$1.5 Billion. The preliminary construction cost estimate is \$3.15 Billion (in 2014 \$s) of which approximately \$50 Million is earmarked for TSM/TDM improvements. The construction is expected to take between 4 and 5 years.

Continued local input and coordination with cities, state and local fire representatives, first responders, California Highway Patrol, Caltrans, power companies, railroads, the flood control district and other affected agencies, is expected throughout the remaining project development phases.

### Transportation Benefits

The SBFT is expected to carry 90,000 vehicles per day, remove 42,000 vehicles per day from local streets within the study area and save motorists (using the tunnel) 13 minutes, in addition to providing the following benefits:

- > Improves local and regional mobility
- > Improves air quality for affected cities within the study area
- > Reduce congestion and cut-through traffic on local streets- 42,000 fewer vehicles per day
- > Travel time savings (and less delay) -4000 fewer vehicle hours traveled per day during peak period within the study
- > Fewer vehicle miles traveled on local streets- reduce arterial travel by 280,000 vehicles miles travelled per day
- > Improve connectivity and mobility - increase throughput by 66,000 vehicles per day on the freeway, and increase person throughput by 49,000 daily

- > Create the greatest number of jobs- approximately 42,000 (only surpassed by the dual bore tunnel alternative potential jobs)
- > Generates the highest employment earnings approximately \$29 Million (in 2010 \$s) per year (only surpassed by the dual bore tunnel alternative potential earnings)

### Design Features

Portals are planned at the southern terminus, south of Valley Boulevard and at the northern terminus, north of Del Mar Boulevard. Ventilation structures will be located at both ends of the tunnel, (incorporated into the south portal building design at the south end, and situated near the 210 interchange at the north end). In addition to providing innovative traffic and traveler information systems, other supporting tunnel systems will include, but not be limited to:

- > Air scrubbers, fans and longitudinal ventilation systems
- > Fire suppression systems (sprinkler system)
- > 24 hour communication and surveillance systems

### Transportation System Management/ Transportation Demand Management (TSM/ TDM) Elements

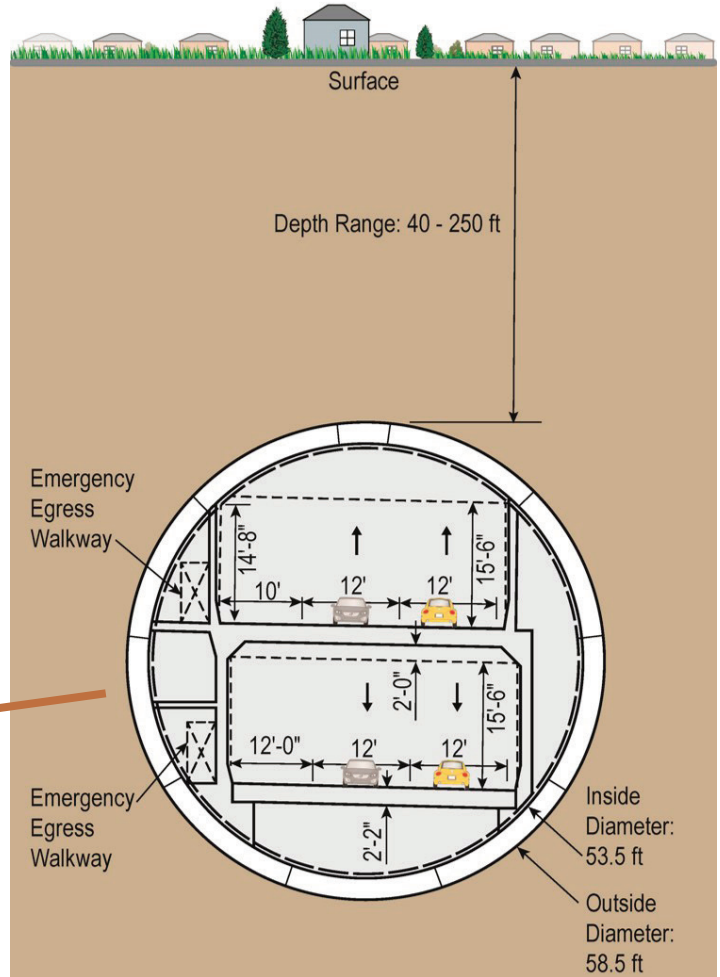
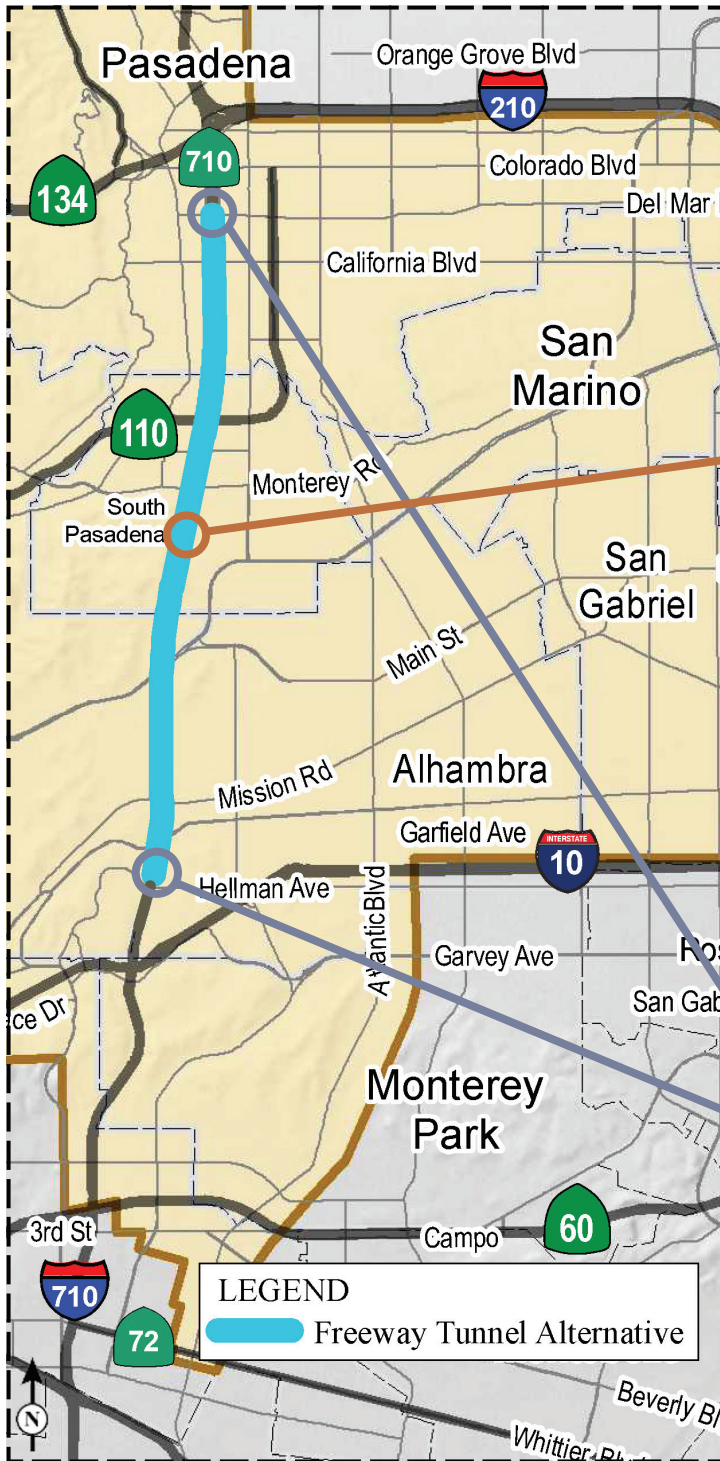
The SBFT includes all of the proposed TSM/TDM operational improvements, except for the proposed connector between Valley Boulevard to Mission Road and the extension of St. John Avenue between Del Mar and California Boulevards, due to design conflicts.

### Operational Consideration

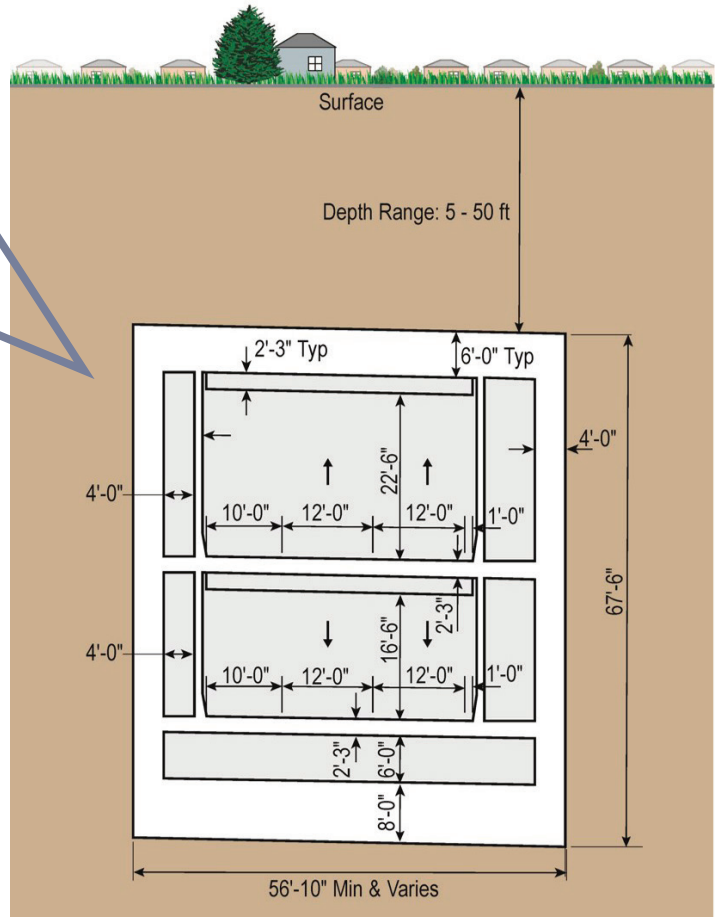
The SBFT with tolls would provide a potential revenue source and an opportunity to deliver a Public Private Partnership project. Restricting heavy trucks in excess of 33,000 tons, in addition to prohibiting vehicles carrying flammable or hazardous materials, will optimize traffic operations. Express bus service in the tunnel will have a negligible effect on improving system performance.

# FREEWAY TUNNEL PROJECT AREA

# BORED TUNNEL SECTION



# CUT AND COVER SECTION



# State Route 710 North

## TRANSPORTATION SYSTEM MANAGEMENT/TRANSPORTATION DEMAND MANAGEMENT ALTERNATIVE

### Description

The Transportation System Management/Transportation Demand Management (TSM/TDM) alternative is designed to maximize the efficiency of the existing transportation system by improving capacity on the local street system and reducing the effects of bottlenecks and chokepoints. These relatively low-cost, low-impact strategies are included to all of the State Route 710 Build alternatives to enhance performance.

TSM strategies include coordinated traffic signal timing to help relieve congestion, ramp metering to control the entry of vehicles onto a freeway, and minor street widening and intersection improvements to improve traffic circulation. TDM strategies promote carpooling, staggered work shifts and more transit use.

Further refinements with local input and coordination, prior to implementation will be crucial to optimize performance and minimize impacts to surrounding communities.

### TSM Design Elements

The following TSM elements are being considered:

#### *Intelligent Transportation Systems (ITS)*

- > Traffic signal upgrades and prioritization
- > Transit signal priority
- > Ramp metering
- > Driver information system
- > Local arterial changeable message signs
- > Vehicle detection systems
- > Variable speed control

#### *Transit (Bus) Enhanced Service*

- > Adjust bus service operating plans and evaluate off board fare collection technologies to reduce delay and increase bus service during peak periods
- > Results in bus frequencies reduced to as little as 2.5 minute headways during peak periods

#### *Active Transportation Systems*

- > Provide pedestrian and bicycle amenities to support access to proposed transit alternatives
  - o Requires coordination with local agencies

#### *Intersection and Local Street Improvements*

- > Accommodate targeted capacity improvements throughout the study area
  - o 27 local intersections, 7 local street segments, 2 street extensions, and one interchange
  - o Requires coordination with local agencies

### TDM Strategies

The following TDM strategies are being considered:

- > Enhanced bus service
- > Reduce the demand for travel during peak periods
- > Encourage rideshare and transit use
- > Eliminate trips (e.g. telecommuting)
- > Improved transportation options