

EXCERPTS

07 - LA - 210 - PM R24.7/R44.92  
0714000165 (EA 30640K)  
PPNo. 4747  
20.10.201.315 SHOPP Program  
June 2014

## Project Study Report-Project Report

To

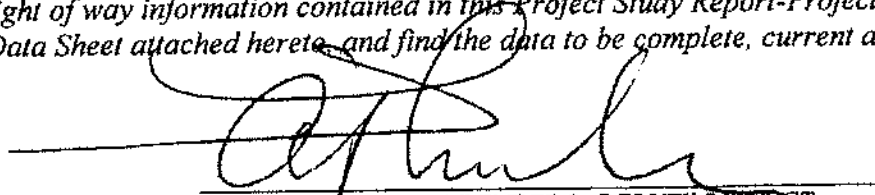
### Request Programming in the 2014 SHOPP And Provide Project Approval

On Route LA-210

Between Route 134

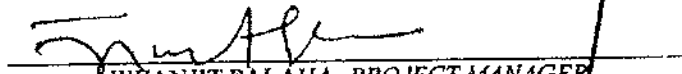
And Route 57

*I have reviewed the right of way information contained in this Project Study Report-Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current and accurate:*



ANDREW P. NIERENBERG, DEPUTY DISTRICT  
DIRECTOR - RIGHT OF WAY

APPROVAL RECOMMENDED:

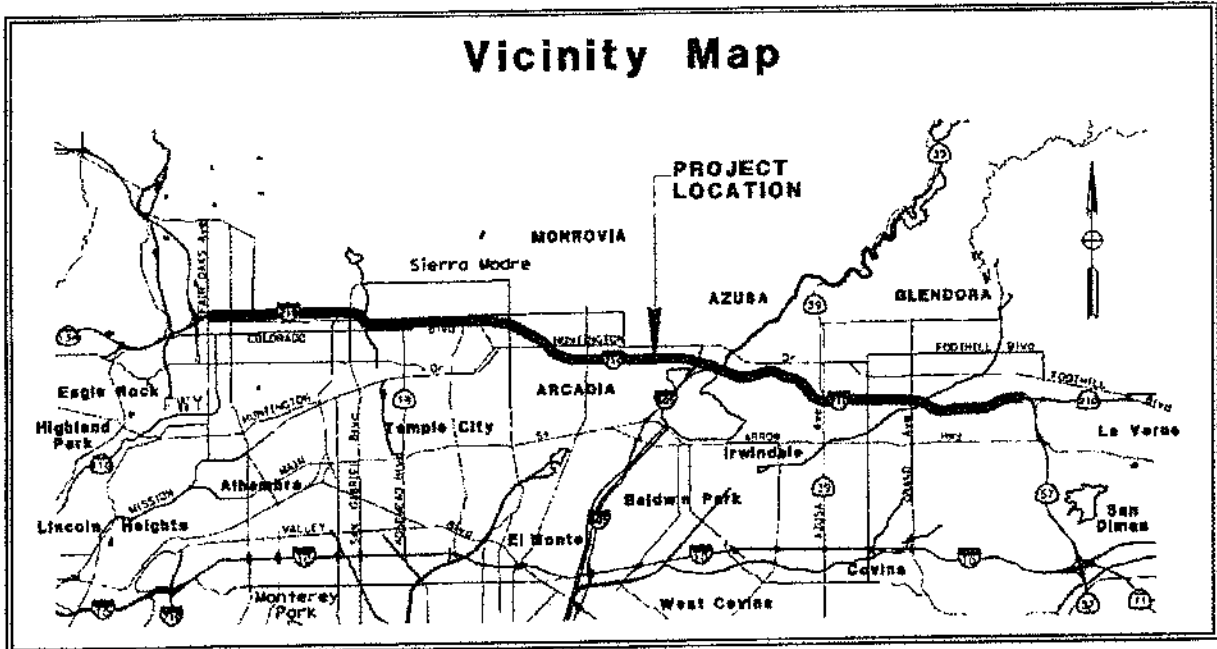


JIWANJIT PALAHA, PROJECT MANAGER

APPROVED:

  
CARRIE L. BOWEN, DISTRICT 7 DIRECTOR

6-12-14  
DATE



On Route LA-210

Between Route 134

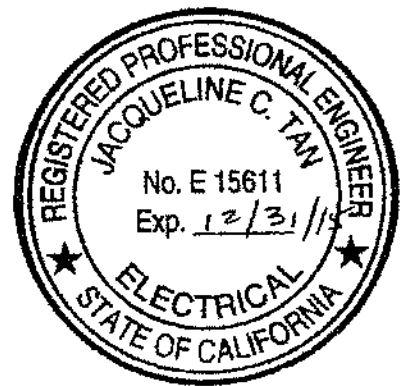
And Route 57

07 - LA - 210 - PM R24.7/R44.92  
0714000165 (EA 30640K)  
PPNo. 4747

This Project Study Report-Project Report has been prepared under the direction of the following registered engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Jacqueline C. Tan  
REGISTERED ELECTRICAL ENGINEER

6-12-2014  
DATE



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## 1. INTRODUCTION

The project proposes a connected corridor approach along a portion of Route 210 from Route 134 (PM 24.7) to Route 57 (PM 44.92) for Transportation Management System (TMS) installations and upgrades and for Life Cycle replacements. The project proposes to install Closed Circuit Television (CCTV) cameras and Maintenance Vehicle Pullouts (MVPs) at various on and off ramps, upgrade traffic signal controllers and detection at various on and off ramps, replace loop detectors for the ramp meters and vehicle detection stations, install and upgrade Changeable Message Signs (CMSs), upgrade the existing communication system to all fiber optic communications, and life cycle replacements for the TMS field elements where needed. It is also proposed to connect existing TMS field elements, consisting of CCTV cameras, ramp metering systems (RMS), vehicle detection stations (VDS), and CMSs, to the fiber optic communication system and to upgrade TMS field elements to be Internet Protocol (IP) network ready.

<b>Project Limits</b>	07, LA, 210, PM 24.7/44.92
<b>Number of Alternatives</b>	2
<b>Alternative Recommended for Programming</b>	Build
<b>Current Capital Outlay Support Estimate</b>	\$6,440,000
<b>Current Capital Outlay Construction Estimate for 2014/15 FY</b>	\$18,400,000
<b>Current Capital Outlay Right-of-Way Estimate</b>	\$0
<b>Funding Source</b>	SHOPP 20.10.201.315
<b>Funding Year</b>	2014/15 FY
<b>Type of Facility</b>	Freeway
<b>Number of Structures:</b>	None
<b>SHOPP Project Output</b>	Install 47 Transportation Management System elements and upgrade 20.22 miles of fiber and 163 Transportation Management System elements
<b>Environmental Determination or Document:</b>	Categorical Exemption
<b>Legal Description</b>	In Los Angeles County in Pasadena Arcadia, Monrovia, Duarte, Irwindale, Azusa, and Glendora from Route 134 to Route 57.
<b>Project Development Category</b>	Category 5

## **2. RECOMMENDATION**

It is recommended that this Project Study Report-Project Report be approved, and that the project be accelerated and included in the 2014 State Highway Operation and Protection Program (SHOPP) with a programming year of 2014/2015 to capture a potential SHOPP capital project shortfall in the 2014/2015 fiscal year.

## **3. BACKGROUND**

The Transportation Management System for District 7 Congestion Relief Program was updated in 2007 to help alleviate traffic congestion.

Since 1990, the Southern California Association of Government (SCAG) region was consistently ranked as the most congested Metropolitan region in the nation. The overall pattern of work choice remained essentially unchanged with a majority of workers driving to work alone.

There are currently 500 miles of fiber optic cable and conduit installed along the freeway system in Los Angeles and Ventura County. Copper twisted pair cable, as well as Single Mode fiber, has also been installed for load distribution circuits to CCTV, RMS, VDS and CMS.

Route 210 is an East West freeway from Route 5 in Los Angeles to Route 10 in Redlands, San Bernardino County. Route 210 is part of the National Highway System. The freeway currently has one High Occupancy Vehicle lane and four to five mixed lanes in each direction. The State of California Department of Transportation (Caltrans) District 7 and the Metropolitan Transportation Authority (Metro) have been pursuing the development of strategies to relieve congestion on arterials and access avenues along this corridor to improve traffic flow and circulation. This route carries a segment of railroad operated by the Metro in its median, providing rapid transit through Pasadena toward Los Angeles. There are three large train stations in place and one Park and Ride facility along the freeway in Pasadena, thus allowing easy access to bus corridors along city streets. The Foothill Extension of the Gold Line rapid transit will extend from Pasadena to Azusa and be completed in September 2015. Planning for the Azusa to Montclair Extension of the Gold Line began in 2003. The Final Environmental Impact Report was certified in March 2013 and a locally preferred alternative was selected. Starting in early 2014, the project will begin advanced conceptual engineering. No funding has been secured for this segment of the rapid transit extension.

#### **4. PURPOSE AND NEED STATEMENT**

The purpose of this connected corridor type project is to maximize corridor wide system performance by upgrading and completing the Transportation Management System and having life cycle replacements for some of the TMS field elements, along with replacement of the existing copper cables with fiber optic cables along the corridor and at all CCTV, RMS, VDS and CMS locations to ensure the corridor is in top operational and monitoring condition. The traffic signals at the on and off ramps will have controllers and loop detectors upgraded and there will be CCTV cameras and MVPs installed at the on/off ramps

This project will meet the needs and objectives of the Transportation Management System for District 7 Congestion Relief Program - 2007 Update.

With continued regional growth, especially in the Inland Empire, congestion is expected to increase along this corridor and the surrounding roadway network. By upgrading and improving the Transportation Management System in the corridor, some congestion relief is anticipated.

#### **5. DEFICIENCIES**

The existing communications system consists of a fiber optic trunkline and a twisted pair copper distribution system, which connects all Intelligent Transportation System (ITS) elements to the trunkline. This system is difficult to maintain and the hardware supporting the copper system is increasingly difficult to purchase from suppliers as suppliers are moving from supporting copper systems to supporting fiber optic systems. Also, widespread copper cable theft throughout the nation has resulted in extensive and costly repairs, necessitating a need for Caltrans to replace the copper cables with fiber optic cables. Much of the equipment of the TMS field elements along the corridor have reached their end of life and need life cycle replacements.

#### **6. TRAFFIC DATA**

Typical existing (2012) Annual Average Daily Traffic (AADT) and projected (2034) on Route 210 where TMS elements and communications systems are to be installed and upgraded are as follows.

LOCATION	AADT	
	2012	2034
LA 210 PM R24.7/44.92	251,000 (Average)	268,000

Source: Office of Regional Planning & Public Transportation

## 7. CORRIDOR AND SYSTEM COORDINATION

The proposed project is identified as a Transportation Management Systems (TMS) project and as such is consistent with the plans, programs and goals of the Transportation Management System for District 7 Congestion Relief Program - 2007 Update. This project is consistent with the Investment Level 1 Typed projects identified as part of the TOPS (Traffic Operations Strategies) planning process for the four southern districts (District 7, 8, 11, and 12).

## 8. ALTERNATIVES

### 8A. VIABLE ALTERNATIVES

The "proposed project" alternative consists of Transportation Management System (TMS) installations and upgrades for Life Cycle replacements.

### 8B. REJECTED ALTERNATIVES

The "No-Build" Alternative was considered in developing and analyzing system alternatives, but was eliminated because of high maintenance costs and the unavailability of parts in the future.

## 9. TRANSPORTATION MANAGEMENT PLAN

The hours available for contractor's operations will be regulated to off-peak hours and detailed within the special provisions to minimize the impact on existing traffic flows. Special Provisions will regulate the contractor's operations in the event that ramp or lane closures are required and the traveling public will be informed of the time and location where such construction will take place. The majority of the work will require shoulder closures and will not affect traffic flows. Therefore, no significant delay is expected as a result of the construction of this project.



EA	Route	Post Mile	Type of Work	RTL (M460)	CCA (M600)
28390	210	R25.4/R28.7	Transportation Enhancement	7/1/2014	7/24/2018
28730	210	R39.8/R41.9	Storm Water Source Control	5/21/2014	8/16/2018
23290	210	R25.3/R32.2	Soundwall	5/31/2016	1/14/2019
2487U	210	R29.3/R39.1	PGL Foothill Extension Seg 1	8/15/2011	12/30/2015
29400	210	R29.0/R38.0	Light Rail Transit	12/4/2014	12/5/2016

### 15. COMMUNITY INVOLVEMENT

This project is a Project Development Category 5 project, therefore no public meetings or hearings are required. There have been outreach meetings to discuss the project and the connected corridor concept for the project area with the following agencies: City of Pasadena & City Council, City of Arcadia & City Council, City of Monrovia, City of Duarte, Los Angeles County Department of Public Works, San Gabriel Valley Council of Governments (SGVCOG) and SGVCOG TAC (Transportation Advisory Committee), Southern California Association of Governments, Metro (Bus Operations), California Highway Patrol, and Los Angeles County Coroner. Further meetings are anticipated with Air Quality Management District, Metro Rail and Foothill Transit.

### 16. FUNDING/PROGRAMMING

The current construction cost estimate for the project as of April 2014 is \$18,400,000.

It has been determined that this project is eligible for federal-aid funding.

## **10. ENVIRONMENTAL DETERMINATION DOCUMENT**

The project is categorically exempt Class 1, Section 1510.1c of Caltrans Environmental Regulations. This project will not increase vehicle carrying capacity; it will only improve efficiency, allowing the traffic to flow better and reduce emissions.

## **11. HAZARDOUS WASTE ASSESSMENT**

There appears to be a concern of aeriaily deposited lead (ADL) in unpaved areas for proposed installations within the project limits. ADL testing may be required and will be initiated during design phase of this project. There is also concern from white traffic stripe removal residue. There is concern for the removal of electrical equipment which requires special handling. Appropriate specifications may need to be added to the project PS&E for these concerns. The Hazardous Waste Assessment is shown in Attachment F.

## **12. RIGHT OF WAY**

All work planned for this project is within the State's existing right of way and there is no utility relocation work required. Utility potholing is recommended in order to avoid utility conflicts. Therefore \$10,000 has been allocated for potholing.

## **13. LANDSCAPE**

The cost of highway planting and irrigation relocation/installation is included in the project cost.

## **14. CONSISTENCY WITH OTHER PLANNING:**

This project is consistent with the following projects in the area.

**16A. CAPITAL COST**

Capital Outlay Support and Project Estimates

Fund Source	Fiscal Year Estimate							Total
	Prior	2013/14	2014/15	2015/16	Future	Future	Future	
SHOPP 20.10.201.315								
Component	In thousands of dollars (\$1,000)							
PA&ED Support								\$ 2,940
PS&E Support			\$ 2,940					
Right-of-Way Support			\$ 2					\$ 2
Construction Support				\$ 3,498				\$ 3,498
Right-of-Way				\$ 10				\$ 10
Construction				\$ 18,390				\$ 18,390
Total			\$ 2,942	\$ 21,898				\$ 24,840

The support cost ratio is 35.0%.

**17. SCHEDULE**

Project Milestones	Scheduled Delivery Date (Month/Day/Year)
PA & ED	M200 6/13/2014
READY TO LIST	M380 5/08/2015
RIGHT OF WAY CERTIFICATION	M410 4/11/2015
PROJECT PS&E	M460 5/28/2015
AWARD	M495 10/16/2015
APPROVE CONTRACT	M500 10/30/2015
CONTRACT ACCEPTANCE	M600 6/30/2018
END PROJECT	M800 6/30/2019

**18. RISKS**

Pursuant to District DD-35, risk management activities were conducted by the Project Manager. Based on the project size, these activities included an informal qualitative risk analysis of the project. See Attachment J for the Risk Register.



## **ATTACHMENT A**

### **Cost Estimate**

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**PRELIMINARY PROJECT COST ESTIMATE SUMMARY**

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07-LA-210-PM 24.7/44.92  
Rte 134 to Rte 57

**PROJECT DESCRIPTION:**

Limits Along Route 210 from Route 134 to Route 57

EA/Program \_\_\_\_\_

Proposed Upgrade Traffic Management System  
Improvement (Scope) \_\_\_\_\_

Phase \_\_\_\_\_

**SUMMARY OF PROJECT COST ESTIMATE**

TOTAL ROADWAY ITEMS	<u>\$18,374,000</u>
TOTAL STRUCTURE ITEMS	<u>\$0</u>
SUBTOTAL CONSTRUCTION COSTS	<u>\$18,374,000</u>
TOTAL RIGHT OF WAY ITEMS	<u>\$10,000</u>
TOTAL PROJECT CAPITAL OUTLAY COSTS	<u>\$18,400,000</u>

Reviewed by District Program Manager

  
(Signature)

Date

6/12/14

Approved by Project Manager

  
(Signature)

Date

6/12/14

Phone No. (213) 897-8485

LA-210-PM R24.7/R44.92  
Rte 134 to Rte 57  
EA 30640K

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Maintenance Turnout <sup>(1)</sup>	17	EA	\$30,000	\$510,000	
Maintenance Turnout <sup>(2)</sup>	3	EA	\$30,000	\$90,000	
Maintenance Turnout <sup>(3)</sup>	1	EA	\$30,000	\$30,000	
Clearing & Grubbing	0	LS	\$0	\$0	
Subtotal Earthwork					\$630,000

Section 2 Pavement Structural Section

Subtotal Pavement Structural Section      \$0

Section 3 Drainage

Subtotal Drainage      \$0

- (1) MAINTENANCE TURNOUT AREA FOR CCTV LOCATIONS FOR SIGNAL (INCLUDES MBGR AND AC PAVEMENT)
- (2) MAINTENANCE TURNOUT AREA FOR CMS LOCATIONS
- (3) MAINTENANCE TURNOUT AREA INCLUDING GUARD RAIL WORK REQUESTED BY MAINTENANCE

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 Rte 134 to Rte 57  
 EA 30640K

	Quantity	Unit	Unit Price	Item Cost	Section Cost
<b>Section 4 Specialty Items</b>					
Irrigation Modification	0	LS	\$0	\$0	
Landscaping	1	LS	\$320,000	\$320,000	
Highway Planting	0	LS	\$0	\$0	
Permanent Treatment BMP	0	LS	\$0	\$0	
Construction Site BMP	1	LS	\$150,000	\$150,000	
Hazardous Waste Mitigation (Aerially Deposited Lead Soil)	1	LS	\$200,000	\$200,000	
Resident Engineer Office Contractor's Lead	1	LS	\$150,000	\$150,000	
Compliance Plan	1	LS	\$10,000	\$10,000	
				<b>Subtotal Specialty Items</b>	<b>\$830,000</b>
<b>Section 5 Traffic Items</b>					
Modify Comm System <sup>(1)</sup>	1	LS	\$3,150,000	\$3,150,000	
Install CMS (Model 500)	2	Ea	\$500,000	\$1,000,000	
Install CMS (Model 520)	1	Ea	\$400,000	\$400,000	
Modify CMS	4	Ea	\$90,000	\$360,000	
Install CCTV (for CMS)	3	Ea	\$120,000	\$360,000	
Install CCTV (for Signal)	41	Ea	\$60,000	\$2,460,000	
Modify CCTV	25	Ea	\$10,000	\$250,000	
Modify TMS	29	Ea	\$10,000	\$290,000	
Modify RMS	60	Ea	\$10,000	\$600,000	
Replace Exist Loop Detectors	1	LS	\$270,000	\$270,000	
Upgrade Exist Signal Detection System	45	Ea	\$60,000	\$2,700,000	
Traffic Management Plan	1	LS	\$45,000	\$45,000	
Traffic Control Systems	1	LS	\$150,000	\$150,000	
				<b>Subtotal Traffic Items</b>	<b>\$12,035,000</b>
				<b>TOTAL SECTIONS 1 thru 5</b>	<b>\$13,495,000</b>

(1) ESTIMATE INCLUDES CONDUITS, CABLES, PULL BOXES, SPLICE CLOSURES,  
 INNERDUCTS, TRAINING AND EQUIPMENT AT HUB



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Section 6 Minor Items			Item Cost	Section Cost
Subtotal Sections 1 thru 5	\$13,495,000	x (5%) =	\$674,750	

**TOTAL MINOR ITEMS** **\$674,750**

**Section 7 Roadway Mobilization**

Subtotal Sections 1 thru 5	\$13,495,000			
Minor Items	\$674,750			
Sum	\$14,169,750	x (10%) =	\$1,416,975	

**TOTAL ROADWAY MOBILIZATION** **\$1,416,975**

**Section 8 Roadway Additions**

**Supplemental Work**

Subtotal Sections 1 thru 5	\$13,495,000			
Minor Items	\$674,750			
Sum	\$14,169,750	x (5%) =	\$708,488	

**TOTAL ROADWAY ADDITIONS** **\$2,833,950**

**TOTAL ROADWAY ITEMS** **\$18,421,000**  
(Subtotal Sections 1 thru 8)

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Rte 134 to Rte 57  
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**II-STRUCTURES ITEMS**

	STRUCTURE			
Conduit Installation on Structure			<u>\$0</u>	
				<b>SUBTOTAL STRUCTURES ITEMS</b> <u>\$0</u>
Railroad Related Costs	N/A	N/A	N/A	
				<b>TOTAL STRUCTURES ITEMS</b> <u>\$0</u>
				<b>USE</b> <u>\$0</u>

COMMENTS :

III. RIGHT OF WAY ITEMS

ESCALATED  
VALUE

- A. Acquisition, including excess lands,  
damages to remainder(s) and Goodwill \_\_\_\_\_
- B. Utility Relocation (State share) \_\_\_\_\_
- C. Relocation Assistance \_\_\_\_\_
- D. Clearance/Demolition \_\_\_\_\_
- E. Title and Escrow Fees \_\_\_\_\_

**TOTAL RIGHT OF WAY ITEMS**  
(Escalated Value)

\$10,000

Anticipated Date of Right of Way Certification  
(Date to which Values are Escalated) \_\_\_\_\_

F. Construction Contract Work

Brief Description of Work:

Potholing

Right of Way Branch Cost Estimate for Work

\$10,000

COMMENTS:

Estimate Prepared By: Candace Fung  
(Print Name)

Phone #: (213) 897-0068

Date: 04/09/14

Estimate Checked By: Jackie Tan  
(Print Name)

Phone #: (213) 897-4698

Date: 04/09/14