

PROJECT STUDY REPORT

To

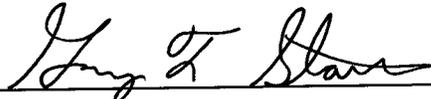
Request for Programming in the 2015/2016 SHOPP

On Route Southbound Interstate 405

Between Sand Canyon Avenue (PM 2.89)

And SR-133 Connector (PM 2.45)

APPROVAL RECOMMENDED BY:

 7/16/07
Date
Gary Slater, P.E.
Branch Chief, Project Studies Unit

 7/16/07
Date
Vinh Pham
Project Manager

APPROVED BY:

 9/12/07
Date
Cindy Quon
District Director

12-ORA-405
PM 2.45/2.89
On SB I-405 between Sand Canyon Ave and SR-133
12840-0H320K-20.10.201.310

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



Jason Ly
Registered Civil Engineer

07-15-07
Date



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- Exhibit B: Alternative 2: Typical Cross Sections and Layouts**
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LIST OF ATTACHMENTS

- Attachment 1: Traffic Data: Investigation and Recommendation by District 12 Traffic Operations North Branch**
- Traffic Analysis (Priority Index Number (PIN), Performance Measures, Level of Service (LOS))
 - Ramp Volumes and Truck AADT
 - TASAS Table B
- Attachment 2: Preliminary Environmental Analysis Report (PEAR)**
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- Alternative 1
 - Alternative 2
- Attachment 5: Project Schedule and Resource Requirement**

PROJECT STUDY REPORT

1. INTRODUCTION

This Project Study Report (PSR) proposes to construct an auxiliary lane on the southbound (SB) Interstate 405 (I-405) between Southbound SR-133 off-ramp (PM 2.45) and Sand Canyon Avenue on-ramp (PM 2.89), in the City of Irvine in the County of Orange. The California Department of Transportation (Department) District 12 Traffic Operations South Branch initiated a traffic operational improvement project at this location to relieve the congestion and improve traffic flow through this 0.45 miles length of freeway.

This project proposes two alternatives: Alternative 1 (No-build Alternative) and Alternative 2 (Recommended for Programming). Alternative 2 would extend an existing auxiliary lane to Sand Canyon Avenue on-ramp and provide full standard features in the I-405 SB direction.

The cost for Alternative 2 is as follows (Exhibit C):

Project Limits:	12-ORA, I-405 PM (2.45/2.89)
Number of Alternatives:	Two
Alternative Recommended for Programming:	Alternative 2
Proposed Capital Construction Cost : (millions)	\$4.29
Proposed Right of Way Cost: (millions)	0
Funding Source (Program Code):	Operational Improvement (.310)
Type of Facility	Freeway
Number of Structures:	None
Anticipated Environmental Determination/Document	CE/CE
Project Category	5

This project is proposed for federal funding and is eligible for programming through the State Highway Operational Protection Plan (SHOPP) as a Mobility Improvement project, under program code 20.10.201.310 for the 2015/2016 SHOPP cycle. This project may be funded through Orange County Transportation Authority (OCTA) or the City of Irvine funding including the North Irvine Transportation Mitigation (NITM) program or other local developer funds. The project is categorized as Category 5, for projects of minimal economic, social, or environmental significance, as described in the Department Project Development Procedure Manual Chapter 8, Section 5, Project Development Categories.

2. BACKGROUND

I-405 (San Diego Freeway) is a north-south interstate bypass route starting in South Orange County and ending in northern Los Angeles County. The freeway is 23.9 miles long in Orange County. Within Orange County I-405 passes through six cities (Irvine, Costa Mesa, Fountain Valley, Huntington Beach, Westminster, and Seal Beach). The freeway passes through fully developed portions of the county except south of Jeffrey Rd where it is currently zone for open space and agricultural land uses. The freeway is considered relatively flat grade in Orange County.

There is a limited access with buffer separated HOV lane facility for the entire length of I-405 in both directions in the county. The HOV lanes in Orange County were completed in 1991. The I-5/I-405 HOV freeway direct connector was completed in 1997. The portion of the freeway between Sand Canyon and SR-133 has one HOV lane and a 12 foot ingress/egress lane adjacent to the HOV lane and number one general-purpose lane. There is a Project Study Report, (0J440K) proposing to remove the exiting HOV buffer and replace it with a continuous and full-time HOV access for the entire I-405 to provide. This HOV re-stripe project could be in-place during the PA&ED phase of this project.

Currently, the SB I-405 in the project area has four general-purpose lanes, one HOV lane with a 14 foot HOV buffer width, and 10 foot shoulder on both sides. All general-purpose lanes and HOV lanes are 12 feet in width with a Portland Cement Concrete (PCC) pavement structure. The Jeffrey Road/University Drive on-ramp is a single-lane entrance ramp that tapers from two lanes to one lane at the end. The ramp cross section has a 12-foot lane width, a 4-foot inside shoulder, and an 8-foot outside shoulder. The Sand Canyon Avenue off-ramp is a single lane exit ramp with 12-foot lane width, a 4-foot inside shoulder, and an 8-foot outside shoulder. The ramp widens to three lanes at the terminus.

The proposed project is within the SR-73 and SR-241 Non-Competition Zone as referenced in the Cooperative Agreement No. 12-079 dated February 16, 1993 between the Department of Transportation and the San Joaquin Hills Transportation Corridor Agency. As such, the project is subject to the terms identified in the above-noted document and further evaluation may be necessary.

3. PURPOSE AND NEED STATEMENT

The project is needed to improve storage capacity and weaving operation of vehicles entering and exiting the freeway on this portion of the SB I-405. The addition of an auxiliary lane is expected to improve the level of service (LOS) from F to D along this segment due to merging and congestion at the two interchanges. The project would also reduce overall traffic delay, traffic congestion, and significantly improve the travel speed on this portion of the freeway. The purpose of this project is to extend the auxiliary lane to allow traffic to weave between the ramps for storage capacity, significant improvement would be achieved in the travel speed.

With the less congested general-purpose lanes, accident rates for sideswipe and rear end type collisions are expecting to be reduced.

4. DEFICIENCIES

It was observed that traffic volumes are very high in this segment of the SB I-405 between the Sand Canyon Avenue on-ramp and the SR-133 connector. As a result, congestion and weaving problems occur during the AM and PM peak period. Approximately 412 vehicles enter the freeway at Sand Canyon Avenue, and over 1100 vehicles exit at the SR-133 connector. Significant volume of vehicles are merging and diverging from the outside number four general purpose lane creates conflicting movement and disturbance of the free-flow condition in the freeway segment. Operational Analysis of the freeway by Traffic Operation South Branch recommends constructing an auxiliary lane to relieve the congestion (**Attachment 1**).

Table 1: Level of Service (LOS), PIN Numbers, and Performance Measure comparison between alternatives.

YEAR 2006	SEGMENTS	# OF GP LANES	# OF AUX LANES	Level of Service (LOS)	
				AM	PM
ALTERNATIVE 1 (No-build)	From Sand Canyon Avenue on-ramp to SR-133 Connector off-ramp	4	0	F	F
ALTERNATIVE 2	From Sand Canyon Avenue on-ramp to SR-133 Connector off-ramp	4	1	D	D

YEAR 2006	SEGMENTS	PIN Number	Performance Measure (Vehicle Hour per Year)
ALTERNATIVE 1 (No-build)	From Sand Canyon Avenue on-ramp to SR-133 Connector off-ramp	-	-
ALTERNATIVE 2	From Sand Canyon Avenue on-ramp to SR-133 Connector off-ramp	953	94,000

A. Accident History

Table 2: TASAS Table B from 01/01/2003 to 12/31/2005

LOCATION	NO OF ACCIDENTS			ACCIDENT RATE ACCS/MV					
				ACTUAL			AVERAGE		
	TOT	FAT	F+I	FAT	F+I	TOT	FAT	F+I	TOT
SB I-405 Between SR-133 Connector off-ramp (PM 2.0) to Sand Canyon Avenue on-ramp (PM 3.05)	44	0	11	0.000	0.08	0.30	0.006	0.35	1.11
SB off to SR-133 Connector (PM 2.21)	3	0	0	0.000	0.00	0.27	0.002	0.08	0.25
Canyon Avenue on-ramp (PM 2.93)	1	0	0	0.000	0.00	0.26	0.001	0.24	0.70

The TASAS (Traffic Accident Surveillance and Analysis System) accident data shows that the accident rate on SB I-405 within the project limits has been lower than average for similar facilities statewide during a 36-month period from January 1, 2003 through December 31, 2005 except for SB SR-133 connector.

B. Traffic Volumes

Based on 2006 Traffic Volumes on the California State Highway System, this section of I-405 has a two-way (NB and SB) ADT of 250,000 vehicles and a two-way (NB and SB) peak hour volume of 20,000 vehicles. Forecasts indicate that in 2030 I-405 is expected to have a two-way (NB and SB) ADT of 312,500 vehicles and a two-way peak (NB and SB) hour volume of 25,000 vehicles.

The maximum truck percentage is 5.6% according to 2005 Annual Average Daily Truck Volume on the State of California Highway System.

Table 3: Peak Hour Volumes on I-405 General-Purpose Lanes

Traffic Volumes	PEAK HOUR (2006)		PEAK HOUR (2030)	
	AM	PM	AM	PM
SB I-405 Between SR-133 Connector off-ramp and Sand Canyon Avenue on-ramp	9,875	10,000	12,343	12,500
SR-133 Connector off-ramp	1,113	1,056	1,392	1,320
Sand Canyon Avenue on-ramp	412	470	515	588

Table 4: AADT Volumes

Traffic Volumes	AADT (2006)	AADT (2030)
SB I-405 Between SR-133 Connector off-ramp and Sand Canyon Avenue on-ramp	125,000	156,250
SR-133 Connector off-ramp	13,200	16,500
Sand Canyon Avenue on-ramp	4,500	5,625

This forecast is based on the Orange County Transportation Analysis Model 3.2 (OCTAM 3.2) which utilizes Socio-economic data and transportation system (highway & transit) for the years 2000 and 2030. Socio-Economic data sets were produced by the Center for Demographic Research (CDR) at California State University at Fullerton (CSUF) for OCTA.

5. CORRIDOR AND SYSTEM COORDINATION

This project is consistent with the I-405 Route Concept Report. The Route Concept Report indicates that Segment from SR-55 to SR-133 calls for 8 to 10 lanes plus 2 High Occupancy Vehicle (HOV) lanes and auxiliary lane. The concept LOS is projected to be at F2 range.

There are currently no other plans for this section of Interstate 405. However, the following projects are close by and concurrently proposed in Table 5 below. All coordination with these projects should be made during the PS&E stage.

Table 5: Proposed Projects

EA	PM	DESCRIPTION	LOCATION
0H045K	3.09/3.81	CONSTRUCT AN AUXILIARY LANE ON SB I-405 FROM UNIVERSITY DRIVE / JEFFREY ROAD ON-RAMP TO SAND CANYON OFF-RAMP	IN CITY OF IRVINE
0H770K	3.90/4.30	CONSTRUCT A 1200 FEET AUXILIARY LANE ON I-405 NORTH OF UNIVERSITY DRIVE / JEFFREY ROAD SOUTHBOUND OFF-RAMP	IN CITY OF IRVINE

This project is within the Transportation Corridor Agency non-competition zone but it is not a Capacity Enhancement Project and is considered a traffic safety (weaving) and operational improvement (storage capacity) for the ramps. It is needed to improve the operation of the freeway segment.

6. ALTERNATIVES

The following two Alternatives are considered for the project: Alternative 1(No-build) and Alternative 2 (Exhibit B).

ALTERNATIVE 1: NO-BUILD ALTERNATIVE

This “No-Build” Alternative would retain the existing roadway conditions and would be contrary to the Department’s goal to improve mobility across the State. This alternative is not recommended. The existing level of service (LOS) for this segment is “F” and will be worsened in year 2030 (see Table 1) if no work is done for this area.

ALTERNATIVE 2: (Exhibit B)

Alternative 2 proposes to construct a 12 foot wide auxiliary lane from SR-133 Connector to the Sand Canyon Avenue on-ramp. This alternative would also retain the mandatory design standard width for the HOV lane, general-purpose lanes, shoulders, and median as specified in the Department Highway Design Manual to this segment of the SB I-405. The SR-133 connector would remain as a single-lane exit that later splits as traffic diverge.

The City of Irvine recently realigned the Sand Canyon southbound loop on-ramp with a widening project on Sand Canyon Avenue (Contract No. 12-0932U4). Therefore no further work is anticipated on this ramps.

The estimated cost for Alternative 2 is \$ 4.29 million (Exhibit C).

Initial Site Assessment study. Based on the findings during the site inspection, no evidence of known significant hazardous waste contamination that may impact the project was observed.

The soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with deposited lead from vehicle emissions. Soil samples will be collected, tested and analyzed for lead contamination during the PS&E stage. The Environmental Engineering, (EE) Branch will conduct the Lead Investigation during the early stage of design. Since the lead investigation might be a lengthy process, it is essential that at the early stage of PS&E, the Design Branch provide EE with two sets of the plans showing the limits of excavation for to conduct the lead investigation. If lead contamination is found, the results/conclusions will be included in the PS&E package.

Right-of-Way (R/W) / Utilities:

All works are within State Right-of-Way. There will be no right-of-way acquisition needed nor railroad involvement. There is an existing encased 30 inches Irvine Ranch Water District (IRWD) line transversely crossing the roadway, which will be protected in place. At the location where this water line crosses, the widening is only about 6 feet. Since the water line is already encased, there should not be any conflict with the work proposing for this project.

Sound Wall:

There is a Quail Meadow Apartment Homes located approximately 500 feet at the south end of the project limit, and are potential impacted receivers on this side of the freeway. Environmental Engineering Branch has reviewed the preliminary plans and did a field review to investigate possible increase in noise level as a result of this widening project. This project requires a detailed analysis as defined in the Noise Analysis Screening Procedure Checklist. Therefore, during the Environmental Phase a detailed noise study must be performed. The soundwall is going to be constructed either along the edge of shoulder or at the right of way line. The cost of \$600,000 is included in the project cost estimate as an anticipated cost for a sound wall.

Traffic Management Plan (TMP):

The cost of traffic management is included in the cost estimate. A Transportation Management Plan (TMP) will be required for this project due to the expected impact on traffic during construction. The TMP will identify methods to reduce traffic delay, maintain the traffic flow through this SB I-405 corridor, and provide a safe environment for the work force and motoring public. A traffic analysis should be performed as part of the TMP in order to evaluate the potential impact that the project will have on traffic and identify the benefit of implementing a TMP. TMP will be required and prepared during the PS & E Stage.

Elements expected to be recommended or discussed in the project TMP include:

- Public Awareness Campaign
- Traffic System and Signing Package
- Construction Zone Enforcement Enhancement Program (COZEEP)
- Traffic Management Local Assistance - City Police Department
- Advanced Transportation Management System (ATMS)
- Traffic Management Team (TMT)
- A lane closure chart, if needed, which should be requested from the District's Traffic Systems Development branch during the PS&E stage.
- Detour plans should be prepared if necessary during the PS&E stage.

The closure hours of Sand canyon off ramp should be coordinated with the City of Irvine Medical Center located on Sand Canyon Avenue. All works will be done behind the K-rail.

Miscellaneous:

All the signs, sign structures, pavement delineation, metal beam guard rails (MBGRs), and call boxes affected by the proposed work should be removed and replaced with the current standards. MBGRs will be placed along the concrete channel where needed to protect fixed object outside of the recovery zone. Final determination will be determined during the PS&E phase. Also, District Maintenance branch has recommended constructing Maintenance Vehicle Pullouts (MVP) where new overhead signs are to be constructed.

7. COMMUNITY INVOLVEMENT

There is no community involvement for project.

8. ENVIRONMENTAL DETERMINATION/DOCUMENT

Environmental Document:

The Preliminary Environmental Analysis Report (PEAR) was prepared by District 12, Environmental Planning Branch A. The PEAR concluded that the anticipated environmental document would be a joint Categorical Exemption / Categorical Exclusion (CE/CE) under CEQA Class 1c and NEPA compliance with Department as the Lead Agency for both CEQA and NEPA. It would require a minimum of 90 days for preparation of CE/CE. (Attachment 2, Preliminary Environmental Analysis Report)

As of July 1, 2007, NEPA delegation was authorized to the Department. Any documents prepared after this date will entitle the Department to be the Lead Agency for NEPA as well along with CEQA, until or unless specified otherwise. After delegation, the anticipated environmental document for this project would be a joint Categorical Exemption/Categorical

Exclusion (CE/CE) under CEQA (Class 1c) and NEPA compliance with Caltrans as the Lead Agency for both CEQA and NEPA.

NPDES / Storm Water Quality Compliance:

This project must conform to all applicable water quality regulations and/or permit requirements of the State Water Resources Control Board (SWRCB) and any applicable local Regional Water Quality Control Board(s) (RWQCB), including, but not limited to, the Department Statewide NPDES Permit (Order No. 99-06-DWQ. NPDES No. CAS000003), the Statewide General NPDES Permit for Construction Activities (Order No. 99-08-DWQ. NPDES No. CAS000002), and the Department Storm Water Management Plan (May 2003), and any subsequent revisions and/or additional requirements at the time of construction.

Since the proposed project would require more than 0.4 hectares (one acre) of Disturbed Soil Area (DSA), a Storm Water Pollution Prevention Plan (SWPPP) would required to be prepared, implemented and maintenance throughout all phases of construction. A Storm Water Data Report must be prepared for this project. The SWPPP must fully conform to Department requirements and include SWRCB Resolution No. 2001-046, Sampling and Analytical Procedures (SAP) Plan. The contractor must submit a SWPPP to Department for review and approval within 30 days of award of the contract. The review of a SWPPP generally requires 40 days (15 days for Department review, 15 days to re-submit, and 10 days for final review). In addition, a Notice of Construction (NOC) must be submitted to the Santa Ana RWQCB at least 30 days prior to any soil-disturbing activities (Attachment 3, Storm Water Data Report).

The project proposed improvement work on miscellaneous drainage system. If the work will result in an increase in capacity of the structures, Environmental Planning must be notified immediately to reevaluate the impacts on the biological resources.

Based on the project proposed, drainage may discharge into the Orange County Flood Control District channel, located just outside the State right-of-way. It may require permits from the resources agencies including US Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board.

Noise Study:

There is a Quail Meadow Apartment Homes located approximately 500 feet at the south end of the project limit and are potential impacted receivers on this side of the freeway. Environmental Engineering Branch has reviewed the preliminary plans and did a field review to investigate possible increase in noise level as a result of this widening project. According to the Traffic Noise Analysis Protocol, this project is a Type 1 project and will require Traffic Noise Impact Evaluation. This project requires a detailed analysis as defined in the Noise Analysis Screening Procedure Checklist. Therefore, during the Environmental Phase a detailed noise study must be performed. The sound wall is going to be constructed either along the edge of shoulder or the right of way line.

9. FUNDING

This project is proposed for federal funding and is eligible for programming through the State Highway Operational Protection Plan (SHOPP) as a Mobility Improvement project, under program code 20.10.201.310 for the 2015/2016 SHOPP cycle. This project may be funded through Orange County Transportation Authority (OCTA) or City of Irvine funding including the North Irvine Transportation Mitigation (NITM) program or other local developer funds. Alternative 2 is the recommended alternative for programming.

9A. Capital Cost Estimate for Alternative 2 for Programming in the 2015/2016 SHOPP

Fiscal Year	Right of Way Capital	Construction Capital
FY16 - SHOPP	\$ -	\$ 4,293,000
Total	\$ -	\$ 4,293,000

9B. Capital Support Estimate for Alternative 2 in the 2015/2016 SHOPP

	PROJECT SUPPORT COMPONENTS								Total
	PA&ED 0 Phase		Design 1 Phase		Right of Way 2 Phase		Construction 3 Phase		
	Dist	DES	Dist	DES	Dist	DES	Dist	DES	
Estimated PY's	1.16	0.1	3.87	0.24	0.18	0	4.21	0.25	10.01
Estimated PS \$'s (\$1000's)	172	1.43	572	36	26	0	621	37.63	1466.06
Estimated PYE \$'s (\$1000's)	0		0		0		0		0
Total \$'s (\$1000's)	172	1.43	572	36	26	0	621	37.63	1466.06

10. SCHEDULING

The tentative schedule of the project is as follows
 (Attachment 6, Project Schedule and Resource Requirements):

Approved PSR	07/01/2007
Project Approval & Environmental Document	07/01/2014
PS&E to HQ OE	04/01/2015
Right of Way Certification	05/01/2015
Ready to List	07/01/2015
HQ Advertisement	09/01/2015
Approve Contract	11/01/2015
Job Completion	11/01/2016

11. FHWA COORDINATION

This project is on the interstate system, and is not an interstate completion nor is it considered new or reconstruction. Therefore, per FHWA/Department stewardship agreements, this project is exempt from federal review and oversight (figure 2 page 2-39 of the Project Development Procedure Manual 7th Edition).

12. DISTRICT CONTACTS:

Jason Ly (949) 724-2171
Project Engineer, Project Studies Unit

Gary Slater (949) 756-7685
Branch Chief, Project Studies Unit

Raouf Moussa (949) 724-2912
Program Advisor, Branch Chief, Traffic Operations South

Adam Siddiqui (949) 724-2807
Area Traffic Engineer, Traffic Operations South

Vinh Pham (949) 724-2097
Project Manager, Project Management

Smita Deshpande (949) 724-2245
Branch Chief, Environmental Planning Branch A

Kathy J. Anderson (949) 724-2407
Branch Chief, Right of Way Project Coordination

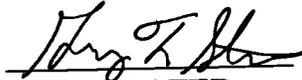
Frank Lin (949) 724-2126
Office Chief, Design

Gale McIntyre (949) 724-2899
Deputy District Director
Planning

13. PROJECT REVIEWS

Field Review	Jason Ly / Anthony Nguyen	Date	03/15/07
District Maintenance	Massoud Tajik / Ahmed A. Abbas	Date	05/25/07
District Safety Review	Edward Khosravi / Mike Flynn	Date	06/26/07
Constructability (QA/QC) Review	Patricia Ruiz / Neshat Motabelli	Date	05/01/07
HQ Design Coordinator	Bob Chapman	Date	05/16/07
<u>District SHOPP Program Advisor</u>	Raouf Moussa	Date	04/25/07

RECOMMENDED BY:

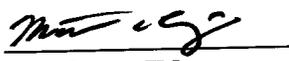

GARY SLATER
Branch Chief
Project Studies Unit

DATE: 7-16-07


RAOUF MOUSSA
Program Advisor
Branch Chief, Traffic Operations South

DATE: 7/17/07

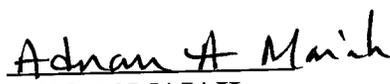
CONCURRENCE:

For 
FRANK LIN
Office Chief
Office of Design

DATE: 7-19-2007


SYLVIA VEGA
Office Chief
Environmental Planning

DATE: 7/20/07


ADNAN MAIAH
Office Chief
Program/Project Management

DATE: 8/30/07

for 
GALE MCINTYRE
Deputy District Director
Planning

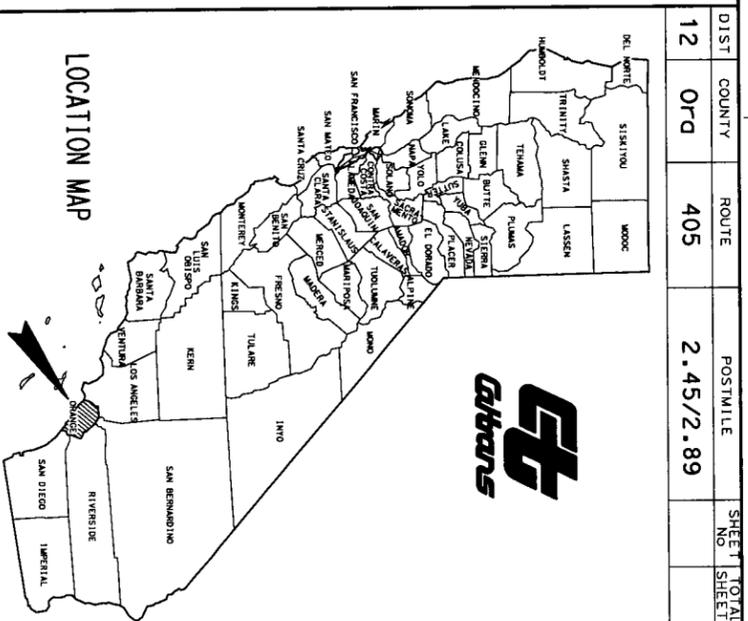
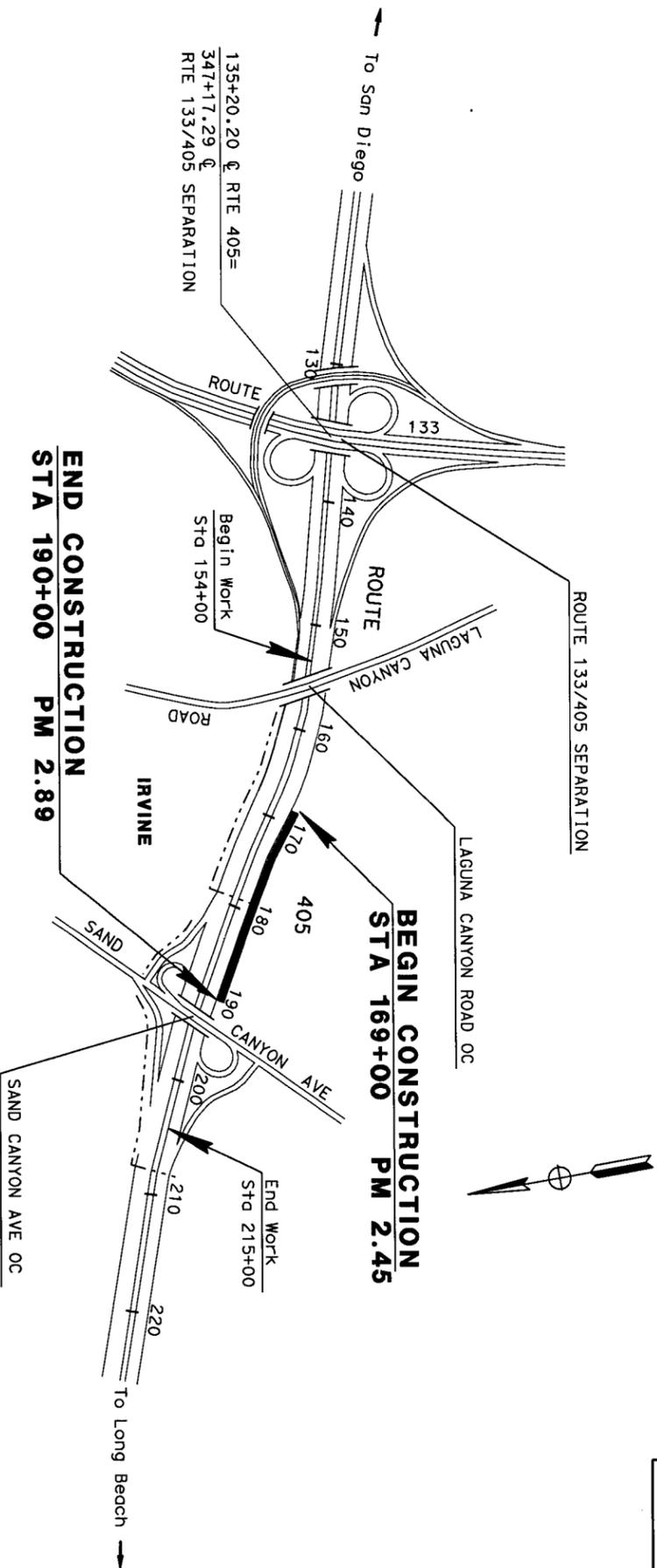
DATE: 7/16/07


JAMES PINHEIRO
Deputy District Director
Operations and Maintenance

DATE: 9/7/07

Exhibit A
Strip Map

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN ORANGE COUNTY
IN IRVINE FROM 0.1 MILE NORTH
OF SAN CANYON AVE TO 0.1 MILE
SOUTH OF JEFFREY ROAD

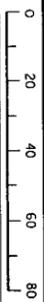


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 Caltrans now has a web site! To get to the web site, go to: <http://www.dot.ca.gov>

PROJECT ENGINEER	DATE	PROJECT MANAGER	DATE
JASON LY		VINH PHAM	

The Contractor shall possess the Class (or classes) of license as specified in the "Notice to Contractors".

FOR REDUCED PLANS ORIGINAL
 SCALE IS IN MILLIMETERS



USERNAME => tcjly
 DGN FILE => vinci:ty1.dgn

CU 12208

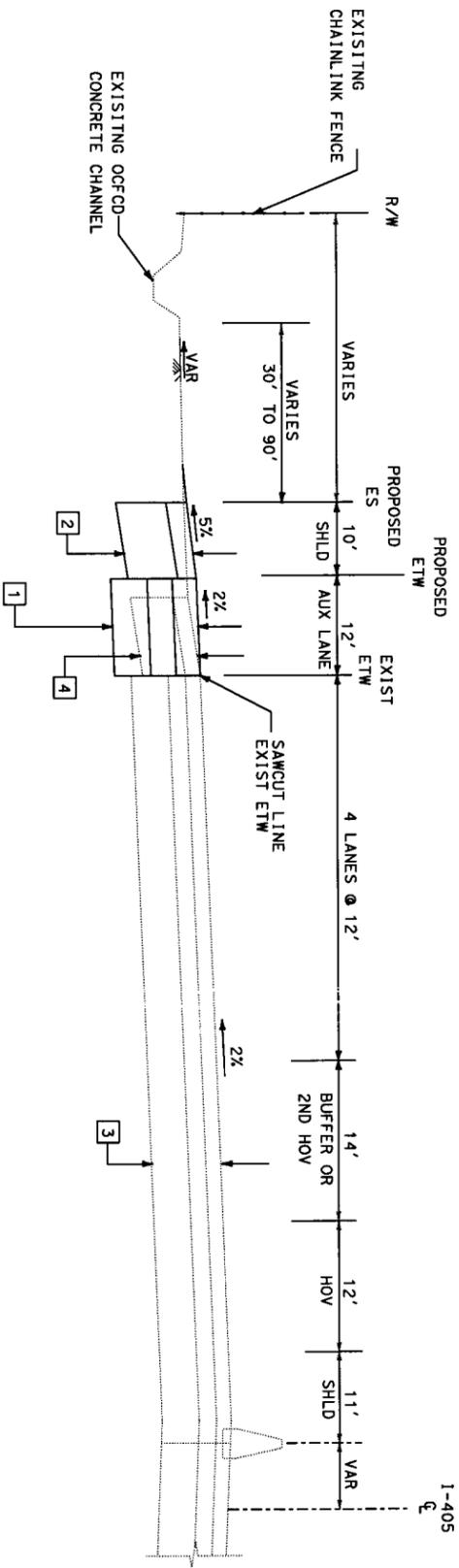
EA 0H320K

NO SCALE

Exhibit B
Alternative 2: Typical Cross Sections and Layouts

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION 	PROJECT ENGINEER	CALCULATED/DESIGNED BY	DATE	REVISED BY	
	PSR UNIT	JASON LY	CHECKED BY	DATE REVISED	

NOTE: FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY MAPS AT DISTRICT OFFICE.



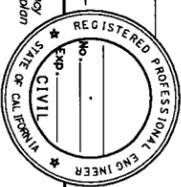
SOUTHBOUND ROUTE 405
 STA 169+00.00 TO 189+35.38

STRUCTURAL SECTION TYPES

- 1 PROPOSE RDWY
8" AC (TYPE A)
9" ACB (TYPE A)
14" CLASS 2 AS
- 2 PROPOSE SHLD
6" AC (TYPE A)
16" CLASS 2 AB
- 3 EXISTING RDWY
10" PCC
9" CTB
5" AS
- 4 EXISTING SHLD
4" AC
7" AB
14" AS

DIST	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Orca	405	2.45/2.89		

REGISTERED CIVIL ENGINEER	REGISTERED PROFESSIONAL ENGINEER
PLANS APPROVAL DATE	NO. _____
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ALTERNATIVE 1
TYPICAL CROSS-SECTION
 NO SCALE

X-1

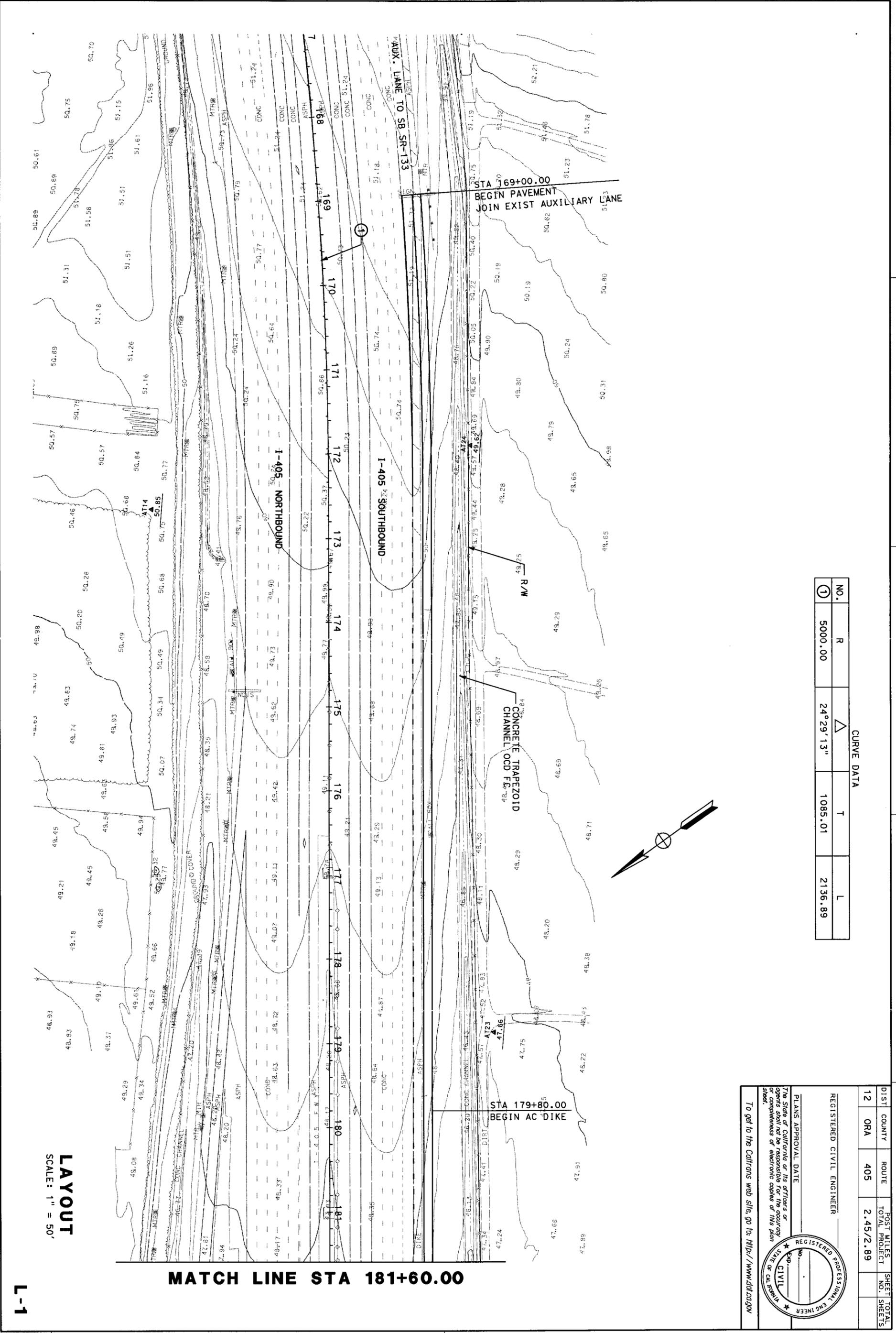
THIS PLAN ACCURATE FOR PSR WORK ONLY.



RELATIVE BORDER SCALE IS IN INCHES

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN.

CU 00000 EA 04320K



CURVE DATA

NO.	R	T	L
①	5000.00	24°29'13"	1085.01
			2136.89

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
12	ORA	405	2.45/2.89	

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

RELATIVE BORDER SCALE IS IN INCHES



USERNAME => JTLJY
DGN FILE => 31.1.dgn

CU 00000

EA 0H320K

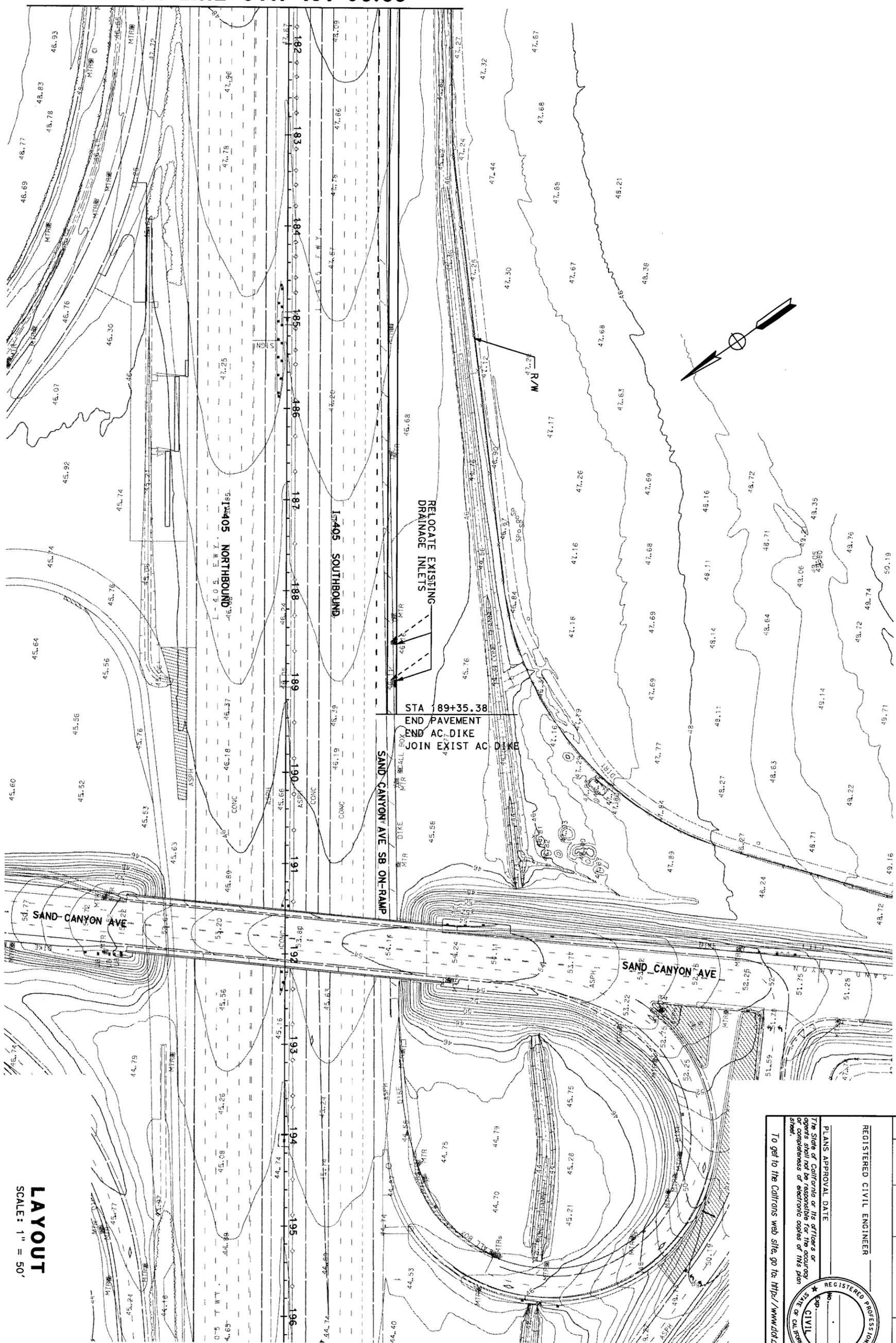
LAYOUT
SCALE: 1" = 50'

MATCH LINE STA 181+60.00

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION Caltrans	PROJECT ENGINEER	CALCULATED/DESIGNED BY	DATE	REVISED BY		
	JASON LY	CHECKED BY		DATE REVISIED		

MATCH LINE STA 181+60.00



RELATIVE BORDER SCALE
1" = 100'

USERNAME => tcljly
DGN FILE => L2.dgn

CU 00000

EA 0H320K

LAYOUT
SCALE: 1" = 50'

L-2

DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
12	ORA	405	2.45/2.89	NO. SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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To get to the Caltrans web site go to: <http://www.dot.ca.gov>

REGISTERED PROFESSIONAL ENGINEER
CIVIL

12-ORA-405
PM 2.45/2.89
On SB I-405 between Sand Canyon Ave and SR-133
12840-0H320K-20.10.201.310

Exhibit C
Alternative 2: Project Cost Estimate Summary

PROJECT PRELIMINARY COST ESTIMATE, ALTERNATIVE 2

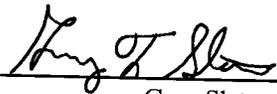
12-ORA-405
PM 3.09/3.81
12840 - OH320K

PROJECT DESCRIPTION:

Project Location: SB I-405 Between Sand Canyon Avenue and SR-133 Connector
Proposed: Construct an auxiliary lane from Sand Canyon On-ramp to SR-133 Connector

ROADWAY ITEMS	\$4,293,000
STRUCTURE ITEMS	\$0
SUBTOTAL CONSTRUCTION	\$4,293,000
RIGHT OF WAY (Current Value)	\$0
TOTAL PROJECT COST	\$4,293,000

Reviewed by
Branch Chief

Signature  Date 07/16/07
Gary Slater

Reviewed by
District Program Advisor

Signature  Date 7/17/07
Raouf Moussa

Approved by
Project Manager

Signature  Date 7/16/07
Vinh Pham

ALTERNATIVE 2,

I. ROADWAY ITEMS

SECTION 1 Earthwork

<u>Item No</u>	<u>Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
160101	Clearing and Grubbing	1	LS	\$50,000	\$50,000	
190101	Roadway Excavation	2,678	CY	\$35	\$93,722	
<u>Total Earthwork</u>						<u>\$143,722</u>

SECTION 2 Structural Section

<u>Item No</u>	<u>Structural Section</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
250401	Aggregate Subbase (AS) Class 2	1058	CY	\$110	\$116,356	
390108	Aggregate Concrete Base (ACB) Type A	680	CY	\$300	\$204,000	
	Aggregate Base (AB) Class 2	1,007	CY	\$85	\$85,630	
390103	Asphalt Concrete Type A	1,989	ton	\$110	\$218,790	
<u>Total Structural Items</u>						<u>\$684,775</u>

SECTION 3 Drainage

<u>Item No</u>	<u>Drainage</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
	Relocate Grate Inlets	3	EA	\$10,000	\$30,000	
	Misc. Drainage System (Extend Pipe, etc.)	1	LS	\$30,000	\$30,000	
<u>Total Drainage</u>						<u>\$60,000</u>

SECTION 4 Specialty Items

<u>Item No</u>	<u>Specialty</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
	RE Office	18	Month	\$ 6,000	\$ 108,000	
200001	Highway Planting and Irrigation System	1	LS	\$ 75,000	\$ 75,000	
	Fish & Game 1601 Agreement	1	LS	\$ 4,000	\$ 4,000	
	RWQCB 401 Permit	1	LS	\$ 42,000	\$ 42,000	
	Hazardous Waste (ADL)	1	LS	\$ 30,000	\$ 30,000	
074019	Prepare Storm Water Pollution Prevention Plan	1	LS	\$ 10,000	\$ 10,000	
074016	Construction Site Management	1	LS	\$ 90,000	\$ 90,000	
066595	Maintenance Cost Sharing	1	LS	\$ 9,000	\$ 9,000	
066596	Additional Water Pollution Control	1	LS	\$ 9,000	\$ 9,000	
066597	Sampling & Analysis Plan (SAP) for SWPPP Treatment BMP	1	LS	\$ 30,000	\$ 30,000	
153214	Remove AC Dike	1,040	LF	\$ 10	\$ 10,400	
394049	Place AC Dike	1,040	LF	\$ 15	\$ 15,600	
	Masonry Soundwall (H=16')	500	LF	\$ 1,200	\$ 600,000	
<u>Total Specialty Items</u>						<u>\$ 1,086,500</u>

SECTION 5 Traffic Items

<u>Item No</u>	<u>Traffic</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
	Pavement Delineation items	1	LS	\$ 10,000	\$ 10,000	
152392	Relocate Roadside Signs (Wood Post)	4	EA	\$ 1,000	\$ 4,000	
	Relocate Call Boxes	1	EA	\$ 5,000	\$ 5,000	
	Lighting & Sign Illumination	1	LS	\$ 41,000	\$ 41,000	
860532	Fiber Optic System	1	LS	\$ 150,000	\$ 150,000	
860532A	Temporary Fiber System	1	LS	\$ 75,000	\$ 75,000	
560219	Install Sign Structures	1	EA	\$ 120,000	\$ 120,000	
129000	Temporary Railing (Type K)	2,040	LF	\$ 25	\$ 51,000	
129001	Temporary Crash Cushion, Sand Filled	8	EA	\$ 350	\$ 2,800	
832001	Metal Beam Guard Railing (MBGR)	150	LF	\$ 50	\$ 7,500	
839565	MBGR Terminal End Treatment (Type SRT)	2	EA	\$ 4,000	\$ 8,000	
	Maintenance Vehicle Pullout (MVP)	2	EA	\$ 25,000	\$ 50,000	
	Traffic Monitor Station	1	LS	\$ 10,000	\$ 10,000	
	Traffic Handling	1	LS	\$ 30,000	\$ 30,000	
	TMP	1	LS	\$ 60,000	\$ 60,000	
<u>Total Traffic Items</u>						<u>\$ 624,300</u>

SUBTOTAL SECTIONS 1 to 5

\$2,599,297

II. STRUCTURE ITEMS

STRUCTURES ITEMS

STRUCTURE

	_____	_____	_____	_____
	_____	_____	_____	_____
Width in meter (out to out)	_____	_____	_____	_____
Span Lengths in meter	_____	_____	_____	_____
Total Area Sq. meter	_____	_____	_____	_____
Footing Type (Pile/Spread)	_____	_____	_____	_____
Cost Per square meter	_____	_____	_____	_____
(include 10% mobilization, 25% contingency and 25% Staging)	_____	_____	_____	_____
Total Cost for Structure	_____	_____	_____	_____
Bridge Removal	_____	_____	_____	_____

Incl.

SUBTOTAL STRUCTURES ITEMS _____ **\$0**

Railroad Related Costs _____

SUBTOTAL RAILROAD ITEMS _____ **\$0**

TOTAL STRUCTURES ITEMS _____ **\$0**

USE _____

COMMENTS

Estimate Prepared By _____

Print Name

_____ Date _____

(If appropriate, attach additional pages and backup)

III. RIGHT OF WAY

	Current Values (Future Use)	Escalation Rates	Escalated Values
Acquisition, including excess Lands, Damages, and Goodwill	0	15%	\$0
Utility Relocation (State share)	0	10%	\$0
Relocation Assistance	0		\$0
Clearance/ Demolition	0		\$0
Title and Escrow Fees	0	5%	\$0
Development Fees	0	5%	\$0

TOTAL RIGHT OF WAY (ITEMS)** \$0

USED \$0

Anticipated Date of Right of Way Certification
(Date to which Values are Escalated) 11/09

Construction Contract Work
Brief Description of Work _____

Right of Way Branch Cost Estimate for Work*
*This dollar amount is to be included in the Roadway and/or
Structures Items of Work, as appropriate. Do not include in Right
of Way Items.

COMMENTS:

Estimate Prepared By _____ Date _____
(Print Name)

Attachment 1

Traffic Data: Investigation and Recommendation by District 12 Traffic Operations North Branch

- **Traffic Analysis (Priority Index Number (PIN),
Performance Measures, Level of Service (LOS))**
- **Ramp Volumes and Truck AADT**
- **TASAS Table B**

TRAFFIC INVESTIGATION FORM

12-TO-0005 (NEW 4/95)

DATE: 06/15/2005

DIST.	CO.	ROUTE	POST MILE	LOG NO.
12	ORA	SB-405	2.4 to 2.89	A053001A

Safety

Operational

LOCATION: SB I-405 between Sand Canyon on-ramp to SR-133 connector

INITIATING SOURCE: TABLE C OTHER CalTrans

EXISTING CONDITIONS

HIGHWAY TYPE Freeway main line (Aux. Lane) RURAL URBAN SUBURBAN

SPEED ZONE MPH _____

TANGENT CURVES ADVISORY

ACCIDENT SUMMARY TIME PERIOD: _____
P.M. LIMITS: _____

TRAFFIC DATA

NO. OF ACCIDENTS				PERSONS		CONDITIONS					
YEAR	TOT.	FAT.	INJ.	PDO.	KILLED	INJ.	SY.	MV.	LT.	DK.	WET.
Please see the attached table - B											
TOTAL											

ADT 1000		ACC. YR.	ACC. RATE	ACC. MV/MVM
St. Hwy.	X St.		Act.	Aver.
			F+I	
			Tot.	

RECOMMENDATION

- Improvement Estimated Cost \$ \$1,210,000 Safety Index _____
- Prior HT65 dated _____
- Impr. under design E.A. _____
- No apparent Rdwy. Def.
- Acc. rate below expected
- Keep under surv.

COMMENTS:

There are currently 4 mixed-flow lanes and 1 HOV lane on SB I-405 from Sand Canyon on-ramp to 133 off-ramp. The Sand Canyon on-ramp is a 2-lane on-ramp that merges to one lane after the ramp meter limit line and quickly tapers and merges with the mainline traffic. The SR133 connector is a single lane off-ramp that opens up to three lanes. Traffic volumes are very high within this segment of the mainline and as a result congestion and weaving problems occur during AM and PM peak periods. Please refer to the attached traffic volumes, traffic analysis and accident report for details.

After reviewing and monitoring the area, Traffic Operations South recommends to add an Aux. lane between the Sand Canyon on-ramp and SR-133 connector.

FIELD REVIEW: No Yes By Adam Siddiqui Date 5/27/05

INVESTIGATOR	DATE	PROJECT ENGINEER	DATE	RECOMMENDATION APPROVED	DATE
Adam Siddiqui	06/09/2005	Adam		<i>[Signature]</i>	6/15/05

ACTION

- Date recommended improvement completed _____
- Other action taken (see attachment)

PRIORITY INDEX NUMBER CALCULATION WORK SHEET

SHEET 1 OF 2

LOCATION /PROJECT DESCRIPTION: **Add Aux lane on SB I-405 Between Sand Canyon On-ramp to 133 Off-ramp**

INSTRUCTIONS: FILL IN AREAS THAT ARE MARKED IN BLUE OR WITH AN ASTERISK.

INPUT

INPUT		
"L1" BEFORE MILES	-	0.44
"L2" AFTER MILES	-	0.44
"S1" BEFORE MPH	-	35
"S2" AFTER MPH	-	55
PRESENT AADT	-	128000
FUTURE AADT	-	189000
AVERAGE AADT		157500
% TRAFFIC BENEFITTED	-	20
AVE. AADT BENEFITTED		31500
% TRUCKS	-	5.0

COUNTY-RTE :	*	
P.M. LIMITS :	*	
EA :	*	
R/W+CONST \$:	*	\$ 1,210,000
CALC. BY :	*	
DATE:	*	
PHONE NO. :	*	

CALCULATIONS

WEIGHTED AVERAGE COST PER VEHICLE MINUTE (TRUCKS & AUTOS)

TRUCK		CONVERT		AUTO		CONVERT		COST PER				
TIME VALUE		TO		TIME VALUE		TO		VEH. MIN.				
(\$ PER		DECIMAL		(\$ PER		DECIMAL		(\$ PER				
VEH. MIN.)				VEH. MIN.)				VEH. MIN.)				
TRUCKS	X	0.4	/	100	+	AUTOS	X	0.15	/	100	=	A
5.0		0.4		100		95.0		0.15		100		0.163

DAILY DELAY SAVINGS (VEHICLE MINUTES PER DAY)

BEFORE CONDITIONS				AFTER CONDITIONS				CONVERSION		DAILY		
LENGTH		SPEED		LENGTH		SPEED		FACTOR		DELAY		
(MILES)		(MPH)		(MILES)		(MPH)		(MIN. PER HOUR)		SAVINGS		
(L ₁)		(S ₁)		(L ₂)		(S ₂)		X		VEH. PER DAY)		
0.44		35		0.44		55		60		X	AVERAGE	B
								60			ADT BENEFITTED	=
											31500	=
												8840

DELAY INDEX

DAILY		COST		DAYS		PRESENT		CONVERSION		TOTAL		DELAY	
DELAY		PER VEH MIN		PER YEAR		WORTH		FACTOR		PROJECT		INDEX	
(VEH-MIN.		(\$ PER		(DAYS		FACTOR				COST ¹⁰		D.L.	
PER DAY)		VEH. MIN.)		PER YEAR)						(\$)			
B	X	A	X	D	X	P _L	X	100	/	C	=	D.I.	
8840		0.163		385		12.6		100		1210000		534	

NOTES:

1. For "Total Project Cost", use current Construction Cost + R/W Cost

DISCOUNTED SAFETY INDEX

SAFETY		PRESENT		PROJECT		DISCOUNTED	
INDEX ¹¹		WORTH		LIFE		SAFETY	
		FACTOR		(YEARS)		INDEX	
S.I.	X	P _L	/	L	=	S.I. DIS	
55		12.6		20		35	

NOTES:

1. For Safety Index Calculation, see District Traffic Safety Personnel

PRIORITY INDEX NUMBER CALCULATION WORK SHEET

SHEET 2 OF 2

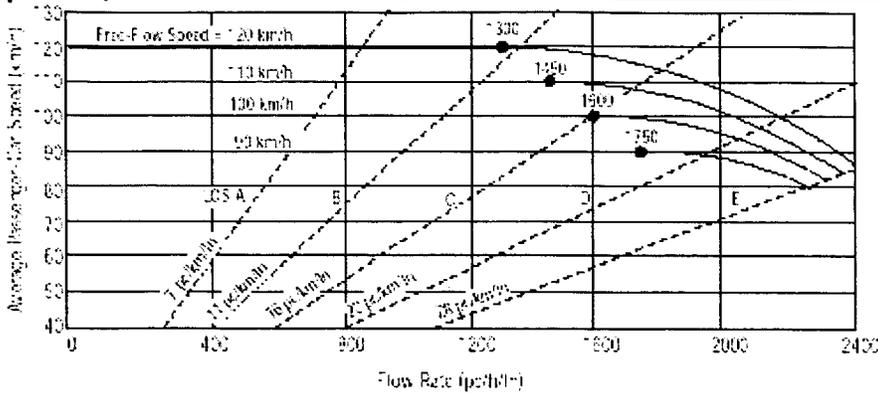
PRIORITY INDEX NUMBER (PIN)

DELAY		DISCOUNTED		SAFETY	
INDEX		INDEX		INDEX	
D.I.		+		S.I. DIS	
534					534

PERFORMANCE MEASURE

DAILY		DAYS		CONVERSION FACTORS		PERFORMANCE	
DELAY		PER YEAR				MEASURE	
SAVINGS		APPLIED					
(VEH. MINS.		(DAYS		(MIN.		(THOUSAND VEH.	
PER DAY)		PER YEAR)		PER HOUR)		HOURS	
				(TO		PER YEAR)	
				THOUSANDS)			
B	X	D	/	60	/	1000	
8840		385		60			=
							53

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Oper. (LOS)	FFS, N, v_p	LOS, S, D
Des. (N)	FFS, LOS, v_p	N, S, D
Plan. (LOS)	FFS, N, AADT	LOS, S, D
Plan. (N)	FFS, LOS, AADT	N, S, D

General Information		Site Information	
Analyst	Adam Siddiqui	Highway/Direction of Travel	SB I-405
Agency or Company	CalTrans	From/To	Sand Cyn to 133
Date Performed	06/09/2005	Jurisdiction	Dist 12
Analysis Time Period	June 2005	Analysis Year	2005
Project Description SB 405 from Sand Cyn to 133 (Existing)			

Oper. (LOS)
 Des. (N)
 Planning Data

Flow Inputs			
Volume, V	9000 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade	Length
Driver type adjustment	1.00	Up/Down %	0.00

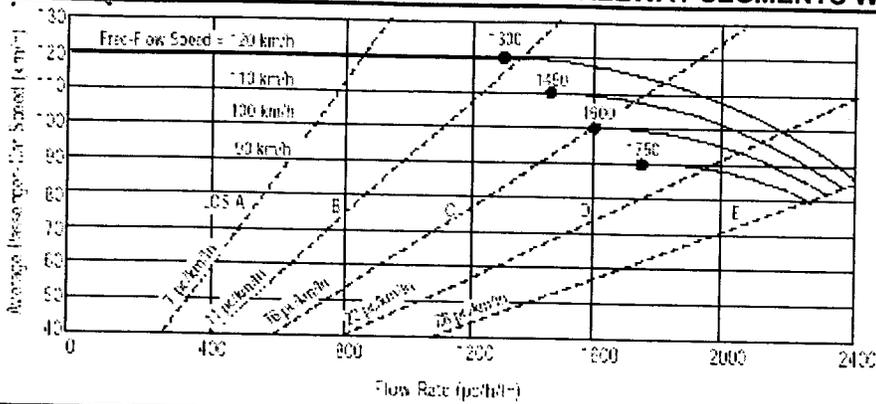
Calculate Flow Adjustments			
f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	f_{LW}	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	f_{LC}	mi/h
Interchange Density	0.50 l/mi	f_{ID}	mi/h
Number of Lanes, N	4	f_N	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	2563 pc/h/ln	Design LOS	
S	mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	pc/mi/ln	S	mi/h
LOS	F	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Oper. (LOS)	FFS, N, v_p	LOS, S, D
Des. (N)	FFS, LOS, v_p	N, S, D
Plan. (LOS)	FFS, N, AADT	LOS, S, D
Plan. (N)	FFS, LOS, AADT	N, S, D

General Information

Analyst: Adam Siddiqui
 Agency or Company: CalTrans
 Date Performed: 06/09/2005
 Analysis Time Period: June 2005

Site Information

Highway/Direction of Travel: SB I-405
 From/To: Sand Cyn to 133
 Jurisdiction: Dist 12
 Analysis Year: 2005

Project Description: Add Aux lane on SB 405 from Sand Cyn to 133

Oper.(LOS)

Des.(N)

Planning Data

Flow Inputs

Volume, V	9000 veh/h	Peak-Hour Factor, PHF	0.90
AAADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AAADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AAADT x K x D	veh/h	Grade	Length
Driver type adjustment	1.00		0.00mi
		Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	l/mi
Number of Lanes, N	5	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)		
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	2050	pc/h/ln
S	63.8	mi/h
$D = v_p / S$	32.1	pc/mi/ln
LOS	D	

Design (N)

Design (N)	
Design LOS	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
S	mi/h
$D = v_p / S$	pc/mi/ln
Required Number of Lanes, N	

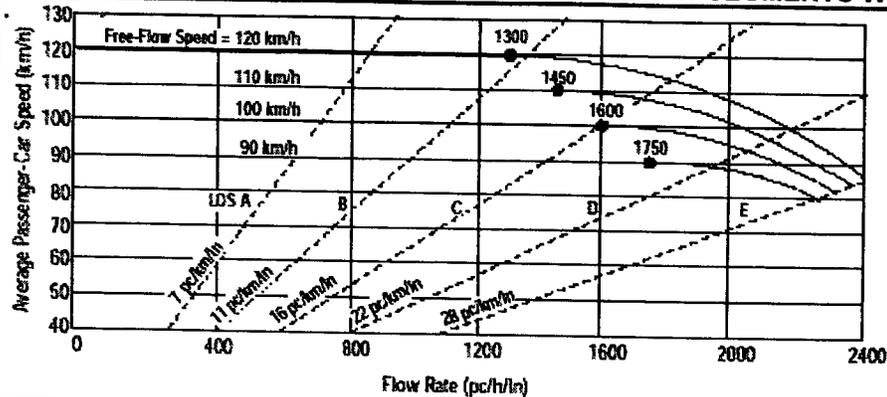
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Oper. (LOS)	FFS, N, v _p	LOS, S, D
Des. (N)	FFS, LOS, v _p	N, S, D
Plan. (LOS)	FFS, N, AADT	LOS, S, D
Plan. (N)	FFS, LOS, AADT	N, S, D

General Information		Site Information	
Analyst	Adam Siddiqui	Highway/Direction of Travel	SB I-405
Agency or Company	CalTrans	From/To	Sand Cyn to 133
Date Performed	06/09/2005	Jurisdiction	Dist 12
Analysis Time Period	June 2005	Analysis Year	2030
Project Description Add Aux lane on SB 405 from Sand Cyn to 133			

Oper.(LOS)
 Des.(N)
 Planning Data

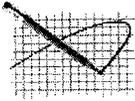
Flow Inputs			
Volume, V	11000 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P _T	5
Peak-Hr Prop. of AADT, K		%RVs, P _R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	f _{LW}	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	f _{LC}	mi/h
Interchange Density	0.50 l/mi	f _{ID}	mi/h
Number of Lanes, N	5	f _N	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2506 pc/h/ln	Design LOS	
S	mi/h	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h
D = v _p / S	pc/mi/ln	S	mi/h
LOS	F	D = v _p / S	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 23-8, 23-10	f _{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E _T - Exhibits 23-8, 23-10, 23-11	f _{LC} - Exhibit 23-5
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 23-12	f _N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 23-2, 23-3	f _{ID} - Exhibit 23-7
DDHV - Directional design hour volume			



**Adam U
Siddiqui/D12/Caltrans/CAGov**
v

03/06/2007 09:36 AM

To Jason V Ly/D12/Caltrans/CAGov@DOT
cc Raouf Moussa/D12/Caltrans/CAGov@DOT, Adam U
Siddiqui/D12/Caltrans/CAGov@DOT
bcc
Subject Re: Request Updating Project Initiation Package for 2
SHOPP Projects on SB I-405 

Jason,

Per your request, the following traffic data and analysis are for the two Aux lane projects on SB I-405:

- 1- Main line AADT for the I-405 between Jeffery Rd. / University Dr. on-ramp and Sand Canyon off-ramp is 260,000. (based on 2006 AADT report)
- 2- Main line AADT for the I-405 between Sand Canyon on-ramp and 133 off-ramp is 250,000. (based on 2006 AADT report)
- 3- Ramps 2006 AADT volumes on SB I-405 at:
 - Off-ramp to Jeffery Rd. 9550
 - On-ramp from SB Jeffery 3050
 - On-ramp from NB Jeffery 10000
 - Off-ramp to Sand Canyon 10600
 - On-ramp from Sand Canyon 4500
 - Off-ramp to 133 is 13200
- 4- The mainline Level of Service, LOS, for both of the projects is F.
- 5- The weaving LOS for the both of the projects is F.
- 6- The PIN number for the Aux. lane between Jeffery on-ramp and Sand Canyon Off-ramp is 1460. (using the 2006 AADT)
- 7- The PIN number for the Aux. lane between Sand Canyon on-ramp and 133 off-ramp is 953. (using the 2006 AADT)
- 8- An updated paper copy of Table - B that includes the mainline and all ramps for both of the projects for years 2004, 2005 and 2006 will be at your desk.

Please provide me the EA for these projects so I can use it for my timesheet.

Thanks,

Adam Siddiqui

Jason V Ly/D12/Caltrans/CAGov



**Jason V
Ly/D12/Caltran
s/CAGov**

02/28/2007
11:24 AM

To Adam U Siddiqui/D12/Caltrans/CAGov@DOT
cc Raouf Moussa/D12/Caltrans/CAGov@DOT, Gary
Slater/D12/Caltrans/CAGov@DOT, Ferdinand
Agbayani/D12/Caltrans/CAGov@DOT
Subject Request Updating Project Initiation Package for 2 SHOPP Projects on SB
I-405

PRIORITY INDEX NUMBER CALCULATION WORK SHEET

SHEET 1 OF 2

LOCATION /PROJECT DESCRIPTION: Add Aux lane on SB I-405 Between Sand Canyon On-ramp to 133 Off-ramp

INSTRUCTIONS: FILL IN AREAS THAT ARE MARKED IN BLUE OR WITH AN ASTERISK.

INPUT

INPUT		
"L1" BEFORE MILES	*	0.44
"L2" AFTER MILES	*	0.44
"S1" BEFORE MPH	*	35
"S2" AFTER MPH	*	55
PRESENT AADT	*	250000
FUTURE AADT	*	312500
AVERAGE AADT	*	281250
% TRAFFIC BENEFITED	*	20
AVE. AADT BENEFITED	*	56250
% TRUCKS	*	5.0

COUNTY-RTE :	*	
P.M. LIMITS :	*	
EA :	*	
R/W+CONST \$:	*	\$ 1,210,000
CALC. BY :	*	
DATE :	*	
PHONE NO. :	*	

CALCULATIONS

WEIGHTED AVERAGE COST PER VEHICLE MINUTE (TRUCKS & AUTOS)

TRUCK		CONVERT		AUTO		CONVERT		COST PER				
TIME VALUE		TO		TIME VALUE		TO		VEH. MIN.				
(\$ PER		DECIMAL		(\$ PER		DECIMAL		(\$ PER				
VEH. MIN.)				VEH. MIN.)				VEH. MIN.)				
TRUCKS	X	0.4	/	100	+	AUTOS	X	0.15	/	100	=	A
5.0		0.4		100		95.0		0.15		100	=	0.163

DAILY DELAY SAVINGS (VEHICLE MINUTES PER DAY)

BEFORE CONDITIONS				AFTER CONDITIONS				CONVERSION		DAILY		
LENGTH		SPEED		LENGTH		SPEED		FACTOR		DELAY		
(MILES)		(MPH)		(MILES)		(MPH)		(VEH. PER DAY)		SAVINGS		
(L ₁)		(S ₁)		(L ₂)		(S ₂)		MIN. PER HOUR		(VEH. MINS. PER DAY)		
0.44	/	35	X	0.44	/	55	X	60	X	AADT BENEFITED	=	B
								60		56250	=	15429

DELAY INDEX

DAILY		COST		DAYS		PRESENT		CONVERSION		TOTAL		DELAY		
DELAY		PER VEH. MIN.		PER YEAR		WORTH		FACTOR		PROJECT		INDEX		
(VEH-MIN PER DAY)		(\$ PER VEH. MIN.)		(DAYS PER YEAR)		FACTOR				COST ⁽¹⁾				
B	X	A	X	D	X	P _c	X	100	/	(5)	=	C	=	D.I.
15429		0.163		365		12.6		100		1210000	=	953		

NOTES:

1. For "Total Project Cost", use current Construction Cost + R/W Cost

DISCOUNTED SAFETY INDEX

SAFETY INDEX ⁽¹⁾		PRESENT WORTH FACTOR		PROJECT LIFE (YEARS)		DISCOUNTED SAFETY INDEX	
S.I.	X	P _c	/	L	=	S.I. _{DISC}	
55		12.6		20	=	35	

NOTES:

1. For Safety Index Calculation, see District Traffic Safety Personnel

PRIORITY INDEX NUMBER CALCULATION WORK SHEET

SHEET 2 OF 2

PRIORITY INDEX NUMBER (PIN)

DELAY INDEX		DISCOUNTED SAFETY INDEX		PIN	
D.I.	+	S.I. _{DISC}	=	PIN	
953			=	953	

PERFORMANCE MEASURE

DAILY DELAY SAVINGS		DAYS PER YEAR APPLIED		CONVERSION FACTORS		PERFORMANCE MEASURE	
(VEH. MINS. PER DAY)	X	(DAYS PER YEAR)	/	(MIN. PER HOUR)	/	(TO THOUSANDS)	(THOUSAND VEH. HOURS PER YEAR)
B		D		60		1000	
15429		365		60			94

TRAFFIC DATA REPORT

15 Minute Loop Data

FROM: 03-08-2007 06:00:00 TO: 03-08-2007 19:00:00

A = Adjusted , ND = No
All values are suspect

VDS DESCRIPTION: ORA-405-S,		PM: 2.88				SAND CANYON				Main Line / HOV				ML STATION									
THURSDAY	HOV 1	ML 1				ML 2				ML 3				ML 4				TOT	AVG	EST			
	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD				
06:15:00	76	1.6	64	83	365	6.1	82	83	316	5.8	74	83	241	6.6	61	83	196	4.7	80	83	1118	5.8	75
06:30:00	124	2.7	64	73	494	8.5	79	73	457	8.5	74	73	333	7.9	70	73	254	6.5	74	73	1538	7.9	75
06:45:00	149	3.4	60	83	570	10.2	76	83	460	8.8	71	83	379	8.6	74	83	293	7.6	73	83	1702	8.8	74
07:00:00	186	4.1	62	87	608	10.9	76	87	556	10.7	71	87	395	9.2	72	87	320	7.6	80	87	1879	9.6	74
1ht:	538A				2042A				1791A				1351A				1065A				6249		
07:15:00	150	3.5	59	87	525	9.4	77	87	492	9.7	70	87	375	9.0	70	87	287	7.2	75	87	1679	8.8	73
07:30:00	179	4.2	59	83	566	10.4	75	83	516	10.2	69	83	407	9.8	69	83	330	8.1	77	83	1819	9.6	72
07:45:00	178	4.2	58	100	538	10.0	74	100	540	10.8	68	100	461	10.7	72	100	358	9.0	76	100	1897	10.1	72
08:00:00	200	4.8	57	100	554	10.7	71	100	552	11.7	65	100	488	12.0	68	100	346	9.2	72	100	1940	10.9	68
1ht:	710A				2183A				2106A				1744A				1328A				7361		
08:15:00	220	5.2	58	100	555	10.6	72	100	518	10.7	66	100	427	10.6	68	100	360	9.2	74	100	1860	10.3	70
08:30:00	181	4.3	58	100	565	10.7	73	100	505	10.1	68	100	446	10.8	69	100	337	8.7	74	100	1853	10.1	71
08:45:00	210	4.8	59	97	549	10.8	70	97	530	11.1	65	97	426	10.7	66	97	334	9.1	70	97	1839	10.4	68
09:00:00	185	4.3	59	100	539	11.1	66	100	550	12.0	63	100	438	11.9	61	100	332	9.2	69	100	1859	11.1	64
1ht:	796A				2208A				2103A				1737A				1363A				7411		
09:15:00	136	2.9	65	57	443	8.3	73	57	480	9.9	66	57	404	10.0	67	57	275	7.7	68	57	1602	9.0	69
09:30:00	118	2.5	66	93	450	7.8	79	93	452	8.5	73	93	428	9.7	74	93	303	7.8	73	93	1633	8.5	75
09:45:00	97	2.1	64	100	416	7.3	78	100	446	8.5	72	100	355	8.6	69	100	260	6.8	73	100	1477	7.8	73
10:00:00	87	1.9	64	97	411	7.1	79	97	387	7.3	72	97	347	8.7	67	97	248	6.9	68	97	1393	7.5	72
1ht:	425A				1712A				1747A				1521A				1083A				6063		
10:15:00	88	1.8	65	100	384	6.7	78	100	377	7.3	71	100	336	8.5	66	100	245	7.1	65	100	1342	7.4	71
10:30:00	100	2.1	65	93	361	6.1	80	93	386	7.3	73	93	310	7.6	68	93	237	7.1	63	93	1294	7.0	72
10:45:00	107	2.2	67	100	404	7.2	77	100	403	7.8	70	100	338	8.8	64	100	214	6.5	62	100	1359	7.6	70
11:00:00	87	1.8	66	100	396	6.9	78	100	405	7.9	70	100	349	8.4	69	100	240	6.9	66	100	1390	7.5	72
1ht:	381A				1547A				1571A				1334A				936A				5388		
11:15:00	86	1.7	68	100	378	6.5	80	100	398	7.4	74	100	346	7.8	74	100	240	6.7	68	100	1362	7.1	75
11:30:00	90	1.8	67	100	448	7.8	79	100	427	8.3	71	100	369	8.6	72	100	293	7.9	70	100	1537	8.1	73
11:45:00	89	1.8	67	100	429	7.3	80	100	440	8.5	71	100	364	9.1	67	100	267	7.3	70	100	1500	8.0	73
12:00:00	99	2.1	65	100	403	6.9	80	100	467	8.7	73	100	355	8.8	67	100	253	6.8	71	100	1478	7.8	73
1ht:	364				1658				1732				1434				1053				5877		
12:15:00	101	2.1	66	100	402	7.0	79	100	416	8.0	71	100	346	8.2	71	100	244	6.5	71	100	1408	7.4	73
12:30:00	90	1.8	68	100	444	7.7	78	100	428	8.2	71	100	346	8.5	68	100	261	6.7	75	100	1479	7.8	73
12:45:00	100	2.0	68	100	427	7.4	79	100	455	8.5	73	100	372	8.5	73	100	257	7.2	68	100	1511	7.9	74
13:00:00	98	2.1	65	100	448	7.8	78	100	445	8.4	72	100	385	8.6	75	100	279	7.4	72	100	1557	8.0	75
1ht:	389				1721				1744				1449				1041				5955		

TRAFFIC DATA REPORT

15 Minute Loop Data

FROM: 03-08-2007 06:00:00 TO: 03-08-2007 19:00:00

A = Adjusted, ND = No
All values are suspect

VDS DESCRIPTION: ORA-405-S, PM: 2.88 SAND CANYON										Main Line / HOV													
THURSDAY	HOV 1				ML 1				ML 2				ML 3				ML 4				ML STATION		
	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%GD	TOT	AVG	EST
																	VOL	OCC	SPD				
13:15:00	101	2.1	66	100	474	8.3	78	100	470	9.0	71	100	410	9.4	73	100	317	8.1	74	100	1671	8.7	74
13:30:00	84	1.7	66	100	443	7.8	78	100	476	9.2	71	100	385	8.9	72	100	304	7.6	76	100	1608	8.4	74
13:45:00	107	2.3	63	100	487	8.7	77	100	474	9.0	72	100	407	9.2	74	100	318	7.9	77	100	1686	8.7	75
14:00:00	91	1.9	65	100	504	8.8	79	100	480	9.1	72	100	411	9.1	76	100	295	7.1	79	100	1690	8.5	76
1ht:	383				1908				1900				1613				1234				6655		
14:15:00	117	2.4	67	100	523	9.2	78	100	500	9.6	71	100	425	9.2	77	100	349	8.8	76	100	1797	9.2	75
14:30:00	133	2.7	68	100	558	10.1	76	100	502	9.9	70	100	405	10.4	65	100	349	8.8	76	100	1814	9.8	72
14:45:00	170	3.6	65	100	576	10.4	76	100	516	10.3	69	100	431	10.1	72	100	328	8.6	72	100	1851	9.8	72
15:00:00	213	4.5	65	100	545	9.9	75	100	489	9.7	69	100	427	9.8	73	100	357	8.9	76	100	1818	9.6	73
1ht:	633				2202				2007				1688				1383				7280		
15:15:00	234	4.9	65	100	546	9.9	75	100	482	9.6	68	100	442	10.0	74	100	365	8.9	78	100	1835	9.6	74
15:30:00	215	4.8	61	100	555	10.2	74	100	501	9.9	70	100	426	10.1	71	100	365	9.2	76	100	1847	9.8	73
15:45:00	237	5.1	64	100	516	9.4	75	100	511	10.1	69	100	453	10.1	75	100	391	9.5	79	100	1871	9.7	74
16:00:00	229	4.8	65	100	552	10.5	72	100	504	10.2	67	100	451	10.3	73	100	429	10.9	75	100	1936	10.5	72
1ht:	915				2169				1998				1772				1550				7489		
16:15:00	242	5.2	64	100	590	11.0	74	100	513	10.7	66	100	475	11.1	72	100	459	11.6	75	100	2037	11.1	72
16:30:00	248	5.2	66	100	574	11.1	71	100	542	11.3	66	100	457	10.7	71	100	453	11.8	73	100	2026	11.2	70
16:45:00	254	5.4	64	100	539	10.4	71	100	509	10.5	66	100	461	10.6	72	100	450	11.5	75	100	1959	10.8	71
17:00:00	297	6.4	64	100	517	10.9	65	100	505	11.7	59	100	419	11.6	60	100	474	13.5	67	100	1915	11.9	63
1ht:	1041				2220				2069				1812				1836				7937		
17:15:00	275	6.1	62	100	519	10.4	68	100	501	10.9	63	100	456	11.6	66	100	471	13.9	65	100	1947	11.7	65
17:30:00	334	7.7	59	100	534	14.3	51	100	494	14.9	45	100	471	16.3	48	100	468	21.3	42	100	1967	16.7	47
17:45:00	325	7.6	58	100	527	14.3	50	100	489	14.9	45	100	433	15.9	45	100	445	21.8	39	100	1894	16.7	45
18:00:00	320	7.4	59	100	516	13.2	53	100	499	14.6	47	100	439	15.3	48	100	442	18.1	46	100	1896	15.3	49
1ht:	1254				2096				1983				1799				1826				7704		
18:15:00	259	5.9	60	100	533	12.7	58	100	475	12.5	52	100	451	13.6	55	100	449	16.9	51	100	1908	13.9	54
18:30:00	280	6.5	59	100	499	10.9	62	100	473	11.3	57	100	435	11.9	61	100	436	13.2	63	100	1843	11.8	61
18:45:00	261	6.0	59	100	526	11.3	64	100	490	11.7	57	100	428	11.9	60	100	412	12.2	64	100	1856	11.7	61
19:00:00	226	5.1	61	100	535	11.0	67	100	478	10.7	61	100	415	10.0	70	100	412	10.7	73	100	1840	10.6	67
1ht:	1026				2093				1916				1729				1709				7447		

TRAFFIC DATA REPORT

15 Minute Loop Data

FROM: 03-08-2007
06:00:00

TO: 03-08-2007
19:00:00

A = Adjusted , ND = No
All values are suspect

VDS DESCRIPTION: ORA-405-S, PM: 2.88 SAND CANYON

On Ramp

DATE-TIME	RAMP ON				RAMP QUE			RAMP DMD			RAMP PASS				RAMP HOV			
	VOL	OCC	SPD	%GD	VOL	OCC	%GD	VOL	OCC	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%G
06:15:00	23	0.7	53	83	28	1.3	83	22	7.0	83	20	2.2	16	83	0	0.0	NA	
06:30:00	30	1.0	50	73	29	1.4	73	22	9.2	73	29	3.0	16	73	0	0.0	NA	
06:45:00	29	0.9	51	83	26	1.2	83	22	9.9	83	26	3.8	12	83	0	0.0	NA	
07:00:00	44	1.5	51	87	39	1.8	87	28	11.9	87	32	4.0	13	87	0	0.0	NA	
1ht:	126A				122A			93A			108A				0A			
07:15:00	58	1.8	53	87	57	2.8	87	39	17.6	87	48	5.6	15	87	0	0.0	NA	
07:30:00	65	2.2	49	83	50	2.2	83	41	17.2	83	49	5.9	14	83	0	0.0	NA	
07:45:00	99	3.1	54	100	90	4.2	100	47	29.6	100	83	9.1	15	100	0	0.0	NA	10
08:00:00	116	4.3	46	100	110	6.0	100	50	32.8	100	93	11.8	13	100	0	0.0	NA	10
1ht:	345A				315A			178A			280A				0A			
08:15:00	104	3.5	50	100	102	5.0	100	46	33.7	100	88	10.4	14	100	0	0.0	NA	10
08:30:00	121	4.0	51	100	115	5.6	100	52	34.7	100	93	11.3	14	100	0	0.0	NA	10
08:45:00	98	3.1	52	97	87	3.8	97	47	28.4	97	82	9.4	15	97	0	0.0	NA	
09:00:00	89	2.8	52	100	86	4.2	100	44	25.9	100	73	8.6	14	100	0	0.0	NA	10
1ht:	412A				390A			189A			336A				0A			
09:15:00	86	2.7	54	57	86	3.7	57	92	5.7	57	86	3.2	45	57	0	0.0	NA	
09:30:00	75	2.4	52	93	68	3.2	93	70	4.9	93	75	2.8	45	93	0	0.0	NA	
09:45:00	76	2.6	49	100	78	4.1	100	80	5.8	100	81	3.2	43	100	0	0.0	NA	10
10:00:00	99	3.3	50	97	91	4.5	97	93	6.5	97	95	3.8	42	97	0	0.0	NA	
1ht:	336A				321A			331A			337A				0A			
10:15:00	59	1.9	51	100	60	3.0	100	61	4.3	100	62	2.4	44	100	0	0.0	NA	10
10:30:00	74	2.6	48	93	65	3.6	93	69	5.0	93	70	2.9	40	93	0	0.0	NA	
10:45:00	86	3.1	47	100	87	5.0	100	84	6.2	100	88	3.5	42	100	0	0.0	NA	10
11:00:00	75	2.3	54	100	68	3.2	100	73	5.0	100	75	2.8	45	100	0	0.0	NA	10
1ht:	294A				281A			287A			295A				0A			
11:15:00	86	3.0	49	100	82	4.5	100	87	6.1	100	85	3.5	40	100	0	0.0	NA	10
11:30:00	80	2.7	49	100	73	3.8	100	71	5.6	100	76	3.2	40	100	0	0.0	NA	10
11:45:00	83	2.6	53	100	81	4.0	100	87	5.8	100	84	3.3	43	100	0	0.0	NA	10
12:00:00	88	3.0	49	100	88	4.5	100	85	6.1	100	87	3.5	42	100	0	0.0	NA	10
1ht:	337				324			330			332				0			
12:15:00	86	2.8	51	100	83	4.2	100	86	5.9	100	84	3.3	42	100	0	0.0	NA	10
12:30:00	88	2.8	53	100	91	4.6	100	90	5.9	100	90	3.3	46	100	0	0.0	NA	10
12:45:00	103	3.3	53	100	94	4.8	100	91	6.9	100	97	3.9	42	100	0	0.0	NA	10
13:00:00	86	2.9	50	100	82	4.7	100	79	6.2	100	85	3.4	42	100	0	0.0	NA	10
1ht:	363				350			346			356				0			

TRAFFIC DATA REPORT
15 Minute Loop Data

FROM: 03-08-2007 06:00:00 TO: 03-08-2007 19:00:00

A = Adjusted , ND = No
 All values are suspect

V

VDS DESCRIPTION: ORA-405-S, FM: 2.88 SAND CANYON												On Ramp								
THURSDAY	RAMP ON				RAMP QUE				RAMP DMD				RAMP PASS				RAMP HOV			
	VOL	OCC	SPD	%GD	VOL	OCC	%GD	VOL	OCC	%GD	VOL	OCC	SPD	%GD	VOL	OCC	SPD	%G		
13:15:00	94	2.9	55	100	89	4.5	100	87	6.1	100	92	3.3	46	100	0	0.0	NA	10		
13:30:00	86	2.6	56	100	77	3.6	100	80	5.3	100	82	2.9	47	100	0	0.0	NA	10		
13:45:00	100	3.3	51	100	92	5.1	100	93	6.8	100	100	3.9	43	100	0	0.0	NA	10		
14:00:00	91	2.8	55	100	92	4.5	100	83	5.9	100	88	3.3	45	100	0	0.0	NA	10		
1ht:	371				350			343			362				0					
14:15:00	96	2.8	57	100	96	4.4	100	94	6.3	100	97	3.4	48	100	0	0.0	NA	10		
14:30:00	87	2.7	53	100	87	4.3	100	85	6.0	100	85	3.3	43	100	0	0.0	NA	10		
14:45:00	113	3.7	51	100	100	5.0	100	105	7.7	100	109	4.3	42	100	0	0.0	NA	10		
15:00:00	120	4.0	50	100	115	5.7	100	112	8.4	100	118	4.7	42	100	0	0.0	NA	10		
1ht:	416				398			396			409				0					
15:15:00	103	3.5	49	100	99	5.1	100	50	30.1	100	88	10.2	14	100	0	0.0	NA	10		
15:30:00	100	3.3	50	100	98	4.9	100	47	31.7	100	82	9.9	14	100	0	0.0	NA	10		
15:45:00	115	3.9	50	100	108	5.5	100	58	31.7	100	85	10.5	14	100	0	0.0	NA	10		
16:00:00	95	3.2	49	100	88	4.3	100	50	26.2	100	74	8.5	14	100	0	0.0	NA	10		
1ht:	413				393			205			329				0					
16:15:00	134	4.6	49	100	127	5.7	100	65	37.6	100	111	11.9	16	100	0	0.0	NA	10		
16:30:00	99	3.3	51	100	98	4.4	100	60	32.4	100	90	9.6	16	100	0	0.0	NA	10		
16:45:00	103	3.4	51	100	100	4.3	100	54	31.1	100	84	10.8	13	100	0	0.0	NA	10		
17:00:00	100	3.2	52	100	96	4.3	100	49	29.4	100	81	9.5	14	100	0	0.0	NA	10		
1ht:	436				421			228			366				0					
17:15:00	139	4.7	49	100	127	6.1	100	60	40.1	100	113	13.1	14	100	0	0.0	NA	10		
17:30:00	114	4.0	48	100	111	5.0	100	62	32.1	100	94	10.4	15	100	0	0.0	NA	10		
17:45:00	110	4.4	42	100	105	4.7	100	61	34.5	100	92	10.8	14	100	0	0.0	NA	10		
18:00:00	107	3.8	47	100	105	4.7	100	50	32.7	100	89	10.2	15	100	0	0.0	NA	10		
1ht:	470				448			233			388				0					
18:15:00	109	3.7	49	100	106	4.4	100	58	31.9	100	89	10.4	14	100	0	0.0	NA	10		
18:30:00	96	3.1	52	100	95	4.3	100	51	30.8	100	82	10.3	13	100	0	0.0	NA	10		
18:45:00	90	2.9	52	100	89	4.0	100	54	25.4	100	73	8.7	14	100	0	0.0	NA	10		
19:00:00	75	2.5	51	100	67	3.1	100	53	21.6	100	67	8.0	14	100	0	0.0	NA	10		
1ht:	370				357			216			311				0					

California Department of Transportation

OTM22130

Table B - Selective Accident Rate Calculation

Policy controlling the use of Traffic Accident Surveillance and Analysis System (TASAS) - Transportation Systems Network (TSN) Reports

1. TASAS - TSN has officially replaced the TASAS - "Legacy" database.
2. Reports from TSN are to be used and interpreted by the California Department of Transportation (Caltrans) officials or authorized representative.
3. Electronic versions of these reports may be emailed between Caltrans' employees only using the State computer system.
4. The contents of these reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409, and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

OTM22130

Table B - Selective Accident Rate Calculation

Report Parameters-

Event ID: 2389285

Request Name: 405 AT SAND CANYON

Ref Date: 06/08/2007

Request- & Line	L D O I S C R C	Route/Location	Begin Date	End Date	Rate Type	Out Seq	Override Rates			Override ADT			Req. Type	Com- bine?	Excl Ramp?
							Rate	Inj%	Fat%	Main	Cross				
1 1	H S I	12 ORA 405 003.000 thru 12 ORA 405 004.150	01-JAN-03	31-DEC-05	N	L							N	N	N
1 2	H S I	12 ORA 405 002.000 thru 12 ORA 405 003.050	01-JAN-03	31-DEC-05	N	L							N	N	N
1 3	R T I	12 ORA 405 002.212 thru 12 ORA 405 002.212	01-JAN-03	31-DEC-05	N	L							N	N	N
1 4	R T I	12 ORA 405 002.930 thru 12 ORA 405 002.930	01-JAN-03	31-DEC-05	N	L							N	N	N
1 5	R T I	12 ORA 405 003.090 thru 12 ORA 405 003.090	01-JAN-03	31-DEC-05	N	L							N	N	N
1 6	R T I	12 ORA 405 003.809 thru 12 ORA 405 003.809	01-JAN-03	31-DEC-05	N	L							N	N	N
1 7	R T I	12 ORA 405 004.021 thru 12 ORA 405 004.021	01-JAN-03	31-DEC-05	N	L							N	N	N

Event Log:

Job id is : 288294 Accidents Table B Request 405 AT SAND CANYON Submitted by T12AWONG
 12 ORA 405 3 - 12 ORA 405 4.15 01/01/2003 TO 12/31/2005
 12 ORA 405 2 - 12 ORA 405 3.05 01/01/2003 TO 12/31/2005
 12 ORA 405 2.212 - 12 ORA 405 2.212 01/01/2003 TO 12/31/2005
 12 ORA 405 2.93 - 12 ORA 405 2.93 01/01/2003 TO 12/31/2005
 12 ORA 405 3.09 - 12 ORA 405 3.09 01/01/2003 TO 12/31/2005
 12 ORA 405 3.809 - 12 ORA 405 3.809 01/01/2003 TO 12/31/2005
 12 ORA 405 4.021 - 12 ORA 405 4.021 01/01/2003 TO 12/31/2005

Location Description	Rate Group (RUS)	No. of Accidents / Significance	No. of Accidents / Significance			No. of Accidents / Significance			ADT Main X-St	Total MV+ or MVM	Actual			Accident Rates Average					
			Tot	Fat	Inj	F+I	Wet	Dark			Kid Inj	Fat	F+I	Tot	Fat	F+I	Tot		
ORA 405 003.000 - 12 ORA 405 004.149 2003-01-01 2005-12-31	1.150 MI H 66 SOUTH U	36 mo.	107	1	33	34	94	11	31	1	131.3	165.44	0.006	0.006	.21	.65	0.006	.36	1.14
ORA 405 002.000 - 12 ORA 405 003.049 2003-01-01 2005-12-31	1.050 MI H 66 SOUTH U	36 mo.	44	0	11	11	36	4	17	0	126.7	145.75	0.000	0.000	.08	.30	0.006	.35	1.11
ORA 405 002.212 405/SB OFF TO RTE 133 2003-01-01 2005-12-31	R 34 U	36 mo.	3	0	0	0	1	1	3	0	10.2	11.18 +	0.000	0.000	.00	.27	0.002	.08	.25
ORA 405 002.930 405/SB ON FR SAND CYN AVE 2003-01-01 2005-12-31	R 40 U	36 mo.	1	0	0	0	1	0	0	0	3.5	3.84 +	0.000	0.000	.00	.26	0.001	.24	.70
ORA 405 003.090 405/SB OFF TO SAND CYN AVE 2003-01-01 2005-12-31	R 10 U	36 mo.	3	0	1	1	3	0	1	0	8.3	9.06 +	0.000	0.000	.11	.33	0.005	.61	1.50
ORA 405 003.809 405/SB ON NB JEFFREY/UNVRSTY 2003-01-01 2005-12-31	R 20 U	36 mo.	3	0	0	0	3	0	1	0	9.7	10.67 +	0.000	0.000	.00	.28	0.003	.22	.60
ORA 405 004.021 405/SB ON SB JEFFREY/UNVRSTY 2003-01-01 2005-12-31	R 40 U	36 mo.	0	0	0	0	0	0	0	0	3.4	3.67 +	0.000	0.000	.00	.00	0.001	.24	.70

Accident Rates expressed as: # of accidents / Million vehicle miles

+ denotes that Million Vehicles (MV) used in accident rates instead (for intersections and ramps).

For Ramps RUS only considers R(Rural) U(Urban)

Attachment 2
Preliminary Environmental Analysis Report (PEAR)

State of California

Business, Transportation and Housing Agency

MEMORANDUM

To: GARY SLATER, CHIEF
PROJECT STUDIES UNIT
ATTN: Jason Ly

May 21, 2007

From: IFFAT QAMAR
ENVIRONMENTAL PLANNING, BRANCH A

12-ORA-405
PM: 2.45/2.89
EA: 0H320K

Subject: Draft PSR Review and Preliminary Environmental Analysis Report (PEAR)

Environmental Planning has received the request from your unit to review the draft PSR and provide a preliminary environmental analysis report (PEAR) for the project to extend an auxiliary lane along the SB side of I-405 between State Route 133 off-ramp (PM 2.45) and Sand Canyon Avenue SB on-ramp (PM 2.89) in the City of Irvine. Other project activities would include: modification of lighting and fiber optic systems, and relocation of overhead signs and metal guardrails.

Please find in attachment the PEAR for the subject project.

I can be contacted at (949) 734-2886 regarding the PEAR or for any additional assistance with the environmental process.

Attachments: 1) PEAR



Preliminary Environmental Analysis Report

Project Information

District 12 County ORA Route I-405

PM I-405 (2.45/2.89)

EA 0H320K

Project Title: To construct an auxiliary lane on the Southbound (SB) Interstate 405 (I-405) between SB SR-133 off-ramp (PM 2.45) and Sand Canyon Avenue SB on-ramp (PM 2.89) in the City of Irvine, in the Orange County.

Project Manager Vinh Pham Phone # (949) 724-2097

Project Engineer Jason Ly/ Gary Slater Phone # (949) 724-2171; (949) 756-7685

Environmental Branch Chief Smita Deshpande Phone # (949) 724-2245

Environmental Planner Generalist Iffat Qamar Phone # (949) 724-2886

Project Description

Purpose and Need:

The existing traffic volumes are very high (during AM and PM peak hours) in this stretch of southbound (SB) Interstate 405 (I-405) between the SB SR-133 off-ramp (PM 2.45) and Sand Canyon Avenue SB on-ramp (PM 2.89) in the City of Irvine, in the County of Orange. It results in congestion and weaving problems. Due to the lack of an auxiliary lane, there are over 1100 vehicles that want to exit at the SR-133 off-ramp are instead jammed in the general-purpose lanes and add congestion to the general-purpose lanes.

Therefore, there is a need to improve mobility on the SB I-405 between Sand Canyon Avenue off-ramp and University Drive on-ramp in the City of Irvine, in the County of Orange. The California Department of Transportation (Department) District 12 Traffic Operations South Branch initiated a traffic operational improvement project by adding an auxiliary lane at this length of I-405. The project will add an auxiliary lane for traffic to weave and will provide an additional lane along the ramps for storage capacity.

The purpose of this project is to: improve the weaving operation of vehicles entering and exiting the freeway; improve the level of service (LOS); improve overall traffic delays and congestion; increase travel speed; and reduce accident rates for sideswipes and rear end type collisions on this portion of the SB I-405.

Description of work:

The proposed project includes construction of an auxiliary lane on the SB I-405 between SB SR-133 off-ramp and Sand Canyon Avenue SB on-ramp in the City of Irvine, in the County of Orange for weaving and to provide an additional lane along this length of the I-405 for storage capacity. There is an existing 1,000 feet auxiliary lane on SB I-405 north of the SR-133 connector. The proposed project consists of extending this existing auxiliary lane. The project includes removing the existing pavement shoulder and replace with asphalt pavement for the

auxiliary lane and the shoulder. Other project activities would include: modification of lighting and fiber optic systems, and relocation of overhead signs and metal guardrails. The work will take place on I-405 (PM 2.45/2.89) in the City of Irvine, in the County of Orange. The work will not involve utility, railroad, right of way acquisition, and construction easements.

Alternatives:

Two alternatives have been considered for this project. The first alternative is the “No Build” alternative that retains the existing roadway conditions. The second alternative is described in the “Description of Work” section listed previously.

Anticipated Environmental Approval

CEQA

- Categorical/Statutory Exemption
- Negative Declaration
- Environmental Impact Report

NEPA

- Programmatic Categorical Exclusion
- Finding of No Significant Impact
- Environmental Impact Statement

The anticipated document for the proposed project is a Categorical Exemption for California Environmental Quality Act (CEQA), Class 1c and Programmatic Categorical Exclusion for National Environmental Policy Act (NEPA), which would require a minimum of 90 days for preparation. The proposed project is not anticipated to result in environmental constraints.

PSR Summary Statement (to be included with the Environmental Compliance Section)

The project would be State/Federal funded project. The anticipated environmental document under CEQA Class 1c and NEPA compliance would be a joint Categorical Exemption/Programmatic Categorical Exclusion document (CE/PCE) with Caltrans as the Lead Agency for CEQA and the Federal Highway Administration (FHWA) as the Lead Agency for NEPA. It would require a minimum of 90 days for preparation of CE/PCE.

Should the project’s Disturbed Soil Area (DSA) exceeds 0.4 hectares, a Storm Water Pollution Prevention Plan (SWPPP) will need to be prepared, implemented and maintained throughout all phases of construction. If the project would require less than one acre of DSA, a Water Pollution Control Program (WPCP) must be prepared and implemented. A Storm Water Data Report must be prepared for this project.

This project must conform to all applicable water quality regulations and/or permit requirements of the State Water Resources Control Board (SWRCB) and any applicable local Regional Water Quality Control Board(s) (RWQCB), including, but not limited to, the Caltrans Statewide NPDES Permit (Order No. 99-06-DWQ. NPDES No. CAS000003), the Statewide General NPDES Permit for Construction Activities (Order No. 99-08-DWQ. NPDES No. CAS000002), and the Caltrans Storm Water Management Plan (May 2003), and any subsequent revisions and/or additional requirements at the time of construction.

The contractor must submit a SWPPP/WPCP to Caltrans for review and approval within 30 days of award of the contract. The review of a SWPPP generally requires 40 days (15 days for Caltrans review, 15 days to resubmit, and 10 days for final review). In addition, a notice of construction (NOC) must be submitted to the Santa Ana RWQCB at least 30 days prior to any soil-disturbing activities.

Drainage work is proposed including removing and replacing drainage inlets and AC dikes. Based upon the project information provided at this time, permits from the resource agencies: US Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board, may be required due to the drainage discharge into the Orange County Flood Control District Trapezoidal Channel, located just outside the state right-of-way.

Replacement planting is also listed under roadway items. Invasive species should not be planted in proximity to any drainage structure (inlet, v-ditch, etc.) or areas where it may enter these drainage systems. There were no planting plans submitted with this review.

Lead investigations may be required for any excavations on unpaved areas. Any subsequent changes in project scope may require additional environmental review.

Based on the project information/plans provided, it is Environmental Planning's understanding that work will occur in the Channels including removing and replacing drainage inlets and AC dikes. Based upon the project information provided at this time, permits from the resource agencies: US Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board, may be required due to the drainage discharge into the Orange County Flood Control District Trapezoidal Channel, located just outside the state right-of-way.

Lead investigations may be required for any excavations on unpaved areas. Any subsequent changes in project scope may require additional environmental review.

Special Considerations

If work occurs in the Channels and in the Santa Ana River, it will require permit from the resource agencies that may take six months to one years and may delay the project delivery.

Anticipated Project Mitigation

No mitigation is anticipated.

Disclaimer

This report is not an environmental document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in this report. The estimates and conclusions provided are approximate and are based on cursory analysis of probable effects related directly to the projects' impacts. This report is to provide a preliminary level of environmental analysis to supplement the Project Study Reports. Changes in project scopes, alternatives, or environmental laws, processes, or permit requirements after the completion of the PEAR would require additional evaluation later in the projects' development process.

Reviewed by:

Mita Deryperde
Environmental Branch Chief

hwh
Project Manager

Date: May 18, 2007

Date: 6/13/07

Environmental Technical Reports or Studies Required

	<u>Study</u>	<u>Document</u>	<u>N/A</u>
Community Impact Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Farmland	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Section 4(f) Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Visual Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Floodplain Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air Quality Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Paleontology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Geology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wild and Scenic River Consistency	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cumulative Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural			
ASR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
HSR	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HRER	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HPSR	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Section 106 / SHPO	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Native American Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other			
Literature Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Data Recovery Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hazardous Waste			
ISA (Additional)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other			
-Lead Investigation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Biological			
Endangered Species (Federal)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Endangered Species (State)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Species of Concern (CNPS, USFS, BLM, S, F)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Biological Assessment (USFWS, NMFS, State)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetlands	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Invasive Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Natural Environment Study	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NEPA 404 Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other:			
May require Section 7 consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Permits			
401 Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
404 Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1601 Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
City/County Coastal Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
State Coastal Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
NPDES Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
US Coast Guard (Section 10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Screening:

1. Project Features: **New R/W?** No **Excavation?** No **Railroad Involvement?** No
Structure demolition / modification? No **Subsurface utility relocation?** No

Project Setting: The project is located on Interstate Route 405 (PM 2.45/2.89) in the city of Irvine, Orange County.

Rural or Urban: Urbanized area.

Current Land Issues: Transportation

Adjacent land uses: Commercial and residential

Existing landscaping/planting: Native vegetation

Discussion of Technical Review

Socio-Economic and Community Impacts. The project is not expected to have an adverse impact on the local communities and their economies. The project's work will remain within the existing Caltrans right of way (ROW). No displacements, relocation, or partial acquisitions will occur as part of the project. There will not be disproportionate impact on any ethnic or minority group. No further study is required.

Farmlands. There are no farmlands present within or near the projects' limits. A site visit and a review of local maps verified this.

Section 4(f) Impacts. This proposed project would be conducted entirely within State right of way and will have no temporary and permanent "use" of publicly owned parks and recreation areas, wildlife refuge, or historic properties. Therefore, the project will have no impact on Section 4(f) of the Department of Transportation Act of 1966 resources.

Visual Effects. The project will not have a measurable visual impact to viewers from the road as well as of the road. A visual impact study is not required for these projects.

Water Quality and Erosion. The limits of the proposed project lay within the jurisdiction of the Santa Ana Regional Water Quality Control Board. The receiving water body for the proposed project is reach 2 of San Diego Creek, which is a 303(d) water body impaired for metals and unknown toxicity and has TMDL's for sedimentation and nutrients. The proposed project is near by property owned and managed by the Nature Conservancy, which may include environmentally sensitive areas.

At this time the amount of Disturbed Soil Area (DSA) required for this project is not known. If the project will require one or more acres of Disturbed Soil Area (DSA), then a Storm Water Pollution Prevention Plan (SWPPP) must be prepared and implemented. If the project will require less than one acre of DSA, a Water Pollution Control Program (WPCP) must be prepared and implemented to mitigate construction site storm and non-storm water discharges.

Floodplain: A review of the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) indicates that the project areas would cross area designated as Zone X (FEMA 2004). FEMA defines Zone X as area for 500-year flood. Therefore, the project is not located within a 100-year floodplain. A floodplain evaluation report will not be needed.

Air Quality: It is a safety project. The auxiliary lane is required to remove congestion and traffic delays. The project will facilitate better traffic management and will resolve congestion issues

equating improved air quality. Therefore, it is exempt from PM Conformity Hot Spot Analysis. No further study is required.

Noise Impacts: The project is determined not to be a Type 1 projects as defined in the Caltrans Traffic Noise Analysis Protocol (CaTNAP). It was concluded that no increase in noise level will occur due to this project. No noise study is recommended.

Paleontology: Potential of impact to paleontological resources will depend upon cultural resources documentation.

Geology: A geological investigation is necessary for this project.

Wild and Scenic River: No wild or scenic rivers are located in the project area.

Cumulative Impacts. The project is not anticipated to result in cumulative impacts. This is basic safety project. No further studies are required.

Cultural Resources: A cultural study for a previous Caltrans project along this same section of I-405 was completed in November of 2000 (EA 0932U0). No archaeological sites or historic properties were identified within or adjacent to the Caltrans right of way in this area.

The appropriate level of cultural documentation for this project will be determined by the depth and extent of soil disturbances during construction. If soil disturbances are minimal or non-existent, then the project will most likely be exempted from cultural studies, and only about an hour's worth of staff time would be needed. If significant ground-disturbing actions are scheduled, then a Historic Properties Survey Report will need to be generated, which would require about 40 hours of staff time.

Native American Coordination. The Native American Heritage Commission (NAHC) consultation depends upon the findings of the impacts to cultural resources. However should any human remains be discovered during project's activities, all work must cease until the Caltrans District Archeologist can assess the find. If the remains are determined to be prehistoric, the Coroner will notify the NAHC who will then notify the Most Likely Descendent (MLD).

Hazardous Waste/Materials. The visual site inspections observed no evidence of hazardous waste contamination. Further studies would be done and appropriate measures would be taken during the PS&E phase of this project to deal with any excavation of unpaved areas or removal of traffic stripes.

Lead Investigation. The soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with the Lead from vehicle emissions. Soil samples will be collected, tested and analyzed for lead contamination during the PS&E stage. The Lead Investigation will be conducted by the Environmental Engineering Branch (EE) during the early stage of design. Since the lead investigation might be a lengthy process, it is essential that at the early stage of PS&E, the Design Branch provides EE with two sets of the plans showing the limits of the excavation for EE to conduct the lead investigation. If lead contamination is found, the results/conclusions will be included in the PS&E package.

Biological Resources. In the proposed project, drainage work is proposed including removing and replacing drainage inlets and AC dikes. Based upon the project information provided at this time, permits from the resource agencies: US Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board, may be required due to the drainage discharge into the Orange County Flood Control District Trapezoidal Channel, located just outside the state right-of-way.

Wetlands. According to Executive Order 11990, an avoidance alternative analysis is required for impacts to wetlands unless there is no practicable alternative available. At this time, jurisdictional waters of the U.S. and wetlands are contained within the project limit and have the potential to be impacted by project activities. However, it is anticipated that with BMPs, these channels and/or ditch areas will not be impacted. Impacts include fill material entering the waterways or trenching within the waterways. A delineation of jurisdictional wetlands and waters of the United States is not necessary at this time given the proposed scope of work.

Invasive Plant Species. Replacement planting is also listed under roadway items. According to Executive Order 13112, Invasive Species, it is the policy of Caltrans to limit the use of invasive species within the state right-of-way. Invasive species should not be planted in proximity to any drainage structure (inlet, v-ditch, etc.) or areas where it may enter these drainage systems. There were no planting plans submitted with this review.

Right-of-Way Relocation or Staging Area. The project will take place entirely within the Caltrans right-of-way. No new right-of-way or easement is required. Equipment and material staging areas will be determined by the contractor. All staging and storage areas should be evaluated by Environmental Planning prior to project's implementation.

Mitigation (For standard PSR only). See Section "Anticipated Project Mitigation" of this PEAR.

Permits. The Caltrans Statewide NPDES, US Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board permits would be required by the project.

Coastal Zone. This project is not located within the Coastal Zone under the jurisdiction of the California Coastal Commission.

List of Preparers

Name and Area of Review	Date
Biological Review by Arianne Preite	4/19/07, 5/03/07
Cultural Review by Charles Baker	4/19/07, 4/23/07
Water Quality & Floodplain Review by Arvin Cuevas	4/24/07, 5/08/07
Hazardous Waste Review by Reza Aurasteh	4/24/07, 5/08/07
Environmental Generalist – Iffat Qamar	4/19/07, 5/16/07
Chief Environmental Planning Branch A – Smita Deshpande	4/19/07, 5/18/07

Attachment A - PEAR Mitigation and Compliance Cost Estimate*

Dist.-Co.-Rte.-PM: 12-ORA- I-405 (2.45/2.89) EA: 0H320K

Project Description: The proposed project includes extension of an auxiliary lane on the SB I-405 between SB SR-133 off-ramp and Sand Canyon Avenue SB on-ramp for weaving and storage capacity along I-405 in the City of Irvine, in the County of Orange. The project includes removing the existing pavement shoulder and replacing it with asphalt pavement for the auxiliary lane and the shoulder. Other project activities would include: modification of lighting and fiber optic systems, and relocation of overhead signs and metal guardrails. The work will take place on I-405 (PM 2.45/2.89) in the City of Irvine, in the County of Orange. The work will not involve utility, railroad, right of way acquisition, and construction easements.

Environmental Planning has requested Design to provide the anticipated impacts to the Orange County Flood Control District's Trapezoidal Channel and project drainages. At this time, a worst case scenario for impacts is included. Environmental Planning understands that the cost will greatly decrease when Design provides the impact clarifications.

Person completing form/District Branch: Iffat Qamar, Environmental Planning, Branch A

Project Manager: Vinh Pham **Phone number:** (949) 724-2097

Date: May 18, 2007

	Mitigation			Compliance
	Project Feature ¹	Enviro. Obligation ²	Statutory Require. ³	Permit & Agreement ⁴ (Cost in \$1000)
Fish & Game 1601 Agreement	N/A	N/A	N/A	\$4.00
Coastal Development Permit	N/A	N/A	N/A	N/A
State Lands Agreement	N/A	N/A	N/A	N/A
NPDES Permit	1.5-2% of project cost	N/A	N/A	Yes, Fee Prepaid
COE 404 Permit- Nationwide	N/A	N/A	N/A	N/A
COE 404 Permit- Individual	N/A	N/A	N/A	Yes, No Fee
COE Section 10 Permit	N/A	N/A	N/A	N/A
COE Section 9 Permit	N/A	N/A	N/A	N/A
RWCQB 401	N/A	N/A	N/A	\$30.00
Noise attenuation	N/A	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A	N/A
Special landscaping	N/A	N/A	N/A	N/A
Archaeological	N/A	N/A	N/A	N/A
Biological	N/A	N/A	N/A	N/A
Historical	N/A	N/A	N/A	N/A
Scenic resources	N/A	N/A	N/A	N/A
Wetland/riparian	N/A	N/A	N/A	N/A
Hazardous Waste	N/A	N/A	N/A	N/A
TOTAL (Enter zeros if no cost)	\$0.00	\$0.00	\$0.00	\$34.00

- **Costs are to be reported in \$1,000s.**

• Costs are to include all costs to complete the commitment including: capital outlay and staff support; cost of right-of-way or easements; long-term monitoring and reporting, and; any follow-up maintenance.

- **A copy of the completed form shall be included in the project approval report (Project Report/PSSR), and a copy sent to Headquarters Environmental Program, attention: John Hebner.**

¹ Mitigation Caltrans would normally do if not required by a permit or environmental agreement.

² Mitigation Caltrans would not normally do but is required by conditions of a permit or environmental agreement.

³ Mitigation Caltrans would not normally do and is not required by a permit or Enviro. agreement but is required by a law.

⁴ Non-mitigation Caltrans would not normally do but is required by conditions of a permit or agreement.

Attachment 3
Storm Water Data Report

Storm Water Data Report (SWDR)



Dist-County-Route: 12-ORA-405
 Post Mile (Kilometer Post) Limits: : 2.45/2.89
 Project Type: Operational Improvement
 EA: 0H320K
 RU: 12-840
 Program Identification: 20.10.201.310
 Phase: PID PA/ED PS&E

Regional Water Quality Control Board(s): Santa Ana RWQCB

Is the project required to consider incorporating Treatment BMPs? Yes No
 If yes, can Treatment BMPs be incorporated into the project? Yes No
 If No, a Technical Data Report must be submitted to the RWQCB
 at least 60 days prior to PS&E Submittal. List submittal date: _____

Total Disturbed Soil Area: 1.04 acres (Approximately)

Estimated Construction Start Date: 07/2010 Construction Completion Date: 01/2011

Notification of Construction (NOC) Date to be submitted: 06/2010

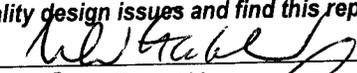
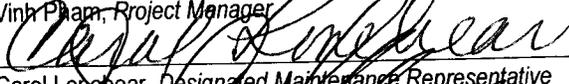
Notification of ADL reuse (if Yes, provide date) Yes Date: _____ No

Separate Dewatering Permit (if Yes, permit number) Yes Permit #: _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

 _____ 07/03/07
 Sudu Chalan, Registered Project Engineer Date

I have reviewed the storm water quality design issues and find this report to be complete, current, and accurate:

 _____ 7/12/07 Date
 Vinh Pham, Project Manager
 _____ 7/13/07 Date
 Carol Longbear, Designated Maintenance Representative
 _____ 7/10/07 Date
 Sandy Ankrasirisan, Designated Landscape Architect Representative
 _____ 7/10/07 Date
 Grace Pija-Garrett, District/Regional SW Coordinator or Designee

STORM WATER DATA INFORMATION

1. Project Description

This Project proposes to construct an auxiliary lane on the southbound (SB) Interstate 405 (I-405) between Southbound SR-133 off-ramp (PM 2.45) and Sand Canyon Avenue on-ramp (PM 2.89), in the City of Irvine in the County of Orange. The project scope includes the removal and replacement of existing dike. However, the length of 1080 ft near the on-ramp (from STA 169+00 to 179+80) does not have AC dike and will remain as is.

Electrical

The electrical work involved in this project is to relocate all lighting and sign illuminations and modify fiber optic communication system.

Drainage

The drainage work involved in this project is to remove and replace drainage inlets where it is necessary and to remove and replace AC dikes.

Overhead Sign

Remove & replace overhead (OH) signs at the exit ramps & construct OH signs for the auxiliary lane.

Miscellaneous

- All the signs, sign structures, pavement delineation, metal beam guard rails (MBGRs), & call boxes affected by the proposed work would be removed & replaced with the current standards.

- The estimated total area of disturbed soil (DSA) is approximately **1.04 acres** or **0.42 hectare**:

Layout 1	Roadway	Station (18160-16900)*12'	15120	SF
	Shoulder	Station (18160-16900)*10'	12600	SF
Layout 2	Roadway	Station (18940-18160)*12'	9360	SF
	Shoulder	Station (18940-18160)*10'	7800	SF
	Miscellaneous DSA due to Electrical, Drainage, Signs etc.,		449	SF
	Total DSA		45328	SF

- Project limits are within the City of Irvine in Orange County and the Orange County Flood Control District; both are MS4 co-permitted of the Orange County NPDES Permit.

2. Define Site Data & Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, & SW-3)

- This PSR proposal is based upon the recommendation from the Traffic Operations Branch.
- An open concrete trapezoidal channel belonging to Orange County Flood Control Department (OCFCD) runs along the west side of this project location. This is indirectly impacted by the



proposed improvement. This Channel is not listed as a 303(d) water body for particular TMDL pollutants. However, this drains to San Diego Creek, Reach 2, which has a TMDL for Nutrients and Sedimentation. The San Diego Creek, Reach 2 is on the 303(d) list for metals and unknown toxicity.

- There are no seasonal construction restrictions. The Santa Ana RWQCB has established the months between October 1st and May 1st to be seasonal rain months.
- Orange County has about 328 days of sunshine a year with an average daytime temperature of 22.8°C (73°F). The average yearly precipitation for the South Orange County area, which is near the project limits, is approximately 328-mm (12.92 inches). The soil classification and the existence of hazardous materials and soil containing Aerially Deposited Lead (ADL) will be determined at environmental phase. However, there is no reuse of contaminated soil in this project.
- This project proposal has an estimated total disturbed soil area is 0.42 ha. (1.04 acre).
- The proposed project can not be relocated or realigned to avoid or reduce impacts to receiving waters. The project can be scheduled to minimize soil-disturbing work during the rainy season. Permanent treatment BMPs would be designed to help mitigate storm water impacts.
- The topography of the project site is flat on the I-405 roadbed and slopes down on the outside shoulders. The Highway is running North & South with a fairly straight alignment (as per field review and as-built plans).
- The project will not produce any negative visual impacts. The slope and embankment area will be excavated and re-compacted.
- All the proposed work is within the state right of way and so no additional Easement R/W is needed. A R/W Data Sheet has been in process and Certification will be required at PS&E stage.
- Presence of dry weather flow does not exist within the proposed project limits.

3. Regional Water Quality Control Board Agreements

No special agreements will be required from the Santa Ana Regional Water Quality Control Board

4. Describe Proposed Design Pollution Prevention BMPs to be used on the Project.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

This project will increase velocity or volume of downstream flow due to the additional impervious roadway. Additional impervious length of this project is from Station 169+00 to 189+40 = 2040 ft. The auxiliary lane widening increases the impervious area of the roadbed by 12 ft x 2040 ft = 24,480 sft.

Water from the inlets along the dike from Station 179+80 to 189+40 reaches the channel. However, the existing condition has no dike from Station 169+00 to 179+80 = 1080 ft. The auxiliary lane widening increases the net impervious area of the roadbed by 12 ft x 1080 ft = 12,960 sft. Since there is an available pervious area of 25 ft x 1000 ft = 25,000 sft before reaching the channel, very little water will flow into the channel. Also, there is a natural swale that collects the runoff from the roadway all along this area and only a small portion of the excess water flows into the channel.



Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

This project will not create new slopes or modify existing slopes. The unpaved area is almost flat and so the widened area of the roadway joins the existing flat terrain without any cut or fills.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

This area will have a sheet flow from the roadway into the existing unpaved terrain before reaching the channel. There is no concentrated flow conveyance system that is existing along the non-dike length of 1000-ft leading to the channel.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Existing vegetation shall be preserved and Landscape Branch shall determine required landscaping.

5. Describe Proposed Permanent Treatment BMPs to be used on the Project

The project is required to consider incorporating Treatment BMPs. The targeted design constituents are metals and unknown toxicity. The impervious area = 85 ft x 2040 ft = 173,400 sft. $WQF = CIA = 1 \times 0.2 \times 173,400 = 34680$ cfs. 50% of this WQF shall be treated through biofiltration strips, which treats the metals. The remaining 50% shall reach the channel through the inlets.

Adequate right of way, dry weather conditions and flow velocity allows Biofiltration devices to be used at this location. To prevent downstream erosion, stabilization of disturbed soil area, maximize vegetated surfaces, and remove pollutants, all consistent with the existing Caltrans policies, retain the existing vegetated surfaces and cover additional areas that have been disturbed with biofiltration strips (vegetation).

6. Describe Proposed Temporary Construction Site BMPs to be used on Project

The project requires a SWPPP. Cost estimation of SWPPP, temporary drainage inlet protection & concrete washout may be itemized. Non-storm water, material, and waste management BMPs will be covered under Construction Site Management.

7. Maintenance BMPs (Drain Inlet Stenciling)

Drain inlet stenciling is not anticipated for this project.

8. Cost Estimates

The total cost of project due to Construction Site BMPs will be 2% [Baseline cost 1.25%, Adjustment for Work near 303(d) water bodies 0.5% and Adjustment for project specific issues 0.25%] of the total cost of construction. This will be reflected in the Cost estimate package.



REQUIRED ATTACHMENTS

- ⇒ Vicinity Map (see attached)
- ⇒ Evaluation Documentation Form (EDF) (see attached)

SUPPLEMENTAL ATTACHMENTS

Note: Supplement Attachments are to be supplied during the SWDR approval process; where noted, some of these items may only be required on a project-specific basis.

- Checklist SW-1, Site Data Sources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs, only those parts that were applicable)
- Checklists T-1, Parts 1–10 (Treatment BMPs) [only those Parts that are applicable]
- Draft PSR w/ Plans & Cost Estimate.
- Site pictures.



Vicinity Map

On SB I-405 Between Sand Canyon Avenue On-ramp and SR-133 Connector in the City of Irvine



	Treatment BMP's				
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Evaluation Documentation Form

DATE: 05/29/07

EA: OH320K

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

NO.	CRITERIA	YES	NO	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	<input checked="" type="checkbox"/>		Go to 2
2.	Is this an emergency project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If Yes , go to 11. If No , continue to 3.
3.	Have TMDLs OR OTHER Pollution Control Requirements been established for surface waters within the project limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If Yes , contact the District/Regional NPDES coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 10 (as determined by the NPDES Coordinator). <i>WY</i> (Dist./Reg. SW Coordinator initials) If No , continue to 4.
4.	Is the project within an urban MS4?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 5. <u>City of Irvine in Orange County</u> If No , go to 11.
5.	Is the project directly or indirectly discharging to surface waters?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 6. If No , go to 11.
6.	Is this a new facility or major reconstruction?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 8. If No , go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 8. If No , go to 11.
8.	Is the Disturbed Soil Area (DSA) created by the project greater than or equal to <u>3.0</u> acres or does the project result in a <u>net increase of one acre or more of new impervious surface</u> ?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 10. If No , go to 9. <i>DSA = 0.42 hectare (1.04 acres)</i> <i>Net increase of pervious area = 0.5 acres</i>
9.	Is the project part of a Common Plan of Development?	<input type="checkbox"/>	<input type="checkbox"/>	If Yes , continue to 10. If No , go to 11.
10.	Project is required to consider approved Treatment BMPs.	<input checked="" type="checkbox"/>		See Sections 2.4 and either Section 5.5 or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.
11.	Project is not required to consider Treatment BMPs. _____ (Dist./Reg. SW Coord. Initials) _____ (Project Engineer Initials) _____ (Date)	<input type="checkbox"/>		Document for Project Files by completing this form, and attaching it to the SWDR.

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs



Checklist SW-1, Site Data Sources			
Prepared by:	Sudu Chalan	Date:	05/17/07
		District-Co-Route:	12-ORA-405
PM:	2.45/2.89	EA:	0H320K
RWQCB:	Santa Ana		

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project-planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
• As-built Plans EA 12-096704	10/06/2004
• Field Pictures	03/15/2007
Hydraulic	
• As-built Plans EA 12-096704	10/06/2004
• Hydraulics & Maintenance Evaluation at Meeting	TBD
• Surveys Data	To be performed @PS&E
Soils	
• Field Pictures	03/15/2007
• Lead Report	To be performed @PS&E
• Material Report	To be performed @PS&E
Climatic	
• USGS Weather Data	Current
Water Quality	
• Santa Ana Regional Water Quality Control Board	Website
Other Data Categories	



Checklist SW-2, Storm Water Quality Issues Summary

Prepared by:	Sudu Chalan	Date:	05/17/07	District-Co-Route:	12-ORA-405
PM:	2.45/2.89	EA:	0H320K		
RWQCB:	Santa Ana				

The following questions provide a guide to collecting critical information relevant to project storm water quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional NPDES Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR.

- | | | |
|--|--|--|
| 1. Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation). | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 2. For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 3. Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 4. Determine the RWQCB special requirements, including TMDLs, effluent limits, etc. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 5. Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 6. Determine if a 401 certification will be required. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 7. List rainy season dates. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 8. Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 9. If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 10. Determine contaminated or hazardous soils within the project area. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 11. Determine the total disturbed soil area of the project. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 12. Describe the topography of the project site. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 13. List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor's staging yard, work from barges, easements for staging, etc.). | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 14. Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much? | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 15. Determine if a right-of-way certification is required. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 16. Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 17. Determine if project area has any slope stabilization concerns. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 18. Describe the local land use within the project area and adjacent areas. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 19. Evaluate the presence of dry weather flow. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |



Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: <u>Sudu Chalan</u>	Date: <u>05/17/07</u>	District-Co-Route: <u>12-ORA-405</u>
PM: <u>2.45/2.89</u>	EA: <u>0H320K</u>	
RWQCB: <u>Santa Ana</u>		

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR.

Options for avoiding or reducing potential impacts during project planning include the following:

1. Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> NA
------------------------------	--	-----------------------------

2. Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--

3. Can any of the following methods be utilized to minimize erosion from slopes:
 - a. Disturbing existing slopes only when necessary?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - b. Minimizing cut and fill areas to reduce slope lengths?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - e. Avoiding soils or formations that will be particularly difficult to re-stabilize?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - h. Rounding and shaping slopes to reduce concentrated flow?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--
 - i. Collecting concentrated flows in stabilized drains and channels?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
------------------------------	-----------------------------	--

4. Does the project design allow for the ease of maintaining all BMPs?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
---	-----------------------------	--

5. Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
---	-----------------------------	--

6. Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
---	-----------------------------	-----------------------------



Design Pollution Prevention BMPs Checklist DPP-1, Part 1			
Prepared by:	Sudu Chalan	Date:	05/17/07
		District-Co-Route:	12-ORA-405
PM:	2.45/2.89	EA:	0H320K
RWQCB:	Santa Ana		

Consideration of Design Pollution Prevention BMPs

1. Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]?

- | | | | |
|---|---|--|-----------------------------|
| (a) Will project increase velocity or volume of downstream flow? Since a swale takes care of most of the volume of water from the newly added impervious surface, very little quantity drains to the channel. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| (b) Will the project discharge to unlined channels? Most to swale and very little to lined channel | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |
| (c) Will project increase potential sediment load of downstream flow? Slightly | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| (d) Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |

If Yes was answered to any of the above questions, consider **Downstream Effects Related to Potentially Increased Flow**, complete the DPP-1, Part 2 checklist.

2. Slope/Surface Protection Systems

- | | | | |
|---|------------------------------|--|-----------------------------|
| (a) Will project create new slopes or modify existing slopes? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |
|---|------------------------------|--|-----------------------------|

If Yes was answered to the above question, consider **Slope/Surface Protection Systems**, complete the DPP-1, Part 3 checklist.

3. Concentrated Flow Conveyance Systems

- | | | | |
|---|---|--|-----------------------------|
| (a) Will the project create or modify ditches, dikes, berms, or swales? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| (b) Will project create new slopes or modify existing slopes? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |
| (c) Will it be necessary to direct or intercept surface runoff? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |
| (d) Will cross drains be modified? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |

If Yes was answered to any of the above questions, consider **Concentrated Flow Conveyance Systems**; complete the DPP-1, Part 4 checklist.

4. Preservation of Existing Vegetation

- | | |
|---|--|
| (a) It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects. | <input checked="" type="checkbox"/> Complete |
|---|--|

Consider **Preservation of Existing Vegetation**, complete the DPP-1, Part 5 checklist.

Design Pollution Prevention BMPs

Checklist DPP-1, Part 2

Prepared by: Sudu Chalan Date: 05/17/07 District-Co-Route: 12-ORA-405
PM: 2.45/2.89 EA: 0H320K
RWQCB: Santa Ana

Downstream Effects Related to Potentially Increased Flow

1. Review total paved area and reduce to the maximum extent practicable. Complete
2. Review channel lining materials and design for stream bank erosion control. Complete
 - (a) See Chapters 860 and 870 of the HDM. Complete
 - (b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity. Complete
3. Include, where appropriate, energy dissipation devices at culvert outlets. Complete
4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour. Complete
5. Include, if appropriate, peak flow attenuation basins to reduce peak discharges. Complete

**Design Pollution Prevention BMPs
Checklist DPP-1, Part 3 – NOT APPLICABLE**

Prepared by: <u>Sudu Chalan</u>	Date: <u>05/17/07</u>	District-Co-Route: <u>12-ORA-405</u>
PM: <u>2.45/2.89</u>	EA: <u>0H320K</u>	
RWQCB: <u>Santa Ana</u>		

Slope / Surface Protection Systems

1. What are the proposed areas of cut and fill? (attach plan or map) Complete

2. Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows? Yes No

3. Were slopes rounded and/or shaped to reduce concentrated flow? Yes No

4. Were concentrated flows collected in stabilized drains or channels? Yes No

5. Are slopes > 1:4 vertical:horizontal (V:H)? Yes No
 If Yes, District Landscape Architecture must prepare or approve an erosion control plan.

6. Are slopes > 1:2 (V:H)? Yes No
 If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 1:2 (V:H).

7. Estimate the change to the impervious areas that will result from this project. _____ acres Complete

VEGETATED SURFACES

1. Identify existing vegetation. Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. Complete
3. How long will it take for permanent vegetation to establish? Complete
4. Minimize overland and concentrated flow depths and velocities. Complete

HARD SURFACES

1. Are hard surfaces required? Yes No
 If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations. Complete

- Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. Complete

**Design Pollution Prevention BMPs
Checklist DPP-1, Part 4**

Prepared by: <u>Sudu Chalan</u>	Date: <u>05/17/07</u>	District-Co-Route: <u>12-ORA-405</u>
PM: <u>2.45/2.89</u>	EA: <u>0H320K</u>	
RWQCB: <u>Santa Ana</u>		

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Chapters 813, 836, and 860 of the HDM. Complete
2. Evaluate risks due to erosion, overtopping, flow backups or washout. Complete
3. Consider outlet protection where localized scour is anticipated. Complete
4. Examine the site for run-on from off-site sources. Complete
5. Consider channel lining when velocities exceed scour velocity for soil. Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. Complete
2. Consider paved spillways for side slopes flatter than 1:4 V:H. Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 5

Prepared by:	Sudu Chalan	Date:	05/29/07	District-Co-Route:	12-ORA-405
PM:	2.45/2.89	EA:	0H320K		
RWQCB:	Santa Ana				

Preservation of Existing Vegetation

1. Review Preservation of Property, Standard Specifications 16.1.01 and 16-1.02 (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation. Complete
2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans? To be performed @ PS&E stage Yes No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? Complete
4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas? To be performed @ PS&E stage Yes No
5. Are all areas to be preserved delineated on the plans? To be performed @ PS&E stage Yes No

Treatment BMPs			
Checklist T-1, Part 1			
Prepared by:	Sudu Chalan	Date:	05/29/07
		District-Co-Route:	12-ORA-405
PM:	2.45/2.89	EA:	0H320K
RWQCB:	Santa Ana		

Consideration of Treatment BMPs

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watersheds within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed.

1. Dry Weather Flow Diversion

- (a) Are dry weather flows generated by Caltrans anticipated to be persistent? Yes No
- (b) Is a sanitary sewer located on or near the site? Yes No
- (c) Is the connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? Yes No
- (d) Is the domestic wastewater treatment authority willing to accept flow? Yes No

If Yes was answered to all of these questions consider Dry Weather Flow Diversion, complete and attach Part 3 of this checklist

2. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? Yes No

If Yes, consider Gross Solids Removal Devices (GSRDs), complete and attach Part 6 of this checklist. Note: Biofiltration Systems, Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter – consult with District/Regional NPDES if these devices should be considered to meet litter/trash TMDL.

3. Is project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year? Yes No
 If Yes, consider **Traction Sand Traps**, complete and attach **Part 7** of this checklist.

4. (a) Are there local influent limits for infiltration or Basin Plan restrictions or other local agency prohibitions that would restrict the use of the infiltration devices? Yes No

(b) Would infiltration pose a threat to local groundwater quality as determined by the District/Regional Storm Water Coordinator? Yes No

If the answer to either part of Question 4 is Yes, then Infiltration Devices are infeasible and the consideration of Infiltration Devices should not be made when completing Questions 5 through 17.

Checklist T-1, Part 1

5. (a) Does the project discharge to any 303(d) listed water body?
If No, go to Question 17, General Purpose Pollutant Removal Yes No

(b) If Yes, is the identified pollutant(s) considered a Targeted Design Constituent (TDC) (check all that apply):

phosphorus,

nitrogen,

total copper,

dissolved copper,

total lead

dissolved lead,

total zinc,

dissolved zinc,

sediments,

general metals [unspecified metals]. YES

(c) If only one TDC is checked above, continue to Question 6. Complete

(d) If more than one TDC is checked, contact your District/Regional NPDES Coordinator to determine priority before continuing with this checklist. Complete

6. Consult with the District/Regional Storm Water Coordinator to determine whether Treatment BMP selection will be affected by any existing or future TMDL requirements. Complete

The following questions show the approved Treatment BMPs in order of preference based on load reduction (performance) for the listed constituent and lifetime costs for the device, excluding right-of-way. Note that a line separates Treatment BMPs into groups of approximately equal effectiveness and within each grouping, any of the Treatment BMPs may be selected for placement if meeting site conditions. In the space provided next to the BMP, use Yes or a check mark to indicate a positive response.

If none of the listed Treatment BMPs for a specific constituent of concern (TDC) can be sited, go to Step #17 (General Purpose Pollutant Removal) to determine whether another Treatment BMP can be incorporated into the project.

For the SWDRs developed for the PID and PA/ED phases of a project: Consider all approved Treatment BMPs listed that can be reasonably incorporated into the project for each TDC.

For the SWDR developed for the PS&E phase: Indicate (Yes or check mark) only those BMPs that will be incorporated into the project.

7. Is phosphorus the TDC? [Use this constituent if "eutrophic" or "nutrients" is the TDC for the water body.] If Yes, consider: Yes No

Infiltration Devices

Austin Sand Filters

8. Is nitrogen the TDC? If Yes, consider: Yes No

Infiltration Devices

Austin Sand Filters

Delaware Filter

Detention Device

MCTT

9. Is copper (total) the TDC? If Yes for total Copper, consider:

Yes No

Infiltration Devices

Wet Basins

Biofiltration Strips

Detention Device

Biofiltration Swales

Austin Sand Filter

Delaware Filter

MCTT

10. Is copper (dissolved) the TDC? If Yes for dissolved Copper, consider:

Yes No

Infiltration Devices

Biofiltration Strips

Wet Basin

Biofiltration Swale

11. Is lead (total) the TDC? If Yes for total Lead, consider:

Yes No

Infiltration Devices

Wet Basin

Biofiltration Strips

Austin Sand Filter

Delaware Filter

Detention Device

Biofiltration Swales

MCTT

12. Is lead (dissolved) the TDC? If Yes for dissolved Lead, consider:

Yes No

Infiltration Devices

Biofiltration Strips

Wet Basin

Detention Device

Biofiltration Swales

Austin Sand Filter

13. Is zinc (total) the TDC? If Yes for total Zinc, consider:

Yes No

Infiltration Devices

Delaware Filter

Wet Basin

Biofiltration Strips

Biofiltration Swales

Austin Sand Filter

MCTT

Detention Devices

14. Is zinc (dissolved) the TDC? If Yes for dissolved Zinc, consider:

Yes No

Infiltration Devices

Delaware Filter

Biofiltration Strip

Biofiltration Swale

Austin Sand Filter

MCTT

15. Is sediment (total suspended solids [TSS]) the TDC? If Yes for TSS, consider:

Yes No

Infiltration Devices

Austin Sand Filter

Delaware Filter

Wet Basin

Detention Device

Biofiltration Strip

MCTI

Biofiltration Swale

16. Are "General Metals" or (unspecified) "Metals" the TDC? If Yes for General Metals, consider:

Yes No

Infiltration Devices

Biofiltration Strips YES

Wet Basin

Biofiltration Swale

Austin Sand Filter

Delaware Filter

MCTT

Checklist T-1, Part 1

17. General Purpose Pollutant Removal.: When it is determined that there are no TDCs, consider the Treatment BMPs in the order listed below. Yes No

Infiltration Devices

Biofiltration Strips

Wet Basin

Biofiltration Swale

Austin Sand Filter

Detention Device

Delaware Filter

MCTT

18. Biofiltration
- (a) Are site conditions and climate favorable to allow suitable vegetation to be established? Yes No
- (b) Have Biofiltration strips and swales been considered to the extent practicable? Note: Biofiltration BMPs should be considered for all projects, even if other Treatment BMPs are placed. Yes No

If No to (a) or (b), document justification in Section 5 of the SWDR.

Checklist T-1, Part 1

19. After completing the above, complete and attach the checklists shown below for every Treatment BMP under consideration Complete

Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2

Dry Weather Diversion: Checklist T-1, Part 3

Infiltration Devices: Checklist T-1, Part 4

Detention Devices: Checklist T-1, Part 5

GSRDs: Checklist T-1, Part 6

Traction Sand Traps: Checklist T-1, Part 7

Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8

Multi-Chambered Treatment Train: Checklist T-1, Part 9

Wet Basins: Checklist T-1, Part 10

20. (a) Estimate what percentage of WQV/WQF will be treated by the preferred Treatment BMP(s):
50% Complete
- (b) Have Treatment BMPs been considered for use in parallel or series to increase this percentage? Yes No
21. Prepare cost estimate, including right-of-way, for selected Treatment BMPs and include as supplemental information for SWDR approval. Complete

Treatment BMPs			
Checklist T-1, Part 2			
Prepared by:	<u>Sudu Chalan</u>	Date:	<u>05/29/07</u>
		District-Co-Route:	<u>12-ORA-405</u>
PM:	<u>2.45/2.89</u>	EA:	<u>0H320K</u>
RWQCB:	<u>Santa Ana</u>		

Biofiltration Swales / Biofiltration Strips

Feasibility

1. Do the climate and site conditions allow vegetation to be established? Yes No
 2. Are flow velocities < 4 fps (i.e. low enough to prevent scour of the vegetated bioswale as per HDM Table 873.3E)? Yes No
- If No to either question above, Biofiltration Swales and Biofiltration Strips are not feasible.
3. Are Biofiltration Swales proposed at sites where known hazardous soils or contaminated groundwater plumes exist? Yes No
If Yes, consult with District/Regional NPDES Coordinator about how to proceed.
 4. Does adequate area exist within the right-of-way to place biofiltration device(s)? Yes No
If Yes, continue to the Design Elements section. If No, continue to Question 5. PS&E Phase
 5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Biofiltration Devices and how much right-of-way would be needed to treat WQF? Yes No
 acres
If Yes, continue to Design Elements section. If No, continue to Question 6.
 6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. Complete

Design Elements

* **Required** Design Element – A “Yes” response to these questions is required to further the consideration of this BMP into the project design. Document a “No” response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A “Yes” response is preferred for these questions, but not required for incorporation into a project design.

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * Yes No
2. Can the bioswale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g. freeboard, minimum slope, etc.) Yes No
3. Can the bioswale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.2.3.1)* Yes No

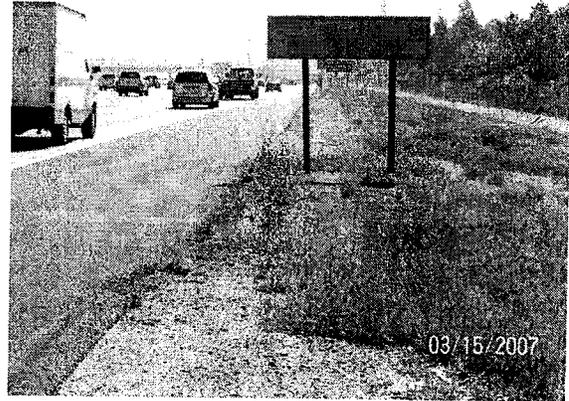
Checklist T-1, Part 2

4. Is the maximum length of a biostrip \leq 300 ft? * Yes No
5. Has the minimum width (in the direction of flow) of the invert of the bioswale received the concurrence of Maintenance? * Yes No
6. Can bioswales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? ** Yes No
7. Is the biostrip sized as long as possible in the direction of flow? ** Yes No
8. Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train? ** Yes No

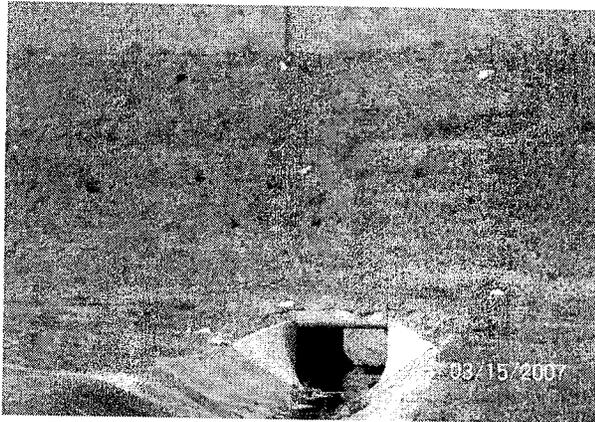
PICTURE #1: Existing AC dike and grate inlets (looking south)



PICTURE #2: End AC dike, surface flows into channel



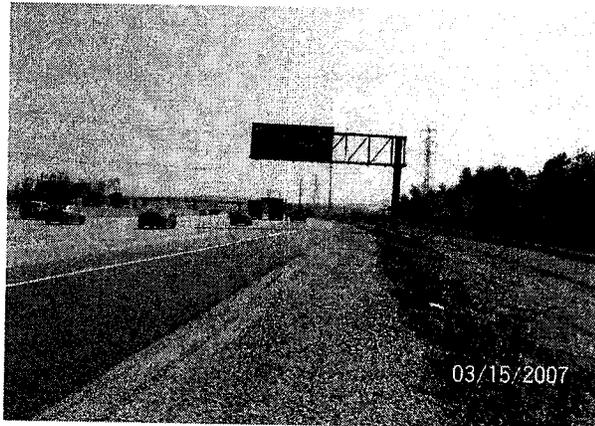
PICTURE #3: Channel crossing under Sand Canyon Ave.



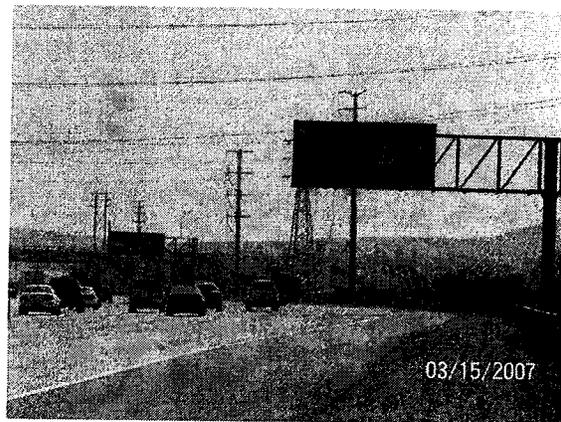
PICTURE #4: Open channel inside State R/W



PICTURE #5: Surface flowing at the end of project



PICTURE #6: Join exist auxiliary lane (Project ends)



12-ORA-405
PM 2.45/2.89
On SB I-405 between Sand Canyon Ave and SR-133
12840-0H320K-20.10.201.310

Attachment 4
Right of Way Data Sheet

RIGHT OF WAY DATA SHEET

(Form #)

To: Gary Slater,
Branch Chief
Project Studies Unit
Attention: Jason Ly

Date May 15, 2007
Dist 12 Co ORA Rte 405 PM: 2.45/2.89
EA 0H320K

Project Description : Extend existing auxiliary lane on SB I-405 to Sand Canyon Avenue SB on-ramp, City of Irvine.

Right of Way Data Sheet Alternate No. Preferred

This Alternate meets the criteria for a Design/Build project: Yes No

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost:			
Acquisition, including Excess Lands, Damages, and Goodwill.	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
Project Permit Fees.	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
B. Utility Relocation (State Share)	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
C. Relocation Assistance	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
D. Clearance/Demolition	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
E. Title and Escrow	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
F. Total Estimated Cost	\$ <u>0.00</u>	<u>0</u> %	\$ <u>0.00</u>
G. Construction Contract Work	\$ _____		

2. Current Date of Right of Way Certification 05/01/2016 T

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

Type	Dual/Appr	Utilities	RR Involvements
X _____		U4-1 <u>0</u>	None <u>X</u>
A _____		-2 <u>0</u>	C&M Agrmt <u>0</u>
B _____		-3 <u>0</u>	Svc Contract <u>0</u>
C _____		-4 <u>0</u>	Design <u>0</u>
D _____		U5-7 <u>0</u>	Const. <u>0</u>
E XXXX		-8 <u>0</u>	Lic/RE/Clauses <u>0</u>
F XXXX		-9 <u>0</u>	OE Clearance <u>0</u>
Total <u>0</u>			Misc. R/W Work
			RAP Displ <u>N/A</u>
			Clear/Demo <u>N/A</u>
			Const Permits <u>N/A</u>
			Condemnation <u>N/A</u>
			Excess <u>0</u>

Areas: R/W 0 No. Excess Parcels 0
Entered PMCS Screens 05/15/07 by Wallrich
Entered AGRE Screen (Railroad data only) ___/___/___ by _____

RIGHT OF WAY DATA SHEET (Cont.)
(Form #)

4. Are there any major items of construction contract work? Yes No (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).
No right of way required.

6. Is there an effect on assessed valuation? Yes Not Significant No (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes No (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
 Longitudinal policy conflict(s)
 Environmental concerns impacting acquisition of potential easements
 Power lines operating in excess of 50 KV and substations
(See attached Exhibit 4-EX-5 for explanation.)

8. Are Railroad facilities or rights of way affected?
Yes No (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes None Evident (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

10. Are RAP displacements required? Yes No (If "Yes," provide the following information.)

No. of single family _____ No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated N/A, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes No (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes No (If "Yes," explain.)

13. Are there any existing and/or potential airspace sites? Yes No (If "Yes," explain.)

RIGHT OF WAY DATA SHEET (Cont.)

(Form #)

EA: 0H320K

4-EX-1 (REV 3/2004)

Page 3 of 3

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead-time and/or if significant pressures for project advancement are anticipated.)

Based on the RW requirements on Page 1 of this Data Sheet, RW will require a lead-time of 2 months from the date regular appraisals can begin to project certification.
 In any event, RW Maps will require 2 months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes No (If "No," discuss.)

Evaluation Prepared By:

Right of Way:

Name Harry Pantya Date 5.15.07

Railroad:

Name Harry Pantya Date 5.15.07

Utilities:

Name J. Sanchez Date 5-15-07

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

For Harry Pantya
 KATHY J. ANDERSON, Chief
 RW Project Coordination, Local
 Programs and Project Control
 Irvine Office
 Southern Right of Way Region
5.15.07
 Date

Attachment 5
Project Schedule and Resource Requirements

District 12 - Program Project Management (PM)

Fri, May 11, 2007

D12

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D12

PMCS Schedule Report

EA 0H320 , Route 405, Project Manager: Pham, Vinh, Source: District Model (XPM), As of 5/04/07

From PMCS Database		
Description	Target Date	Actual Date
ID Need	10/01/05	10/11/05
Approved PSR	3/01/14	-
PAED	7/01/15	-
Bridge Site	-	-
Structure PS&E	-	-
District PS&E	4/01/16	-
RW Certification	5/01/16	-
RTL	7/01/16	-
HQ Advertise	9/01/16	-
Approve Contract	11/01/16	-
Job Completion	9/01/17	-

District 12 - Program Project Management (PM)

Thu, September 13, 2007

D12

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D12

SB 45 Report for EA 0H320, RTE 405, Project Manager: PHAM V
XPM Data Date: 9/07/07, PMCS Data Date: 9/07/07, TRAMS Data Date: 9/07/07
Program Doc: STIP, Not Programmed, n/a

Phase	SB 45 Component	CTIPS Budget (\$x1000)	Expenditure (\$x1000) As of 9/07/07	Current Estimate (\$x1000) As of 9/07/07
4	Construction Capital	0	0	4,293
9	R/W Capital	0	0	0
TOTAL CAPITAL \$		0	0	4,293

Phase	SB 45 Component	CTIPS Budget (\$x1000)	Expenditure (AC) (\$x1000) As of 9/07/07	EAC1 (\$x1000)	Current_XPM (CPV) (\$x1000) As of 9/07/07	Progress %	ETC (\$x1000)	EAC2 (\$x1000)
0	Planning	0	0	173	173	0	173	173
1	Design	0	0	592	592	0	592	592
2	R/W Support	0	0	26	26	0	26	26
3	Construction_Support	0	0	620	620	0	620	620
TOTAL SUPPORT \$		0	0	1,411	1,411	0	1,411	1,411

Non SB45 Phases:		
Phase	Phase Title	Expenditure (\$x1000) As of 9/07/07
K	Project Initiation Doc	143
5	Minor B Contract	0
8	Cooperative & Service Agreements	0
R	RW - Rental Property Mgm't Support	0.000
TOTAL Non SB45 \$		143

Data Source and Legend:

- 1- Budget - From CTIPS (For Phase 8 Coop is used).
- 2- Expenditures - From TRAMS (From beginning of the project to "As of Date").
- 3- CPV - (Current Planned Value) Resources from XPM.
- 4- Estimate To Completion (ETC) = (AC + (1 - Progress) * CPV)
- 5a- Estimate At Completion (EAC1) = ((Budget - Earned)/CPI + Expenditure to date). If Expenditure or % Progress = 0, then EAC1 = Current Estimate from XPM.
- 5b- Estimate At Completion (EAC2) = (ETC + AC)
- 6- Current Estimate - From PMCS (For Phase 4 & 9); From XPM (For Phase 0, 1, 2, and 3).
- 7- Progress (%) for each phase is the weighted average of activities for each phase (from XPM).
- 8- Currently we use **\$84/hr.** to convert the XPM hours to \$'s. This takes into account the non-Direct charges to the project.

PROJECT EA : 12-OH320_

GROUPED BY RESP. DIVISION		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
SER NO.															

SER NO.	Task I.D.	Subtask I.D.	Current Report Start	Current Report End	Duration (Days)	Task Manager
PROJECT MANAGEMENT						
1	CT.12.DD.OH320_0.100.05	00	11OCT05	01MAY14	062.DD	WPHAM
2	CT.12.DD.OH320_0.100.10	0	01MAY14	01JUL15	48F.DD	WPHAM
3	CT.12.DD.OH320_0.100.15	0	01JUL15	01NOV16	48S.DD	WPHAM
4	CT.12.DD.OH320_0.100.20	0	01NOV16	02JUN19	86S.DD	WPHAM
5	CT.12.DD.OH320_0.100.3	0	01JUL16	01JUL16	0.DD	WPHAM

SER NO.	Task I.D.	Subtask I.D.	Current Report Start	Current Report End	Duration (Days)	Task Manager
PLANNING						
6	CT.12.DD.OH320_2.100	0	01MAY14	02MAY15	390.DD	CLJINI
7	CT.12.DD.OH320_2.100	0	01MAY14	02MAY15	370.DD	DESHARANE
8	CT.12.DD.OH320_2.100.03	0	01MAY13	01JUL13	41.DD	CLJINI
9	CT.12.DD.OH320_2.100.10	0	01MAY13	01JUL13	41.DD	MANDERSCHKE
10	CT.12.DD.OH320_2.100.15	0	01MAY15	01JUL15	41.DD	CLJINI
11	CT.12.DD.OH320_2.200.05	0	01JUL15	01JUL15	20.DD	MANDERSCHKE
12	CT.12.DD.OH320_2.200.10	0	01JUL15	15OCT15	109.DD	MANDERSCHKE

SER NO.	Task I.D.	Subtask I.D.	Current Report Start	Current Report End	Duration (Days)	Task Manager
DESIGN						
13	CT.12.DD.OH320_3.100.03	0	01JUL13	11AUG13	41.DD	CLJINI
14	CT.12.DD.OH320_3.100.10	0	01JUL13	11AUG13	41.DD	RYER
15	CT.12.DD.OH320_3.100.15	0	01JUL13	11AUG13	41.DD	CLJINI
16	CT.12.DD.OH320_3.100.20	0	08JUL13	08SEP13	54.DD	CLJINI
17	CT.12.DD.OH320_3.100.25	0	08JUL13	08SEP13	54.DD	CLJINI
18	CT.12.DD.OH320_3.200.05	0	08SEP13	07OCT13	30.DD	CLJINI
19	CT.12.DD.OH320_3.200.10	0	22NOV13	02JAN18	41.DD	AKHARJATIS

BAR TYPES	ANNOTATION CODES	STRIP 1
	TN Task Name LAYOUT Grouping on Level 1 by:	DATE OF REPORT: 21 JUN07 REPORT NAME: BAR_AMLBYDIV
CALTRANS DISTRICT 12 12-OH320 PROJECT MANAGER: V. PHAM		

PROJECT EA : 12-OH320_

GROUPED BY RESP. DIVISION

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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SR NO.	Task I.D.	Subject I.D.	Current Start	Current End	Current (Days)	Task Manager
20	CT.12.CD.OH320_3.2B0_13		01/07/2015	02/01/16	43.00	LE
21	CT.12.CD.OH320_3.2B0_20		01/07/2015	07/01/16	41.00	FLORNO RIC
22	CT.12.CD.OH320_3.2B0_25		01/08/2015	10/01/15	81.00	CLJINI
23	CT.12.CD.OH320_3.2B0_30		01/08/2015	08/01/16	85.00	RYO
24	CT.12.CD.OH320_3.2B0_35		01/20/2015	10/01/16	84.00	CLJINI
25	CT.12.CD.OH320_3.2B0_40		01/13/2015	11/01/16	35.00	CLJINI
26	CT.12.CD.OH320_3.2B0_60		01/13/2015	21/01/16	8.00	CLJINI
27	CT.12.CD.OH320_3.2B5_10		01/20/2015	08/01/15	49.00	FLARSTEH
28	CT.12.CD.OH320_3.2B5_60		01/24/2015	04/01/17	41.00	FLARSTEH
29	CT.12.CD.OH320_3.2B5_25		01/04/2015	05/01/16	38.00	FLARSTEH
30	CT.12.CD.OH320_3.2B5_30		01/07/2015	01/01/16	5.00	FLARSTEH
31	CT.12.CD.OH320_3.2B5		01/07/2015	01/01/16	254.00	CLJINI
32	CT.12.CD.OH320_3.2B0		01/07/2015	01/01/16	31.00	DES
33	CT.12.CD.OH320_3.2B0		01/07/2015	01/01/16	123.00	DES
34	CT.12.CD.OH320_4.HB4		01/08/2015	01/01/16	0.00	GRANT
35	CT.12.CD.OH320_4.H377		01/21/2015	21/01/16	0.00	ESC
36	CT.12.CD.OH320_4.H500		01/07/2015	01/01/16	0.00	CLJINI
37	CT.12.CD.OH320_4.H450		01/07/2015	01/01/16	0.00	CLJINI
38	CT.12.CD.OH320_4.H500		01/07/2015	01/01/16	0.00	CLJINI

RIGHT OF WAY

20	CT.12.CD.OH320_4.2B0		01/01/2015	02/01/16	191.00	CLJINI
40	CT.12.CD.OH320_4.2B0		01/08/2015	11/01/15	40.00	GRANT

BAR TYPES

HIGHLIGHTS

ANNOTATION

CODES

STRIP 2

DATE OF REPORT: 21 JUN 07
REPORT NAME: BAR_AM_BYDIV

CALTRANS DISTRICT 12
12-OH320
PROJECT MANAGER: V. PHAM

PROJECT EA : 12-0H320_

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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SER NO.	Task I.D.	Subtask I.D.	Proj Start	Contract Start	Contract End	Resc (Days)	Task Manager
41	CT.12.DD.04820_4.225		01SEP13	01MAY15	243.00		ANDERSON
42	CT.12.DD.04820_4.245		01MAY15	01SEP17	439.00		ANDERSON
43	CT.12.DD.04820_4.410		01MAY15	01MAY15	0.00		ANDERSON

12-0H320-DEN RVN INTST FOR PROJ RVN CERT
 12-0H320-POST RVN CERT WAF 42
 12-0H320-RVN CERT 43

ENGINEERING SERVICE CENTER

CT.12.DD.04820_4.430 01SEP13 01SEP15 0.00 SEC

CONSTRUCTION

43	CT.12.DD.04820_3.270		01NOV18	01SEP17	394.00		UPADHAYYA
45	CT.12.DD.04820_3.280		01NOV15	15NOV17	375.00		UPADHAYYA
47	CT.12.DD.04820_5.280		01NOV15	08FEB18	544.00		UPADHAYYA
48	CT.12.DD.04820_5.285		01JUL17	08FEB18	201.00		UPADHAYYA
49	CT.12.DD.04820_4.600		01SEP17	01SEP17	0.00		UPADHAYYA
50	CT.12.DD.04820_4.600		01JUN18	02JUN18	0.00		VARAN

CT.12.DD.04820_4.620 01JUL13 01JUL13 0.00 CLBINI

12-04820-HEADQUARTERS ADVERTISE 44
 12-04820-CONST ENGRG & BNL CONTR ADMIN
 12-04820-DOO ADMIN 45
 12-04820-RESV CONTR CLAIMS 47
 12-04820-PORT CONTR RESP FE & F
 12-04820-CONTRACT RECEIPT 49
 12-04820-END PROJ 50

12-04820-PA & ED 31

BAR TYPES

NORMAL
 CRITICAL

HIGHLIGHTS

Grouping on Level: 1 by: Division-Tag e

ANNOTATION CODES

TN Task Name

LAYOUT

CALTRANS DISTRICT 12
 12-0H320
 PROJECT MANAGER: V. PHAM

STRIP 3
 DATE OF REPORT: 21 JUN 07
 REPORT NAME : BAR_AMLBYDIV

RESOURCE REQ.

TASK NAME	IDENTIFIER	START DATES	END DATES	RESOURCES	DUR DAYS
06/21/2007					
12-601-MAINT					
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	24	390.00
12-OH320_FPR	CT.12.CO.OH320_2.180.05	05/21/2015	07/01/2015	16	41.00
12-OH320_UPDD PROJ INFO	CT.12.CO.OH320_3.185.05	07/01/2015	08/11/2015	16	41.00
12-OH320_PREL DSN	CT.12.CO.OH320_3.185.15	07/01/2015	08/11/2015	16	41.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	24	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	32	304.00
Sub-Total				128	
12-510-CONST_OF					
12-OH320_PROJ MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	1	487.00
12-OH320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	1	489.00
12-OH320_PROJ MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	1	605.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	22	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	122	304.00
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	49	379.00
12-OH320_RSLV CONTR CLAIMS	CT.12.CO.OH320_5.290	11/01/2016	04/29/2018	5	544.00
12-OH320_Acpt CONTR PREP FE & FR	CT.12.CO.OH320_5.295	07/02/2017	04/29/2018	3	301.00
Sub-Total				204	
12-511-CONST_OF					
12-OH320_PROJ MGMT - PID CMPNT	CT.12.CO.OH320_0.100.05	10/11/2005	03/01/2014	8	3063.00
12-OH320_PROJ MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	8	487.00
12-OH320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	8	489.00
12-OH320_PROJ MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	12	605.00
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	8	390.00
12-OH320_UPDD PROJ INFO FOR PS&E PKG	CT.12.CO.OH320_3.230.60	02/13/2016	02/21/2016	8	8.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	12	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	320	304.00
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	12	379.00
12-OH320_RSLV CONTR CLAIMS	CT.12.CO.OH320_5.290	11/01/2016	04/29/2018	8	544.00
Sub-Total				404	
12-512-CONST_OF					
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	43	304.00
12-OH320_Acpt CONTR PREP FE & FR	CT.12.CO.OH320_5.295	07/02/2017	04/29/2018	10	301.00
Sub-Total				53	
12-513-CONST_OF-CONST_QUALITY_CONTROL					
12-OH320_PROJ MGMT - PID CMPNT	CT.12.CO.OH320_0.100.05	10/11/2005	03/01/2014	4	3063.00
12-OH320_PROJ MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	4	487.00
12-OH320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	12	489.00
12-OH320_PROJ MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	7	605.00
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	48	390.00
12-OH320_UPDD PROJ INFO	CT.12.CO.OH320_3.185.05	07/01/2015	08/11/2015	48	41.00
12-OH320_DRAFT RDWY PLANS	CT.12.CO.OH320_3.230.05	09/20/2015	12/27/2015	32	98.00
12-OH320_DRAFT HPPS	CT.12.CO.OH320_3.230.10	11/22/2015	01/02/2016	8	41.00
12-OH320_DRAFT TRAF PLANS	CT.12.CO.OH320_3.230.15	12/07/2015	01/25/2016	8	49.00

12-OH320_TMP	11/27/2015	01/07/2016	8	41.00
12-OH320_DRAFT UTIL PLANS	09/20/2015	12/10/2015	12	81.00
12-OH320_DRAFT DRNG PLANS	12/02/2015	02/05/2016	8	65.00
12-OH320_DRAFT SPECS	01/20/2016	02/13/2016	24	24.00
12-OH320_DRAFT PS&E Q&E	01/12/2016	02/14/2016	16	33.00
12-OH320_UPDD PROJ INFO FOR PS&E PKG	02/13/2016	02/21/2016	4	8.00
12-OH320_HW PS&E	11/24/2016	01/04/2017	4	41.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	02/21/2016	11/01/2016	48	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	40	304.00
12-OH320_CCO ADMIN	11/01/2016	11/15/2017	16	379.00
12-OH320_ACPT CONTR PREP FE & FR	07/02/2017	04/29/2018	24	301.00
Sub-Total			375	
12.515-CONST_OF-C-PISA_SYSTEM				
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	24	304.00
12-OH320_CCO ADMIN	11/01/2016	11/15/2017	12	379.00
12-OH320_ACPT CONTR PREP FE & FR	07/02/2017	04/29/2018	10	301.00
Sub-Total			46	
12.516-FIELD_CONST				
12-OH320_PROJ MGMT - CONST CMPNT	11/01/2016	06/29/2018	8	605.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	32	304.00
12-OH320_CCO ADMIN	11/01/2016	11/15/2017	8	379.00
Sub-Total			48	
12.518-FIELD_CONST				
12-OH320_PROJ MGMT - PA&ED CMPNT	03/01/2014	07/01/2015	1	487.00
12-OH320_PROJ MGMT - PS&E CMPNT	07/01/2015	11/01/2016	1	489.00
12-OH320_PROJ MGMT - CONST CMPNT	11/01/2016	06/29/2018	1	605.00
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	03/01/2014	03/26/2015	2	390.00
12-OH320_TMP	11/27/2015	11/07/2016	3	41.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	02/21/2016	11/01/2016	1	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	100	304.00
Sub-Total			109	
12.519-FIELD_CONST-ELEC				
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	105	304.00
12-OH320_RSLV CONTR CLAIMS	11/01/2016	04/29/2018	1	544.00
12-OH320_ACPT CONTR PREP FE & FR	07/02/2017	04/29/2018	2	301.00
Sub-Total			108	
12.530-FIELD_CONST				
12-OH320_PROJ MGMT - PA&ED CMPNT	03/01/2014	07/01/2015	4	487.00
12-OH320_PROJ MGMT - PS&E CMPNT	07/01/2015	11/01/2016	6	489.00
12-OH320_PROJ MGMT - CONST CMPNT	11/01/2016	06/29/2018	200	605.00
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	03/01/2014	03/26/2015	8	390.00
12-OH320_UPDD PROJ INFO	07/01/2015	08/11/2015	12	41.00
12-OH320_SRVS & PHITGR MPG FOR DSN	07/01/2015	08/11/2015	12	41.00
12-OH320_DRAFT RDWY PLANS	09/20/2015	12/27/2015	16	98.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PKG	02/21/2016	11/01/2016	24	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	11/01/2016	09/01/2017	2400	304.00
12-OH320_CCO ADMIN	11/01/2016	11/15/2017	160	379.00
12-OH320_RSLV CONTR CLAIMS	11/01/2016	04/29/2018	80	544.00
12-OH320_ACPT CONTR PREP FE & FR	07/02/2017	04/29/2018	160	301.00
Sub-Total			3082	

12.368-TRAF_OPS-ENGR									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	1	487.00				
12-OH320_PROJ_MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	1	489.00				
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	1	605.00				
12-OH320_ENGRG_RPTS	CT.12.CO.OH320_3.185.20	07/28/2015	09/20/2015	14	54.00				
12-OH320_DRAFT_TRAFF PLANS	CT.12.CO.OH320_3.230.15	12/07/2015	01/25/2016	22	49.00				
12-OH320_DRAFT_SPECS	CT.12.CO.OH320_3.230.35	01/20/2016	02/13/2016	4	24.00				
12-OH320_DRAFT_PS&E_Q&E	CT.12.CO.OH320_3.230.40	01/12/2016	02/14/2016	6	33.00				
12-OH320_CIRC_RVW & PREP FNL DIST PS&E_PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	16	254.00				
12-OH320_CONST_ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	10	304.00				
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	13	379.00				
Sub-Total				88					
12.369-TRAF_OPS-MGMT/FLD_OPS									
12-OH320_CONST_ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	13	304.00				
Sub-Total				13					
12.379-TRAF_OPS									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	4	487.00				
12-OH320_PERF_PREL_ENGRG_STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	4	390.00				
12-OH320_UPDD_PROJ_INFO	CT.12.CO.OH320_3.185.05	07/01/2015	08/11/2015	4	41.00				
12-OH320_CONST_ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	24	304.00				
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	24	379.00				
Sub-Total				60					
12.382-TRAF_ENGR-TRAF_SYS_DESIGN									
12-OH320_PERF_PREL_ENGRG_STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	4	390.00				
12-OH320_UPDD_PROJ_INFO FOR PS&E_PCKG	CT.12.CO.OH320_3.230.60	02/13/2016	02/21/2016	8	8.00				
12-OH320_CIRC_RVW & PREP FNL DIST PS&E_PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	8	254.00				
12-OH320_CONST_ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	12	304.00				
Sub-Total				32					
12.385-TRAF_ENGR-TRAFFIC_SAFETY_REVIEW									
12-OH320_CIRC_RVW & PREP FNL DIST PS&E_PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	60	254.00				
Sub-Total				60					
12.386-TRAF_ENGR-RAMP_METERING									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	1	487.00				
12-OH320_PROJ_MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	1	489.00				
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	1	605.00				
12-OH320_PERF_PREL_ENGRG_STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	20	390.00				
12-OH320_DRAFT_TRAFF PLANS	CT.12.CO.OH320_3.230.15	12/07/2015	01/25/2016	30	49.00				
12-OH320_TMP	CT.12.CO.OH320_3.230.20	11/27/2015	01/07/2016	29	41.00				
12-OH320_DRAFT_SPECS	CT.12.CO.OH320_3.230.35	01/20/2016	02/13/2016	3	24.00				
12-OH320_DRAFT_PS&E_Q&E	CT.12.CO.OH320_3.230.40	01/12/2016	02/14/2016	5	33.00				
12-OH320_CIRC_RVW & PREP FNL DIST PS&E_PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	30	254.00				
12-OH320_CONST_ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	60	304.00				
Sub-Total				180					
12.390-ELEC_SYS-ELEC_DESIGN									
12-OH320_PROJ_MGMT - PID CMPNT	CT.12.CO.OH320_0.100.05	10/11/2005	03/01/2014	4	3063.00				
12-OH320_PROJ_MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	12	489.00				
12-OH320_PERF_PREL_ENGRG_STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	40	390.00				
12-OH320_FPR	CT.12.CO.OH320_2.180.05	05/21/2015	07/01/2015	8	41.00				

12-OH320_CIRC RVW & PREP FNL DIST PS&E PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	32	254.00
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	32	379.00
Sub-Total				484	
12.317-MATLS_LAB					
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	60	390.00
12-OH320_ENGRG RPTS	CT.12.CO.OH320_3.185.20	07/28/2015	09/20/2015	480	54.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	48	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	80	304.00
Sub-Total				668	
12.326-IND_ASSUR_TSTNG					
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	240	304.00
Sub-Total				240	
12.340-LNDSCP_ARCH					
12-OH320_ENGRG RPTS	CT.12.CO.OH320_3.185.20	07/28/2015	09/20/2015	14	54.00
12-OH320_DRAFT HPPS	CT.12.CO.OH320_3.230.10	11/22/2015	01/02/2016	40	41.00
12-OH320_DRAFT SPECS	CT.12.CO.OH320_3.230.35	01/20/2016	02/13/2016	4	24.00
12-OH320_DRAFT PS&E Q&E	CT.12.CO.OH320_3.230.40	01/12/2016	02/14/2016	6	33.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	60	254.00
Sub-Total				124	
12.349-HAZ_WASTE					
12-OH320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	80	489.00
12-OH320_PROJ MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	20	605.00
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	9	390.00
12-OH320_PERF ENV STUDIES & PREP DED	CT.12.CO.OH320_2.165	03/21/2014	03/26/2015	2	370.00
12-OH320_FPR	CT.12.CO.OH320_2.180.05	05/21/2015	07/01/2015	1	41.00
12-OH320_FED	CT.12.CO.OH320_2.180.10	05/21/2015	07/01/2015	1	41.00
12-OH320_REQUIRED PMTS	CT.12.CO.OH320_2.205.05	07/01/2015	07/31/2015	2	30.00
12-OH320_PMNTS	CT.12.CO.OH320_2.205.10	07/01/2015	10/15/2015	20	106.00
12-OH320_ENGRG RPTS	CT.12.CO.OH320_3.185.20	07/28/2015	09/20/2015	80	54.00
12-OH320_DRAFT SPECS	CT.12.CO.OH320_3.230.35	01/20/2016	02/13/2016	3	24.00
12-OH320_DRAFT PS&E Q&E	CT.12.CO.OH320_3.230.40	01/12/2016	02/14/2016	5	33.00
12-OH320_DSI FOR HW	CT.12.CO.OH320_3.235.10	09/20/2015	11/08/2015	55	49.00
12-OH320_HW PS&E	CT.12.CO.OH320_3.235.20	11/24/2016	01/04/2017	40	41.00
12-OH320_HW CLEAN-UP	CT.12.CO.OH320_3.235.25	01/04/2016	02/25/2016	40	52.00
12-OH320_CERT OF SUFFICIENCY	CT.12.CO.OH320_3.235.30	02/25/2016	03/01/2016	8	5.00
12-OH320_CIRC RVW & PREP FNL DIST PS&E PCKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	60	254.00
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	70	304.00
12-OH320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	60	379.00
12-OH320_RSLV CONTR CLAIMS	CT.12.CO.OH320_5.290	11/01/2016	04/29/2018	10	544.00
Sub-Total				566	
12.220-DESIGN-BR_A					
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	63	304.00
Sub-Total				63	
12.222-DESIGN-BR_C					
12-OH320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	320	390.00
12-OH320_FPR	CT.12.CO.OH320_2.180.05	05/21/2015	07/01/2015	240	41.00
12-OH320_UFDD PROJ INFO	CT.12.CO.OH320_3.185.05	07/01/2015	08/11/2015	107	41.00
12-OH320_PREL DSN	CT.12.CO.OH320_3.185.15	07/01/2015	08/11/2015	533	41.00
12-OH320_R/W RQMTS DTRMTN	CT.12.CO.OH320_3.185.25	07/28/2015	09/20/2015	52	54.00

12-0H320_DRAFT RDWY PLANS	CT.12.CO.OH320_3.230.05	09/20/2015	12/27/2015	1048	98.00
12-0H320_DRAFT UTIL PLANS	CT.12.CO.OH320_3.230.25	09/20/2015	12/10/2015	120	81.00
12-0H320_DRAFT SPECS	CT.12.CO.OH320_3.230.35	01/20/2016	02/13/2016	32	24.00
12-0H320_DRAFT PS&E Q&E	CT.12.CO.OH320_3.230.40	01/12/2016	02/14/2016	220	33.00
12-0H320_UPDD PROJ INFO FOR PS&E PKG	CT.12.CO.OH320_3.230.60	02/13/2016	02/21/2016	48	8.00
12-0H320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	240	254.00
12-0H320_UTIL RELOCN	CT.12.CO.OH320_4.200	10/01/2015	03/20/2016	170	171.00
12-0H320_CCO ADMIN	CT.12.CO.OH320_5.285	11/01/2016	11/15/2017	80	379.00
12-0H320_RSLV CONTR CLAIMS	CT.12.CO.OH320_5.290	11/01/2016	04/29/2018	48	544.00
Sub-Total				3258	
12.232-DESIGN-BR_3	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	40	254.00
12-0H320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	40	304.00
Sub-Total				80	
12.168-ENV_PLNG-GENERAL	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	4	487.00
12-0H320_PROJ MGMT - PA&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	6	489.00
12-0H320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	4	605.00
12-0H320_PERF PREL ENGRG STUDIES & DRAFT PR	CT.12.CO.OH320_2.160	03/01/2014	03/26/2015	80	390.00
12-0H320_PERF ENV STUDIES & PREP DED	CT.12.CO.OH320_2.165	03/21/2014	03/26/2015	16	370.00
12-0H320_FED	CT.12.CO.OH320_2.180.10	05/21/2015	07/01/2015	12	41.00
12-0H320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	26	304.00
Sub-Total				148	
12.169-ENV_PLNG-GENERAL	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	12	487.00
12-0H320_PROJ MGMT - PA&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	6	489.00
12-0H320_PROJ MGMT - PS&E CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	3	605.00
12-0H320_PERF ENV STUDIES & PREP DED	CT.12.CO.OH320_2.165	03/21/2014	03/26/2015	82	370.00
12-0H320_CMPLTD ENV DOC	CT.12.CO.OH320_2.180.15	05/21/2015	07/01/2015	24	41.00
12-0H320_PMTS	CT.12.CO.OH320_2.205.10	07/01/2015	10/15/2015	22	106.00
12-0H320_DSI FOR HW	CT.12.CO.OH320_3.235.10	09/20/2015	11/08/2015	8	49.00
12-0H320_CERT OF SUFFICIENCY	CT.12.CO.OH320_3.235.30	02/25/2016	03/01/2016	12	5.00
12-0H320_CIRC RVW & PREP FNL DIST PS&E PKG	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	48	254.00
12-0H320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_5.270	11/01/2016	09/01/2017	6	304.00
Sub-Total				223	
12.171-ENV_PLNG-ARCHITECT	CT.12.CO.OH320_2.165	03/21/2014	03/26/2015	120	370.00
12-0H320_PERF ENV STUDIES & PREP DED	CT.12.CO.OH320_2.180.05	05/21/2015	07/01/2015	16	41.00
12-0H320_FPR	CT.12.CO.OH320_2.205.05	07/01/2015	07/31/2015	16	30.00
12-0H320_REQUIRED PMTS	CT.12.CO.OH320_2.205.10	07/01/2015	10/15/2015	40	106.00
12-0H320_PMTS	CT.12.CO.OH320_3.235.10	01/04/2016	02/25/2016	40	52.00
12-0H320_HW CLEAN-UP	CT.12.CO.OH320_3.255	02/21/2016	11/01/2016	13	254.00
12-0H320_CIRC RVW & PREP FNL DIST PS&E PKG				245	
Sub-Total					
12.112-PROJ_MGRS	CT.12.CO.OH320_0.100.05	10/11/2005	03/01/2014	80	3063.00
12-0H320_PROJ MGMT - PID CMPNT	CT.12.CO.OH320_0.100.10	03/01/2014	07/01/2015	122	487.00
12-0H320_PROJ MGMT - PA&E CMPNT	CT.12.CO.OH320_0.100.15	07/01/2015	11/01/2016	238	489.00
12-0H320_PROJ MGMT - CONST CMPNT	CT.12.CO.OH320_0.100.20	11/01/2016	06/29/2018	216	605.00
Sub-Total				656	

59.317-MATLS_LAB-RIGID_PAVE_&_STRUC_CONC-ES08.317									
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	4	605.00			
12-OH320_ENGRG RPTS	CT.12.CO.OH320_	3.185.20	07/28/2015	09/20/2015	25	54.00			
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_	5.270	11/01/2016	09/01/2017	100	304.00			
Sub-Total					129				
59.318-MATLS_LAB-STRUC_MATLS-ES08.318									
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	4	605.00			
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_	5.270	11/01/2016	09/01/2017	130	304.00			
Sub-Total					134				
59.319-MATLS_LAB-TEST_&_TECH-ES08.319									
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	5	605.00			
12-OH320_ENGRG RPTS	CT.12.CO.OH320_	3.185.20	07/28/2015	09/20/2015	10	54.00			
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_	5.270	11/01/2016	09/01/2017	130	304.00			
Sub-Total					145				
59.320-MATLS_LAB-FLEXIBLE_PAVEMENT_MATL-ES08.320									
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	2	605.00			
12-OH320_CONST ENGRG & GENL CONTR ADMIN	CT.12.CO.OH320_	5.270	11/01/2016	09/01/2017	60	304.00			
Sub-Total					62				
59.110-PROJ_MGRS-PROJ_COORDINATION_ENGR-EM01.110									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_	0.100.10	03/01/2014	07/01/2015	4	487.00			
12-OH320_PROJ_MGMT - PS&E CMPNT	CT.12.CO.OH320_	0.100.15	07/01/2015	11/01/2016	16	489.00			
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	4	605.00			
Sub-Total					24				
59.140-PROJ_SCHED-PROJ_MGMT-TOOLS-EM02.140									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_	0.100.10	03/01/2014	07/01/2015	4	487.00			
Sub-Total					4				
59.141-PROJ_SCHED-PROJ_MGMT-SUPPORT-EM02.141									
12-OH320_PROJ_MGMT - PA&ED CMPNT	CT.12.CO.OH320_	0.100.10	03/01/2014	07/01/2015	9	487.00			
12-OH320_PROJ_MGMT - PS&E CMPNT	CT.12.CO.OH320_	0.100.15	07/01/2015	11/01/2016	18	489.00			
12-OH320_PROJ_MGMT - CONST CMPNT	CT.12.CO.OH320_	0.100.20	11/01/2016	06/29/2018	9	605.00			
Sub-Total					36				
Total					16781				

06/21/2007

FY SUMMARY REPORT

DIST/EA/LVL5	05/06-HRS	06/07-HRS	07/08-HRS	08/09-HRS	09/10-HRS	10/11-HRS	11/12-HRS	12/13-HRS	13/14-HRS	Total Hrs.
CT.12.CO.OH320_0.100.05	20	0	0	0	0	0	0	0	18	232
CT.12.CO.OH320_0.100.10	0	0	0	0	0	0	0	0	76	304
CT.12.CO.OH320_0.100.15	0	0	0	0	0	0	0	0	0	624
CT.12.CO.OH320_0.100.20	0	0	0	0	0	0	0	0	0	694
CT.12.CO.OH320_2.160	0	0	0	0	0	0	0	0	321	1028
CT.12.CO.OH320_2.165	0	0	0	0	0	0	0	0	70	253
CT.12.CO.OH320_2.180.05	0	0	0	0	0	0	0	0	0	301
CT.12.CO.OH320_2.180.10	0	0	0	0	0	0	0	0	0	17
CT.12.CO.OH320_2.180.15	0	0	0	0	0	0	0	0	0	24
CT.12.CO.OH320_2.205.05	0	0	0	0	0	0	0	0	0	19
CT.12.CO.OH320_2.205.10	0	0	0	0	0	0	0	0	0	96
CT.12.CO.OH320_3.185.05	0	0	0	0	0	0	0	0	0	197
CT.12.CO.OH320_3.185.10	0	0	0	0	0	0	0	0	0	22
CT.12.CO.OH320_3.185.15	0	0	0	0	0	0	0	0	0	549
CT.12.CO.OH320_3.185.20	0	0	0	0	0	0	0	0	0	745
CT.12.CO.OH320_3.185.25	0	0	0	0	0	0	0	0	0	52
CT.12.CO.OH320_3.230.05	0	0	0	0	0	0	0	0	0	1112
CT.12.CO.OH320_3.230.10	0	0	0	0	0	0	0	0	0	52
CT.12.CO.OH320_3.230.15	0	0	0	0	0	0	0	0	0	416
CT.12.CO.OH320_3.230.20	0	0	0	0	0	0	0	0	0	40
CT.12.CO.OH320_3.230.25	0	0	0	0	0	0	0	0	0	132
CT.12.CO.OH320_3.230.30	0	0	0	0	0	0	0	0	0	248
CT.12.CO.OH320_3.230.35	0	0	0	0	0	0	0	0	0	176
CT.12.CO.OH320_3.230.40	0	0	0	0	0	0	0	0	0	347
CT.12.CO.OH320_3.230.60	0	0	0	0	0	0	0	0	0	67
CT.12.CO.OH320_3.235.10	0	0	0	0	0	0	0	0	0	44
CT.12.CO.OH320_3.235.20	0	0	0	0	0	0	0	0	0	80
CT.12.CO.OH320_3.235.25	0	0	0	0	0	0	0	0	0	22
CT.12.CO.OH320_3.235.30	0	0	0	0	0	0	0	0	0	1478
CT.12.CO.OH320_3.255	0	0	0	0	0	0	0	0	0	166
CT.12.CO.OH320_3.260	0	0	0	0	0	0	0	0	0	171
CT.12.CO.OH320_3.265	0	0	0	0	0	0	0	0	0	177
CT.12.CO.OH320_4.200	0	0	0	0	0	0	0	0	0	80
CT.12.CO.OH320_4.220	0	0	0	0	0	0	0	0	0	44
CT.12.CO.OH320_4.225	0	0	0	0	0	0	0	0	0	9
CT.12.CO.OH320_4.245	0	0	0	0	0	0	0	0	0	5611
CT.12.CO.OH320_5.270	0	0	0	0	0	0	0	0	0	513
CT.12.CO.OH320_5.285	0	0	0	0	0	0	0	0	0	272
CT.12.CO.OH320_5.290	0	0	0	0	0	0	0	0	0	299
CT.12.CO.OH320_5.295	0	0	0	0	0	0	0	0	0	
Total	20	28	28	28	28	28	28	28	486	16781