CA4PRS
Input & Output Screen-shots

CA4PRS Project Inputs

PCCP Deterministic - PCC Tutorial for I-15 Devore (Your Name)

Project Identifier: PCC Tutorial for I-15 Devore (Your Name)

Unit: English / Metric

Project Details | Activity Constraints | Resource Profile | Schedule Analysis | Work-Zone Analysis

Project Description: Caltrans District 8 Concrete Demonstration Project

Analyst Name: Your Name

Analysis Date: 3 / 1 /2005

Route Name: I-15 Devore, San Bernardino

Begin KM: 206.00

End KM: 211.00

Objective (lane-km): 17.00

Location: Deveore, San Bernardino, County, CA

Project Notes:
2 truck-lanes reconstruction out of 4 lanes
Total scope=17 lane-km = 4.3 (2.5 + 1.8) x 2 lanes x 2 directions

Save | Close

CA4PRS Activity Inputs

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Mobilization

Mobilization (Hours): 4.0

Demobilization (Hours): 6.0

Construction Start Date: 10/ 3 /2005

Construction Window...

Lag Times for Sequential Method (Finish to Start)

Demolition to PCCP Installtion (Hours): 3.0

Base Paving Included

Demolition to New Base Installation (Hours): 3.0

New Base Installation to PCCP Installation (Hours): 2.0

Lag Times for Concurrent Method (Start to Start)

Demolition to PCCP Installtion (Hours): 12.0

Base Paving Included

Demolition to New Base Installation (Hours): 10.0

New Base Installation to PCCP Installation (Hours): 9.0

Construction Window Settings

Weekend Closure

Start Time on Friday: 11:00 PM

End Time on Monday: 05:00 AM

Available Hours: 55.0

Nighttime Closure

Start Time on First Day: 07:00 PM

End Time on Next Day: 05:00 AM

Available Hours per Day: 10.0

Continuous Closure/Continuous Operation

Start Time on First Day: 12:00 AM

No. of Continuous Work Days: 3.0

Available Hours per Day: 24.0

Continuous Closure/Shift Operation

Daily Start Time: 06:00 AM

No. of Continuous Work Days: 6.0

Available Hours per Day: 9.0

CA4PRS Resources Inputs

PCCP Deterministic - PCC Tutorial for I-15 Devore (Your Name)

Project Identifier: PCC Tutorial for I-15 Devore (Your Name)

Unit: English / Metric

Project Details | Activity Constraints | Resource Profile | Schedule Analysis | Work-Zone Analysis

Demolition Hauling Truck

Rated Capacity (tonne):	24.0
Trucks per Hour per Team:	10.0
Packing Efficiency:	0.55
Number of Team:	2.0
Team Efficiency:	0.90

Batch Plant

Capacity (cu. m/hour):	90.0
Number of Plants:	1

Concrete Delivery Truck

Capacity (cu. m):	6.0
Trucks per Hour:	15
Packing Efficiency:	1.00

Base Delivery Truck

Capacity (cu. m):	10.0
Trucks per Hour:	10
Packing Efficiency:	0.90

Paver

Speed (m/min):	2.0
Number of Pavers:	1

Save | Close

CA4PRS Schedule Inputs (Concrete)

PCCP Deterministic - PCC Tutorial for I-15 Devore (Your Name)

Project Identifier: PCC Tutorial for I-15 Devore (Your Name)

Unit: English / Metric

Project Details | Activity Constraints | Resource Profile | Schedule Analysis | Work-Zone Analysis

Construction Window

- [ ] Weekend Closure
- [ ] Nighttime Closure
- [x] Continuous Closure/Continuous Operation
- [ ] Continuous Closure/Shift Operation

Curing Time

- [ ] 4-Hours
- [ ] 8-Hours
- [x] 12-Hours
- [ ] User Defined 24.0 Hours

Section Profile

- [ ] 203 mm (8 inches)
- [ ] 254 mm (10 inches)
- [x] 305 mm (12 inches)

User Defined

- [ ] User Defined

PCCP (mm): 290.0

Treated Base (mm): 152.4

Change in Roadway Elevation

No Change / Down / Up

Change (mm): 100.0

Working Method

- [ ] Sequential Single Lane (T1)
- [ ] Sequential Single Lane (T2)
- [ ] Sequential Double Lane (T1+T2)
- [ ] Concurrent Single Lane (T1)
- [ ] Concurrent Single Lane (T2)
- [x] Concurrent Double Lane (T1+T2)

Lane Widths

T1 Width (m): 3.7

T2 Width (m): 4.3

Analyze...

Compare...

Save

Close

CA4PRS Schedule Inputs (Asphalt)

Mill And Fill Deterministic - MACO - Weekend Closure (Your name)

Project Identifier: MACO - Weekend Closure (Your name)

Metric

Project Details | Activity Constraints | Resource Profile | Schedule Analysis

Construction Window
- [x] Weekend Closure
- [ ] Nighttime Closure
- [ ] Continuous Closure/Continuous Operation
- [ ] Continuous Closure/Shift Operation

Working Meth
- [x] Full Clo
- [ ] Half Cl
- [ ] Half Cl

No of Lifts Before Traffic Switch: 1

Section Profile
- Define... [x] Profile A
- Define... [ ] Profile B

Change in Roadway Elevation
- (•) No Change ( ) Down ( ) Up Change (mm): 25.4

Cooling Time Analysis
- ( ) User Specified
- (•) MultiCool Computed MultiCool Data...

Lane Widths
No of Lanes: 2 Lane Width...

Shoulder Overlay
- (•) Pre-paving
- ( ) Simultaneous Paving

	Inside	Outside
Shoulder Width (m):	3.05	3.05

Save

Lane Widths

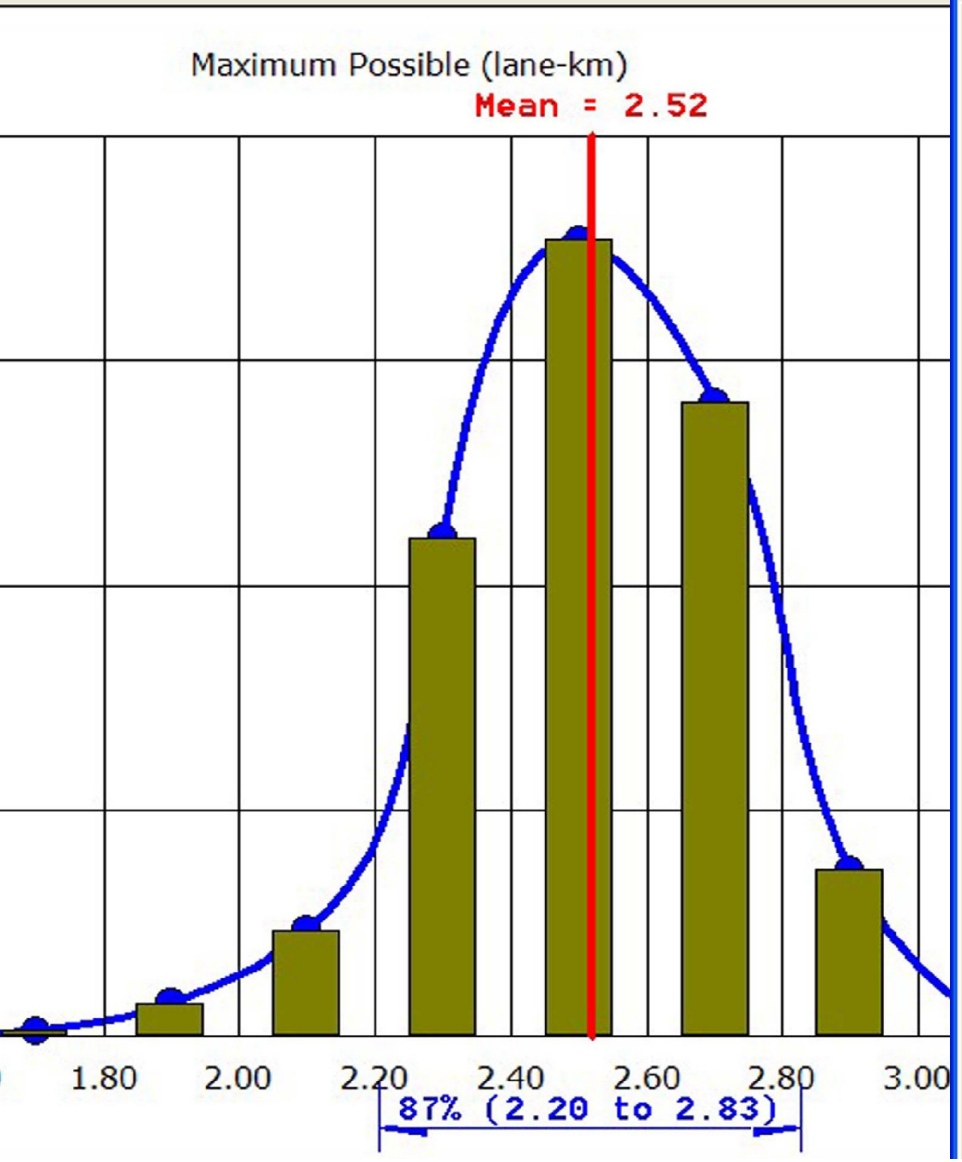
Lane Number	Lane Width (m)
1	3.66
2	3.66

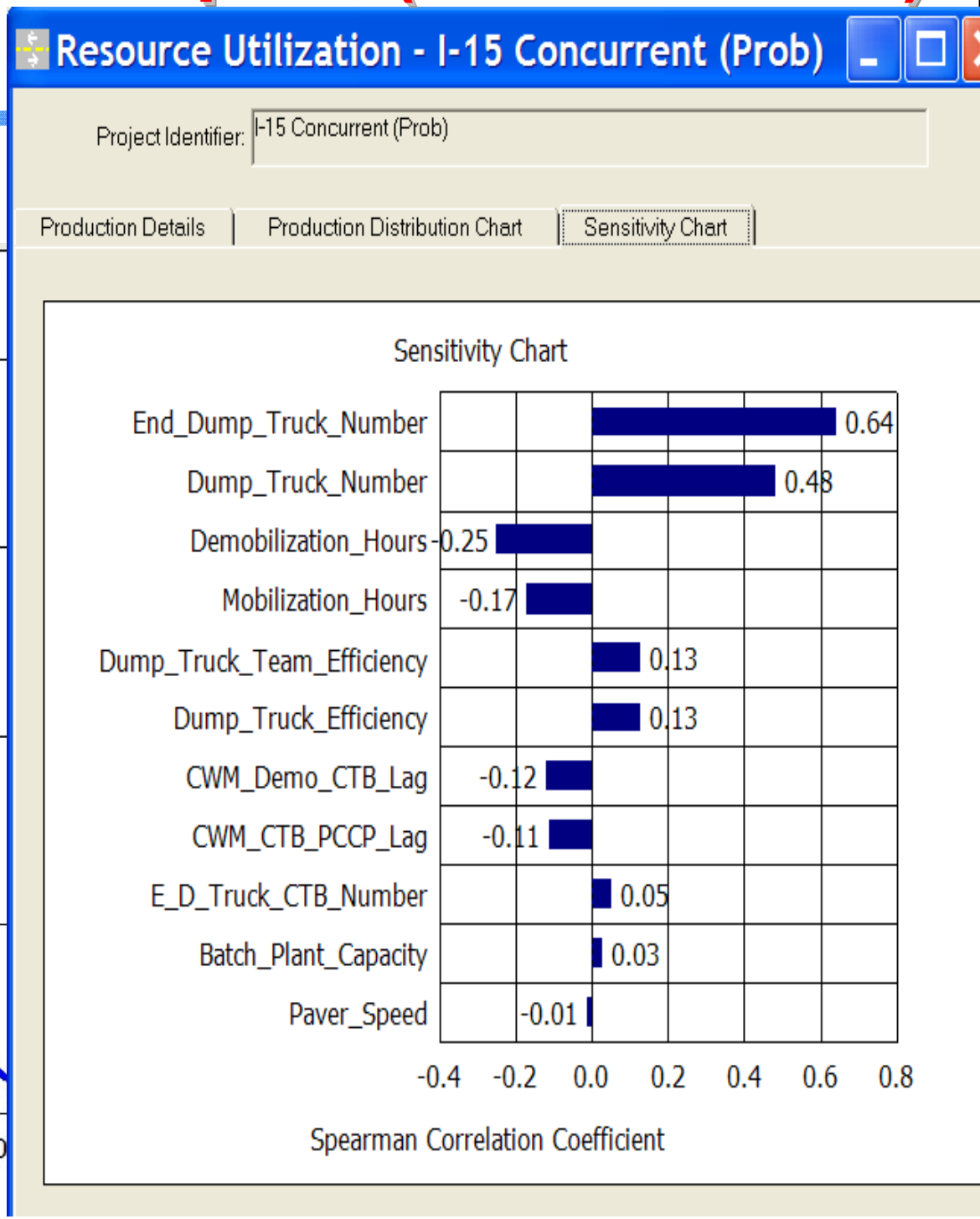
Ok Cancel

ACP Layer Definition - Profile A

Lift Number	Lift Thickness (mm)	Lift Name	Lift Cooling Time (hour)	Paver Speed (kph)
3	25.40	OGAC	0.50	7.48
2	76.20	HMA (C)	2.00	4.43
1	50.80	HMA (C)	1.00	5.95
	Total: 152.40		Average: 1.17	Average: 5.95

CA4PRS Schedule Outputs (Probabilistic)





CA4PRS Work-zone Traffic Inputs

PCCP Deterministic - PCC Tutorial for I-15 Devore (Your Name)

Project Identifier: PCC Tutorial for I-15 Devore (Your Name)

Unit: English / Metric

Project Details | Activity Constraints | Resource Profile | Schedule Analysis | Work-Zone Analysis

Before Construction

Direction 1:	Northbound
Number of Lanes:	4
Direction 2:	Southbound
Number of Lanes:	4
Speed Limit (mph):	65

During Construction

Construction Year:	2002
Closure Length (miles):	3.00
Speed Limit (mph):	55
Per Closure Duration (days):	3.00
Number of Closures Direction 1:	8.00
Direction 2:	8.00

Traffic

Traffic Data Group: Week Day - Urban

Vehicle Cost

Passenger Car ($/hr):	$11.51
Commercial Truck ($/hr):	$27.83
Percent Truck (%):	5.00

Include VOC: Yes / No

Traffic Demand...

Lane Open Chart...

Hourly Traffic Graph...

Roadway Capacity

Before Construction

Single-Lane Open:	1714
Multi-Lane Open:	2095

During Construction

Single-Lane Open:	1057
Multi-Lane Open:	1497

Capacity Adjustment...

Analyze...

Save | Close

Traffic Data Group: Week Day 1

Traffic Year: 2002

Growth Rate (%): 3.00

Traffic Demand Input

Vehicle Count — Direction 1 ADT: 52439

Percent ADT — Direction 2 ADT: 53303

Copy Default

Traffic Reduction During Construction

No Show Up (%): 5.00

Detour (%): 5.00

Additioanl Detour Travel Time (min): 30.00

Ok

Canc

Hourly Demand (Vehicles)		
Hour	Direction 1	Direction 2
00:00 - 01:00	651	556
01:00 - 02:00	389	608
02:00 - 03:00	454	935
03:00 - 04:00	699	2251
04:00 - 05:00	1279	3740
05:00 - 06:00	1702	4419
06:00 - 07:00	2039	4281
07:00 - 08:00	2123	2985
08:00 - 09:00	2134	2596
09:00 - 10:00	2501	2536
10:00 - 11:00	2681	2498
11:00 - 12:00	2676	2522
	Total: 52439	Total: 53303

Hourly Demand (Vehicles)		
Hour	Direction 1	Direction 2
12:00 - 13:00	2843	2932
13:00 - 14:00	3521	2937
14:00 - 15:00	4585	3041
15:00 - 16:00	4872	3138
16:00 - 17:00	4680	2903
17:00 - 18:00	3418	2086
18:00 - 19:00	2459	1454
19:00 - 20:00	2059	1352
20:00 - 21:00	1717	1173
21:00 - 22:00	1334	1027
22:00 - 23:00	1003	682
23:00 - 24:00	620	651
	Total: 52439	Total: 53303

Work Zone Lanes Open Chart

Number of Lanes Open		
Hour	Direction 1	Direction 2
00:00 - 01:00	2	2
01:00 - 02:00	2	2
02:00 - 03:00	2	2
03:00 - 04:00	2	2
04:00 - 05:00	2	2
05:00 - 06:00	2	2
06:00 - 07:00	2	2
07:00 - 08:00	2	2
08:00 - 09:00	2	2
09:00 - 10:00	2	2
10:00 - 11:00	2	2

Number of Lanes Open		
Hour	Direction 1	Direction 2
12:00 - 13:00	2	2
13:00 - 14:00	2	2
14:00 - 15:00	2	2
15:00 - 16:00	2	2
16:00 - 17:00	2	2
17:00 - 18:00	2	2
18:00 - 19:00	2	2
19:00 - 20:00	2	2
20:00 - 21:00	2	2
21:00 - 22:00	2	2
22:00 - 23:00	2	2

CA4PRS Traffic Demand & Lane Closures Inputs

CA4PRS Work-zone Capacity Adjustment

Capacity Adjustment

Before Construction

	Single-Lane	Multi-Lanes
Basic Capacity (vphpl):	1800	2200
Percent Truck (%):	10.00	
Passenger Car Equivalent (PCE):	1.50	
Lane Width:	12.0 ft	
Shoulder/Lateral Clearnce:	Both Sides Existing	

During Construction

	Single-Lane	Multi-Lanes
Basic Capacity (vphpl):	1200	1700
Percent Truck (%):	5.00	
Passenger Car Equivalent (PCE):	1.50	
Lane Width:	11.0 ft	
Shoulder/Lateral Clearnce:	One Side Existing	

Adjust Capacity

Before Construction

		Combined Factor (H x W x S)
Heavy Vehicle Factor (H):	0.95	0.95
Lane Width Factor (W):	1.00	
Shoulder/Lateral Factor (S):	1.00	

	Single-Lane	Multi-Lanes
Adjusted Capacity (vphpl):	1714	2095

During Construction

		Combined Factor (H x W x S)
Heavy Vehicle Factor (H):	0.98	0.88
Lane Width Factor (W):	0.95	
Shoulder/Lateral Factor (S):	0.95	

	Single-Lane	Multi-Lanes
Adjusted Capacity (vphpl):	1057	1497

Use Adjusted Capacity

Close

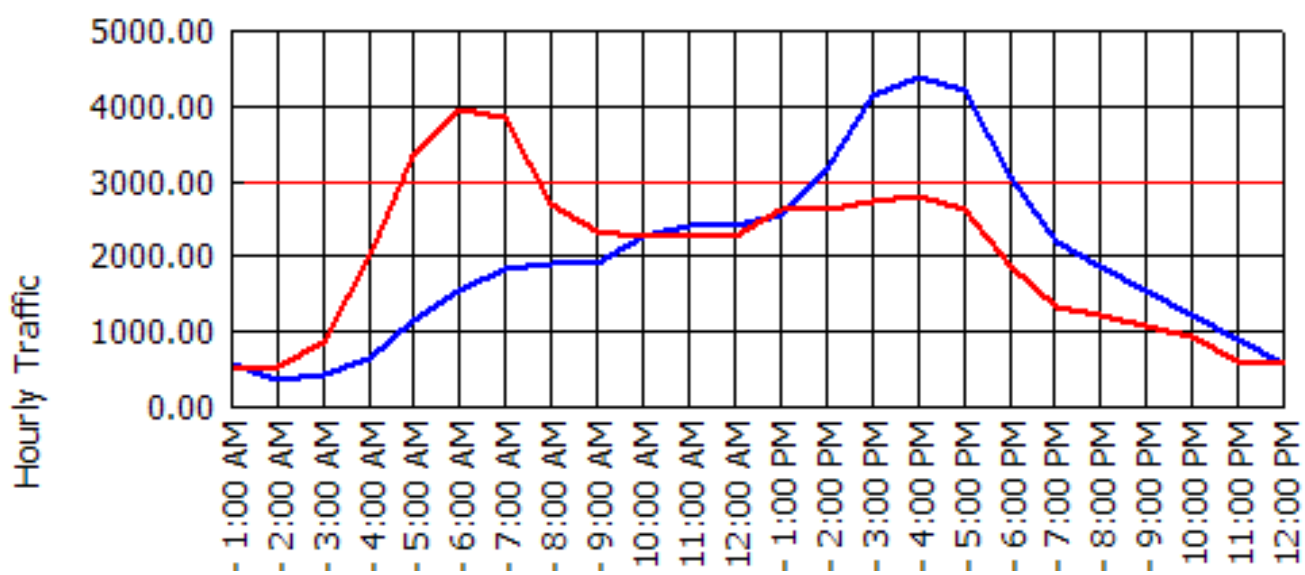
CA4PRS Work-zone Traffic Outputs

Work-Zone Traffic Analysis

Project Identifier:

Summary | Hourly Graphs

Item	Before Construction	Before Construction	During Construction	During Construction	Difference	Difference
Direction	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Maximum Delay (min)	0.0	0.0	80.4 @ 5:00 PM - 6:00 PM	41.7 @ 7:00 AM - 8:00 AM	80.4	41.7
Maximum Queue (miles)	0.0	0.0	9.2	4.7	9.2	4.7
Daily User Cost ($)	$0	$0	$263,761	$126,582	$263,761	$126,582
Per Closure User Cost ($)	$0	$0	$791,283	$379,744	$791,283	$379,744
Total User Cost per Direction ($)	$0	$0	$6,330,264	$3,037,955	$6,330,264	$3,037,955
Total User Cost ($)	$0		$9,368,219		$9,368,219	



CA4PRS Cost Estimate

CA4PRS COST ESTIMATE

PROJECT INFORMATION

Project Inputs

CONSTRUCTION COST

(1) Pavement	77	%	Detail	Cost : $10,668,326.00
(2) Earthwork	3	% of Construction Cost		Cost : $414,490.00
(3) Drainage	1	% of Construction Cost		Cost : $138,160.00
(4) SWPPP	10	% of Construction Cost		Cost : $1,381,640.00
(5) Traffic	9	%	Detail	Cost : $1,213,800.00
Construction Cost: (1)~(5)				$13,816,420.00

ROADWAY COST

(6) Minor Cost	5	% of Construction Cost	Cost : $690,820.00
(7) Mobilization	10	% of Construction Cost	Cost : $1,450,720.00
(8) Supplement	5	% of Construction Cost	Cost : $797,900.00
(9) Contingency	20	% of Construction Cost	Cost : $3,351,170.00
Roadway Cost: (1)~(9)			$20,107,030.00

PROJECT TOTAL COST

(10) Structure	3	% of Roadway Cost		Cost : $603,210.00
(11) Right of Way	0	% of Roadway Cost		Cost : $0.00
(12) Supporting Cost	2	%	Detail	Cost : $345,000.00
Project Cost: (1)~(12)				$21,055,240.00

PRESENT VALUE for LCCA or ESCALATION

Construction after 20 year(s) Discount Rate 4 %

Project Cost (Present Value) $10,527,620.00

OUTPUT CLOSE

CA4PRS Item Cost Inputs

Pavement Cost

Code	Item	Thickness (inch)	Lane Width (ft)	Length (lane-mile)	Extra Volume		Total Volume		Unit Cost	Cost
401000	PCC	12	12	0	0	m^3	0	m^3	0	$0.00
401108	RSC	12	12	0	0	m^3	0	m^3	0	$0.00
013032	FSHCC	12	12	5	1000	m^3	10360	m^3	900	$9,324,000.00
280000	LCB	6	12	0	0	m^3	0	m^3	0	$0.00
390133	HMA (B)	6	12	5	500	ton	11270	ton	100	$1,127,000.00
390126	RAC	4	12	0	0	ton	0	ton	0	$0.00
190101	EXCAVATION	18	12	5	0	m^3	9360	m^3	44	$411,840.00
-	PRECAST	9	12	0	0	m^2	0	m^2	0	$0.00
-	BLANK	0	12	0	0		0		0	$0.00
									Other Cost	250000

Caltrans Cost DB: http://sv08data.dot.ca.gov/contractcost/

Reference (Unit Costs)

Total Pavment Cost: $11,112,840.00 → Multiplier: 0.96 →

Adjust Total Pavement Cost

Cost Adjustment	($444,513.60)
Total Pavment Cost	$10,668,326.00

OK

Cancel

NOTE: Adjusted Total Pavement Cost = Total Pavement Cost + Cost Adjustment

CA4PRS Traffic Cost Inputs

Traffic Handling and Management Costs

Use normal proportion

10 % of Construction Cost

Total Traffic Cost: $1,418,350.00

Use this!

OR

Use specific amount calculated by the detail inputs

COZEEP Cost	$703,800.00
Extra TMP Cost	$0.00
Traffic Handling Cost	$460,000.00
MCB Cost	$0.00
Public Info. Cost	$50,000.00

Total Traffic Cost $1,213,800.00

Use this!

Auto Update

COZEEP (Incident Management) Cost

Information

Highway Patrol loaded Rate ($/Hr): 85

$60/Hr/Officer for Daytime
$85/Hr/Officer for Nighttime or Weekend

Num. of officers per Shift: 4

0-3 for Daytime Closures
2-4 for Nighttime Closures
4-6 for Extended Closures

COZEEP cost = Loaded Hourly Rate X Closure Hours X Closure Numbers X Number of Officers

COZEEP (Incident Management) Cost: $703,800.00

OK

Traffic Handling Cost by Project Size

Daily Traffic Handling Cost

Traffic Handling Cost per Day ($): 2000

Project Size	Daily Traffic Handling Cost
$0 - 5 M	$2,000
$5M - 10M	$2,300
$10M - 20M	$2,500
$20M - 100M	$2,800

Traffic Handling Cost

Traffic Handling Cost: $460,000.00

Traffic Handling Cost = Number of Closure X Closure Duration X Traffic Handling Cost per Day

OK

Cancel