

# **SURFACE TRANSPORTATION PROGRAM**

**Mini Design Concept Report**

**Chino Road Phase II**

**City of Douglas**

**Public Works Department**

425 East 10<sup>th</sup> Street

Douglas, Arizona 85607



**9/5/2014**

## 1.0 INTRODUCTION

The Chino Road Extension Phase II project is located at the south intersection of US 191 and State Route 80 and terminates at the north intersection of West 9<sup>th</sup> Street and existing Chino Road. Phase II is the continuation of the project to extend Chino Road south to the Port of Entry which runs adjacent to the existing Wal-Mart supercenter and continues south past the 3<sup>rd</sup> Street alignment. More appropriately, Phase II will realign US 191B and further the effort to improve traffic flow and capacity of a heavily congested area. The goal of the project is to reduce traffic congestion in commercial areas as well create a commercial truck corridor for access to the Port of Entry and reduce international truck traffic on the existing US 191B (Pan American Avenue) which currently experiences heavy commercial truck traffic.

Phase II has net length of 0.85 miles and maintains the existing minor arterial functional classification.

The estimated project cost is \$2,467,400 with 5.7% as local matching funds.

The expected start date depends on available funding. Proposed future benefit is approximately 20 years.

## 2.0 BACKGROUND DATA

Chino Road is a north-south minor arterial road located roughly parallel to the west of US 191B (Pan American Avenue) and provides connectivity from State Route 80 to 9<sup>th</sup>, 5<sup>th</sup>, and 3<sup>rd</sup> Streets in the City of Douglas. The ADT for Chino Road is 3100 with truck traffic at 2.3%.

## 3.0 PROJECT SCOPE

The project will involve earthwork to further develop previous clearing and grubbing operations conducted by the City of Douglas. The roadway will be a minor arterial with two twelve foot travel lanes, an eight foot paved shoulder on each lane, and a 12 foot turn lane as it occurs. A two barrel box culvert will be constructed at the Palm Grove Wash crossing.

## 4.0 ENVIRONMENTAL PROJECT DEVELOPMENT CONSIDERATIONS

- Potential Hazardous Waste Sites\*
- 404 Permit requirements\*
- Section 4(f) lands\*
- Flood plain encroachment\*
- Wetlands\*
- Scenic or Historic Routes\*

- Archaeological clearance\*
- Social or Economic Impacts\*

\*All environmental requirements and clearance were identified and mitigated as part of Phase I.

### 5.0 ESTIMATED COST

Project Phase/Type of Work	Estimated Cost
Preliminary Engineering-Design (Include ADOT Review Fees)*	\$304,299.98
Right of Way**	\$0.00
Utility Relocation**	\$0.00
Contingency	\$101,433.33
Incentives and Adjustments	\$33,000.00
Construction	\$2,028,666.50
<b>Total Project Cost</b>	<b>\$2,467,399.80</b>

\*Preliminary Engineering and Design as part of Phase I. Estimated fees are for construction engineering and consultant services.

\*\* Right of way and utility relocation funded as part of Phase I.

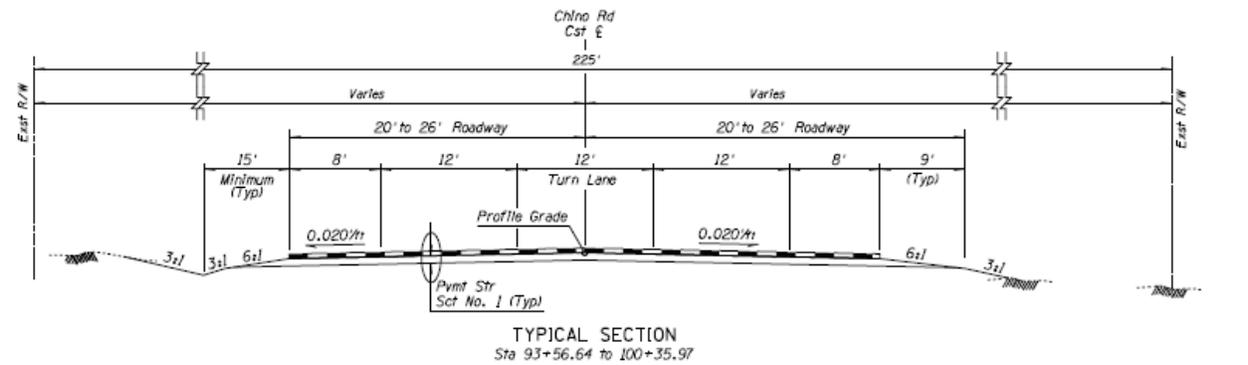
### 6.0 ITEMIZED ESTIMATE

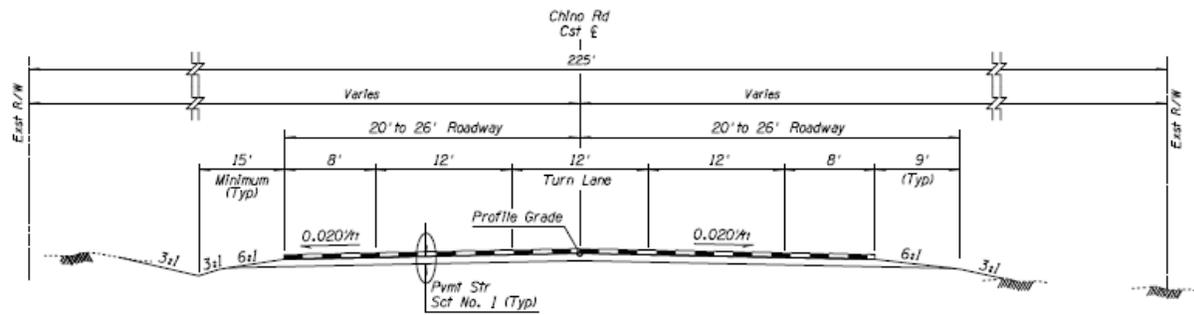
Itemized estimate is attached to this report.

### 7.0 VICINITY MAP

Vicinity map is attached to this report.

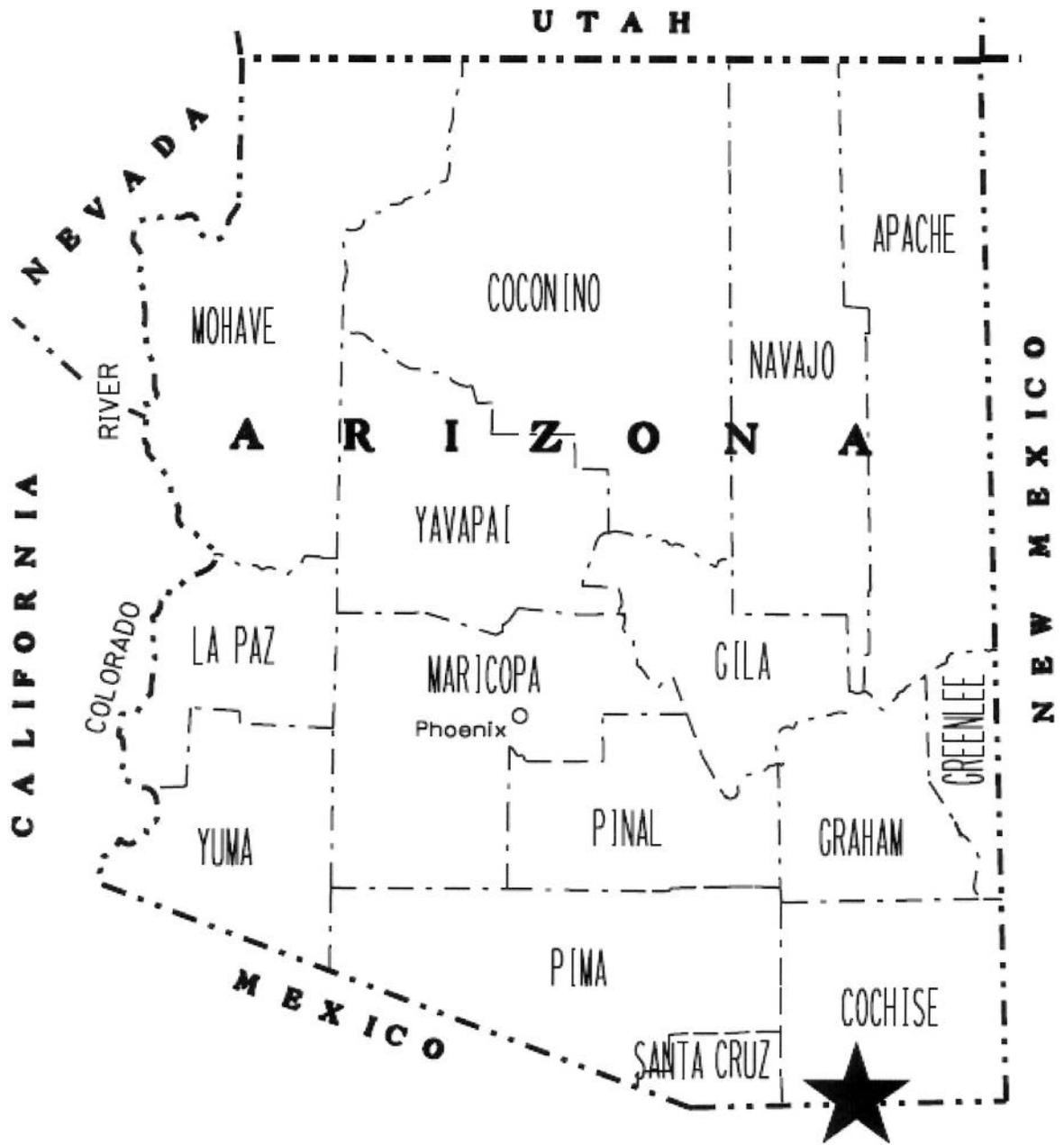
### 8.0 TYPICAL SECTION SKETCH





TYPICAL SECTION  
Sta 93+56.64 to 100+35.97

# Vicinity Map



ARIZONA DEPARTMENT OF TRANSPORTATION  
INTERMODAL TRANSPORTATION DIVISION  
CONTRACTS AND SPECIFICATIONS SECTION

DATE: 8/12/2014

**CONSTRUCTION COST ESTIMATE**

PSE SUBMITTAL

CHINO RD PHASE II

TRACS No. TBD	Project No. XXX XX XXX XXXXXX	Item	County COCHISE	District SAFFORD	Gross Length 0.85 MILES	Net Length 0.85 MILES	Prepared By AZTEC ENGINEERING
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Highway Termini  
US 191

Location  
MP 365

ARIZONA DEPARTMENT OF TRANSPORTATION  
INTERMODAL TRANSPORTATION DIVISION  
CONTRACTS AND SPECIFICATIONS SECTION

DATE: 8/12/2014

Item	Description	Unit	Quantity	Price	Cost
2010011	CLEARING AND GRUBBING	ACRE	9	\$2,000.00	\$18,000.00
2020036	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	7,215	\$12.00	\$86,580.00
2020053	REMOVE (SIGNS)	EACH	17	\$200.00	\$3,400.00
2020071	REMOVE GUARD RAIL	L.FT.	1,004	\$3.00	\$3,012.00
2030301	ROADWAY EXCAVATION	CU.YD.	10,488	\$10.00	\$104,880.00
2030401	DRAINAGE EXCAVATION	CU.YD.	282	\$7.00	\$1,974.00
2030900	BORROW (IN-PLACE)	CU.YD.	8,970	\$8.00	\$71,760.00
2090005	FURNISH WATER	M.GAL.	5,400	\$11.00	\$59,400.00
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	7,430	\$40.00	\$297,200.00
4040111	BITUMINOUS TACK COAT	TON	15	\$550.00	\$8,250.00
4040116	APPLY BITUMINOUS TACK COAT	HOUR	40	\$150.00	\$6,000.00
4040262	ASPHALT BINDER (PG 64-16)	TON	38	\$650.00	\$24,700.00
4040270	ASPHALT BINDER (PG 70-10)	TON	294	\$650.00	\$191,100.00
4070001	ASPHALTIC CONCRETE FRICTION COURSE	TON	625	\$65.00	\$40,625.00
4070021	MINERAL ADMIXTURE (	TON	7	\$90.00	\$630.00
4160001	ASPHALTIC CONCRETE (1/2" MIX) (END PRODUCT)	TON	4,888	\$60.00	\$293,280.00
4160031	MINERAL ADMIXTURE	TON	49	\$90.00	\$4,410.00
5010011	PIPE, CORRUGATED METAL, 24"	L.FT.	89	\$50.00	\$4,450.00
5014024	FLARED END SECTION, 24" (C-13.25)	EACH	2	\$300.00	\$600.00
6070038	SLIP BASE (NEW)	EACH	10	\$180.00	\$1,800.00
6070054	SIGN POST (PERFORATED) (2 S)	L.FT.	169	\$14.00	\$2,366.00
6070055	SIGN POST (PERFORATED) (2 1/2 S)	L.FT.	146	\$14.00	\$2,044.00
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	23	\$170.00	\$3,910.00

ARIZONA DEPARTMENT OF TRANSPORTATION  
INTERMODAL TRANSPORTATION DIVISION  
CONTRACTS AND SPECIFICATIONS SECTION

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Item	Description	Unit	Quantity	Price	Cost
6080005	WARNING, MARKER, OR REGULATORY SIGN PANEL	SQ.FT.	45	\$22.00	\$990.00
6080025	FLAT SHEET ALUMINUM SIGN PANEL	SQ.FT.	105	\$200.00	\$21,000.00
6080201	MODIFY SIGN LEGEND	L.SUM	3	\$200.00	\$600.00
7015051	OBLITERATE PAVEMENT MARKING (ARROW, SYMBOL OR LEGEND)	EACH	2	\$75.00	\$150.00
7015052	OBLITERATE PAVEMENT MARKING (STRIPE)	L.FT.	376	\$0.50	\$188.00
7016030		EACH-DAY	10,154	\$0.40	\$4,061.60
7016031	BARRICADE (TYPE III, HIGH LEVEL FLAG TREES)	EACH-DAY	336	\$0.90	\$302.40
7016032	PORTABLE SIGN STANDS (RIGID)	EACH-DAY	12	\$0.60	\$7.20
7016033	PORTABLE SIGN STANDS (SPRING TYPE)	EACH-DAY	2,503	\$1.25	\$3,128.75
7016035	WARNING LIGHTS (TYPE A)	EACH-DAY	4,097	\$0.30	\$1,229.10
7016037	WARNING LIGHTS (TYPE C)	EACH-DAY	7,560	\$0.60	\$4,536.00
7016039	EMBEDDED SIGN POST	EACH-DAY	2,380	\$0.30	\$714.00
7016050	TRUCK MOUNTED ATTENUATOR	EACH-DAY	225	\$250.00	\$56,250.00
7016051	TEMPORARY SIGN (LESS THAN 10 S.F.)	EACH-DAY	1,632	\$0.90	\$1,468.80
7016052	TEMPORARY SIGN (10 S.F. OR MORE)	EACH-DAY	1,865	\$1.10	\$2,051.50
7016061	FLASHING ARROW PANEL	EACH-DAY	55	\$30.00	\$1,650.00
7016067	CHANGEABLE MESSAGE BOARD (CONTRACTOR FURNISHED)	EACH-DAY	510	\$50.00	\$25,500.00
7016075	FLAGGING SERVICES (CIVILIAN)	HOURLY	60	\$40.00	\$2,400.00
7016078	FLAGGING SERVICES (LOCAL ENFORCEMENT OFFICER)	HOURLY	330	\$65.00	\$21,450.00
7016080	FLAGGING SERVICES (DPS)	HOURLY	330	\$65.26	\$21,535.80
7040003	PAVEMENT MARKING (WHITE SPRAYED THERMOPLASTIC)(0.060")	L.FT.	17,651	\$0.30	\$5,295.30
7040004	PAVEMENT MARKING (YELLOW SPRAYED THERMOPLASTIC)(0.060")	L.FT.	8,565	\$0.30	\$2,569.50
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	162	\$1.00	\$162.00

ARIZONA DEPARTMENT OF TRANSPORTATION  
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Item	Description	Unit	Quantity	Price	Cost
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	1	\$150.00	\$150.00
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	2	\$150.00	\$300.00

ARIZONA DEPARTMENT OF TRANSPORTATION  
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Item	Description	Unit	Quantity	Price	Cost
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	286	\$3.00	\$858.00
7060018	PAVEMENT MARKER, RAISED, TYPE G	EACH	20	\$3.00	\$60.00
7080001	PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	11,815	\$0.10	\$1,181.50
7080011	PERMANENT PAVEMENT MARKING (PAINTED) (YELLOW)	L.FT.	5,710	\$0.10	\$571.00
8050003	SEEDING (CLASS II)	ACRE	9	\$2,950.00	\$26,550.00
8101005	EROSION CONTROL (CHECK DAM) (ROCK)	CU.YD.	60	\$75.00	\$4,500.00
8101016	EROSION CONTROL (ROCK MULCH)	CU.YD.	7	\$75.00	\$525.00
8101018	EROSION CONTROL (CONSTRUCTION ENTRANCE/EXIT)	SQ.YD.	367	\$15.00	\$5,505.00
8101021	EROSION CONTROL (WATTLES) (9")	L.FT.	3,174	\$5.00	\$15,870.00
8101035	EROSION CONTROL (SEDIMENT LOGS) (20")	L.FT.	3,174	\$7.00	\$22,218.00
9010001	MOBILIZATION	L.SUM	1	\$180,000.00	\$180,000.00
9050001	GUARD RAIL, W-BEAM, SINGLE FACE	L.FT.	400	\$25.00	\$10,000.00
9050100	CONSTRUCT GUARD RAIL FROM SALVAGE	L.FT.	775	\$15.00	\$11,625.00
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	4	\$3,500.00	\$14,000.00
9130007	RIPRAP (DUMPED) (18")	CU.YD.	2,742	\$80.00	\$219,360.00
9130009	RIPRAP (GROUTED)(12")	CU.YD.	172	\$60.00	\$10,320.00
9130010	RIPRAP (GROUTED) (6")	CU.YD.	2	\$150.00	\$300.00
9240139	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (MANUAL METHODS)	SQ.YD.	7,984	\$0.45	\$3,592.80
9240170	CONTRACTOR QUALITY CONTROL	L.SUM	1	\$18,000.00	\$18,000.00
9240182	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (HERBICIDE)	SQ.YD.	91,939	\$0.25	\$22,984.75
9250001	CONSTRUCTION SURVEYING AND LAYOUT	L.SUM	1	\$36,000.00	\$36,000.00
	<b>SUBTOTAL ROADWAY ITEMS</b>				<b>\$2,012,082.00</b>

ARIZONA DEPARTMENT OF TRANSPORTATION  
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Item	Description	Unit	Quantity	Price	Cost

ARIZONA DEPARTMENT OF TRANSPORTATION  
 INTERMODAL TRANSPORTATION DIVISION  
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<b>Project No.</b>		<b>Prepared By</b>	
XXX XX XXX XXXXX XX (TBD)		AZTEC ENGINEERING	
XXXXXXXX (TBD)			
<b>STRUCTURE CODE</b>	<b>SECTION DESCRIPTIONS</b>	<b>NUMBER OF BID ITEMS</b>	<b>AMOUNT</b>
	ROADWAY ITEMS	70	\$2,028,666.50
	SUBTOTAL	70	\$2,028,666.50
	Construction Engineering @ 14.0%		\$284,013.31
	Consultant Services @ 1.0%		\$20,286.67
	Contingency @ 5.0%		\$101,433.33
	Incentives		\$33,000.00
	GRAND TOTAL		\$2,467,399.80

ARIZONA DEPARTMENT OF TRANSPORTATION  
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**Escalation Adjustment - Bituminous Materials**

2% of the Oil/Binder cost used for AC

	Unit	Qty	Unit Price	Total Amount
4040111 BITUMINOUS TACK COAT	TON	15	\$ 550.00	\$ 8,250.00
4040262 ASPHALT BINDER (PG 64-16)	TON	41	\$ 650.00	\$ 26,650.00
4040270 ASPHALT BINDER (PG 70-10)	TON	315	\$ 650.00	\$ 204,750.00
4070001 ASPHALTIC CONCRETE FRICTION COURSE (MISC.)	TON	673	\$ 65.00	\$ 43,745.00
4070021 MINERAL ADMIXTURE	TON	7	\$ 90.00	\$ 630.00
4160001 ASPHALTIC CONCRETE (1/2" MIX) (END PRODUCT)	TON	5,247	\$ 60.00	\$ 314,820.00
4160031 MINERAL ADMIXTURE	TON	53	\$ 90.00	\$ 4,770.00
Total Bituminous Materials				\$603,615.00
<b>Escalation Adjustment at 2%</b>				<b>\$12,072.00</b>

**Escalation Adjustment - Fuel**

0.21% of the sum of AB, AC mix and PCCP costs

	Unit	Qty	Unit Price	Total Amount
3030022 AGGREGATE BASE, CLASS 2	CU.YD.	7,430	\$ 40.00	\$ 297,200.00
4040262 ASPHALT BINDER (PG 64-16)	TON	41	\$ 650.00	\$ 26,650.00
4040270 ASPHALT BINDER (PG 70-10)	TON	315	\$ 650.00	\$ 204,750.00
4070001 ASPHALTIC CONCRETE FRICTION COURSE (MISC.)	TON	673	\$ 65.00	\$ 43,745.00
4070021 MINERAL ADMIXTURE	TON	7	\$ 90.00	\$ 630.00
4160001 ASPHALTIC CONCRETE (1/2" MIX) (END PRODUCT)	TON	5,247	\$ 60.00	\$ 314,820.00
4160031 MINERAL ADMIXTURE	TON	53	\$ 90.00	\$ 4,770.00
Total AB, AC and PCCP Items				\$ 892,565.00
<b>Escalation Adjustment at 0.21%</b>				<b>\$1,874.00</b>

**Quality Incentive - AC**

\$3.00 per Ton

	Unit	Qty	Unit Price	Total Amount
4040111 BITUMINOUS TACK COAT	TON	15	\$ 550.00	\$ 8,250.00
4040262 ASPHALT BINDER (PG 64-16)	TON	41	\$ 650.00	\$ 26,650.00
4040270 ASPHALT BINDER (PG 70-10)	TON	315	\$ 650.00	\$ 204,750.00
4070001 ASPHALTIC CONCRETE FRICTION COURSE (MISC.)	TON	673	\$ 65.00	\$ 43,745.00

**ARIZONA DEPARTMENT OF TRANSPORTATION  
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DATE: 8/12/2014

4070021	MINERAL ADMIXTURE	TON	7	\$	90.00	\$	630.00
4160001	ASPHALTIC CONCRETE (1/2" MIX) (END PRODUCT)	TON	5247	\$	60.00	\$	314,820.00
4160031	MINERAL ADMIXTURE	TON	53	\$	90.00	\$	4,770.00
		Total	6,351				

AC Quality Incentive at \$3.00/Ton \$ 19,053.00

**Quality Incentive - PCCP**  
\$1.50 per Sq. Yard

Unit	Qty	Unit Price	Amount
			\$0.00
			\$0.00
			\$0.00
Total	0		\$0.00

PCCP Quality Incentive at \$1.50/Sq.Yd. \$0.00

**Smoothness Incentive - PCCP**  
\$7,000 per Lane/Mile for PCCP (Only) per \_\_\_\_\_ (usu Final Materials Design) Memo dated XX/XX/XX

Miles                      Lanes

Exceptions Included (Bridges, approach & anchor slabs)

Total for PCCP Only                      0

PCCP Smoothness Incentive at \$7,000 per Lane/Mile                      \$0.00

**Smoothness Incentive - AR-ACFC**  
\$11,000 per Lane/Mile for AR-ACFC (Only) per \_\_\_\_\_ (usu Final Materials Design) Memo dated XX/XX/XX

Miles                      Lanes

AR-ACFC Placed on Bridges Also - No Exceptions for Bridges

Total for Entire Lengths                      0

ARIZONA DEPARTMENT OF TRANSPORTATION  
INTERMODAL TRANSPORTATION DIVISION  
CONTRACTS AND SPECIFICATIONS SECTION

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PCCP Smoothness Incentive at \$11,000 per Lane/Mile \$0.00

TOTAL INCENTIVES & ADJUSTMENTS

\$32,999.00

USE \$33,000.00

<b>9010001</b>	<b>Mobilization</b>						<b>L. Sum</b>
<b>Base Project Cost =all contract items but these Lump Sums</b>							
Assume approximately:	Percentage:			Base Project Cost			
	10%	x	\$	1,778,082.00	=	\$	177,808.20
	8%	x	\$	1,778,082.00	=	\$	142,246.56
	6%	x	\$	1,778,082.00	=	\$	106,684.92
	10.12%					<b>USE</b>	<b>\$ 180,000.00</b>
<b>9240170</b>	<b>Contractor Quality Control</b>						<b>L. Sum</b>
Assume approximately:	Percentage:			Base Project Cost			
	0.6%	x	\$	1,778,082.00	=	\$	10,668.49
	1.0%	x	\$	1,778,082.00	=	\$	17,780.82
	1.01%					<b>USE</b>	<b>\$ 18,000.00</b>
<b>9250001</b>	<b>Construction Surveying and Layout</b>						<b>L. Sum</b>
Assume approximately:	Percentage:			Base Project Cost			
	2%	x	\$	1,778,082.00	=	\$	35,561.64
	1.5%	x	\$	1,778,082.00	=	\$	26,671.23
	1%	x	\$	1,778,082.00	=	\$	17,780.82
						<b>USE</b>	<b>\$ 36,000.00</b>