

6.0 ITEMIZED COST ESTIMATE

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Detailed cost estimates were prepared for Interim Alternatives 7, 13, 14, 15, and the preferred Alternative 16. The unit prices are based on recent ADOT bid results with adjustments made to reflect the project location and difficulty of the work. The basis for the quantity estimates and unit prices is summarized below.

- **Clearing and Grubbing per Acre** - Construction area quantities were measured in CADD.
- **Remove AC per Square Yard** – Asphalt Concrete removal was itemized separately and not included in the Roadway Excavation or Obliterate Roadway items. The quantity is based on the area of existing pavement to be removed.
- **Drainage Excavation per Cubic Yard** – Quantities are based on excavation of the toe-in for the bank protection and the excavation of the drainageway, as indicated in the preliminary drainage analysis.
- **Demolish Existing Bridges per Square Foot** – Quantities were based on the width and length of the two Hassayampa River bridges.
- **Riprap per Cubic Yard** – Quantities were estimated based on needs as indicated in the preliminary drainage analysis. The unit price was adjusted in consideration that the portion of the riprap associated with the bridge sites will be hand placed.
- **Removal of Structures and Obstructions per Lump Sum** – Quantities were based on anticipated removals (i.e., buildings, etc.) and priced according to type and difficulty of removal.
- **Roadway Excavation and Borrow per Cubic Yard** – Quantities were provided as part of the InRoads computer output using the appropriate typical section, 3-D topo files, and calculated at 100 – foot intervals. Shrink and swell factors were applied as recommended by the Geotechnical Report (see Section 5.9, Earthwork).
- **Concrete Curb and Gutter per Linear Foot** – Quantity is based on requirements as shown on the typical sections and plans.
- **Structural Roadway Section** – The structural section quantities are based on data provided in Section 5.10 Pavement Design, and as shown on the typical sections presented in Appendix A. The unit price for AC includes prime/tack coats, and asphalt cement.
- **Bridges per Square Foot** – Quantities were based on width and length of the new Hassayampa River and Sols Wash bridges and were estimated based on needs indicated in the preliminary drainage analysis.
- **Pipe Culverts per Foot** – Pipe sizes and locations were derived from the preliminary drainage analysis. Lengths were measured between the cut/fill lines as plotted on the

plan/profile sheets (see Appendix B), and adjusted for headwalls. Pipe headwalls are included under the item for headwalls.

- **Pipe Culvert Backflow Preventor and End Sections** – Culvert backflow preventors and end sections were estimated based on needs as indicated in the preliminary drainage analysis. Pricing for backflow preventors is based on “Tideflex” type check valves.
- **Retaining Walls per Square Foot** – Retaining wall area is based on the length indicated on the drawing and a height based on the retaining wall extending from three feet below existing ground elevation to the height of the roadway profile elevation.
- **Guardrail per Linear Foot** – Quantities were based on placing guardrail along the river side of the roadway where the fill height will be 5-feet or greater.
- **Signing and Pavement Marking** – An average cost of epoxy pavement marking and a lump sum estimate for signing is based on recently completed ADOT projects.
- **Seeding per Acre** – The quantities for seeding and revegetation outside the roadway prism were determined by measuring the cut and fill surfaces in CADD.
- **Maintenance of Traffic** (percent of construction cost) – The percentage varied depending on the anticipated difficulty of maintaining traffic through the construction zone, need for construction staging to accommodate traffic, and need for detours.
- **Environmental Impact Mitigation Measures** – Mitigation costs are included as a percentage of the construction cost and include SWPP costs. Gateway feature costs are included in contingency item. Alternative fund sources for the gateway treatments such as enhancement funds should be considered.
- **Utility Relocations** – Estimates to relocate or adjust existing utilities impacted by the new roadway alignment.

A summary of the costs associated with each alternative is presented in Table 6-1. The itemized cost breakdown for each alternative is detailed on the following pages.

**Table 6-1
COST ESTIMATE SUMMARY***

Design Concept Alternative	Construction (\$)	Design (\$)	Right-of-Way (\$)	Utilities (\$)	Total Rounded (\$)
7	14,570,700	1,126,000	3,700,000	100,000	19,497,000
13	24,575,400	1,900,000	5,000,000	150,000	31,625,000
14	15,649,900	1,230,000	4,500,000	100,000	21,480,000
15	16,511,600	1,276,000	5,200,000	50,000	23,038,000
16**	20,379,800	1,600,000	5,000,000	150,000	27,130,000

*Cost Estimates are based on Year 2000 unit prices

**Preferred Alternative

ITEMIZED ESTIMATE

Project Number: TRACS 093 YV 161 H4871 01 L
Location: Alternative 16 (Preferred)

DATE: March 25,2003

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Clear & Grub	Acre	42.0	\$2,000	\$84,000
AC Removal	Sq. Yd.	9,060	\$2	\$18,120
Roadway Excavation	Cu. Yd.	1,000	\$4	\$4,000
Borrow	Cu. Yd.	200,000	\$8	\$1,600,000
Drainage Excavation	Cu. Yd.	25,000	\$10	\$250,000
Riprap	Cu. Yd.	10,400	\$80	\$832,000
Demolish Existing Bridges	Sq. Ft.	32,052	\$15	\$480,780
Removal of Struct. and Obstructions	L. Sum	1	\$100,000	\$100,000
Saw Cut Pavement	L. Ft.	4,400	\$2	\$8,800
AC (Incl. Asph. Cemt.)	Ton	18,800	\$35	\$658,000
AR-FCAC (Incl. Asph. Cemt.)	Ton	2,030	\$40	\$81,200
Aggregate Base	Ton	36,200	\$22	\$796,400
Sidewalks (5')	Sq. Ft.	7,300	\$3	\$18,250
Concrete Curb & Gutter	L. Ft	16,760	\$10	\$167,600
Concrete Driveways	Sq.Ft.	400	\$3	\$1,200
Bridge (2)	Sq.Ft.	72,852	\$75	\$5,463,900
Spillway, Embankment	Each	24	\$3,000	\$72,000
Spillway Inlet/Outlet	Each	24	\$2,500	\$60,000
Pipe, Corrugated Metal, 30"	L. Ft.	230	\$60	\$13,800
Pipe, Corrugated Metal, 42"	L.Ft.	270	\$100	\$27,000
Pipe, Corrugated Metal, 48"	L.Ft.	430	\$120	\$51,600
Pipe, Corrugated Metal, 54"	L.Ft.	280	\$150	\$42,000
Pipe, Corrugated Metal, 60"	L.Ft.	170	\$200	\$34,000
Back-Flow Preventer, 30"	Each	1	\$4,900	\$4,900
Back-Flow Preventer, 42"	Each	2	\$11,800	\$23,600
Back-Flow Preventer, 48"	Each	2	\$15,500	\$31,000
Back-Flow Preventer, 54"	Each	2	\$18,800	\$37,600
Back-Flow Preventer, 60"	Each	1	\$22,500	\$22,500
End Section, 42" CMP	Each	2	\$500	\$1,000
Headwall, CMP	Each	13	\$3,000	\$39,000
Retaining Wall	Sq. Ft.	4,000	\$50	\$200,000
Noise Wall	Sq. Ft.	0	\$20	\$0
GET-1	Each	6	2,500	\$15,000
Guard Rail	L.Ft.	4,900	\$18	\$88,200
Pavement Marking (Epoxy)	L.Ft.	63,000	\$0.40	\$25,200
Lighting (2 Intersections)	Each	2	\$5,000.00	\$10,000
Signalization (2 Intersections)	Each	2	\$160,000.00	\$320,000
Signing	L. Sum	1	\$100,000	\$100,000
Sign Structures	Each	3	\$75,000	\$225,000
Seeding	Acre	20.0	\$2,000	\$40,000

SUBTOTAL

\$12,047,700

ENVIRONMENTAL IMPACT MITIGATION (2%)

\$241,000

WATER AND DUST PALLIATIVE (2%)

\$241,000

MAINTAINANCE OF TRAFFIC (7%)

\$843,300

MOBILIZATION (10%)

\$1,204,800

ITEMIZED ESTIMATE

Project Number: TRACS 093 YV 161 H4871 01 L
Location: Alternative 7

DATE: May 1, 2002

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Clear & Grub	Acre	17.8	\$2,000	\$35,600
AC Removal	Sq. Yd.	11,782	\$2	\$23,564
Roadway Excavation	Cu. Yd.	35,800	\$4	\$143,200
Borrow	Cu. Yd.	56,500	\$8	\$452,000
Drainage Excavation	Cu. Yd.	15,000	\$10	\$150,000
Riprap	Cu. Yd.	4,800	\$80	\$384,000
Demolish Existing Bridges	Sq. Ft.	32,052	\$15	\$480,780
Removal of Struct. and Obstructions	L. Sum	1	\$150,000	\$150,000
Saw Cut Pavement	L. Ft.	1,772	\$2	\$3,544
AC (Incl. Asph. Cemt.)	Ton	11,300	\$35	\$395,500
AR-FCAC (Incl. Asph. Cemt.)	Ton	1,220	\$40	\$48,800
Aggregate Base	Ton	19,984	\$22	\$439,648
Sidewalks (5')	Sq. Ft.	13,285	\$3	\$33,213
Concrete Curb & Gutter	L. Ft	10,129	\$8	\$81,032
Concrete Driveways	Sq.Ft.	500	\$3	\$1,500
Bridge (2)	Sq.Ft.	63,136	\$75	\$4,735,200
Spillway, Embankment	Each	12	\$3,000	\$36,000
Spillway Inlet/Outlet	Each	12	\$2,500	\$30,000
Pipe, Corrugated Metal, 54"	L.Ft.	280	\$150	\$42,000
Back-Flow Preventer, 54"	Each	1	\$18,800	\$18,800
Headwall, CMP	Each	2	\$3,000	\$6,000
Retaining Wall	Sq. Ft.	4,000	\$50	\$200,000
Noise Walls	Sq. Ft.	7,200	\$20	\$144,000
GET-1	Each	6	\$2,500	\$15,000
Guard Rails	L.Ft.	1,700	\$18	\$30,600
Pavement Marking (Epoxy)	L.Ft.	32,948	\$0.40	\$13,179
Lighting (2 Intersections)	Each	2	\$5,000.00	\$10,000
Signalization (2 Intersections)	Each	2	\$160,000.00	\$320,000
Signing	L. Sum	1	\$100,000	\$100,000
Sign Structures	L. Sum	0	\$75,000	\$0
Seeding	Acre	10.0	\$2,000	\$20,000
COST SUBTOTAL				\$8,543,000
ENVIRONMENTAL IMPACT MITIGATION (2%)				\$170,900
WATER AND DUST PALLIATIVE (2%)				\$170,900
MAINTENANCE OF TRAFFIC (8%)				\$683,400
MOBILIZATION (10%)				\$854,300
ROADWAY/STRUCTURES SUBTOTAL				\$10,422,500
CONTINGENCY (20%)				\$2,084,500
CONSTRUCTION SUBTOTAL				\$12,507,000
CONSTRUCTION ENGINEERING (15%)				\$1,876,100
CONSTRUCTION SURVEYING (1.5%)				\$187,600
TOTAL CONSTRUCTION COST				\$14,570,700
DESIGN COSTS (9%)				\$1,126,000
RIGHT OF WAY COSTS				\$3,700,000
UTILITY RELOCATIONS				\$100,000
TOTAL PROGRAM COST (Rounded)				\$19,497,000

ITEMIZED ESTIMATE

Project Number: TRACS 093 YV 161 H48971 01 L
Location: Alternative 13

DATE: May 1, 2002

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Clear & Grub	Acre	42.0	\$2,000	\$84,000
AC Removal	Sq. Yd.	9,060	\$2	\$18,120
Roadway Excavation	Cu. Yd.	1,000	\$4	\$4,000
Borrow	Cu. Yd.	200,000	\$8	\$1,600,000
Drainage Excavation	Cu. Yd.	25,000	\$10	\$250,000
Riprap	Cu. Yd.	10,400	\$80	\$832,000
Demolish Existing Bridges	Sq. Ft.	32,052	\$15	\$480,780
Removal of Struct. and Obstructions	L. Sum	1	\$100,000	\$100,000
Saw Cut Pavement	L. Ft.	4,400	\$2	\$8,800
AC (Incl. Asph. Cemt.)	Ton	20,600	\$35	\$721,000
AR-FCAC (Incl. Asph. Cemt.)	Ton	2,225	\$40	\$89,000
Aggregate Base	Ton	38,931	\$22	\$856,482
Sidewalks (5')	Sq. Ft.	7,300	\$3	\$18,250
Concrete Curb & Gutter	L. Ft.	16,081	\$8	\$128,648
Concrete Driveways	Sq.Ft.	400	\$3	\$1,200
Bridge (3)	Sq.Ft.	97,711	\$75	\$7,328,325
Spillway, Embankment	Each	24	\$3,000	\$72,000
Spillway Inlet/Outlet	Each	24	\$2,500	\$60,000
Pipe, Corrugated Metal, 30"	L. Ft.	230	\$60	\$13,800
Pipe, Corrugated Metal, 42"	L.Ft.	270	\$100	\$27,000
Pipe, Corrugated Metal, 48"	L.Ft.	430	\$120	\$51,600
Pipe, Corrugated Metal, 54"	L.Ft.	280	\$150	\$42,000
Pipe, Corrugated Metal, 60"	L.Ft.	170	\$200	\$34,000
Back-Flow Preventer, 30"	Each	1	\$4,900	\$4,900
Back-Flow Preventer, 42"	Each	2	\$11,800	\$23,600
Back-Flow Preventer, 48"	Each	2	\$15,500	\$31,000
Back-Flow Preventer, 54"	Each	2	\$18,800	\$37,600
Back-Flow Preventer, 60"	Each	1	\$22,500	\$22,500
End Sections, 42" CMP	Each	1	\$500	\$500
Headwall, CMP	Each	13	\$3,000	\$39,000
Retaining Wall	Sq. Ft.	4,000	\$50	\$200,000
Noise Walls	Sq. Ft.	0	\$20	\$0
GET-1	Each	6	\$2,500	\$15,000
Guard Rails	L.Ft.	4,900	\$18	\$88,200
Pavement Marking (Epoxy)	L.Ft.	63,000	\$0.40	\$25,200
Lighting (4 Intersections)	Each	4	\$5,000	\$20,000
Signalization (4 Intersections)	Each	4	\$160,000.00	\$640,000
Signing	L. Sum	1	\$100,000	\$100,000
Sign Structures	Each	4	\$75,000	\$300,000
Seeding	Acre	20.0	\$2,000	\$40,000

COST SUBTOTAL

\$14,409,000

ENVIRONMENTAL IMPACT MITIGATION (2%)

\$288,200

WATER AND DUST PALLIATIVE (2%)

\$288,200

MAINTAINANCE OF TRAFFIC (8%)

\$1,152,700

MORILIZATION (10%)

\$1,440,900

ITEMIZED ESTIMATE

Project Number: TRACS 093 YV 161 H4871 01 L
Location: Alternative 14

DATE: May 1, 2002

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Clear & Grub	Acre	19.7	\$2,000	\$39,400
AC Removal	Sq. Yd.	13,650	\$2	\$27,300
Roadway Excavation	Cu. Yd.	35,800	\$4	\$143,200
Borrow	Cu. Yd.	56,500	\$8	\$452,000
Drainage Excavation	Cu. Yd.	15,000	\$10	\$150,000
Riprap	Cu. Yd.	5,000	\$80	\$400,000
Demolish Existing Bridges	Sq. Ft.	32,052	\$15	\$480,780
Removal of Struct. and Obstructions	L. Sum	1	\$150,000	\$150,000
Saw Cut Pavement	L. Ft.	1,639	\$2	\$3,278
AC (Incl. Asph. Cemt.)	Ton	12,060	\$35	\$422,100
AR-FCAC (Incl. Asph. Cemt.)	Ton	1,300	\$40	\$52,000
Aggregate Base	Ton	21,586	\$22	\$474,892
Sidewalks (5')	Sq. Ft.	21,085	\$3	\$52,713
Concrete Curb & Gutter	L. Ft	11,011	\$8	\$88,088
Concrete Driveways	Sq.Ft.	800	\$3	\$2,400
Bridge (2)	Sq.Ft.	72,852	\$75	\$5,463,900
Spillway, Embankment	Each	12	\$3,000	\$36,000
Spillway Inlet/Outlet	Each	12	\$2,500	\$30,000
Pipe, Corrugated Metal, 54"	L.Ft.	280	\$150	\$42,000
Back-Flow Preventer, 54"	Each	1	\$18,800	\$18,800
Headwall, CMP	Each	2	\$3,000	\$6,000
Retaining Wall	Sq. Ft.	4,000	\$50	\$200,000
Noise Walls	Sq. Ft.	7,200	\$20	\$144,000
GET-1	Each	6	\$2,500	\$15,000
Guard Rails	L.Ft.	1,700	\$18	\$30,600
Pavement Marking (Epoxy)	L.Ft.	36,455	\$0.40	\$14,582
Lighting (2 Intersections)	L. Sum	2	\$5,000.00	\$10,000
Signalization (2 Intersections)	Each	2	\$160,000.00	\$320,000
Signing	L. Sum	1	\$100,000	\$100,000
Sign Structures	Each	3	\$7,500	\$22,500
Seeding	Acre	11.0	\$2,000	\$22,000
SUBTOTAL				\$9,414,000
ENVIRONMENTAL IMPACT MITIGATION (2%)				\$188,300
WATER AND DUST PALLIATIVE (2%)				\$188,300
MAINTENANCE OF TRAFFIC (7%)				\$659,000
MOBILIZATION (10%)				\$941,400
ROADWAY/STRUCTURES SUBTOTAL				\$11,391,000
CONTINGENCY (20%)				\$2,278,200
CONSTRUCTION SUBTOTAL				\$13,669,200
CONSTRUCTION ENGINEERING (15%)				\$1,775,700
CONSTRUCTION SURVEYING (1.5%)				\$205,000

ITEMIZED ESTIMATE

Project Number: TRACS 093 YV 161 H4871 01 L
Location: Alternative 15

DATE: May 1, 2002

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Clear & Grub	Acre	23.0	\$2,000	\$46,000
AC Removal	Sq. Yd.	13,650	\$2	\$27,300
Roadway Excavation	Cu. Yd.	35,800	\$4	\$143,200
Borrow	Cu. Yd.	56,500	\$8	\$452,000
Drainage Excavation	Cu. Yd.	15,000	\$10	\$150,000
Riprap	Cu. Yd.	5,000	\$80	\$400,000
Demolish Existing Bridges	Sq. Ft.	32,052	\$15	\$480,780
Removal of Struct. And Obstructions	L. Sum	1	\$150,000	\$150,000
Saw Cut Pavement	L. Ft.	1,639	\$2	\$3,278
AC (Incl. Asph. Cemt.)	Ton	13,600	\$35	\$476,000
AR-FCAC (Incl. Asph. Cemt.)	Ton	1,470	\$40	\$58,800
Aggregate Base	Ton	24,497	\$22	\$538,934
Sidewalks (5')	Sq. Ft.	21,085	\$3	\$52,713
Concrete Curb & Gutter	L. Ft	12,471	\$8	\$99,768
Concrete Driveways	Sq.Ft.	800	\$3	\$2,400
Bridge (2)	Sq.Ft.	72,852	\$75	\$5,463,900
Spillway, Embankment	Each	12	\$3,000	\$36,000
Spillway Inlet/Outlet	Each	12	\$2,500	\$30,000
Pipe, Corrugated Metal, 54"	L.Ft.	280	\$150	\$42,000
Back-Flow Preventer, 54"	Each	1	\$18,800	\$18,800
Headwall, CMP	Each	2	\$3,000	\$6,000
Retaining Wall	Sq. Ft.	4,000	\$50	\$200,000
Noise Walls	Sq. Ft.	7,200	\$20	\$144,000
GET-1	Each	6	\$2,500	\$15,000
Guard Rails	L.Ft.	1,700	\$18	\$30,600
Pavement Marking (Epoxy)	L.Ft.	40,835	\$0.40	\$16,334
Lighting (2 Intersections)	L. Sum	2	\$5,000.00	\$10,000
Signalization (2 Intersections)	Each	2	\$160,000.00	\$320,000
Signing	L. Sum	1	\$100,000	\$100,000
Sign Structures	L. Sum	3	\$75,000	\$225,000
Seeding	Acre	11.0	\$2,000	\$22,000
SUBTOTAL				\$9,761,000
ENVIRONMENTAL IMPACT MITIGATION (2%)				\$195,200
WATER AND DUST PALLIATIVE (2%)				\$195,200
MAINTENANCE OF TRAFFIC (7%)				\$683,300
MOBILIZATION (10%)				\$976,100
ROADWAY/STRUCTURES SUBTOTAL				\$11,810,800
CONTINGENCY (20%)				\$2,362,200
CONSTRUCTION SUBTOTAL				\$14,173,000
CONSTRUCTION ENGINEERING (15%)				\$2,126,000
CONSTRUCTION SURVEYING (1.5%)				\$212,600