



Project Cost Estimation

October 2005

Prepared For:

**Pima Association of Governments
Regional Transportation Authority**

**PAG Contract No. RTA-002
URS Project No. 23444462**

Prepared By:

URS



October 10, 2005

Tim Ahrens
Manager
Regional Transportation Authority
Pima Association of Governments
177 N. Church Avenue, Suite 405
Tucson, Arizona 85701

Re: Project Cost Estimation Report

Dear Mr. Ahrens:

We are pleased to submit this summary report that contains the Phase II project cost estimates for the projects proposed as part of the Pima Association of Governments (PAG) Regional Transportation Authority (RTA) Plan. These recommended roadway improvements represent the primary element of the plan that will be considered for adoption by the voters of Pima County in May 2006.

This report consists of the project cost summary tables; the first table summarizes all projects (38) evaluated. The estimated costs in this table are provided for six categories:

- Construction Cost
- Right-of-Way
- Construction Management
- Planning and Engineering
- Environmental Mitigation
- Public Art

Additionally, an individual summary table is included for each of the 38 projects with the key assumptions indicated. The detailed project descriptions on which these estimates are based are those presented in the RTA "Key Corridors" document distributed July 7, 2005, for public comment. We are also submitting under separate cover one set of 200-scale project displays that consist of a project layout on an aerial photo base with project features including right-of-way limits and striping shown for each project. Each of these products is also provided in electronic format.

If you have any questions or need additional information regarding this report, please contact Thomas Monchak at 602-648-2372.

Sincerely,

URS Corporation

Thomas M. Monchak, P.E.
Project Manager

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APPENDIX

Project Design Concept Displays
(under separate cover)

BACKGROUND

The project cost estimates presented in this report were developed by building upon previous work done for the Pima Association of Governments (PAG) Regional Transportation Authority (RTA) in May 2005 that included preparation of the planning level project design concepts, descriptions and cost estimates. The cost estimates for potential projects were updated and/or refined to reflect the present day construction marketplace in Pima County.

Research was conducted by interviewing local and state agency representatives as well as construction industry representatives in order to determine the cause of the recent trend of cost increases seen in competitive project bidding. Local and state agency representatives also provided bid tabulations of recent projects, which were used to establish unit costs that represent the current bidding climate. The construction industry representatives provided their perspective and indicated that the cost increases are related to increased demand for key materials including cement, steel, asphalt and aggregates. Additionally, recent fuel cost increases have affected the cost of delivering materials to construction sites as well as earthwork tasks.

Our research also included obtaining all previous reports and studies that have been completed for potential PAG RTA projects. In a few cases some design work had been completed that proved useful in compiling the updated cost estimates.

APPROACH

Each project concept was laid out on CADD to include the features and number of lanes described in the “Key Corridors” document dated July 7, 2005, that was produced for public review and comment. Quantities were generated for pavement, bridges, box culverts, walls, curb & gutter, sidewalks, utilities, traffic elements, removals, etc. and applied to the present day estimated unit costs to calculate subtotals for all items. A 10% allowance for mobilization and a 15% construction contingency item were added to compute the total estimated construction cost.

Additional costs including: 15% for construction management, 15% for planning and engineering and 1% for public art were calculated based on the construction cost total. Environmental mitigation costs were estimated on a project specific basis based on the project’s jurisdictional requirements.

Right-of-way costs were based on the estimated area of property acquisition requirements determined from the project layout. Unit costs were applied by Pima County and City of Tucson staff for residential and commercial properties to compute the total cost of purchasing the estimated real estate required for each project.

The total estimated cost for each project is the sum of the construction, construction management, planning and engineering, public art, environmental mitigation, and right-of-way estimated costs.

SUMMARY OF RESULTS
COST ANALYSIS FOR RTA PROPOSED ROADWAY IMPROVEMENTS

October 10, 2005

PROPOSED PROJECT	CONSTRUCTION COST	PUBLIC ART (1%)	CONSTRUCTION MANAGEMENT	ENGINEERING & PLANNING	ENVIRONMENTAL MITIGATION	ROW	TOTAL PROJECT COST
1 22nd Street, Camino Seco to Houghton Road	\$10,871,000	\$108,710	\$1,630,650	\$1,630,650	\$123,000	\$750,000	\$15,114,000
2 22nd Street, I-10 to Tucson Boulevard	\$78,177,000	\$781,770	\$11,726,550	\$11,726,550	\$620,500	\$15,500,000	\$118,532,400
3 Barraza/Aviation Parkway, Palo Verde to I-10	\$99,334,000	\$993,340	\$14,900,100	\$14,900,100	\$271,000	\$47,537,200	\$177,935,740
4 Broadway Boulevard, Euclid Avenue to Country Club Road	\$23,218,000	\$232,180	\$3,482,700	\$3,482,700	\$645,000	\$43,700,000	\$74,760,600
5 Broadway Boulevard, Camino Seco to Houghton Road	\$12,122,000	\$121,220	\$1,818,300	\$1,818,300	\$157,000	\$50,000	\$16,086,800
6 Downtown Links, I-10 to Broadway Boulevard	\$66,056,000	\$660,560	\$9,908,400	\$9,908,400	\$279,500	\$6,300,000	\$93,112,860
7 El Camino de Manana, Tangerine Road to Linda Vista Road	\$10,424,000	\$104,240	\$1,563,600	\$1,563,600	\$398,000	\$2,800,000	\$16,853,440
8 First Avenue, Orange Grove Road to Ina Road	\$5,890,000	\$58,900	\$883,500	\$883,500	\$112,500	\$150,000	\$7,978,400
9 First Avenue, River Road to Grant Road	\$35,181,000	\$351,810	\$5,277,150	\$5,277,150	\$485,500	\$32,800,000	\$79,372,610
10 Grant Road, Oracle Road to Swan Road	\$53,015,000	\$530,150	\$7,952,250	\$7,952,250	\$685,000	\$105,300,000	\$175,434,650
11 Harrison Road, Golf Links to Irvington	\$20,191,000	\$201,910	\$3,028,650	\$3,028,650	\$119,000	\$15,000	\$26,584,210
12 Houghton Road, I-10 to Tanque Verde Road	\$149,175,000	\$1,491,750	\$22,376,250	\$22,376,250	\$486,000	\$1,600,000	\$197,505,300
12a Houghton Road, Dawn Road to I-10	\$8,416,000	\$84,160	\$1,262,400	\$1,262,400	\$380,000	\$18,000	\$11,423,000
13 Irvington Road, Ajo Road to Mission Road	\$26,830,000	\$268,300	\$4,024,500	\$4,024,500	\$224,000	\$1,600,000	\$36,971,300
14 Kolb Road Connection With Sabino Canyon Road	\$7,598,000	\$75,980	\$1,139,700	\$1,139,700	\$97,000	\$10,000	\$10,060,380
15 La Canada Drive, Calle Concordia to River Road	\$34,251,000	\$342,510	\$5,137,650	\$5,137,650	\$151,500	\$700,000	\$45,720,300
16 La Cholla Boulevard, Tangerine Road to Magee Road	\$38,386,000	\$383,860	\$5,757,900	\$5,757,900	\$147,500	\$2,600,000	\$53,033,160
17 La Cholla Boulevard, River Road to Ruthrauff Road	\$12,157,000	\$121,570	\$1,823,550	\$1,823,550	\$150,500	\$200,000	\$16,276,170
18 Magee/Cortaro Farms Road, Thornydale Road to La Canada Drive	\$26,683,000	\$266,830	\$4,002,450	\$4,002,450	\$186,500	\$1,400,000	\$36,541,230
19 Magee Road, La Canada Drive to Oracle Road	\$7,792,000	\$77,920	\$1,168,800	\$1,168,800	\$110,500	\$180,000	\$10,498,020
20 Railroad Overpass at Ina Road	\$43,420,000	\$434,200	\$6,513,000	\$6,513,000	\$342,500	\$2,200,000	\$59,422,700
21 Railroad Overpass at Ruthrauff Road	\$38,649,000	\$386,490	\$5,797,350	\$5,797,350	\$410,000	\$13,400,000	\$64,440,190
22 Railroad Underpass at Grant Road	\$24,124,000	\$241,240	\$3,618,600	\$3,618,600	\$355,000	\$8,600,000	\$40,557,440
23 Railroad Underpass at Speedway Boulevard	\$18,063,000	\$180,630	\$2,709,450	\$2,709,450	\$436,000	\$5,400,000	\$29,498,530
24 Sahuarita Road, La Canada Drive to Country Club Road	\$33,225,000	\$332,250	\$4,983,750	\$4,983,750	\$111,000	\$1,100,000	\$44,735,750
25 Silverbell Road, Ina Road to Grant Road	\$40,331,000	\$403,310	\$6,049,650	\$6,049,650	\$622,000	\$8,500,000	\$61,955,610
26 Speedway Boulevard, Camino Seco to Houghton Road	\$13,985,000	\$139,850	\$2,097,750	\$2,097,750	\$143,000	\$350,000	\$18,813,400
27 Sunset Road, Silverbell Road to River Road (Grade Separate UPRR)	\$42,267,000	\$422,670	\$6,340,050	\$6,340,050	\$406,500	\$750,000	\$56,526,270
27a Sunset Road, Silverbell Road to I-10	\$10,349,000	\$103,490	\$1,552,350	\$1,552,350	\$129,500	\$550,000	\$14,236,690
27b Sunset Road, Silverbell Road to River Road (At-Grade UPRR Crossing)	\$18,022,000	\$180,220	\$2,703,300	\$2,703,300	\$466,500	\$750,000	\$24,825,320
28 Tangerine Road, I-10 to La Canada Drive	\$58,631,000	\$586,310	\$8,794,650	\$8,794,650	\$696,000	\$3,500,000	\$81,002,610
29 Tanque Verde Road, Catalina Highway to Houghton Road	\$10,114,000	\$101,140	\$1,517,100	\$1,517,100	\$107,000	\$750,000	\$14,106,300
30 Twin Peaks Road, Silverbell to Linda Vista (Including I-10 TI)	\$59,593,000	\$595,930	\$7,773,000	\$4,660,000	\$691,500	\$4,250,000	\$69,653,430
31 Valencia Road, Ajo Way to Mark Road	\$31,231,000	\$312,310	\$4,684,650	\$4,684,650	\$224,000	\$450,000	\$41,586,610
32 Valencia Road, Kolb Road to Houghton Road	\$28,413,000	\$284,130	\$4,261,950	\$4,261,950	\$830,000	\$200,000	\$38,251,000
33 Valencia Road, I-19 to Alvernon Road (Controlled Access Only)	\$10,000,000	-	-	-	-	-	\$10,000,000
33a Valencia Road, Alvernon to Kolb Road (Improvements)	\$38,437,000	\$384,370	\$5,765,550	\$5,765,550	\$372,500	\$400,000	\$51,124,970
34 Wilmot Road, I-10 to Sahuarita Road	\$30,891,000	\$308,910	\$4,633,650	\$4,633,650	\$213,000	\$900,000	\$41,580,210
*TOTALS =	\$1,247,141,000	\$12,371,410	\$184,405,200	\$181,292,200	\$11,789,500	\$313,960,200	\$1,943,049,590

* Totals Do Not Include Projects 27a & 27b

**22nd Street, Camino Seco to Houghton Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$252,778	\$252,778
Pavement	L.Sum	1	\$1,676,993	\$1,676,993
Drainage	L.Sum	1	\$2,005,731	\$2,005,731
Sidewalk	SF	67,375	\$4	\$269,500
Curb & Gutter	L.Ft.	24,500	\$15	\$367,500
Signing & Marking	L.Sum	1	\$71,402	\$71,402
Traffic Signals	L.Sum	1	\$400,000	\$400,000
Utilities	L.Sum	1	\$1,706,250	\$1,706,250
Street Lights	L.sum	1	\$85,008	\$85,008
Screen Walls	SF	9,170	\$20	\$183,400
Landscaping & Aesthetics	L.Sum	1	\$150,000	\$150,000
Construction Survey	L.Sum	1	\$125,000	\$125,000
Other Items	L.Sum	1	\$650,000	\$650,000
Maintenance Of Traffic	L.Sum	1	\$650,000	\$650,000
Mobilization 10%	L.Sum	1	\$859,356	\$859,356
			15% Construction Contingency =	\$1,417,938
			Total Estimated Construction Cost =	\$10,871,000
			Public Art 1% =	\$108,710
			15% Construction Management =	\$1,630,650
			15% Engineering and Planning =	\$1,630,650
			Environmental Mitigation =	\$123,000
			Agency Estimated ROW Acquisition Cost =	\$750,000
			Total Project Cost =	\$15,114,000

Assumptions:

- *120' Min. ROW
- *4-Lane Urban Section With Raised Landscaped Median (Camino Seco to Old Spanish Trail)
- *3-Lane Rural Section (Old Spanish Trail to Houghton)
- *Project Length = 2.15 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Houghton Intersection Is Not Included In This Project
- *Approximate Construction Cost/Mile = \$5,288,000

22nd Street

Assumptions: Average Exst Pavement 40' Width for Length of Project

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	40	11,375	455,000	50,556	\$5	\$252,778
					Total =	\$252,778

22nd Street

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 62' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	62	11375	705,250	78,361	\$21.40	\$1,676,993

Total \$1,676,993

Price/SY						
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY = **\$21.40**

22nd Street

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,056	\$80	\$84,480
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
			Construction Cost per Mile =	\$731,280
			2.15 Miles =	\$1,572,252

Assumptions: 2 New 6'x 6' x 145' Concrete Box Culverts (4-Barrel)

Item	Unit	Length	Quantity	Unit Cost
New CBC			CY or LBS	
Concrete (CY/FT) =	2.573	145	373	\$450.00
Reinforcing Steel (LB/FT) =	354.300	145	51,374	\$0.75
				Subtotal Cost per Culvert=
				Total For 2 Culverts =

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$20,642

DRAINAGE TOTAL = \$2,005,731

22nd Street

Assumptions: Continuous Sidewalk (both sides) Camino Seco to Old Spanish Trail

Item	Width	Length	SF
Sidewalk	5.5	12,250	67,375

22nd Street

Assumptions: Continuous Curb & Gutter (both sides & median) Camino Seco to Old Spanish Trail

Item	Length	C & G	LF
Curb and Gutter	6,125	4	24,500

22nd Street - Camino Seco to Old Spanish Trail

Assumptions: Standard Striping for a Four Lane Roadway, Two Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 1.15 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$12,144
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$1,518
Intersection Striping	LF	2,000	4,000	\$0.50	\$2,000	\$2,000
Signs	Each	20	0	\$600.00	\$12,000	\$13,800
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$9,660
					Lump Sum =	\$39,122

22nd Street

Assumptions: Two Exst Signalized Intersections to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	2	\$200,000	\$400,000

22nd Street

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	11,375	\$150	\$1,706,250

22nd Street

Assumptions: Street Lighting Both Sides of Street, Camino Seco to Old Spanish Trail
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
		Construction Cost per Mile =		\$73,920
		1.15 Miles =		\$85,008

22nd Street

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	1,310	9,170

**22nd Street, I-10 to Tucson Boulevard
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$3,959,833	\$3,959,833
Pavement	L.Sum	1	\$3,064,362	\$3,064,362
Drainage	L.Sum	1	\$1,983,696	\$1,983,696
Sidewalk	SF	136,290	\$4	\$545,160
Curb & Gutter	L.Ft.	49,560	\$15	\$743,400
Signing & Marking	L.Sum	1	\$98,076	\$98,076
Traffic Signals	L.Sum	1	\$1,800,000	\$1,800,000
Utilities	L.Sum	1	\$4,125,000	\$4,125,000
Street Lights	L.sum	1	\$230,630	\$230,630
Screen Walls	SF	21,175	\$20	\$423,500
UPRR Grade Separation	L.Sum	1	\$3,495,000	\$3,495,000
22nd Street/Barraza Interchange	L.Sum	1	\$29,581,100	\$29,581,100
Landscaping & Aesthetics	L.Sum	1	\$1,000,000	\$1,000,000
Construction Survey	L.Sum	1	\$750,000	\$750,000
Other Items	L.Sum	1	\$5,500,000	\$5,500,000
Maintenance Of Traffic	L.Sum	1	\$4,500,000	\$4,500,000
Mobilization 10%	L.Sum	1	\$6,179,976	\$6,179,976
			15% Construction Contingency =	\$10,196,960
			Total Estimated Construction Cost =	\$78,177,000
			Public Art 1% =	\$781,770
			15% Construction Management =	\$11,726,550
			15% Engineering and Planning =	\$11,726,550
			Environmental Mitigation =	\$620,500
			Agency Estimated ROW Acquisition Cost =	\$15,500,000
			Total Project Cost =	\$118,532,400

Assumptions:

- *130' Min ROW
- *6-Lane Section With Raised Landscaped Median
- *Project Length = 2.6 Miles (Not Including The 22nd St/Barraza Connection Ramp)
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$30,100,000
- *Kino Parkway Grade Separation Not Included In Cost

22nd Street

Assumptions: Average Exst Pavement 70' Width for Length of Project

Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	70	12,390	867,300	96,367	\$5	\$481,833
Misc Removals		12,390			\$200	\$2,478,000
Bridge/Wall Removal (RR/Barraza Overpass)						\$1,000,000
					Total =	\$3,959,833

22nd Street

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 100' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	100	12390	1,239,000	137,667	\$21.40	\$2,946,181
Frontage Roads	14	3,550	49,700	5,522	\$21.40	\$118,180
Total						\$3,064,362

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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22nd Street

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	24,780	136,290

22nd Street

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	12,390	4	49,560

22nd Street

Assumptions: Standard Striping for a Six Lane Roadway, Nine Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 2.6 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$27,456
Four 4" Dashed Lane Stripes	LF	5,280	6,600	\$0.50	\$3,300	\$8,580
Intersection Striping	LF	2,000	18,000	\$0.50	\$9,000	\$9,000
Signs	Each	20	0	\$600.00	\$12,000	\$31,200
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$21,840
					Lump Sum =	\$98,076

22nd Street

Assumptions: Nine Exst Signalized Intersections to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	9	\$200,000	\$1,800,000

22nd Street

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	13,750	\$300	\$4,125,000

22nd Street

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$88,704
			2.6 Miles =	\$230,630

22nd Street

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	3,025	21,175

UPRR Spur Grade Separation

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Borrow	C.Y.	105,000	\$7	\$735,000
Bridge	SF	19,800	\$100	\$1,980,000
Retaining Wallls	SF	26,000	\$30	\$780,000
			Total Cost =	\$3,495,000

22nd Street/Barraza Interchange

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Borrow	C.Y.	160,000	\$7	\$1,120,000
Bridge (2nd Level)	SF	190,770	\$100	\$19,077,000
Bridge (3rd Level)	SF	52,000	\$115	\$5,980,000
Retaining Wallls	SF	61,550	\$30	\$1,846,500
Quad-Guard Attenuator	EACH	4	\$35,000	\$140,000
PCCP	SY	15,000	\$75	\$1,125,000
Concrete Barrier	LF	5,440	\$40	\$217,600
Signing/Marking	L.Sum	1	\$75,000	\$75,000
			Total Cost =	\$29,581,100

**Barraza/Aviation Parkway, Palo Verde to I-10
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$2,751,342	\$2,751,342
Borrow	C.Y.	1,371,884	\$6	\$8,231,307
Excavation	C.Y.	395,200	\$5	\$1,976,000
Pavement	L.Sum	1	\$8,773,338	\$8,773,338
Drainage	L.Sum	1	\$8,568,041	\$8,568,041
Sidewalk	SF	33,000	\$4	\$132,000
Curb & Gutter	L.Ft.	196,502	\$15	\$2,947,530
Signing & Marking	L.Sum	1	\$156,515	\$156,515
Traffic Signals	L.Sum	1	\$200,000	\$200,000
Utilities	L.Sum	1	\$2,985,000	\$2,985,000
Street Lighting	L.Sum	1	\$2,063,445	\$2,063,445
Retaining Walls	SF	75,802	\$40	\$3,032,080
Roadway Bridges	SF	224,147	\$80	\$17,931,760
Landscaping & Aesthetics	L.Sum	1	\$4,430,000	\$4,430,000
Construction Survey	L.Sum	1	\$2,215,000	\$2,215,000
Other Items	L.Sum	1	\$4,430,000	\$4,430,000
Maintenance Of Traffic	L.Sum	1	\$4,430,000	\$4,430,000
Mobilization 10%	L.Sum	1	\$7,525,336	\$7,525,336
			20% Construction Contingency =	\$16,555,739
			Total Estimated Construction Cost =	\$99,334,000
			Public Art 1% =	\$993,340
			15% Construction Management =	\$14,900,100
			15% Engineering and Planning =	\$14,900,100
			Environmental Mitigation =	\$271,000
			Agency Estimated ROW Acquisition, Relocation Cost =	\$47,537,200
			Total Project Cost =	\$177,935,740

Assumptions:

- *Alvernon 6-Lane Section With Raised Landscaped Median Grade Separated with a SPUI at New Golf Links/Palo Verde
- *Alvernon Bridge over the UPRR will be partially reconstructed
- *Directional ramps are single lane at the Alvernon/Golf Links/Palo Verde end and dual Lane at the Valencia TI
- *Aviation is a 4-lane section with extra wide multi use lanes that can be adapted to 6-lane
- *This is a two dimensional concept only, due to the numerous unknowns a 20% contingency was used.

(A) East Barraza/Aviation

Assumptions: Areas Measured in Microstation

Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Exst Retaining Walls Aver. Height = 12'

Item	SF	SY	Unit Cost	Extended Amount
Pavement Removal - Asphalt	1,235,000	137,222	\$2	\$274,444
Pavement Removal - PCCP	74,000	8,222	\$4	\$32,889
Remove Exst Bridge (Aviation over canal)	7,845	872	\$75	\$65,375
Remove Exst Bridge (SPUI @ alvernon)	7,900	878	\$75	\$65,833
Remove Exst Bridge (flyover ramp)	11,672	1,297	\$75	\$97,267
Remove Exst Bridge (Alvernon over canal)	3,972	441	\$75	\$33,100
Remove Exst Bridge (Alvernon over 2-lane)	17,467	1,941	\$75	\$145,558
Remove Exst Bridge (Alvernon over RR)	34,025	3,781	\$75	\$283,542
Remove Exst Retaining Walls	12,000	1,333	\$40	\$53,333
Remove Detour (LF)	5000	555.555556	\$100	\$500,000
Misc Removals (LF)	12000	1333.333333	\$100	\$1,200,000
			Total =	\$2,751,342

(A) East Barraza/Aviation

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB & 6" PCCP, 4"AB
 Areas Taken From Microstation Shapes

Item	SF	SY	Price/SY =	Extended Amount
AC - All roadways and Ramps	3,689,578	409,953	\$21	\$8,773,338
	0	0	\$21	\$0
			Total =	\$8,773,338

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY		
4" AB	3	0.111	\$30		\$3.33

Price/SY = \$21.40

Concrete Pvmt Price/SY			
4" AC	0	\$11	\$0
Load Trans Dowel	0	\$60	\$0
6" PCCP	0	\$40	\$0
		Total =	\$0
		Price/SY =	#DIV/0!

(A) East Barraza/Aviation

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,452	\$80	\$116,160
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$762,960
		0.38 Miles New Drainage Structures=		\$8,568,041

(A) East Barraza/Aviation

Assumptions: Sidewalk (both sides) around SPU and Commercial Area

Item	Width	Length	SF
Sidewalk	5.5	3,000	33,000

(A) East Barraza/Aviation

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter - Aviation	25,544	4	102,176
Curb and Gutter - Palo Verde/Golf Links	6268	4	25,072
Curb and Gutter - Alvernon	7159	4	28,636
Ramps: Curb and Gutter - WB G.L. to EB Aviation	7572	2	15,144
Ramps: Curb and Gutter - WB Aviation to EB G.L.	4000	2	8,000
Ramps: Curb and Gutter - WB G.L. to WB Aviation	7174	2	14,348
Ramps: Curb and Gutter - EB Aviation to EB G.L.	1563	2	3,126
		TOTAL	196,502

(A) East Barraza/Aviation

Assumptions: Standard Striping for a Six Lane Roadway, Signalized SPUI with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount
Striping:	Mile				
Four 4" Lane Stripes	LF	59,280	59,280	\$0.50	\$29,640
Four 4" Dashed Lane Stripes	LF	38,971	9,743	\$0.50	\$4,871
Intersection Striping	LF	336	1,008	\$0.50	\$504
Signs	Each	225	0	\$540.00	\$121,500
				Lump Sum =	\$156,515

(A) East Barraza/Aviation

Assumptions: New Signal at Alvernon and Golf Links/Palo Verde SPUI

Item	Each	Unit Price	Extended Amount
New Signals at Main	1	\$200,000	\$200,000
		TOTAL =	\$200,000

(A) East Barraza/Aviation

Assumptions: Adjust/Relocate all Utilities for identified areas

Assume no Utilities in I-10

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	19,900	\$150	\$2,985,000

(A) East Barraza/Aviation

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$183,744
			11.23 Miles =	\$2,063,445

(A) East Barraza/Aviation

Assumptions: New Retaining Walls will be constructed at the back of sidewalk

Length	Aver. Height	SF
643	18	11,574
712	16	11,392
521	6	3,126
250	14	3,500
370	16	5,920
370	16	5,920
160	14	2,240
1,250	14	17,500
145	14	2,030
900	14	12,600
	Total SF =	75,802

(A) East Barraza/Aviation

Assumptions: Areas Measured in Microstation

Item	Width	Length	SF
New Bridges			
Aviation over canal @ Palo Verde =	0	0	9,616
EB Aviation to EB Golf Links #1			16,480
EB Aviation to EB Golf Links #2			4,425
EB Aviation to EB Golf Links #3			3,285
WB Golf Links to WB Aviation #1			8,616
WB Golf Links to WB Aviation #2			10,020
WB Golf Links to EB Aviation			10,242
Alvernon over Canal =	0	0	14,326
Alvernon NB Ramp over Canal =			3,118
Alvernon SB Ramp over Canal =			6,287
Alvernon Over Golf Links/Palo Verde			20,384
Alvernon over Aviation			43,880
Alvernon over RR			37,009
WB Aviation to WB Valencia #1			13,345
WB Aviation to WB Valencia #2			10,875
WB Valencia to EB Aviation			12,239
		Total Roadway Bridge=	224,147

(A) East Barraza/Aviation

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length

Assumed No Excavation Areas

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	90	59,280	5,335,200	9	48,016,800	1,778,400		
Excavation	90	59,280	5,335,200	2	10,670,400	395,200	\$4	\$1,580,800
Drainage Excavation			50,920	6	305,520	11,316	\$5	\$56,578
Borrow						1,371,884	\$6.0	\$8,231,307
							Total =	\$9,868,684

**Broadway Boulevard, Euclid Avenue to Country Club Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$3,412,778	\$3,412,778
Pavement	L.Sum	1	\$3,002,061	\$3,002,061
Drainage	L.Sum	1	\$1,505,661	\$1,505,661
Sidewalk	SF	111,100	\$4	\$444,400
Curb & Gutter	L.Ft.	40,400	\$15	\$606,000
Signing & Marking	L.Sum	1	\$83,521	\$83,521
Traffic Signals	L.Sum	1	\$1,600,000	\$1,600,000
Utilities	L.Sum	1	\$3,030,000	\$3,030,000
Street Lights	L.sum	1	\$169,425	\$169,425
Screen Walls	SF	7,525	\$20	\$150,500
Landscaping & Aesthetics	L.Sum	1	\$1,000,000	1,000,000
Construction Survey	L.Sum	1	\$350,000	350,000
Other Items	L.Sum	1	\$1,500,000	1,500,000
Maintenance Of Traffic	L.Sum	1	\$1,500,000	1,500,000
Mobilization 10%	L.Sum	1	\$1,835,435	\$1,835,435
			15% Construction Contingency =	\$3,028,467
			Total Estimated Construction Cost =	\$23,218,000
			Public Art 1% =	\$232,180
			15% Construction Management =	\$3,482,700
			15% Engineering and Planning =	\$3,482,700
			Environmental Mitigation =	\$645,000
			Agency Estimated ROW Acquisition Cost =	\$43,700,000
			Total Project Cost =	\$74,760,600

Assumptions:

- *150' Min. ROW
- *8-Lane Section With Raised Landscaped Median
- *Project Length = 1.91 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$13,000,000

Broadway - Euclid to Country Club

Assumptions: Average Exst Pavement 70' Width for Length of Project

Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	70	10,100	707,000	78,556	\$5	\$392,778
Misc Removals		10,100			\$200	\$2,020,000
Bridge/Wall Removal						\$1,000,000
					Total =	\$3,412,778

Broadway - Euclid to Country Club

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 125' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	125	10100	1,262,500	140,278	\$21.40	\$3,002,061

Total \$3,002,061

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY = **\$21.40**

Broadway - Euclid to Country Club

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,769	\$80	\$141,504
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$788,304
		1.91 Miles =		\$1,505,661

Broadway - Euclid to Country Club

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	20,200	111,100

Broadway - Euclid to Country Club

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	10,100	4	40,400

Broadway - Euclid to Country Club

Assumptions: Standard Striping for a eight Lane Roadway, Eight Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 1.91 Miles
Striping:	Mile					
Six 4" Lane Stripes	LF	5,280	31,680	\$0.50	\$15,840	\$30,254
Four 4" Dashed Lane Stripes	LF	5,280	6,600	\$0.50	\$3,300	\$6,303
Intersection Striping	LF	2,000	16,000	\$0.50	\$8,000	\$8,000
Signs	Each	20	0	\$600.00	\$12,000	\$22,920
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$16,044
					Lump Sum =	\$83,521

Broadway - Euclid to Country Club

Assumptions: Eight Exst Signalized Intersections to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	8	\$200,000	\$1,600,000

Broadway - Euclid to Country Club

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	10,100	\$300	\$3,030,000

Broadway - Euclid to Country Club

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	1,075	7,525

**Broadway Boulevard, Camino Seco to Houghton Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$267,889	\$267,889
Pavement	L.Sum	1	\$2,006,566	\$2,006,566
Drainage	L.Sum	1	\$1,667,318	\$1,667,318
Sidewalk	SF	132,605	\$4	\$530,420
Curb & Gutter	L.Ft.	48,220	\$15	\$723,300
Signing & Marking	L.Sum	1	\$74,598	\$74,598
Traffic Signals	L.Sum	1	\$200,000	\$200,000
Utilities	L.Sum	1	\$1,808,250	\$1,808,250
Street Lights	L.sum	1	\$168,538	\$168,538
Screen Walls	SF	13,055	\$20	\$261,100
Landscaping & Aesthetics	L.Sum	1	\$175,000	\$175,000
Construction Survey	L.Sum	1	\$150,000	\$150,000
Other Items	L.Sum	1	\$775,000	\$775,000
Maintenance Of Traffic	L.Sum	1	\$775,000	\$775,000
Mobilization 10%	L.Sum	1	\$958,298	\$958,298
			15% Construction Contingency =	\$1,581,192
			Total Estimated Construction Cost =	\$12,122,000
			Public Art 1% =	\$121,220
			15% Construction Management =	\$1,818,300
			15% Engineering and Planning =	\$1,818,300
			Environmental Mitigation =	\$157,000
			Agency Estimated ROW Acquisition Cost =	\$50,000
			Total Project Cost =	\$16,086,800

Assumptions:

- *120' Min. ROW
- *4-Lane Section With Raised Landscaped Median
- *Project Length = 2.28 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Harrison and Houghton Intersections Are Not Included In This Project
- *Approximate Construction Cost/Mile = \$5,600,000

Broadway

Assumptions: Average Exst Pavement 40' Width for Length of Project

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	40	12,055	482,200	53,578	\$5	\$267,889
					Total =	\$267,889

Broadway

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 70' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	70	12055	843,850	93,761	\$21.40	\$2,006,566

Total \$2,006,566

Price/SY						
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY = **\$21.40**

Broadway

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,056	\$80	\$84,480
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$731,280
		2.28 Miles =		\$1,667,318

Broadway

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	24,110	132,605

Broadway

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	12,055	4	48,220

Broadway

Assumptions: Standard Striping for a Four Lane Roadway, One Signalized Intersection with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 2.28 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$24,077
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$3,010
Intersection Striping	LF	2,000	2,000	\$0.50	\$1,000	\$1,000
Signs	Each	20	0	\$600.00	\$12,000	\$27,360
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$19,152
					Lump Sum =	\$74,598

Broadway

Assumptions: One Exst Signalized Intersection to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	1	\$200,000	\$200,000

Broadway

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	12,055	\$150	\$1,808,250

Broadway

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	1,865	13,055

**Downtown Links, I-10 to Broadway Boulevard
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$1,770,890	\$1,770,890
Excavation	C.Y.	117,226	\$5	\$586,132
Pavement	L.Sum	1	\$1,434,248	\$1,434,248
Drainage	L.Sum	1	\$22,723,115	\$22,723,115
Sidewalk	SF	66,407	\$4	\$265,628
Curb & Gutter	L.Ft.	30,330	\$15	\$454,950
Signing & Marking	L.Sum	1	\$65,700	\$65,700
Traffic Signals	L.Sum	1	\$1,000,000	\$1,000,000
Utilities	L.Sum	1	\$2,240,000	\$2,240,000
Street Lighting	L.Sum	1	\$389,537	\$389,537
Retaining Walls	SF	62,000	\$40	\$2,480,000
Roadway Bridges	SF	9,850	\$80	\$788,000
Railroad Bridges (Main Track & Temp Shoofly)	SF	10,625	\$120	\$1,275,000
Railroad Shoofly	L.Sum	1	\$3,200,000	\$3,200,000
Landscaping & Aesthetics	L.Sum	1	\$3,870,000	\$3,870,000
Construction Survey	L.Sum	1	\$1,935,000	\$1,935,000
Other Items	L.Sum	1	\$3,870,000	\$3,870,000
Maintenance Of Traffic	L.Sum	1	\$3,870,000	\$3,870,000
Mobilization 10%	L.Sum	1	\$5,221,820	\$5,221,820
			15% Construction Contingency =	\$8,616,003
			Total Estimated Construction Cost =	\$66,056,000
			Public Art 1% =	\$660,560
			15% Construction Management =	\$9,908,400
			15% Engineering and Planning =	\$9,908,400
			Environmental Mitigation =	\$279,500
			Agency Estimated ROW Acquisition, Relocation Cost =	\$6,300,000
			Total Project Cost =	\$93,112,860

Assumptions:

*6th Street 4-Lane Section With Raised Landscaped Median Grade Separated under the Railroad

*Aviation 4-Lane Section Undivided

*Drainage Estimate Includes Cost for Tucson Arroyo CBC Realignment

*A Two Track Railroad Shoofly will be required to construct new railroad bridge including a temporary bridge

Downtown Links

Assumptions: Measured in Microstation

Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	SF	SY	Unit Cost	Extended Amount
Pavement Removal - Asphalt	411,604	45,734	\$2	\$91,468
Remove Railroad Shoofly Bridge	2,630	292	\$100	\$29,222
Remove Shoofly (LF)	5300		\$100	\$530,000
Misc Removals (LF)	11202		\$100	\$1,120,200
			Total =	\$1,770,890

Pavement Removal - Asphalt	Width	Length	SF
6th Street =	52	3,963	206,076
9th Avenue =	52	864	44,928
7th Avenue =	50	460	23,000
8th Street =	50	140	7,000
Stone - North of 6th =	62	250	15,500
Stone - South of 6th =	45	110	4,950
Church - North of 6th =	40	130	5,200
Church - South of 6th =	60	170	10,200
Aviation - South of Broadway =	54	185	9,990
Northbound Aviation to Broadway =	52	1,630	84,760
		Total =	411,604

Downtown Links

Assumptions: Excavation on 6th St. & Stone (North & South of 6th)

Fill on Aviation - 6th to Broadway (Aver Fill = 4')

Fill on 9th Avenue

Excavation

Location	Aver. End Area	Length	CF
6th Street	950	1,430	1,358,500
Stone - North of 6th	470	270	126,900
Stone - South of 6th	65	120	7,800
			Total =

Fill

Location	Aver. End Area	Length	CF
9th Avenue	500	730	365,000
			Total =

Summary

Item	Width (Average)	Length	SF
Fill - 6th to Broadway	60	3,600	216,000
Fill 9th Avenue			
Excavation			
Drainage Excavation (See Drainage)			
Total Excavation			
Borrow			

CY
50,315
4,700
289
55,304

CY
13,519
13,519

Depth (Average)	CF	CY	Unit Cost	Extended Amount
4	864,000	32,000		
		13,519		
		55,304	\$4	\$221,215
		61,923	\$5	\$309,613
		117,226		
		-71,708	\$5.5	-\$394,393
			Total =	\$136,435

Downtown Links

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB & 6" PCCP, 4"AB
 Areas Taken From Microstation Shapes

Item	SF	SY	Price/SY =	Extended Amount
AC - 6th St., Stone & Aviation North of Broadway	488,865	54,318	\$21	\$1,162,458
AC - Aviation South of Broadway	103,800	11,533	\$21	\$246,823
AC - 9th Ave. North of 6th St.	10,500	1,167	\$21	\$24,968
AC - 9th Ave. South of 6th St.	11,500	1,278	\$21	\$27,346
			Total =	\$1,434,248

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY		
4" AB	3	0.111	\$30		\$3.33

Price/SY = \$21.40

Concrete Pvmt Price/SY			
4" AC	54,318	\$11	\$597,502
Load Trans Dowel	0	\$60	\$0
6" PCCP	54,318	\$40	\$2,172,733
		Total =	\$2,770,235
		Price/SY =	\$51.00

Downtown Links

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole
 New 78" RCP to Drain Low Spot Under the RR to the Santa Cruz

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$0	\$0
Pipe - Laterals	LF	1,452	\$80	\$116,160
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
			Construction Cost per Mile =	\$234,960

2.12 Miles New Drainage Structures= \$498,115
DCR Tucson Arroyo CBC Realignment Estimate = \$22,225,000
Total Drainage = \$22,723,115

Drainage Ex for Earthwork	Miles	Total Length	Width	Depth	CY
Arroyo CBC Realignment	1.5	7,920	14	15	61,600
24" Laterals	0.3	436	4	5	323
				Toatl Drainage Ex =	61,923

Downtown Links

Assumptions: Continuous Sidewalk (both sides)

Location	Width	Length	SF
6th Street	5.5	3,963	43,593
9th Avenue	5.5	864	9,504
Stone	5.5	460	5,060
Aviation - 6th Street to 8th Street	5.5	750	8,250
		Total =	66,407

Downtown Links

Assumptions: Continuous Curb & Gutter (both sides & median) 6th Street

Continuous Curb & Gutter (Outside Only) All Other Roadways

Item	Length	C & G	LF
6th Street	3,963	4	15,852
All Other Roadways	7,239	2	14,478
Aviation Medians at Broadway	1,200	2	2,400
			30,330

Downtown Links

Assumptions: Standard Striping for a Four Lane Roadway, Three Signalized Intersections with 12" Stop Bars and Crosswalks
 Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)
 Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each
 Assume 20 Signs/Mile & Stop Signs @ Cross Streets

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount
Striping:	Mile				
Four 4" Lane Stripes	LF	11,200	44,800	\$0.50	\$22,400
Four 4" Dashed Lane Stripes	LF	10,350	10,350	\$0.50	\$3,300
Intersection Striping	LF	45	135	\$0.50	\$13,000
Signs	Each	40	0	\$540.00	\$21,600
Stop Signs (Total Crossroads)	Each	10	0	\$540.00	\$5,400
				Lump Sum =	\$65,700

Downtown Links

Assumptions: New Signals at 6th/Granada, 6th St/Stone, 6th St/Aviation & Aviation/Broadway

Half Signals Needed at 6th St Connections East & West (Count as One Signal)

Item	Each	Unit Price	Extended Amount
New Signals	5	\$200,000	\$1,000,000
		Total =	\$1,000,000

Downtown Links

Assumptions: Adjust/Relocate all Utilities for Length of Project

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	11,200	\$200	\$2,240,000

Speedway Under RR

Assumptions: New Retaining Walls will be constructed at the back of sidewalk along 6th Street & 9th Avenue

Location	Length	Aver. Height	SF
6th Street	3,000	15	45,000
9th Avenue	1,000	17	17,000
		Total SF =	62,000

Ruthrauff over RR

Assumptions: New Railroad Bridge and Temporary Railroad Shoofly Bridge

New Bridge on 9th Avenue over 6th Street and UPRR

New Bridge on Aviation over 6th Avenue

Item	Width	Length	SF
New Bridges			
9th Avenue =	30	130	3,900
Aviation over 6th Ave.	70	85	5,950
RR Bridge =	40	200	8,000
RR Shoofly Bridge =	35	75	2,625
	Total Roadway Bridge=		9,850
	Total Railroad Bridge=		10,625

**El Camino De Manana, Tangerine Road to Linda Vista Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$340,000	\$340,000
Earthwork	L.Sum	1	\$337,500	\$337,500
Pavement	L.Sum	1	\$1,500,000	\$1,500,000
Drainage	L.Sum	1	\$2,500,000	\$2,500,000
Signing & Marking	L.Sum	1	\$262,500	\$262,500
Traffic Signals	L.Sum	1	\$200,000	\$200,000
Landscaping & Aesthetics	L.Sum	1	\$900,000	\$900,000
Utilities	L.Sum	1	\$500,000	\$500,000
Construction Survey	L.Sum	1	\$300,000	\$300,000
Other Items	L.Sum	1	\$700,000	\$700,000
Maintenance Of Traffic	L.Sum	1	\$700,000	\$700,000
Mobilization 10%	L.Sum	1	\$824,000	\$824,000
			15% Construction Contingency =	\$1,359,600
			Total Estimated Construction Cost =	\$10,424,000
			Public Art 1% =	\$104,240
			15% Construction Management =	\$1,563,600
			15% Engineering and Planning =	\$1,563,600
			Environmental Mitigation =	\$398,000
			Agency Estimated ROW Acquisition Cost =	\$2,800,000
			Total Project Cost =	\$16,853,440

Assumptions:

- *Dove Mountain Extension South of Tangerine Road
- *Project Limits Taken From Twin Peaks T.I. Match Point (North of Linda Vista) To Tangerine
- *2-Lane Rural From Twin Peaks T.I. Match Point (North of Linda Vista) To Tangerine
- *150' ROW From Twin Peaks T.I. Match Point (North of Linda Vista) To Tangerine
- *Drainage Estimate Assumes a 4-Lane Urban Section
- *Project Length = 3.13 Miles
- *Approximate Construction Cost/Mile = \$3,500,000

El Camino De Manana

	<u>Clear & Grub</u>	<u>Str. & Obstr.</u>	<u>Total</u>
Town of Marana Estimate (4-Lane Section)=	\$250,000	\$90,000	\$340,000

El Camino De Manana

	<u>Ex.</u>	<u>Borrow</u>	<u>Total</u>
Town of Marana Estimate (4-Lane Section)=	\$120,000	\$330,000	\$450,000
Assume 3/4 Earthwork For a 2-Lane Section=			\$337,500

El Camino De Manana

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item		SF (From Quants Drawing)	SY	Price/SY =	Extended Amount	For Estimate
Pavement		619,000	68,778	\$21.40	\$1,471,902	\$1,500,000

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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El Camino De Manana

Town of Marana Estimate (4-Lane Section)= Drainage Subtotal
\$2,500,000

El Camino De Manana

	<u>Sign. & Mark. Subtotal</u>
Town of Marana Estimate (4-Lane Section)=	\$350,000
Assume 3/4 Signing & Marking For a 2-Lane Section=	\$262,500

El Camino De Manana

New Signal Manana/Dove Mountain/Tangerine Intersection
\$200,000

El Camino De Manana

	<u>Price/Mile</u>	<u>Approx. # Miles</u>	<u>Total</u>
Landscaping/Aesthetics	\$300,000	3	\$900,000

El Camino De Manana

	<u>SF (From Quants Drawing)</u>	<u>**Approx. \$/SF</u>	<u>Total</u>	<u>Amt. Used For Estimate</u>
ROW	\$1,930,050	2.5	\$4,825,125	\$5,000,000

** Assumes No Developer Contribution

**First Avenue, Orange Grove Road to Ina Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$142,778	\$142,778
Pavement	L.Sum	1	\$330,762	\$330,762
Drainage	L.Sum	1	\$715,488	\$715,488
Sidewalk	SF	56,540	\$4	\$226,160
Curb & Gutter	L.Ft.	20,560	\$15	\$308,400
Signing & Marking	L.Sum	1	\$31,812	\$31,812
Traffic Signals	L.Sum	1	\$200,000	\$200,000
Utilities	L.Sum	1	\$771,000	\$771,000
Street Lights	L.sum	1	\$71,702	\$71,702
Screen Walls	SF	45,395	\$20	\$907,900
Landscaping & Aesthetics	L.Sum	1	\$75,000	\$75,000
Construction Survey	L.Sum	1	\$75,000	\$75,000
Other Items	L.Sum	1	\$400,000	\$400,000
Maintenance Of Traffic	L.Sum	1	\$400,000	\$400,000
Mobilization 10%	L.Sum	1	\$465,600	\$465,600
			15% Construction Contingency =	\$768,240
			Total Estimated Construction Cost =	\$5,890,000
			Public Art 1% =	\$58,900
			15% Construction Management =	\$883,500
			15% Engineering and Planning =	\$883,500
			Environmental Mitigation =	\$112,500
			Agency Estimated ROW Acquisition Cost =	\$150,000
			Total Project Cost =	\$7,978,400

Assumptions:

- *140'-150' Existing ROW
- *4-Lane Urban Section With Raised Landscaped Median
- *Project Length = 0.97 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$6,000,000

First Avenue

Assumptions: Average Exst Pavement 50' Width for Length of Project

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	50	5,140	257,000	28,556	\$5	\$142,778
					Total =	\$142,778

First Avenue

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 65' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	65	2140	139,100	15,456	\$21.40	\$330,762

Total \$330,762

Price/SY						
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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First Avenue

Assumptions: Continuous Sidewalk (both sides)

Item	Width	Length	SF
Sidewalk	5.5	10,280	56,540

First Avenue

Assumptions: Continuous Curb & Gutter (both sides & median)

Item	Length	C & G	LF
Curb and Gutter	5,140	4	20,560

First Avenue

Assumptions: Standard Striping for a Four Lane Roadway, 0.5 Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 0.97 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$10,243
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$1,280
Intersection Striping	LF	2,000	1,000	\$0.50	\$500	\$500
Signs	Each	20	0	\$600.00	\$12,000	\$11,640
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$8,148
					Lump Sum =	\$31,812

First Avenue

Assumptions: One Signalized Intersections

Item	Each	Unit Price	Extended Amount
Signalized Intersections	1	\$200,000	\$200,000

First Avenue

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	5,140	\$150	\$771,000

First Avenue

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
		Construction Cost per Mile =		\$73,920
		0.97 Miles =		\$71,702

First Avenue

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	6,485	45,395

**First Avenue, River Road to Grant Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$3,819,667	\$3,819,667
Pavement	SY	181,889	\$21	\$3,892,574
Drainage	L.Sum	1	\$2,560,149	\$2,560,149
Sidewalk	SF	180,070	\$4	\$720,280
Curb & Gutter	L.Ft.	65,480	\$15	\$982,200
Signing & Marking	L.Sum	1	\$112,882	\$112,882
Traffic Signals	L.Sum	1	\$1,600,000	\$1,600,000
Utilities	L.Sum	1	\$4,911,000	\$4,911,000
Street Lighting	L.Sum	1	\$274,982	\$274,982
Screen Walls	SF	19,600	\$20	\$392,000
Bridge Widening	SF	25,568	\$80	\$2,045,440
Landscaping & Aesthetics	L.Sum	1	\$1,000,000	\$1,000,000
Construction Survey	L.Sum	1	\$500,000	\$500,000
Other Items	L.Sum	1	\$2,500,000	\$2,500,000
Maintenance Of Traffic	L.Sum	1	\$2,500,000	\$2,500,000
Mobilization 10%	L.Sum	1	\$2,781,117	\$2,781,117
			15% Construction Contingency =	\$4,588,844
			Total Estimated Construction Cost =	\$35,181,000
			Public Art 1% =	\$351,810
			15% Construction Management =	\$5,277,150
			15% Engineering and Planning =	\$5,277,150
			Environmental Mitigation =	\$485,500
			Agency Estimated ROW Acquisition, Relocation Cost =	\$32,800,000
			Total Project Cost =	\$79,372,610

Assumptions:

- *Project Limits Taken From River Road To Grant Road
- *6-Lane Section With Raised Landscaped Median
- *150' Min. ROW
- *Project Length = 3.1 Miles
- *Intersection Improvements at Grant Not Included In This Estimate (Included in the Grant Project)
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$12,000,000

First Avenue

Assumptions: Average Exst Pavement 70' Width for Length of Project
Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	60	16,370	982,200	109,133	\$5	\$545,667
Misc Removals		16,370			\$200	\$3,274,000
					Total =	\$3,819,667

First Avenue

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 100' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Pavement	100	16,370	1,637,000	181,889	\$21.40	\$3,892,574

Price/SY	CF/SY	LB/CF	LBS	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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First Avenue

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	32,740	180,070

First Avenue

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	16,370	4	65,480

First Avenue

Assumptions: Standard Striping for a Six Lane Roadway, Thirteen Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 3.1 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$32,736
Four 4" Dashed Lane Stripes	LF	5,280	6,600	\$0.50	\$3,300	\$10,230
Intersection Striping	LF	2,000	26,000	\$0.50	\$13,000	\$13,000
Signs	Each	20	0	\$540.00	\$10,800	\$33,480
Stop Signs (Total Crossroads)	Each	14	0	\$540.00	\$7,560	\$23,436
					Lump Sum =	\$112,882

First Avenue

Assumptions: Thirteen Exst Signalized Intersections to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	8	\$200,000	\$1,600,000

First Avenue

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	16,370	\$300	\$4,911,000

First Avenue

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
		Construction Cost per Mile =		\$88,704
		3.1 Miles =		\$274,982

First Avenue

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Screen Wall	7	2,800	19,600

First Avenue

Assumptions: Widen Exst Bridge 34' (Both Sides)

Item	Width	Length	SF
Bridge Widening			
Northbound =	34	376	12,784
Southbound =	34	376	12,784
		Total =	25,568

First Avenue

Assumptions: New 6'x 8' x138' Concrete Box Culvert

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	2.468	138	341	\$450.00	\$153,263
Reinforcing Steel (LB/FT) =	403.000	138	55,614	\$0.75	\$41,711
				Lump Sum =	\$194,973

**Grant Road, Oracle Road to Swan Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$6,306,667	\$6,306,667
Pavement:	SY	293,333	\$21	\$6,277,578
Drainage:	L.Sum	1	\$3,814,800	\$3,814,800
Sidewalk	SF	290,400	\$4	\$1,161,600
Curb & Gutter	L.Ft.	105,600	\$15	\$1,584,000
Signing & Marking	L.Sum	1	\$180,600	\$180,600
Traffic Signals	L.Sum	1	\$2,600,000	\$2,600,000
Utilities	L.Sum	1	\$7,920,000	\$7,920,000
Street Lighting	L.Sum	1	\$443,520	\$443,520
Screen Walls	SF	108,500	\$20	\$2,170,000
Landscaping & Aesthetics	L.Sum	1	\$1,500,000	\$1,500,000
Construction Survey	L.Sum	1	\$750,000	\$750,000
Other Items	L.Sum	1	\$3,600,000	\$3,600,000
Maintenance Of Traffic	L.Sum	1	\$3,600,000	\$3,600,000
Mobilization 10%	L.Sum	1	\$4,190,876	\$4,190,876
			15% Construction Contingency =	\$6,914,946
			Total Estimated Construction Cost =	\$53,015,000
			1% Public Art =	\$530,150
			15% Construction Management =	\$7,952,250
			15% Engineering and Planning =	\$7,952,250
			Environmental Mitigation =	\$685,000
			Agency Estimated ROW Acquisition, Relocation Cost =	\$105,300,000
			Total Project Cost =	\$175,434,650

Assumptions:

- *Project Limits Taken From Oracle Road To Swan Road
- *6-Lane Section With Raised Landscaped Median
- *150' Min. ROW
- *Project Length = 5.12 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$11,200,000

Grant Road

Assumptions: Average Exst Pavement 70' Width for Length of Project
Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	70	26,400	1,848,000	205,333	\$5	\$1,026,667
Misc Removals		26,400			\$200	\$5,280,000
					Total =	\$6,306,667

Grant Road

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 100' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Pavement	100	26,400	2,640,000	293,333	\$21.40	\$6,277,578

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Grant Road

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	52,800	290,400

Grant Road

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	26,400	4	105,600

Grant Road

Assumptions: Standard Striping for a Six Lane Roadway, Thirteen Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For Five Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$52,800
Four 4" Dashed Lane Stripes	LF	5,280	6,600	\$0.50	\$3,300	\$16,500
Intersection Striping	LF	3,000	39,000	\$0.50	\$19,500	\$19,500
Signs	Each	20	0	\$540.00	\$10,800	\$54,000
Stop Signs (Total Crossroads)	Each	14	0	\$540.00	\$7,560	\$37,800
					Lump Sum =	\$180,600

Grant Road

Assumptions: Thirteen Exst Signalized Intersections to Remain Signalized

Item	Each	Unit Price	Extended Amount
Signalized Intersections	13	\$200,000	\$2,600,000

Grant Road

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	26,400	\$300	\$7,920,000

Grant Road

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$88,704
			5 Miles =	\$443,520

Grant Road

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Screen Wall	7	15,500	108,500

Harrison Road, Golf Links to Irvington
DRAFT - COST ESTIMATE

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$714,875	\$714,875
Borrow	C.Y.	39,993	\$6	\$239,956
Excavation	C.Y.	40,437	\$5	\$202,185
Pavement	L.Sum	1	\$1,736,699	\$1,736,699
Drainage	L.Sum	1	\$1,525,920	\$1,525,920
Sidewalk	SF	113,179	\$4	\$452,716
Curb & Gutter	L.Ft.	41,156	\$15	\$617,340
Signing & Marking	L.Sum	1	\$28,539	\$28,539
Traffic Signals	L.Sum	1	\$400,000	\$400,000
Utilities	L.Sum	1	\$1,028,900	\$1,028,900
Street Lighting	L.Sum	1	\$364,248	\$364,248
Retaining Walls	SF	0	\$40	\$0
Roadway Bridges	SF	56,500	\$80	\$4,520,000
Landscaping & Aesthetics	L.Sum	1	\$1,180,000	\$1,180,000
Construction Survey	L.Sum	1	\$590,000	\$590,000
Other Items	L.Sum	1	\$1,180,000	\$1,180,000
Maintenance Of Traffic	L.Sum	1	\$1,180,000	\$1,180,000
Mobilization 10%	L.Sum	1	\$1,596,138	\$1,596,138
			15% Construction Contingency =	\$2,633,627
			Total Estimated Construction Cost =	\$20,191,000
			Public Art 1% =	\$201,910
			15% Construction Management =	\$3,028,650
			15% Engineering and Planning =	\$3,028,650
			Environmental Mitigation =	\$119,000
			Agency Estimated ROW Acquisition, Relocation Cost =	\$15,000
			Total Project Cost =	\$26,584,210

Assumptions:

- *4-Lane Section With Raised Landscaped Median
- *150' Min. ROW
- *Project Length = 2 Miles
- *New Bridge Structure Over The Pantano Wash
- *Approximate Construction Cost/Mile = \$10,100,000

Harrison-Golf Links to Irvington

Assumptions: Areas Measured in Microstation

Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Exst Retaining Walls Aver. Height = 12'

Item	SF	SY	Unit Cost	Extended Amount
Pavement Removal - Asphalt	516,936	57,437	\$2	\$114,875
Pavement Removal - PCCP	0	0	\$4	\$0
Remove Exst Retaining Walls	0	0	\$40	\$0
Remove Detour (LF)	1000	111.1111111	\$100	\$100,000
Misc Removals (LF)	5000	555.5555556	\$100	\$500,000
			Total =	\$714,875

Harrison-Golf Links to Irvington

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length

Assumed No Excavation Areas

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	106	10,300	1,091,800	2	2,183,600	80,874		
Excavation	106	10,300	1,091,800	1	1,091,800	40,437	\$4	\$161,748
Drainage Excavation			2,000	6	12,000	444	\$5	\$2,222
Borrow						39,993	\$6.0	\$239,956
							Total =	\$403,926

Harrison-Golf Links to Irvington

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB & 6" PCCP, 4"AB
 Areas Taken From Microstation Shapes

Item	SF	SY	Price/SY =	Extended Amount
AC - All roadways and Ramps	730,359	81,151	\$21	\$1,736,699
	0	0	\$21	\$0
			Total =	\$1,736,699

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY		
4" AB	3	0.111	\$30		\$3.33

Price/SY = \$21.40

Concrete Pvmt Price/SY			
4" AC	0	\$11	\$0
Load Trans Dowel	0	\$60	\$0
6" PCCP	0	\$40	\$0
		Total =	\$0
		Price/SY =	#DIV/0!

Harrison-Golf Links to Irvington

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,452	\$80	\$116,160
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$762,960
2.00 Miles New Drainage Structures=				\$1,525,920

Harrison-Golf Links to Irvington

Assumptions: Sidewalk (both sides) around SPUI and Commercial Area

Item	Width	Length	SF
Sidewalk	5.5	10,289	113,179

Harrison-Golf Links to Irvington

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter - Aviation	10,289	4	41,156
		TOTAL	41,156

Harrison-Golf Links to Irvington

Assumptions: Standard Striping for a Six Lane Roadway, Signalized SPUI with 12" Stop Bars and Crosswalks
 Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)
 Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each
 Assume 20 Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount
Striping:	Mile				
Four 4" Lane Stripes	LF	10,298	10,298	\$0.50	\$5,149
Four 4" Dashed Lane Stripes	LF	10,289	2,572	\$0.50	\$1,286
Intersection Striping	LF	336	1,008	\$0.50	\$504
Signs	Each	40	0	\$540.00	\$21,600
				Lump Sum =	\$28,539

Harrison-Golf Links to Irvington

Assumptions: New Signal at Alvernon and Golf Links/Palo Verde SPUI

Item	Each	Unit Price	Extended Amount
New Signals at Irvington & Stella	2	\$200,000	\$400,000
		TOTAL =	\$400,000

Harrison-Golf Links to Irvington

Assumptions: Adjust/Relocate all Utilities for identified areas

Assume no Utilities in I-10

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	10,289	\$100	\$1,028,900

Harrison-Golf Links to Irvington

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,290	\$6	\$61,740
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$182,124
			2.00 Miles =	\$364,248

Harrison-Golf Links to Irvington

Assumptions: New Retaining Walls will be constructed at the back of sidewalk

Length	Aver. Height	SF
0	6	0
	Total SF =	0

Harrison-Golf Links to Irvington

Assumptions: Areas Measured in Microstation

Item	Width	Length	SF
New Bridges			
Harrison over pantano =	0	0	56,500
	Total Roadway Bridge=		56,500

**Houghton Road, I-10 to Tanque Verde Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$3,100,000	\$3,100,000
Pavement	L.Sum	1	\$14,876,552	\$14,876,552
Drainage	L.Sum	1	\$12,480,808	\$12,480,808
Sidewalk	SF	780,285	\$4	\$3,121,140
Curb & Gutter	L.Ft.	283,740	\$15	\$4,256,100
Signing & Marking	L.Sum	1	\$455,924	\$455,924
Traffic Signals	L.Sum	1	\$2,800,000	\$2,800,000
Utilities	L.Sum	1	\$4,610,775	\$4,610,775
Street Lights	L.sum	1	\$990,528	\$990,528
Screen Walls	SF	44,940	\$20	\$898,800
Bridges	SF	109,450	\$100	\$10,945,000
I-10 Traffic Interchange	L.Sum	1	\$11,269,200	\$11,269,200
I-10 Directional Ramp	L.Sum	1	\$17,575,500	\$17,575,500
UPRR Grade Separation	L.Sum	1	\$13,044,500	\$13,044,500
Landscaping & Aesthetics	L.Sum	1	\$2,500,000	\$2,500,000
Construction Survey	L.Sum	1	\$2,000,000	\$2,000,000
Other Items	L.Sum	1	\$10,000,000	\$10,000,000
Maintenance Of Traffic	L.Sum	1	\$3,000,000	\$3,000,000
Mobilization 10%	L.Sum	1	\$11,792,483	\$11,792,483
			15% Construction Contingency =	\$19,457,596
			Total Estimated Construction Cost =	\$149,175,000
			Public Art 1% =	\$1,491,750
			15% Construction Management =	\$22,376,250
			15% Engineering and Planning =	\$22,376,250
			Environmental Mitigation =	\$486,000
			Agency Estimated ROW Acquisition Cost =	\$1,600,000
			Total Project Cost =	\$197,505,300

Assumptions:

- *150' Min ROW
- *4-Lane Section With Raised Landscaped Median (I-10 to Old Vail Road)
- *6-Lane Section With Raised Landscaped Median (Old Vail Road to Golf Links Road)
- *4-Lane Section With Raised Landscaped Median (Golf Links Road to Tanque Verde)
- *Project Length = 13.4 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$11,000,000
- *Bridges Include Houghton over Pantano Wash, Agua Caliente Wash and Tanque Verde Creek

Houghton Road

Quantities based on AMEC Corridor Study

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal				354,682	\$5	\$1,773,410
Bridge Removal (I-10)						\$1,500,000
Bridge Removal (UPRR)						\$1,500,000
Bridge Removal (Pantano Wash)						\$100,000
					Total =	\$3,100,000

Houghton Road

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width Includes Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
I-10 to Old Vail Road	75	10500	787,500	87,500	\$21.40	\$1,872,573
Old Vail Road to Golf Links Road	100	37550	3,755,000	417,222	\$21.40	\$8,928,903
Golf Links Road to Tanque Verde	75	22850	1,713,750	190,417	\$21.40	\$4,075,075
			6,256,250	695,139	Total	\$14,876,552

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Houghton Road

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,452	\$80	\$116,160
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
Construction Cost per Mile =				\$762,960
13.4 Miles =				\$10,223,664

New 6'x 6' Concrete Box Culverts (1-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	0.802	285	229	\$450.00	\$102,857
Reinforcing Steel (LB/FT) =	137.800	285	39,273	\$0.75	\$29,455
Subtotal Cost per Culvert=					\$132,311
Total =					\$132,311

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$6,616

New 6'x 6' Concrete Box Culverts (2-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	1.394	530	739	\$450.00	\$332,469
Reinforcing Steel (LB/FT) =	203.300	530	107,749	\$0.75	\$80,812
Subtotal Cost per Culvert=					\$413,281
Total =					\$413,281

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$20,664

New 6'x 6' Concrete Box Culverts (3-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	1.984	950	1,885	\$450.00	\$848,160
Reinforcing Steel (LB/FT) =	277.800	950	263,910	\$0.75	\$197,933
Subtotal Cost per Culvert=					\$1,046,093
Total =					\$1,046,093

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$52,305

New 6'x 6' Concrete Box Culverts (5-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	3.163	320	1,012	\$450.00	\$455,472
Reinforcing Steel (LB/FT) =	427.100	320	136,672	\$0.75	\$102,504
Subtotal Cost per Culvert=					\$557,976
Total =					\$557,976

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$27,899

New 6'x 6' Concrete Box Culverts (6-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	3.752	135	507	\$450.00	\$227,934
Reinforcing Steel (LB/FT) =	498.800	135	67,338	\$0.75	\$50,504
Subtotal Cost per Culvert=					\$278,438
Total =					

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$0

Drainage Total = \$12,480,808

Houghton Road

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	141,870	780,285

Houghton Road

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	70,935	4	283,740

Houghton Road

Assumptions: Standard Striping for a Four Lane Roadway (I-10 to Old Vail and Golf Links to Tanque Verde)

Standard Striping for a Six Lane Roadway (Old Vail to Golf Links)

Fourteen Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 13.4 Miles
4-Lane Striping:						
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$8,316
6-Lane Striping:						
Four 4" Dashed Lane Stripes	LF	5,280	5,280	\$0.50	\$2,640	\$18,744
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$141,504
Intersection Striping	LF	2,000	28,000	\$0.50	\$14,000	\$14,000
Signs	Each	20		\$600.00	\$12,000	\$160,800
Stop Signs (Total Crossroads)	Each	14		\$600.00	\$8,400	\$112,560
					Lump Sum =	\$455,924

Houghton Road

Item	Each	Unit Price	Extended Amount
Signalized Intersections	14	\$200,000	\$2,800,000

Houghton Road

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	70,935	\$65	\$4,610,775

Houghton Road

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
		Construction Cost per Mile =		\$73,920
		13.4 Miles =		\$990,528

Houghton Road

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	6,420	44,940

Houghton Road

Item	Width/Height	Length	SF
Pantano Wash	130	390	50,700
Tanque Verde Creek	50	1,125	56,250
Agua Caliente Wash	50	50	2,500

Total Bridge Area = 109,450

**Houghton Road, Dawn Road to I-10
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$147,333	\$147,333
Pavement	L.Sum	1	\$1,819,071	\$1,819,071
Drainage	L.Sum	1	\$1,757,916	\$1,757,916
Sidewalk	SF	112,200	\$4	\$448,800
Curb & Gutter	L.Ft.	40,800	\$15	\$612,000
Signing & Marking	L.Sum	1	\$62,300	\$62,300
Traffic Signals	L.Sum	1	\$0	\$0
Utilities	L.Sum	1	\$663,000	\$663,000
Street Lights	L.sum	1	\$142,666	\$142,666
Landscaping & Aesthetics	L.Sum	1	\$150,000	\$150,000
Construction Survey	L.Sum	1	\$100,000	\$100,000
Other Items	L.Sum	1	\$600,000	\$600,000
Maintenance Of Traffic	L.Sum	1	\$150,000	\$150,000
Mobilization 10%	L.Sum	1	\$665,309	\$665,309
			15% Construction Contingency =	\$1,097,759
			Total Estimated Construction Cost =	\$8,416,000
			Public Art 1% =	\$84,160
			15% Construction Management =	\$1,262,400
			15% Engineering and Planning =	\$1,262,400
			Environmental Mitigation =	\$380,000
			Agency Estimated ROW Acquisition Cost =	\$18,000
			Total Project Cost =	\$11,423,000

Assumptions:

- *150' Min ROW
- *4-Lane Section With Raised Landscaped Median (Dawn Road to I-10)
- *Project Length = 1.93 Miles
- *Approximate Construction Cost/Mile = \$4,000,000

Houghton Road

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	26	10,200	265,200	29,467	\$5	\$147,333

Houghton Road

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width Includes Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Dawn Road I-10	75	10200	765,000	85,000	\$21.40	\$1,819,071

Price/SY						
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Houghton Road

Assumptions: Aver 36" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Drainage:		Per/Mile		
Pipe	LF	5,280	\$100	\$528,000
Pipe - Laterals	LF	1,452	\$80	\$116,160
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
			Construction Cost per Mile =	\$762,960
		1.93 Miles =		\$1,472,513

New 6'x 6' Concrete Box Culverts (2-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	1.394	165	230	\$450.00	\$103,505
Reinforcing Steel (LB/FT) =	203.300	165	33,545	\$0.75	\$25,158
				Subtotal Cost per Culvert=	\$128,663
				Total =	\$128,663

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$6,433

New 6'x 6' Concrete Box Culverts (3-Barrel)

Item	Unit	Length	Quantity	Unit Cost	Extended Amount
New CBC			CY or LBS		
Concrete (CY/FT) =	1.984	130	258	\$450.00	\$116,064
Reinforcing Steel (LB/FT) =	277.800	130	36,114	\$0.75	\$27,086
				Subtotal Cost per Culvert=	\$143,150
				Total =	\$143,150

Item	Amount
Headwalls For CBC - (Cost Taken 5% of Total CBC)	\$7,157

Drainage Total = \$1,757,916

Houghton Road

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Length	SF
Sidewalk	5.5	20,400	112,200

Houghton Road

Assumptions: Continuous Curb & Gutter (both sides & median) full length of Project

Item	Length	C & G	LF
Curb and Gutter	10,200	4	40,800

Houghton Road

Assumptions: Standard Striping for a Four Lane Roadway

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 1.93 Miles
4-Lane Striping:						
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$2,548
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$20,381
Signs	Each	20		\$600.00	\$12,000	\$23,160
Stop Signs (Total Crossroads)	Each	14		\$600.00	\$8,400	\$16,212
					Lump Sum =	\$62,300

Houghton Road

Item	Each	Unit Price	Extended Amount
Signalized Intersections	0	\$200,000	\$0

Houghton Road

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	10,200	\$65	\$663,000

Houghton Road

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$73,920
			1.93 Miles =	\$142,666

**Irvington Road - Ajo Road to Mission Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$976,000	\$976,000
Earthwork	L.Sum	1	\$705,986	\$705,986
Pavement	L.Sum	1	\$4,275,411	\$4,275,411
Drainage	L.Sum	1	\$5,578,853	\$5,578,853
Sidewalk	SF	31,900	\$4	\$127,600
Curb & Gutter	L.Ft.	116,000	\$15	\$1,740,000
Signing & Marking	L.Sum	1	\$432,735	\$432,735
Traffic Signals	L.Sum	1	\$200,000	\$200,000
Utilities	L.Sum	1	\$1,450,000	\$1,450,000
Street Lighting	L.Sum	1	\$522,720	\$522,720
Landscaping & Aesthetics	L.Sum	1	\$1,600,000	\$1,600,000
Construction Survey	L.Sum	1	\$400,000	\$400,000
Other Items	L.Sum	1	\$1,600,000	\$1,600,000
Maintenance Of Traffic	L.Sum	1	\$1,600,000	\$1,600,000
Mobilization 10%	L.Sum	1	\$2,120,930	\$2,120,930
			15% Construction Contingency =	\$3,499,535
			Total Estimated Construction Cost =	\$26,830,000
			Public Art 1% =	\$268,300
			15% Construction Management =	\$4,024,500
			15% Engineering and Planning =	\$4,024,500
			Environmental Mitigation =	\$224,000
			Agency Estimated ROW Acquisition, Relocation Cost =	\$1,600,000
			Total Project Cost =	\$36,971,300

Assumptions:

- *Project Limits Taken From Ajo Road To Mission
- *4-Lane Urban Section With Raised Landscaped Median
- *150' Min. ROW
- *Project Length = 5.5 Miles
- *Project Cost/Mile = \$4,900,000

Irvington Road

Assumptions: Average Exst Pavement 30' Width from Sunset Blvd to Mission = 23,760'

Misc Removals; Clear & Grub, etc. - Entire length of project = 29,000

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	30	23,760	712,800	79,200	\$5	\$396,000
Misc Removals		29,000			\$20	\$580,000
					Total =	\$976,000

Irvington Road

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length
Assumed No Excavation Areas

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	60	29,000	1,740,000	2	3,480,000	128,889		
Excavation			0	0	0	0	\$4	\$0
Drainage Excavation			26,128	6	156,768	5,806	\$5	\$29,031
Borrow						123,083	\$5.5	\$676,955
							Total =	\$705,986

Irvington Road

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Pavement	62	29,000	1,798,000	199,778	\$21.40	\$4,275,411

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Irvington Road

Assumptions: Continuous Sidewalk (both sides) for 29,000ft

Item	Width	Length	SF
Sidewalk	5.5	5,800	31,900

Irvington Road

Assumptions: Continuous C&G (both sides) for 28,170ft

Item	Length	C & G	LF
Curb and Gutter	29,000	4	116,000

Irvington Road

Assumptions: Standard Striping for a Four Lane Roadway , Four Intersections with 12" Stop Bars and Crosswalks
 Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)
 Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each
 Assume 20 Signs/Mile & 24 Stop Signs @ Side Streets

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 5.5 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	29,000	116,000	\$0.50	\$58,000	\$319,000
Two 4" Dashed Lane Stripes	LF	29,000	14,500	\$0.50	\$7,250	\$39,875
Intersection Striping	LF	1,000	3,000	\$0.50	\$1,500	\$1,500
Signs	Each	20	0	\$540.00	\$10,800	\$59,400
Stop Signs (Total Crossroads)	Each	24	0	\$540.00	\$12,960	\$12,960
					Total=	\$432,735

Irvington Road

Assumptions: One Signalized Intersections

Item	Each	Unit Price	Extended Amount
Signalized Intersections	1	\$200,000	\$200,000

Irvington Road

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	29,000	\$50	\$1,450,000

Irvington Road

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$95,040
			5.5 Miles =	\$522,720

Irvington

	<u>SF</u>	<u>**Approx. \$/SF</u>	<u>Total</u>
ROW	\$800,000	2	\$1,600,000

** Assumes No Developer Contribution

**Kolb Road Connection With Sabino Canyon Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$43,222	\$43,222
Earthwork	L.Sum	1	\$92,978	\$92,978
Pavement	L.Sum	1	\$708,605	\$708,605
Drainage	L.Sum	1	\$579,850	\$579,850
Sidewalk	SF	22,000	\$4	\$88,000
Curb & Gutter	L.Ft.	16,000	\$15	\$240,000
Signing & Marking	L.Sum	1	\$82,158	\$82,158
Traffic Signals	L.Sum	1	\$400,000	\$400,000
Utilities	L.Sum	1	\$50,000	\$50,000
Street Lighting	L.Sum	1	\$72,230	\$72,230
Bridge	SF	26,550	\$80	\$2,124,000
Landscaping & Aesthetics	L.Sum	1	\$450,000	\$450,000
Construction Survey	L.Sum	1	\$400,000	\$400,000
Other Items	L.Sum	1	\$450,000	\$450,000
Maintenance Of Traffic	L.Sum	1	\$225,000	\$225,000
Mobilization 10%	L.Sum	1	\$600,604	\$600,604
			15% Construction Contingency =	\$990,997
			Total Estimated Construction Cost =	\$7,598,000
			Public Art 1% =	\$75,980
			15% Construction Management =	\$1,139,700
			15% Engineering and Planning =	\$1,139,700
			Environmental Mitigation =	\$97,000
			Agency Estimated ROW Acquisition, Relocation Cost =	\$10,000
			Total Project Cost =	\$10,060,380

Assumptions:

- *Project Limits Taken From Existing Kolb to Tanque Verde
- *4-Lane Urban Section With Raised Landscaped Median
- *150' Min. ROW - Existing City/County Property
- *Project Length = 0.76 Miles
- *Cost per Mile = \$5,270,000

Kolb Road

Assumptions: Remove Existing Median and Pvmt for New Intersection - Areas taken from Microstation
Misc Removals; Clear & Grub, etc.

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal			5,800	644	\$5	\$3,222
Misc Removals		4,000			\$10	\$40,000
					Total =	\$43,222

Kolb Road

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length
Assumed No Excavation Areas

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	60	4,000	240,000	2	480,000	17,778		
Excavation			0	0	0	0	\$4	\$0
Drainage Excavation			43,200	6	259,200	9,600	\$5	\$48,000
Borrow						8,178	\$5.5	\$44,978
							Total =	\$92,978

Kolb Road

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item	Ave Width	Length	SF (From Quants Drawing)	SY	Price/SY =	Extended Amount
Pavement	NA	NA	298,000	33,111	\$21.40	\$708,605

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Kolb Road

Assumptions: Continuous Sidewalk (both sides) for 4,000ft

Item	Width	Length	SF
Sidewalk	5.5	4,000	22,000

Kolb Road

Assumptions: Continuous C&G (both sides & median) for 4,000ft

Item	Length	C & G	LF
Curb and Gutter	4,000	4	16,000

Kolb Road

Assumptions: Standard Striping for a Four Lane Roadway , Four Intersections with 12" Stop Bars and Crosswalks
 Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)
 Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each
 Assume 20 Signs/Mile & 5 Stop Signs @ Side Streets

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 3.96 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	4,000	16,000	\$0.50	\$8,000	\$31,680
Two 4" Dashed Lane Stripes	LF	4,000	2,000	\$0.50	\$1,000	\$3,960
Intersection Striping	LF	2,500	7,500	\$0.50	\$3,750	\$3,750
Signs	Each	15	0	\$540.00	\$8,100	\$32,076
Stop Signs (Total Crossroads)	Each	5	0	\$540.00	\$2,700	\$10,692
					Total=	\$82,158

Kolb Road

Assumptions: Two Signalized Intersections (Kolb/Kolb & Kolb/Tanque Verde)

Item	Each	Unit Price	Extended Amount
Signalized Intersections	2	\$200,000	\$400,000

Kolb Road

Assumptions: Adjust/Relocate Utilities on Existing Tanque Verde and Kolb

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	1,000	\$50	\$50,000

Kolb Road

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Remove & Salvage Exst Lights	Each	21	\$200	\$4,224
Remove Exst Light Foundations	Each	21	\$500	\$10,560
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$95,040
			0.76 Miles =	\$72,230

First Avenue

Assumptions: New Bridge over Pantano Wash

Area Measure in Microstation

Item	Area
Bridge Area =	26,550

**La Canada Drive, Calle Concordia to River Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$607,667	\$607,667
Pavement	L.Sum	1	\$4,226,486	\$4,226,486
Drainage	L.Sum	1	\$4,936,070	\$4,936,070
Sidewalk	SF	300,795	\$4	\$1,203,180
Curb & Gutter	L.Ft.	109,380	\$15	\$1,640,700
Signing & Marking	L.Sum	1	\$172,210	\$172,210
Traffic Signals	L.Sum	1	\$1,000,000	\$1,000,000
Utilities	L.Sum	1	\$4,101,750	\$4,101,750
Street Lights	L.sum	1	\$382,906	\$382,906
Screen Walls	SF	145,250	\$20	\$2,905,000
Landscaping & Aesthetics	L.Sum	1	\$500,000	\$500,000
Construction Survey	L.Sum	1	\$400,000	\$400,000
Other Items	L.Sum	1	\$2,500,000	\$2,500,000
Maintenance Of Traffic	L.Sum	1	\$2,500,000	\$2,500,000
Mobilization 10%	L.Sum	1	\$2,707,597	\$2,707,597
			15% Construction Contingency =	\$4,467,535
			Total Estimated Construction Cost =	\$34,251,000
			Public Art 1% =	\$342,510
			15% Construction Management =	\$5,137,650
			15% Engineering and Planning =	\$5,137,650
			Environmental Mitigation =	\$151,500
			Agency Estimated ROW Acquisition Cost =	\$700,000
			Total Project Cost =	\$45,720,300

Assumptions:

- *150' Min. ROW
- *4-Lane Urban Section With Raised Landscaped Median
- *Project Length = 5.18 Miles
- *7' Screen Walls Were Included Across the Residential Parcels
- *Approximate Construction Cost/Mile = \$5,500,000

La Canada Drive

Assumptions: Average Exst Pavement 40' Width for Length of Project

Item	Width	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	40	27,345	1,093,800	121,533	\$5	\$607,667
					Total =	\$607,667

La Canada Drive

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Average Pavement Width = 65' (Including Intersections and Turnouts)

Item	Ave Width	Length	SF	SY	Price/SY =	Extended Amount
Mainline	65	27345	1,777,425	197,492	\$21.40	\$4,226,486

Total \$4,226,486

Price/SY						
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY = **\$21.40**

La Canada Drive

Assumptions: Continuous Sidewalk (both sides)

Item	Width	Length	SF
Sidewalk	5.5	54,690	300,795

La Canada Drive

Assumptions: Continuous Curb & Gutter (both sides & median)

Item	Length	C & G	LF
Curb and Gutter	27,345	4	109,380

La Canada Drive

Assumptions: Standard Striping for a Four Lane Roadway, Five Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 20 Signs/Mile & 14 Stop Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 5.18 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$54,701
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$6,838
Intersection Striping	LF	2,000	10,000	\$0.50	\$5,000	\$5,000
Signs	Each	20	0	\$600.00	\$12,000	\$62,160
Stop Signs (Total Crossroads)	Each	14	0	\$600.00	\$8,400	\$43,512
					Lump Sum =	\$172,210

La Canada Drive

Assumptions: Five Signalized Intersections

Item	Each	Unit Price	Extended Amount
Signalized Intersections	5	\$200,000	\$1,000,000

La Canada Drive

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	27,345	\$150	\$4,101,750

La Canada Drive

Assumptions: Street Lighting Both Sides of Street
Poles Spaced at 500', One Pullbox/Pole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Lighting:	Mile			
Conductor & Conduit	LF	10,560	\$6	\$63,360
Luminaire	Each	21	\$500	\$10,560
Pull Boxes	Each	21	\$300	\$6,336
			Construction Cost per Mile =	\$73,920
			5.18 Miles =	\$382,906

La Canada Drive

Assumptions: 7' High Screen Walls at Residential Areas

Item	Height	Length	SF
Walls	7	20,750	145,250

**La Cholla Boulevard, Tangerine Road to Magee Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$5,949,667	\$5,949,667
Earthwork	L.Sum	1	\$1,225,364	\$1,225,364
Pavement	SY	206,197	\$21	\$4,412,780
Drainage	L.Sum	1	\$3,430,483	\$3,430,483
Sidewalk	SF	302,060	\$4	\$1,208,240
Curb & Gutter	L.Ft.	110,000	\$15	\$1,650,000
Signing & Marking	L.Sum	1	\$116,536	\$116,536
Traffic Signals	L.Sum	1	\$600,000	\$600,000
Utilities	L.Sum	1	\$1,373,000	\$1,373,000
Bridge	SF	48,830	\$80	\$3,906,400
Retaining Walls	SF	4,650	\$37	\$172,050
Landscaping & Aesthetics	L.Sum	1	\$1,500,000	\$1,500,000
Construction Survey	L.Sum	1	\$300,000	\$300,000
Other Items	L.Sum	1	\$2,700,000	\$2,700,000
Maintenance Of Traffic	L.Sum	1	\$1,800,000	\$1,800,000
Mobilization 10%	L.Sum	1	\$3,034,452	\$3,034,452
			15% Construction Contingency =	\$5,006,846
			Total Estimated Construction Cost =	\$38,386,000
			Public Art 1% =	\$383,860
			15% Construction Management =	\$5,757,900
			15% Engineering and Planning =	\$5,757,900
			Environmental Mitigation =	\$147,500
			Agency Estimated ROW Acquisition Cost =	\$2,600,000
			Total Project Cost =	\$53,033,160

Assumptions:

- *Project Limits Taken From Just North Of Tangerine Road To Magee Road
- *4-Lane Section With Raised Landscaped Median
- *150' Min. ROW
- *Project Length = 5.2 Miles
- *New Bridge Across The CDO Wash
- *Approximate Construction Cost/Mile = \$7,400,000

La Cholla Blvd

Assumptions: Average Exst Pavement 70' Width for Length of Project
Misc Removals; Curb & Gutter, Sidewalk, Inlets, etc. at \$100/LF

Item	Width (Average)	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	30	27,460	823,800	91,533	\$5	\$457,667
Misc Removals		27,460			\$200	\$5,492,000
					Total =	\$5,949,667

La Cholla Blvd

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length

Excavation Areas Assumed In a Couple of Locations Between Overton and Lambert - SF Taken From Quants Drawing

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	114	27,460	3,130,440	2	6,260,880	231,884		
Excavation			150,000	6	900,000	33,333	\$4	\$133,333
Borrow						198,551	\$5.5	\$1,092,031
							Total =	\$1,225,364

La Cholla Blvd

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item			SF (From Quants Drawing)	SY	Price/SY =	Extended Amount
Pavement			1,855,770	206,197	\$21.40	\$4,412,780

Price/SY							
	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount	
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64	
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43	

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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La Cholla Blvd

Storm Drain System:

Assumptions: Aver 24" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
		Per/Mile		
Pipe	LF	5,280	\$80	\$422,400
Pipe - Laterals	LF	1,135	\$80	\$90,816
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$632,016
		5.2 Miles =		\$3,286,483

Cross Drainage:

Assumptions: New 42" Cross Drainage Pipes

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
42" Pipe	LF	1,440	\$100	\$144,000.00
		Construction Cost =		\$144,000.00

DRAINAGE TOTAL = \$3,430,483

La Cholla Blvd

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Project Length	Sidewalk Length	SF
Sidewalk	5.5	27,460	54,920	302,060

La Cholla Blvd

Assumptions: Continuous Curb & Gutter (both sides) Vert. Curb in median) full length of Project

Item	Length (From Quants Drawing)
Curb and Gutter	110,000

La Cholla Blvd

Assumptions: Standard Striping for a Four Lane Roadway, Four Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 15 General Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 5.2 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$54,912
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$6,864
Intersection Striping	LF	2,000	8,000	\$0.50	\$4,000	\$4,000
Signs	Each	15	0	\$540.00	\$8,100	\$42,120
Stop Signs (Total Crossroads)	Each	16	0	\$540.00	\$8,640	\$8,640
					Lump Sum =	\$116,536

La Cholla Blvd

Assumptions: New Signals at Lambert & Overton

Item	Each	Unit Price	Extended Amount
New Signals	2	\$200,000	\$400,000
Modify Exist. Signals	2	\$100,000	\$200,000
TOTAL =			\$600,000

La Cholla Blvd

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	27,460	\$50	\$1,373,000

La Cholla Blvd

ITEM	Length	Height (Average)	SF
MSE WALL	930	5	4,650

La Cholla Blvd

New Bridge Structure	Width	Length	SF (From Quants Drawing
La Cholla/CDO Wash	-	-	48,830

La Cholla Blvd

ITEM	SF (From Quants Drawing)	**Approx. \$/SF	Total	Amt. Used For Estimate
ROW	1,333,920	1.5	\$2,000,880	\$2,000,000

** Assumes No Developer Contribution

**La Cholla Boulevard, River Road to Ruthrauff Road
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$353,750	\$353,750
Earthwork	L.Sum	1	\$270,148	\$270,148
Pavement	SY	48,133	\$21	\$1,030,093
Drainage	L.Sum	1	\$575,135	\$575,135
Sidewalk	SF	52,855	\$4	\$211,420
Curb & Gutter	L.Ft.	19,220	\$15	\$288,300
Signing & Marking	L.Sum	1	\$31,023	\$31,023
Traffic Signals	L.Sum	1	\$400,000	\$400,000
Utilities	L.Sum	1	\$480,500	\$480,500
Bridge	SF	49,000	\$80	\$3,920,000
Landscaping & Aesthetics	L.Sum	1	\$300,000	\$300,000
Construction Survey	L.Sum	1	\$150,000	\$150,000
Other Items	L.Sum	1	\$800,000	\$800,000
Maintenance Of Traffic	L.Sum	1	\$800,000	\$800,000
Mobilization 10%	L.Sum	1	\$961,037	\$961,037
			15% Construction Contingency =	\$1,585,711
			Total Estimated Construction Cost =	\$12,157,000
			Public Art 1% =	\$121,570
			15% Construction Management =	\$1,823,550
			15% Engineering and Planning =	\$1,823,550
			Environmental Mitigation =	\$150,500
			Agency Estimated ROW Acquisition Cost =	\$200,000
			Total Project Cost =	\$16,276,170

Assumptions:

- *Project Limits Taken From River Road To Just South of Ruthrauff Road
- *6-Lane Section With Raised Landscaped Median
- *150' Existing ROW
- *Project Length = 0.91 Miles
- *New Bridge Across The Rillito River
- *Approximate Construction Cost/Mile = \$13,500,000

La Cholla Blvd

Assumptions: Average Exst Pavement 70' Width for Length of Project
Misc Removals; at \$50/LF

Item	Width (Average)	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal	NA	NA	204,300	22,700	\$5	\$113,500
Bridge Removal		NA	17,500	1,944	\$30	\$58,333
Misc Removals		4,805			\$50	\$240,250
					Total =	\$353,750

La Cholla Blvd

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length
No Excavation Areas Assumed

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	138	4,805	663,090	2	1,326,180	49,118		
Excavation			0	6	0	0	\$4	\$0
Borrow						49,118	\$5.5	\$270,148
							Total =	\$270,148

La Cholla Blvd

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item	SF (From Quants Drawing)	SY	Price/SY =	Extended Amount
Pavement	433,200	48,133	\$21.40	\$1,030,093

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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La Cholla Blvd

Storm Drain System:

Assumptions: Aver 24" Trunk Line, Inlets & Manhole spaced at 400', 24" Laterals from Inlets to Manhole

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
		Per/Mile		
Pipe	LF	5,280	\$80	\$422,400
Pipe - Laterals	LF	1,135	\$80	\$90,816
Inlets	Each	26	\$3,000	\$79,200
Manholes	Each	13	\$3,000	\$39,600
		Construction Cost per Mile =		\$632,016

0.91 Miles = \$575,135

DRAINAGE TOTAL = \$575,135

La Cholla Blvd

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Project Length	Sidewalk Length	SF
Sidewalk	5.5	4,805	9,610	52,855

La Cholla Blvd

Assumptions: Continuous C&G (both sides) for project length

Item	Length	C & G	LF
Curb and Gutter	4,805	4	19,220

La Cholla Blvd

Assumptions: Standard Striping for a Six Lane Roadway, Three Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 15 General Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 0.91 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$9,610
Four 4" Dashed Lane Stripes	LF	5,280	5,280	\$0.50	\$2,640	\$2,402
Intersection Striping	LF	2,000	6,000	\$0.50	\$3,000	\$3,000
Signs	Each	15	0	\$540.00	\$8,100	\$7,371
Stop Signs (Total Crossroads)	Each	16	0	\$540.00	\$8,640	\$8,640
					Lump Sum =	\$31,023

La Cholla Blvd

Assumptions: Signal Modifications at River & Ruthrauff

New Signal At Curtis Road

Item	Each	Unit Price	Extended Amount
New Signals	1	\$200,000	\$200,000
Modify Exist. Signals	2	\$100,000	\$200,000
TOTAL =			\$400,000

La Cholla Blvd

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	4,805	\$100	\$480,500

La Cholla Blvd

Assumptions: New Structure - no widening assumed

New Bridge Structure	Width	Length	SF (From Quants Drawing
La Cholla/Rillito River	-	-	49,000

La Cholla Blvd

ITEM	SF (From Quants Drawing)	**Approx. \$/SF	Total	Amt. Used For Estimate
ROW	1,333,920	1.5	\$2,000,880	\$2,000,000

** Assumes No Developer Contribution

**Magee/Cortaro Farms Road, Thornydale Road to La Canada Drive
DRAFT - COST ESTIMATE**

October 10, 2005

Item	Unit of Measure	Quantity	Unit Price	Extended Amount
Removals	L.Sum	1	\$2,398,611	\$2,398,611
Earthwork	L.Sum	1	\$877,233	\$877,233
Pavement	SY	164,367	\$21	\$3,517,584
Drainage	L.Sum	1	\$3,102,801	\$3,102,801
Sidewalk	SF	219,450	\$4	\$877,800
Curb & Gutter	L.Ft.	79,800	\$15	\$1,197,000
Signing & Marking	L.Sum	1	\$97,124	\$97,124
Traffic Signals	L.Sum	1	\$600,000	\$600,000
Utilities	L.Sum	1	\$1,995,000	\$1,995,000
Bridge	SF	18,500	\$80	\$1,480,000
Landscaping & Aesthetics	L.Sum	1	\$1,200,000	\$1,200,000
Construction Survey	L.Sum	1	\$350,000	\$350,000
Other Items	L.Sum	1	\$1,700,000	\$1,700,000
Maintenance Of Traffic	L.Sum	1	\$1,700,000	\$1,700,000
Mobilization 10%	L.Sum	1	\$2,109,315	\$2,109,315
			15% Construction Contingency =	\$3,480,370
			Total Estimated Construction Cost =	\$26,683,000
			Public Art 1% =	\$266,830
			15% Construction Management =	\$4,002,450
			15% Engineering and Planning =	\$4,002,450
			Environmental Mitigation Cost =	\$186,500
			Agency Estimated ROW Acquisition Cost =	\$1,400,000
			Total Project Cost =	\$36,541,230

Assumptions:

*4-Lane Section With Raised Landscaped Median

*150' Min. ROW

*Project Length = 3.8 Miles

*Magee/La Cholla Signalized Intersection Based On Eliminating The North Intersection

*New Bridge For EB Traffic Parallel To Exist. CDO Wash Bridge

*Approximate Construction Cost/Mile = \$7,000,000

Magee/Cortaro Farms/La Cholla

Item	Length	SF	SY	Unit Cost	Extended Amount
Pavement Removal (From Quants Drawing)	19,950	726,500	80,722	\$5	\$403,611
Misc Removals	19,950			\$100	\$1,995,000
				Total =	\$2,398,611

Magee/Cortaro Farms/La Cholla

Assumptions: Average Fill Width Is Based on Hinge Point To Hinge Point Distance For Project Length

Excavation Areas Assumed In a Couple of Locations North and South of the Cortaro/Shannon - SF Taken From Quants Drawing

Item	Width (Average)	Length	SF	Depth (Average)	CF	CY	Unit Cost	Extended Amount
Fill	114	19,950	2,274,300	2	4,548,600	168,467		
Excavation			296,000	3	888,000	32,889	\$4	\$131,556
Borrow						135,578	\$5.5	\$745,678
							Total =	\$877,233

Magee/Cortaro Farms/La Cholla

Assumptions: Structural Section - 1/2" AR-ACFC, 6" AC & 4" AB

Item	SF (From Quants Drawing)	SY	Price/SY =	Extended Amount
Pavement	1,479,300	164,367	\$21.40	\$3,517,584

Price/SY	CF/SY	LB/CF	LBs	Tons	Cost/Ton	Extended Amount
1/2" AR-ACFC	0.375	146.000	54.750	0.027	\$60	\$1.64
6" AC	4.500	146.000	657.000	0.329	\$50	\$16.43

	CF/SY	CY	Cost/CY			
4" AB	3	0.111	\$30			\$3.33

Price/SY =	\$21.40
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Magee/Cortaro Farms/La Cholla

Assumptions: Continuous Sidewalk (both sides) full length of Project

Item	Width	Project Length	Sidewalk Length	SF
Sidewalk	5.5	19,950	39,900	219,450

Magee/Cortaro Farms/La Cholla

Assumptions: Continuous Curb & Gutter (both sides) (Vert. Curb in median) full length of Project

Item	Length (From Quants Drawing)
Curb and Gutter	79,800

Magee/Cortaro Farms/La Cholla

Assumptions: Standard Striping for a Four Lane Roadway, Five Signalized Intersections with 12" Stop Bars and Crosswalks

Ten Foot Dashed Stripes with Thirty Foot Spacing (Total Length x 10/40)

Average sign 6 SF x \$20/SF = \$120 + Sign Post \$20 Each + Foundation \$400 Each = \$540 Each

Assume 15 General Signs/Mile

Item	Unit of Measure	Quantity	Pay Length	Unit Price	Extended Amount	Total For 3.8 Miles
Striping:	Mile					
Four 4" Lane Stripes	LF	5,280	21,120	\$0.50	\$10,560	\$40,128
Two 4" Dashed Lane Stripes	LF	5,280	2,640	\$0.50	\$1,320	\$5,016
Intersection Striping	LF	2,000	10,000	\$0.50	\$5,000	\$5,000
Signs	Each	15	0	\$540.00	\$8,100	\$30,780
Stop Signs (Total Crossroads)	Each	30	0	\$540.00	\$16,200	\$16,200
					Lump Sum =	\$97,124

Magee/Cortaro Farms/La Cholla

Assumptions: New Signal At The New Magee/La Cholla Intersection Configuration

Item	Each	Unit Price	Extended Amount
New Signals	1	\$200,000	\$200,000
Modify Exist. Signals	4	\$100,000	\$400,000
TOTAL =			\$600,000

Magee/Cortaro Farms/La Cholla

Assumptions: Adjust/Relocate all Utilities for Length of Project

Remove Electric Poles and Underground Electric

Item	Length	Unit Cost	Extended Amount
Utility Adjustment:	19,950	\$100	\$1,995,000

Magee/Cortaro Farms/La Cholla

New Bridge Structure	Width	Length	SF (From Quants Drawing
Cortaro/CDO Wash	-	-	18,500

Magee/Cortaro Farms/La Cholla

ITEM	SF (From Quants Drawing)	**Approx. \$/SF	Total	Amt. Used For Estimate
ROW	102,000	10	\$1,020,000	\$1,000,000

** Assumes No Developer Contribution