# 4.0 Evaluation of Preliminary Conceptual Alternatives

# 4.1 Evaluation Matrices

# Evaluation Methodology

Three matrices have been developed to as a means of evaluating the preliminary conceptual alternatives discussed in *Chapter 3*: *Table 4-1 Intersection Concepts* (*Concepts with Independent Utility*); *Table 4-2 SR 18 Concepts*; and *Table 4-3 Interchange Concepts*. The matrices are provided to illustrate the impacts of each conceptual alternative with respect to the baseline (i.e. No-Build) for a variety of categories including Congestion/Delay, Safety, Drainage, Access Concerns, and Environmental. Every conceptual alternative is rated for its performance in each applicable category or sub-factor based on the following symbology illustrated in *Figure 4-1*. Scoring levels are intentionally limited to three perceived levels of impact (Positive, No or Minimal, Negative) in order to simplify the evaluation process as this matrix represents the first formal screening of the preliminary conceptual alternatives.



Figure 4.1 – Levels of Impact Key

The criteria used to assess the impacts of each concept vary with respect to the category/sub-factor. The assessment of impacts for *Congestion/Intersection Delay* is based upon the intersection LOS in the future 2030 condition, with a LOS C or higher considered a positive impact and a LOS D or lower considered a negative impact. The same rating system applies for the *Freeway LOS* category in the Interchange Concepts matrix.

The assessment of impacts for the *Safety* category/sub-factor depends upon whether or not a safety issue has been identified in that specific location in the Existing and Future Conditions Report. If a safety problem does not currently exist at a location (i.e. Medina Line Rd intersection) the No-Build concept will display a No Impact. For locations where a safety problem has been identified (i.e. Springside Dr intersection) the No-Build concept would display a Negative Impact since the no-build does not address the existing safety problem. Each of the "build" concepts are evaluated on the basis of whether they enhance or



degrade safety at a particular location regardless of whether or not a safety problem exists there currently. For example, the intersection of North Hametown Rd and SR 18 has not demonstrated a safety problem, yet a Two Stage Left Turn is considered to have a Positive Impact on safety because it provides an adequate median refugee space to enable a vehicle to assess gaps in each direction of traffic separately. Conversely, the construction of Indirect left Turns at Medina Line is considered to have a negative impact on because the probability of a vehicle becoming involved in a crash increases as a result of traveling through three more intersections. The *Number of Geometric Deficiencies* sub-factor on the *Table 4-3 Interchange Concepts* matrix displays No Impact for both the No-Build interchange concepts because they have existing geometric deficiencies. All of the "build" concepts display a Positive Impact because they would be expect to upgrade any existing geometric deficiencies to the current design standards.

The Drainage on SR 18 category is included in the Table 4-2 SR 18 Concepts evaluation matrix because improving drainage along SR 18 in the western portion of the corridor was one of the four study goals identified by the steering committee. Both the of "build" Access Management Concepts indicate positive impacts with respect to drainage as both reconstruction options would alleviate existing drainage concerns from Medina Line Rd to South Hametown Rd.

The assessment of the *Access Concerns* category is based solely upon whether a concept reduces the number of access points (Positive Impact) or increases the number of access points (Negative Impact.)

The criteria for the assessment of *Environmental* sub-factors are qualitative and fairly intuitive. With respect to the *Wetlands* sub-factor any disturbance, regardless of the area affected, is considered to have a Negative Impact. The realignment of North Hametown Rd is considered to have Negative Impacts with respect to *Historic/Landmarks* and *Neighborhoods* because it impacts a National Historical Register parcel and is located close to the Fryman Dr subdivision culde-sac. Any improvement that demonstrates a Positive Impact with respect to *Congestion/Delay* exhibits a Positive Impact on *Air Quality/Vehicle Emissions*. Both the Basic Lane Addition and Montrose West Relocation capacity enhancement concepts display Negative Impacts for *Noise* because they both add additional through lanes bringing traffic closer to receptors. All "build" concepts in the more developed eastern portion of the corridor exhibit Negative Impacts with respect to *Community/Business Disruptions during Construction* because of their close proximity to the Montrose retail district.



		Summit 1: (Conc	8 Corridor Intersecti cepts With	Study Eval on Concep Independer	uation Matr ts nt Utility)	×					
	Medina Line Ro	ad Intersection	Harm	ony Hills Intersed	stion		North Hametow	m Intersection		Springside Dri	/e Intersection
Category / Sub-Factor	blin <b>8-o</b> N	Capacity Addition (Left Turn Lanes)	bliu8-oN	sniuT fi9d egei2 owT	Indirect Left Turns (bЯ enil suided) (bЯ eine Rd)	bliu8-oN	sniuT fi9d bgsf2 owT	Indirect Left Turns (at Medina Line Rd)	Realignment to South Manetown	bliu8-oN	Capacity Addition (Turn Lanes)
	•			•							
Congestion / Intersection Delay	•				•			•		<b>A</b>	
Safety	0	•	0	•	•	0	•	•	•	◄	•
Drainage on SR 18	0	0	0	0	0	0	0	0	0	0	0
Access Concerns	0	0	0	0	•	0	0	0	•	0	0
Environmental											
Wetlands	0	0	0	0	0	0	0	0	0	0	0
Streams	0	0	0	0	0	0	0	0	0	0	0
100-Yr. Flood Plains	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials	0	0	0	0	0	0	0	0	0	0	0
Historic / Landmarks	0	0	0	0	0	0	0	0	•	0	0
Air Quality / Vehicle Emissions	0	•	0	•	0	0	•	0	•	0	•
Species (Threatened / Endangered)	0	0	0	0	0	0	0	0	0	0	0
Noise	0	0	0	0	0	0	0	0	0	0	0
Neighborhoods	0	0	0	0	0	0	0	0	•	0	0
Community / Business Disruptions during Construction	0	0	0	0	0	0	0	0	0	0	
Cost / Other											
Project Cost (Including R/W)	\$250 K	\$775 K	\$10 K	\$370 K	\$2.88 M	\$10 K	\$400 K	\$2.93 M	\$1.25 M	\$275 K	\$1.45 M
Right-of-Way (No. of Additional Acres)		0.2		0	6.04		0	6.04	1.1		0.25
Relocations - Residential		0		0	0		0	0	0		0
Relocations - Business		0		0	0		0	0	0		0
The matrix is a simplified summary graphic to represent composite performanc to No-Build. Subsequent evaluations might entail comparisons relative to other level of impact (See Below). Atternatives which have no change, or very small the performance measure is positive or negative and to what extent the measu	ce of categorized m ar concepts. Positive I changes, relative ure is positive or ne	leasures for each o le impacts are indi to No-Build, are re gative relative to th	of the conceptual cated using solid presented by unfi ne baseline (i.e., I	alternatives. For l green circles and lled balls. The co No-Build).	he initial evaluation negative impacts mbination of color	n, the factors are are represented t and fill level allow	displayed using a displayed using a solid red triangle we the person ass	shaded shapes to es. The shapes a essing the criteria	represent the related proportion to determine, at a	ative level of char nately to their per a glance, whether	ge in relation ceived relative the impact of
Positive impact				•							
No or Minimal Impact				0							
Negative impact				•							

Table 4-1

		side				
	Ac (Medina	ccess Manageme Line to South Ha	ent imetown)	C (South H	Capacity Additior lametown to Crys	ıs stal Lake)
Category / Sub-Factor	bliu8-oN	אר ביז דער באפא Left Turn Lane אר ניז ני South (nwotameH	Raised Median Raisa Line to South Manetown)	bliu8-oN	Basic Lane Addition (Senel אחני Isnoiזibbs owT)	noitese West Relocation (One additional thru lane)
Congestion / Intersection Delay	0	0	0		•	•
North Hametown Intersection					•	•
Heritage Woods Intersection					•	•
Montrose West/Crystal Lane Intersection						
Safety	0	0				
Heritage Woods Drive					0	•
Crystal Lake Road				◀	0	•
SR 18 from S. Hametown to Springside Drive				•		
					(	
Drainage on SR 18	0			0	0	0
Access Concerns	0		•	0	0	•
Environmental						
Wetlands	0	0	0	0	0	0
Streams	0	0	0	0	0	0
100-Yr. Flood Plains	0	0	0	0	0	0
Hazardous Materials	0	0	0	0	•	•
Historic / Landmarks	0	0	0	0	0	0
Air Quality / Vehicle Emissions	0	0	0	0		
Species (Threatened / Endangered)	0	0	0	0	0	0
Noise	0	0	0	0		
Veighborhoods	0	S	0	) C	0	0
Community / Business Disruptions during Construction	c	c	c	c		
Proiect Cost (Including R/M)	\$1.87 M	\$4.25 M	\$2.61 M	\$854 K	\$11 59 M	\$9.16 M
Right-of-Wav (No. of Additional Acres)	0	0	0	0	1.58	2.54
Relocations - Residential	0	0	0	0	0	0
Relocations - Business	0	0	0	0	0	0
The matrix is a simplified summary graphic to represent composite performance are displayed using shaded shapes to represent the relative level of change in a positive impacts are indicated using solid green circles and negative impacts at level of impact (See Below). Atternatives which have no change, or very small allows the person assessing the criteria to determine, at a glance, whether the negative relative to the baseline (i.e., No-Build).	e of categorized m relation to No-Bui re represented by changes, relative impact of the perfi	neasures for each Id. Subsequent e solid red triangle to No-Build, are n ormance measure	n of the conceptua valuations might s. The shapes arr epresented by un e positive or nee	I alternatives. Fo entail comparison e filled proportion filled balls. The c gative and to wha	r the initial evalua s relative to other ately to their perce combination of colo t extent the meass	tion, the factors concepts. sived relative or and fill level ure is positive or
Positive impact		•				
No or Minimal Impact		0				
Negative impact		•				

	1 Interchange	netrics	Upgrade Geor	C		0	0	S	oc	bo							c	bo	•	0	0	b	bc	0	00	bc			\$12.7 M 0	0	0	ative to	116			
	I-77 & SR 2	F	Niu8-oN	c	>	0	0	b	oc	bo							c	b	•	0	0	bc		0	0	bc	b		\$4.14 M	0	0	comparisons rel	ieu oy unineu oa			
			With Early 21 Split & Southbound C-D			0			0	o		•	•	•	•	•					0	b		•	00	bc			\$43.5 M 5.99	0	0	tions might entail	illa, ale leplesell			
		19701,2 Delitiboli	G-O bruodriuo2 diiW			0			0				•	•	•	•					0	b		•	0	bc			\$30.4 M 0.32	0	0	ibsequent evalua				
			iliq2 8t γhs∃ ditW		•	o	•	•	0	0			•	•	•	•		(•	•	o	0	bc	bc	•	0	bc			\$37.0 M 5.99	0	0	n to No-Build. St	iy sinali chaliges,			
			Modified Clover			0			0	0			•	•	•	•		•		0	0	bc	bc	•	oc	bc			\$23.9 M 0.32	0	0	change in relation	e., No-Build).			
		fiiq2 12 tpi	tite Early 18 Split			0	•		0				•	•	•	•					0	ЪС		•	0	bc			\$56.5 M 6.06	0	0	e relative level of	to the baseline (i			
	Build	(W) IU4S 1921O	Offset SPUI (W/ Early 21 Split		•	o	•	•	0			-	•	•	•	•					0	bc		•	00	bc			\$43.6 M 0.39	0	0	es to represent th	r negative relative			
ion Matrix s	ange ange With SR 18		With Early ۱۶ Split B-O bruodftuo2 &			o			0				•	•	•	•					0	bc		•	00	bc			\$45.8 M 6.06	0	0	sing shaded shap	ver or minuador (orea			
ly Evaluat e Concept	& SR 18 Interch onfigure Interch	lnterchange (SPUI)	D-D bruodrino2 diw		•	o		•	0				•	•	•	•					0	bc		•	0	bc			\$32.7 M 0.39	0	0	s are displayed us	cerved relative le			
ridor Stuc iterchange	1-77 Rec	Single Point Urban	tite Early 18 Split			o	•		0				•	•	•	•					0	bc		•	0	bc			\$39.3 M 6.06	0	0	uation, the factor	gative and to whi			
nit 18 Cor In			indS			o			0				•	•	•	•		•			0	bc		•	00	bc			\$26.2 M 0.39	0	0	For the initial eval	e is positive or ne	•	0	•
Sumr			With Early 18 Split & Southbound C-D			0			0	0			•	•	•	•					0	bc	bc	•	oc	bc			\$42.2 M 6.06	0	0	ual atternatives. F	ormance measur			
		ກມດາມອາດ ນມຄິນ	D-O bruodrino2 diw			o			0				•	•	•	•					0	bc	bc		oc	bc			\$29.1 M 0.39	0	0	ch of the conceptu	y solid red that ge impact of the peri			
		hannif HolT	1198 8t (Mith Early 18 Split			0			0	0		•	•	•	•	•					0	b	bc	•	oc	bc			\$45.0 M 6.06	0	0	measures for eac	nce, whether the			
			bnomsid htgiT			0			0				•	•	•	•		•			0	ЪС	bc	•	oc	bc			\$22.6 M 0.39	0	0	ce of categorized	etermine, at a gla			
			No-Build Interchange & No- Build SR 18	C	S	0		S	0	0			•	0	0	•				o	0	bc		0	00	bc	b		\$6.08 M	0	0	posite performan	identications and a light of the criteria to de			
			Category / Sub-Factor		Congestion / Intersection Delay (SR 18) Freeway LOS	77 NB Cleveland Massillon Road to SR 21	SR 21 to SR 18	North of SR 18 77 SB	Cleveland Massillon Road to SR 21	SK 21 to SK 18 North of SR 18	Weave Areas	SR 21 to SR 18 EB Off	Between Loop Ramps @ SR 18 Interchange 77 SB	Between Loop Ramps @ SR 18 Interchange	R 18 Between EB Ramps @ Interchange	Between WB Ramps @ Interchange	Safety	77 Northbound to SR 18 Westbound ramp	lumber of Geometric Deficiencies	Lenvironmental	treams	00-Yr. Flood Plains	tazardous Matenals Tistoric / Landmarks	ir Quality / Vehicle Emissions	species (Threatened / Endangered)	10156 Tairbhbords	community / Business Disruptions during Construction	Cost / Other	roject Cost (Including K/W) icht-of-Way (No. of Additional Acres)	elocations - Residential	telocations - Business	The matrix is a simplified summary graphic to represent com-	urer concepts. Prostrive impacts are indicated using sound of orbination of color and fill level allows the person assessing	Positive impact	No or Minimal Impact	Negative impact

# Summit 18 Corridor: Planning Study including Strategic Plan

Table 4-3

**BURGESS & NIPLE** 

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# 4.2 Cost Estimates

# Methodology

Probable costs were estimated for all of the Preliminary Conceptual Alternatives developed for the SUM-18 Corridor Study using the methodology in the *ODOT Budget Estimating Procedure 2006*. Based on the ODOT Estimating Procedure the "major cost drivers" such as pavement, roadway, drainage, barrier wall, bridges, and retaining walls were estimated based on the projected work limits of the various conceptual alternatives. Some additional critical items that would significantly affect the construction costs were also estimated (i.e. rock excavation or significant embankment) and added to the major cost drivers. Using the 80%/20% rule (80% of the cost is in the major cost drivers which represent about 20% of the total pay items on an average project) the estimated construction cost was increased by 25% (80/20).

The various segments for each conceptual alternative were summed and estimated costs for items relative to the overall alternative were added to the project, such as traffic control, maintenance of traffic, and erosion control. All of these items were included in the final construction costs. The project costs are based on the estimated construction cost plus the estimated preliminary development costs (12% of construction costs), contract administration and inspection (10% of construction costs), right-of-way acquisition costs, and contingency costs (30%). The contingency percentage was obtained from the *ODOT PDP Design Contingency Graph* for a planning study level of detail.



# Access Management (Medina Line Rd to South Hametown Rd) Raised Median

Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sa vd	\$8	\$0	0
Excavation/Embankment	mile	\$168,000	\$218,400	1.3
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$0	0
Concrete Barrier	lf	\$100	\$520,000	5200
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$0	0
Drainage for curbed pavement	ft	\$200	\$0	0
Pavement				
Asphalt Widening	sa vd	\$38	\$0	0
Asphalt Surfacing w/planing	sq vd	\$11	\$51.667	4697
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$0	0
Lighting (roadway lighting)	ft	\$35	\$0	
Bridges		<b>*</b> **	<b>^</b>	
Bridge Deck Replacement and Minor Renab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$525,000	3750
New Highway Bridge	sq ft	\$100	\$U	0
New Curved Highway Bridge	sq ft	\$120	\$U	0
Rail Road Bridge over Highway	sq it sa ft	\$275 \$780	<u>\$0</u> \$0	0
				-
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
Miscollangous Major Additional Costs	-			
	lumo			
High Voltage Transmission Line Relocation	lump			
	-			
Misc. Additional Costs (80/20 Rule)			\$328,767	
Pight of Way Apquicition	0.070	\$750,000	<u>م</u>	0
Right of Way Acquisition	acre	\$750,000	<b>Ф</b> О	0
Project Frasion Control				
Project MOT				
Summary of Probable Total (	Constructio	n Costs 2006	\$1,643,834	
Proliminary Dovolonment Phase/Final Dovolon	nont Phase	(129/)	¢107.000	
Contraction Administration and Inspection (10)		(1270)	\$197,200 \$164,202	
Contingencies (30%)	0)		9104,383 \$604.640	
			<b>φ</b> 001,043	1
Summary of Probable Total Proje	ct Costs	2006	\$2,607,120	1



## Access Management (Medina Line Rd to North Hametown Rd) Two-Way Left Turn Lane Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$316,504	39563
Excavation/Embankment	mile	\$168,000	\$218,400	1.3
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$0	0
Concrete Barrier	lf	\$100	\$0	0
Dusinana				
Drainage	£4	002	<u>م</u>	0
Drainage for ourbed pavement	1L f+	00¢ \$200	\$U	0
			<b>Ф</b> О	0
Pavement				
Asphalt Widening	sa vd	\$38	\$732.412	19274
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$328,680	9130
Shoulder	sq yd	\$38	\$23,560	620
Lighting	ft	\$35	\$0	
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$525,000	3750
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	<u>\$0</u>	0
Rail Road Bridge over Highway	sqπ	\$780	<b>\$</b> 0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sa ft	\$100	\$0	
Reinforced Earth Walls	sa ft	\$75	\$0	1
		<b>.</b>		
Sound Walls	ft	\$400	\$0	
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			\$536 130	
			ψ <b>000</b> ,100	
Right of Way Acquisition	acre	\$750,000	\$0	0
Project Traffic Control			•	
Project Erosion Control				
Project MOT				
Summary of Probable Total	Constructio	n Costs 2006	\$2,680,695	
Destining and Development Diverse (Diverse)		(4.00/)	<b>\$001 055</b>	ł
Preiminary Development Phase/Final Developm	ent Phase (	12%)	\$321,683	ł
Contraction Administration and Inspection (10%	)		\$268,070	ł
Conungencies (30%)			3981,134	ł
				ļ
Summary of Probable Total Proje	ct Costs 2	2006	\$4,251,582	ļ



#### Medina Line Rd Intersection Capacity Addition (Add Left Turn Lanes) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$0	0
Excavation/Embankment	mile	\$168,000	\$0	0
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$1,900	0.2
	IT	\$100	\$0	0
Brainago		+		
Drainage Drainage (uncurbed)	ft	\$80	\$8,000	100
Drainage (uncurbed)	ft	\$200	0,000 0\$	0
		Ψ200	ψυ	0
Pavement				
Asphalt Widening/New	sa vd	\$42	\$201.264	4792
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$35,606	937
Lighting				
Bridges				-
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$U	0
Rail Road Bridge over Highway	sq π	\$780	\$0	0
Petaining Walls				
Reinforced Concrete Retaining Wall	sa ft	\$100	<b>۵</b> ګ	0
Reinforced Earth Walls	sq ft	\$75	0 \$0	0
	391	φ/ σ	φυ	0
Sound Walls	ft	\$400	\$0	0
		¥		-
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			\$61,693	
Right of Way Acquisition	acre	\$250,000	\$50,000	0.2
Project Traffic Control			\$130,000	
Project Erosion Control				
Summary of Probable Total (	Constructio	n Costs 2006	¢100 162	
	Jonan uctio	1 00313 2000	φ400,403	1
Preliminary Development Phase/Final Development	ent Phase (	12%)	\$58 616	
Contraction Administration and Inspection (10%)	)	/.,	\$48.846	1
Contingencies (30%)	/		\$178,777	
			<i></i>	1
Summary of Probable Total Proje	ct Costs (	2006	\$774 700	
Summary of Frobable rotal Froje	01 00313 4	-000	φ114,10Z	]



## Harmony Hills Dr Intersection Two-Stage Left Turns Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway		<b>^</b>	<b>#</b> 00.010	0500
Pavement Removed	sq yd	\$8	\$28,312	3539
Excavation/Embankment	mile	\$168,000	\$U	0
	cu ya	\$3U	\$U	0
Cieding/Trees	lf	\$9,500		0
		\$100	ψŪ	0
Drainage				
Drainage (uncurbed)	ft	\$80	\$0	0
Drainage for curbed pavement	ft	\$200	\$0	0
			·	
Pavement				
Asphalt Widening/New	sq yd	\$42	\$158,172	3766
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$0	0
Lighting	-	+ +		
Dridges				
Bridges Bridge Deck Benlacement and Miner Behab	0.0 ft	002	<b>م</b>	0
Bridge Beplacement (over 30'span)	sq ft	\$90	<u>پې</u> ۵۵	0
New Highway Bridge	sq ft	\$140	<del>ل</del> ون مە	0
New Curved Highway Bridge	sq ft	\$120	<del>لې</del> ۵۵	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sa ft	\$780	\$0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
	_			
Miscellaneous Major Additional Costs				
Utility Relocations	lump	+ +		
High Voltage Transmission Line Relocation	lump	_		
Misc. Additional Costs (80/20 Rule)		1	\$46.621	
			¢:0,02:	
Right of Way Acquisition	acre	\$750,000	\$0	0
Project Traffic Control		•		
Project Erosion Control				
Project MOT				
Summary of Probable Total C	Constructio	n Costs 2006	\$233,105	
Preliminary Development Phase/Final Developm	ent Phase (	12%)	\$27,973	
Contraction Administration and Inspection (10%	)		\$23,311	
Contingencies (30%)			\$85,316	
Summary of Probable Total Proje	ct Costs 2	2006	\$369,705	



## Harmony Hills Dr Intersection Indirect Left Turns (at Medina Line Rd) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$0	0
Excavation/Embankment	mile	\$168,000	\$0	0
	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$4,655	0.49
		\$100	<b>2</b> 0	0
Drainage				
Drainage Drainage (uncurbed)	ft	\$80	0\$	0
Drainage (uncurbed)	ft	\$200	0 <del>0</del> 02	0
Drainage for curbed pavement		Ψ200	ψΟ	0
Pavement				
Asphalt Widening/New	sa vd	\$42	\$119.784	2852
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$18,050	475
Lighting				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Deteining Welle				
Retaining walls	ca ft	¢100	٩٥	0
Reinforced Concrete Retaining Wall	Sy IL	\$100 ¢75	\$U	0
Reinforced Earth Walls	Syn	\$75	φU	0
Sound Walls	ft	\$400	02	0
		<b>ψ</b> <del>+</del> 00	ψΟ	0
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			\$35,622	
Right of Way Acquisition	acre	\$250,000	\$1,510,000	6.04
Project Traffic Control			\$130,000	
Project Erosion Control				
Project MOI		0	<u> </u>	
Summary of Probable Total C	onstructio	n Costs 2006	\$1,818,111	
Broliminary Dovolonment Phase/Final Dovolonme	nt Dhoos (	1.29/ )	¢040.470	
Contraction Administration and Increation (40%)	ant Fnase (	1270)	\$218,173	
Contingencies (30%)			\$181,811 \$665,400	
			φ000,429	
			<b>AA AC A C C C C C C C C C C</b>	
Summary of Probable Total Project	t Costs 2	2006	\$2,883,524	



#### North Hametown Intersection Two Stage Left Turns Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$28,312	3539
Excavation/Embankment	mile	\$168,000	\$0	0
	cu ya	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$U	0
	"	\$100	<b>Ф</b> О	0
Drainage				
Drainage (uncurbed)	ft	\$80	\$0	0
Drainage (uncurbed)	ft	\$200	0 \$0	0
		\$200	ψΟ	0
Pavement				
Asphalt Widening/New	sa vd	\$42	\$173.572	4132.667
Asphalt Surfacing w/planing	sa vd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sa vd	\$38	\$0	0
	17 -	,		
Lighting				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Retaining Walls				_
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
		<b>#</b> 400	<b>^</b>	
Sound Walls	π	\$400	\$0	0
Missellenesus Maier Additional Casta				
	lump			
High Voltage Transmission Line Polocetion	lump	+ +		
	iump			
Misc. Additional Costs (80/20 Rule)			\$50,471	
Right of Way Acquisition	acre	\$750,000	\$0	0
Project Traffic Control				
Project Erosion Control				
Project MOT	-	-		
Summary of Probable Total C	Constructio	n Costs 2006	\$252,355	
Preliminary Development Phase/Final Development	ent Phase (	12%)	\$30,283	
Contraction Administration and Inspection (10%)			\$25,236	
Contingencies (30%)			\$92,362	
Summary of Probable Total Project	ct Costs 2	2006	\$400,235	



#### North Hametown Rd Intersection Indirect Left Turns (at Medina Line Rd) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$0	0
Excavation/Embankment	mile	\$168,000	\$0	0
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$4,655	0.49
	If	\$100	\$0	0
Drainago				
Drainage Drainage (uncurbed)	ft	\$80	0\$	0
Drainage (uncurbed)	ft	\$200	02 02	0
Drainage for curbed pavement		Ψ200	ψΟ	0
Pavement				
Asphalt Widening/New	sa vd	\$42	\$140.784	3352
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$18,050	475
Lighting				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	<u>\$0</u>	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Potaining Walls				
Reinforced Concrete Retaining Wall	sa ft	\$100	0\$	0
Reinforced Earth Walls	sq ft	\$75	<del>لې</del> ۵2	0
	39 11	ψ/ 5	ψΟ	0
Sound Walls	ft	\$400	\$0	0
		<b>\$100</b>	ψŪ	
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			\$40,872	
Right of Way Acquisition	acre	\$250,000	\$1,510,000	6.04
Project Traffic Control			\$130,000	
Project Erosion Control				
Project MOT		n Casta 2006	¢4.044.004	
Summary of Probable Total C	onstructio	n Costs 2006	\$1,844,361	
Preliminary Development Phase/Final Developme	nt Phace (	12%)	\$201 202	
Contraction Administration and Inspection (10%)	ant F 11058 (	1 <b>2</b> /0j	\$191 ADG	
Contingencies (30%)			\$675 026	
			ψ070,030	
Cumment of Deckela Total Decke	4 0	2000	\$0.005.45T	
Summary of Probable Lotal Project	t Costs 🖌	2006	\$2,925,157	



#### North Hametown Rd Intersection Realignment to South Hametown Rd Conceptual Alternatives - Preliminary Estimate of Probable Costs

ltems	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$3,200	400
Excavation/Embankment	mile	\$168,000	\$0	0
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$7,762	0.817
Concrete Barrier	lt	\$100	\$0	0
Drainage				
Drainage Drainage (uncurbed)	ft	¢80	0\$	0
Drainage (uncurbed)	11 ft	φου \$200	<del>لو</del> 000 04 C \$	1200
		φ200	\$240,000	1200
Pavement				
Asphalt Widening/New	sa vd	\$42	\$156.786	3733
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$0	0
	- 17-			
Lighting				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sa ft	\$100	0\$	0
Reinforced Earth Walls	sq ft	\$75	0 <del>0</del> 02	0
	341	ψ/ 5	ψΟ	0
Sound Walls	ft	\$400	\$0	0
		<b> </b>	¢0	
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
			<u>.</u>	
Misc. Additional Costs (80/20 Rule)			\$101,937	
Bight of Way Acquisition	aoro	\$250,000	\$275,000	1 1
Project Traffic Control	acie	\$250,000	\$275,000	1.1
Project Frasion Control				
Project MOT				
Summary of Probable Total C	onstructio	n Costs 2006	\$784.684	
			,,	
Preliminary Development Phase/Final Developme	ent Phase (	12%)	\$94,162	
Contraction Administration and Inspection (10%)			\$78,468	
Contingencies (30%)			\$287,194	
Summary of Probable Total Project	ct Costs 2	2006	\$1,244.509	
	<b></b>		÷.,=,•	



# Springside Dr Intersection Capacity Addition (Add Turn Lanes) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Poodway				
Payament Removed	sa vd	\$8	\$22.400	2800
Excavation/Embankment	mile	\$168,000	<u>422,400</u> \$0	2000
Bock Excavation	cu vd	\$30	<u> </u>	0
Clearing/Trees	acre	\$9,500	\$0	0
Concrete Barrier	lf	\$100	\$0	0
			• -	
Drainage				
Drainage (uncurbed)	ft	\$80	\$0	0
Drainage for curbed pavement	ft	\$200	\$295,000	1475
Pavement				
Asphalt Widening/New	sq yd	\$42	\$157,719	3755
Asphalt Surfacing w/planing	sq yd	\$11	\$0	0
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$0	0
Lighting				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
		<b>,</b>		
Miscellaneous Major Additional Costs	· ·			
Utility Relocations	lump		\$0	
High Voltage Transmission Line Relocation	lump		\$0	
Misc Additional Costs (80/20 Rule)			\$118 780	
			ψττ0,700	
Right of Way Acquisition	acre	\$750,000	\$187,500	0.25
Project Traffic Control			\$130,000	
Project Erosion Control				
Project MOT Summary of Brobable Total C	onstructio	n Costs 2006	¢011 200	
	Jonatiuctio	11 00313 2000	JA11,999	ļ
Preliminary Development Phase/Final Development	ent Phase (	12%)	\$109,368	[
Contraction Administration and Inspection (10%)			\$91,140	I
Contingencies (30%)			\$333,572	Į
			** *** ***	l
Summary of Probable Total Project	CT COStS 2	2006	\$1,445,479	



# Capacity Additions (South Hametown Rd to Crystal Lake Rd) Basic Lane Addition (Two Additional Thru Lanes) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$65,440	8180
Excavation/Embankment	mile	\$168,000	\$218,400	1.3
Rock Excavation	cu yd	\$30	\$178,500	5950
Clearing/Trees	acre	\$9,500	\$15,010	1.58
Concrete Barrier	lf	\$100	\$149,300	1493
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$203,920	2549
Drainage for curbed pavement	ft	\$200	\$1,995,600	9978
Pavement		<b>*</b> ***	<b>*</b> ~~~ (~~	10500
Asphalt Widening	sq yd	\$38	\$630,496	16592
Asphalt Surfacing w/planing	sq yd	\$11	\$351,285	31935
Curb and Gutter	Tt	\$36	\$359,208	9978
Shoulder	sq ya	\$38	\$64,575	1699
Lighting (readway lighting)	f+	¢25	0.2	
		φ35	φΟ	
Bridges				
Bridge Deck Replacement and Minor Rehab	sa ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sa ft	\$140	\$0	0
New Highway Bridge	sa ft	\$100	\$0	0
New Curved Highway Bridge	sa ft	\$120	\$0	0
Light Rail / Transit Bridge	sa ft	\$275	\$0	0
Rail Road Bridge over Highway	sa ft	\$780	\$0	0
		<i></i>	ψu	
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	
Reinforced Earth Walls	sq ft	\$75	\$0	
Sound Walls	ft	\$400	\$0	
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
			<b>*</b> 4 <b>•57 •••</b>	
Misc. Additional Costs (80/20 Rule)			\$1,057,933	
Dight of Way Appreciation	0.010	¢750.000	¢1 195 000	1 50
Project Traffic Central	acre	\$750,000	\$1,105,000	1.50
Project Traine Control			\$520,000 \$50,000	
Project MOT			000,000 000,000	
Summary of Probable Total C	onstructio	n Costs 2006	\$7 309 150	
		50513 2000	ψι,503,130	
Preliminary Development Phase/Final Development	ent Phase (	12%)	\$877 098	L.
Contraction Administration and Inspection (10%)			\$730.915	ŀ
Contingencies (30%)	,		\$2,675,149	ŀ
			<i>q</i> =,010,110	
Cumment of Diskels Total Disks	+ Casta (	0006	<b>\$44 500 040</b>	ŀ
Summary of Probable Total Project	t Costs 2	2006	\$11,592,313	l



## Capacity Additions (South Hametown Rd to Crystal Lake Rd) Montrose West Relocation (One Additional Thru Lane) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
· ·				
Roadway				
Pavement Removed	sq yd	\$8	\$36,216	4527
Excavation/Embankment	mile	\$168,000	\$0	0
Rock Excavation	cu yd	\$30	\$690,000	23000
Clearing/Trees	acre	\$9,500	\$11,115	1.17
Concrete Barrier	lf	\$100	\$0	0
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$0	0
Drainage for curbed pavement	ft	\$200	\$897,200	4486
Pavement		<b>*</b> ***	<b>.</b>	10070
Asphalt Widening	sq yd	\$38	\$413,174	10873
Asphalt Surfacing w/planing	sq yd	\$11	\$121,726	11066
Curb and Gutter	ft	\$36	\$221,256	6146
Shoulder	sq yd	\$38	\$28,044	738
		¢or	<b>^</b>	
Lighting	π	\$35	\$0	
Pridaoo				
Bridge Deck Perlagement and Minor Pehah	og ft	002	0.2	0
Bridge Deck Replacement and Millior Rehab	sy it	\$90 \$140	<del>لك</del> مە	0
Now Highway Bridge	sy it	\$140	<del>لك</del> مە	0
New Flighway Blidge	sq it	\$100	30 \$0	0
Light Boil / Tropoit Bridge	sq it	\$120 \$275	ው ወ	0
Poil Pood Bridge over Highway	sy it	\$275 \$790	<del>لك</del> مە	0
	Syn	\$700	<del>م</del> 0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sa ft	\$100	\$0	0
Reinforced Earth Walls	sa ft	\$75	\$0	0
	oqit	<i><i>ϕ</i>/<i>Ŭ</i></i>	ψŬ	
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			\$604,683	
		.		
Right of Way Acquisition	acre	\$750,000	\$1,905,000	2.54
Project Traffic Control			\$520,000	
Project Erosion Control			\$50,000	
Project MOT			\$151,171	ļ
Summary of Probable Total C	onstructio	n Costs 2006	\$5,649,584	ļ.
Destinging and Desselence of Disconfigurations		4.00()	<b>#077</b> 055	ļ
Preliminary Development Phase/Final Developme	ent Phase (	12%)	\$677,950	
Contraction Administration and Inspection (10%)			\$564,958	ļ
Contingencies (30%)			\$2,067,748	ļ
		<u>.</u>		
Summary of Probable Total Project	t Costs 2	2006	\$9,161,412	



# I-77 Mainline Early 18 Split Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway				
Pavement Removed	sq yd	\$8	\$72,368	9046
Excavation/Embankment	mile	\$168,000	\$0	0
Rock Excavation	cu yd	\$30	\$0	0
Clearing/Trees	acre	\$9,500	\$53,865	5.67
Concrete Barrier	lf	\$100	\$239,700	2397
Drainaga				
Drainage Drainage (uncurbed)	f+	0.02	¢1 215 290	15101
Drainage (uncurbed)	ft	\$200 \$200	\$1,215,200 \$0	13191
	n	ψ200	ψΟ	0
Pavement				
Asphalt Widening/New	sq yd	\$42	\$831,012	19786
Asphalt Surfacing w/planing	sq yd	\$11	\$45,474	4134
Curb and Gutter	ft	\$36	\$0	0
Shoulder	sq yd	\$38	\$577,258	15191
Lighting				
Pridago				
Bridge Deck Perlocement and Minor Pehab	og ft	¢00	¢0	0
Bridge Deck Replacement and Millor Renab	sy it	\$90 \$140	30 \$0	0
New Highway Bridge	sqit	\$140	<del>ل</del> و مې	0
New Curved Highway Bridge	sq ft	\$120	<del>ل</del> ې ۵۷	0
Light Rail / Transit Bridge	sq ft	\$275	0¢ 0\$	0
Rail Road Bridge over Highway	sq ft	\$780	0¢ 02	0
	3911	φ/00	ψυ	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs		-		
Utility Relocations	lump	-		
High Voltage Transmission Line Relocation	lump			
	+			
Misc. Additional Costs (80/20 Rule)	1		\$758.739	
Right of Way Acquisition	acre	\$750,000	\$4,252,500	5.67
Project Traffic Control				
Project Erosion Control			\$50,000	
Project MOT			\$189,685	
Summary of Probable Total C	onstructio	n Costs 2006	\$8,285,881	
Proliminant Development Disco/Final Davidson	mt Dkaar (	4.00/ )	<b>#004.000</b>	
Contraction Administration and Increation (1991)	ent Phase (	1270)	\$994,306	
Contraction Administration and inspection (10%)			\$828,588	
			<b>⊅</b> 3,∪3∠,632	
			<b></b>	
Summary of Probable Total Project	t Costs 2	2006	\$13,141,407	

**BURGESS & NIPLE** 

I-77 Mainline
Southbound Collector-Distributor (C-D) System
Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Roadway		<b>*</b> 0	<b>\$00.440</b>	4000
Pavement Removed	sq ya	\$8	\$39,112	4889
Excavation/Embankment	mile #	\$100,000		0
		φ200	ψŪ	0
Pavamant				
Asphalt Widening/New	ed vd	\$42	\$088.083	235/17 22
Asphalt Widening/New	sq yu	ψ <del>4</del> 2 \$11	0\$00,900	23347.22
Curb and Gutter	sq yu ft	\$36	<u> </u>	0
Shoulder	sa vd	\$38	\$332,513	8750.333
			<i>+,-</i>	
Lighting (see Alternate total)				
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$0	0
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$1,760,640	14672
Rail Road Bridge over Highway	sq ft	\$780	<u>\$0</u>	0
		<b>.</b>	· · · ·	
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
Misseller and Maine Additional Ocate				
Utility Poloostiona	lump			
High Voltage Transmission Line Relocation	lump			
	iump			
Misc. Additional Costs (80/20 Rule)			\$780,312	
			\$100,01 <u>2</u>	
Right of Way Acquisition	acre			
Project Traffic Control				
Project Erosion Control			\$20,000	
Project MUI	onetructio	Costs 2005	\$195,078	
Summary of Probable Total C	UNSUUCTIO	00515 2000	J4, 110,038	
Preliminary Development Phase/Final Developm	ent Phase	(12%)	\$403 007	
Contraction Administration and Inspection (10%	)	(- <u>-</u> ,,,	\$411.664	
Contingencies (30%)	,		\$1,506.690	
· · · · ·		į	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Summary of Probable Total Project	ct Costs 2	2006	\$6,528,988	

**BURGESS & NIPLE** 

SR 18 & I-77 Interchange
Tight Diamond
Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Deedwey				
Roadway Revement Removed	ca vd	¢o	¢116 909	52101
Excavation/Embankment	sy yu mile	\$168,000	\$386 400	2.3
Rock Excavation	cu vd	\$30	\$225,000	7500
Clearing/Trees	acre	\$9,500	\$3,705	0.39
Concrete Barrier	lf	\$100	\$269,100	2691
Guard Rail	lf	\$14	\$0	0
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$964,480	12056
Drainage for curbed pavement	ft	\$200	\$1,315,000	6575
Pavement				
Asphalt Widening	sa vd	\$38	\$1.271.176	33452
Asphalt Surfacing w/planing	sq yd	\$11	\$883,828	80348
Curb and Gutter	ft	\$36	\$236,700	6575
Shoulder	sq yd	\$38	\$458,128	12056
Lighting	ft	\$35	\$0	0
Bridges				
Bridge Deck Replacement and Minor Rehab	sa ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sa ft	\$140	\$4.620.000	33000
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Detailed with				
Retaining Walls	0.9 ft	¢100	0.9	0
Reinforced Concrete Retaining Wall	sqii	\$100 \$75	\$U \$0	0
	Syn	φr5	<b>4</b> 0	0
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs				
Utility Relocations	lump			0
High Voltage Transmission Line Relocation	lump			0
Misc Additional Costs (80/20 Rule)	+	+	\$2 762 581	
			ψ <u>2</u> ,702,501	
Right of Way Acquisition	acre	\$750,000	\$292,500	0.39
Project Traffic Control		+ /	\$130,000	
Project Erosion Control			·	
Project MOT				
Summary of Probable Total Construction Costs 2006			\$14,235,406	
Broliminary Davelonment Dhase/Final Davelor	ont Dhaa-	(1 20/)	¢4 700 0 10	
Contraction Administration and Inspection (40%)	Preliminary Development Phase/Final Development Phase (12%)			
Contingencies (30%)			\$5,210,150	
			ψυ,210,109	
Summary of Probable Total Project	ot Coste 2	2006	¢00 577 0F4	
	JI GUSIS 2		<b>φ∠∠,</b> 3/1,334	1



# SR 18 & I-77 Interchange Single-Point Urban Interchange (SPUI) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Deedwey				
Roadway Pavement Removed	sa vd	\$2	\$411.304	51/13
Excavation/Embankment	sy yu mile	\$168,000	\$470,400	28
Rock Excavation	cu vd	\$30	\$225,000	7500
Clearing/Trees	acre	\$9.500	\$3.230	0.34
Concrete Barrier	lf	\$100	\$255,700	2557
Guard Rail	lf	\$14	\$0	0
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$1,162,880	14536
Drainage for curbed pavement	ft	\$200	\$1,406,600	7033
Pavement				
Asphalt Widening	sq yd	\$38	\$1,170,742	30809
Asphalt Surfacing w/planing	sq yd	\$11	\$881,661	80151
Curb and Gutter	ft	\$36	\$253,188	7033
Shoulder	sq yd	\$38	\$552,368	14536
Lighting	ft	\$35	\$0	0
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$4,970,000	35500
New Highway Bridge	sq ft	\$100	\$0	0
New Curved Highway Bridge	sq ft	\$120	\$0	0
Pail Paad Bridge over Highway	sq It	\$275	30 \$0	0
Kai Koad Bidge over Highway	Syn	\$700	ψ	0
Retaining Walls				0
Reinforced Concrete Retaining Wall	sq ft	\$100	\$1,100,000	11000
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Mice Additional Costs (20/20 Pule)			\$3 215 768	
			ψ3,213,700	
Right of Way Acquisition	acre	\$750,000	\$292,500	0.39
Project Traffic Control			\$130,000	
Project Erosion Control				
Summary of Probable Total Co	nstruction	Costs 2006	\$16 501 3/1	
		00313 2000	φ10,501,541	
Preliminary Development Phase/Final Developm	nent Phase	(12%)	\$1,980,161	
Contraction Administration and Inspection (10%)			\$1,650,134	1
Contingencies (30%)			\$6,039,491	
			<b>•••</b> • • •	
Summary of Probable Total Project	ct Costs 2	2006	\$26,171,127	



## SR 18 & I-77 Interchange Modified Cloverleaf Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
	_			
Roadway		<b>^</b>	<u> </u>	
Pavement Removed	sq yd	\$8	\$314,848	39356
Excavation/Embankment	mile	\$168,000	\$386,400	2.3
		\$30 \$0,500	\$225,000 \$2,220	7500
Cieding/Trees	lf	\$9,500 \$100	پېر <u>کې</u> ۲۵۵ کوکې	2007
Guard Pail	lf	\$100 \$17	 φ300,700 ¢0	3007
		ψ1 <del>4</del>	ψυ	0
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$1,190,480	14881
Drainage for curbed pavement	ft	\$200	\$1,138,000	5690
Pavement				
Asphalt Widening	sq yd	\$38	\$1,099,682	28939
Asphalt Surfacing w/planing	sq yd	\$11	\$929,555	84505
Curb and Gutter	ft	\$36	\$204,840	5690
Shoulder	sq yd	\$38	\$565,478	14881
		<b>*</b> 2 <b>-</b>	<b>^</b>	
Lighting	ft	\$35	\$0	0
Bridges				
Bridge Deck Replacement and Minor Rehab	sa ft	\$90	<u>0</u> 2	0
Bridge Benlacement (over 30'span)	sq ft	\$140	\$4 620 000	33000
New Highway Bridge	saft	\$100	<u>φ4,020,000</u> \$0	00000
New Curved Highway Bridge	sa ft	\$120	\$0	0
Light Rail / Transit Bridge	sq ft	\$275	\$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0	0
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$0	0
Reinforced Earth Walls	sq ft	\$75	\$0	0
	6	<b>#</b> 100	<b>*</b> 0	0
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs	+			
Litility Relocations	lump			0
High Voltage Transmission Line Relocation	lump			0
	iump			
Misc. Additional Costs (80/20 Rule)			\$2,766,553	0
		<b>M</b> 750 005	<b>.</b>	
Right of Way Acquisition	acre	\$750,000	\$240,000	0.32
Project Traffic Control			\$260,000	
Project Erosion Control			\$50,000	
Summary of Probable Total Co	nstruction	Costs 2006	4091,038 \$15 074 405	
		00313 2000	φ10,074,405	
Preliminary Development Phase/Final Development	nt Phase (1	2%)	\$1,808,929	
Contraction Administration and Inspection (10%)			\$1,507,440	
Contingencies (30%)	Contingencies (30%)			1
			, . , , <b>_ 0</b>	1
Summary of Probable Total Project	t Coste 2	006	\$23 908 006	
	. 00313 Z		ψ20,000,000	]



# SR 18 & I-77 Interchange Offset Single-Point Urban Interchange (Offset SPUI) Conceptual Alternatives - Preliminary Estimate of Probable Costs

Items	Unit	Unit Cost \$ (2006)	Total \$	Quantity
General Construction Costs				
Major Cost Drivers				
Deedway	_			
Roadway Payament Removed	sa vd	\$2	\$152 118	56556
Excavation/Embankment	sq yu mile	\$168,000	\$806.400	4.8
Rock Excavation	cu vd	\$30	\$225,000	7500
Clearing/Trees	acre	\$9.500	\$53.580	5.64
Concrete Barrier	lf	\$100	\$860,700	8607
Guard Rail	lf	\$14	\$700,000	50000
Drainage				
Drainage for uncurbed pavement	ft	\$80	\$1,897,200	23715
Drainage for curbed pavement	ft	\$200	\$1,394,800	6974
Pavement				
Asphalt Widening	sq yd	\$38	\$1,803,594	47463
Asphalt Surfacing w/planing	sq yd	\$11	\$1,062,534	96594
Curb and Gutter	ft	\$36	\$251,064	6974
Snoulder	sq ya	\$38	\$901,170	23715
Lighting	ft	\$35	\$0	0
Bridges				
Bridge Deck Replacement and Minor Rehab	sq ft	\$90	\$0	0
Bridge Replacement (over 30'span)	sq ft	\$140	\$4,219,600	30140
New Highway Bridge	sq ft	\$100	\$6,268,000	62680
Light Rail / Transit Bridge	sq ft	\$120 \$275	30 \$0	0
Rail Road Bridge over Highway	sq ft	\$780	\$0 \$0	0
Han Road Bridge even Highway	5q 11	<i><b></b></i>	Ŷ	
Retaining Walls				
Reinforced Concrete Retaining Wall	sq ft	\$100	\$750,000	7500
Reinforced Earth Walls	sq ft	\$75	\$0	0
Sound Walls	ft	\$400	\$0	0
Miscellaneous Major Additional Costs				
Utility Relocations	lump			0
High Voltage Transmission Line Relocation	lump			0
Mice Additional Costs (20/20 Buile)			¢E 444 E00	
			¢0,411,523	0
Right of Way Acquisition	acre	\$750,000	\$292,500	0.39
Project Traffic Control			\$130,000	
Summary of Probable Total Co	nstruction	Costs 2006	\$27,480,113	
		(400/)	<b>#0.007.0</b>	]
Contraction Administration and Inspection (400)	ient Phase	(12%)	\$3,297,614	
Contingencies (30%)				
			ψι0,001,121	1
Summary of Probable Total Project	ct Costs 2	2006	\$43,583,458	1