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.

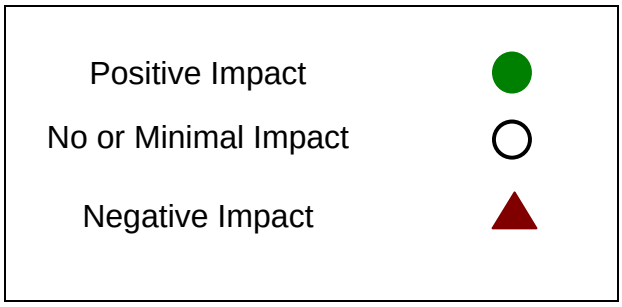

Figure 4.1 – Levels of Impact Key

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 cul-de-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.

Table 4-1

Summit 18 Corridor Study Evaluation Matrix
Intersection Concepts
(Concepts With Independent Utility)

Category / Sub-Factor	Medina Line Road Intersection		Harmony Hills Intersection			North Hametown Intersection				Springside Drive Intersection	
	No-Build	Capacity Addition (Left Turn Lanes)	No-Build	Two Stage Left Turns	Indirect Left Turns (at Medina Line Rd)	No-Build	Two Stage Left Turns	Indirect Left Turns (at Medina Line Rd)	Realignment to South Hametown	No-Build	Capacity Addition (Turn Lanes)
Congestion / Intersection Delay	▲	●	▲	▲	●	▲	●	●	●	▲	●
Safety	○	●	○	●	▲	○	●	▲	●	▲	●
Drainage on SR 18	○	○	○	○	○	○	○	○	○	○	○
Access Concerns	○	○	○	○	●	○	○	○	●	○	○
Environmental											
Wetlands	○	○	○	○	○	○	○	○	○	○	○
Streams	○	○	○	○	○	○	○	○	○	○	○
100-Yr. Flood Plains	○	○	○	○	○	○	○	○	○	○	○
Hazardous Materials	○	○	○	○	○	○	○	○	○	○	○
Historic / Landmarks	○	○	○	○	○	○	○	○	▲	○	○
Air Quality / Vehicle Emissions	○	●	○	●	○	○	●	○	●	○	●
Species (Threatened / Endangered)	○	○	○	○	○	○	○	○	○	○	○
Noise	○	○	○	○	○	○	○	○	○	○	○
Neighborhoods	○	○	○	○	○	○	○	○	▲	○	○
Community / Business Disruptions during Construction	○	○	○	○	○	○	○	○	○	○	▲
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 performance of categorized measures for each of the conceptual alternatives. For the initial evaluation, the factors are displayed using shaded shapes to represent the relative level of change in relation to No-Build. Subsequent evaluations might entail comparisons relative to other concepts. Positive impacts are indicated using solid green circles and negative impacts are represented by solid red triangles. The shapes are filled proportionately to their perceived relative level of impact (See Below). Alternatives which have no change, or very small changes, relative to No-Build, are represented by unfilled balls. The combination of color and fill level allows the person assessing the criteria to determine, at a glance, whether the impact of the performance measure is positive or negative and to what extent the measure is positive or negative relative to the baseline (i.e., No-Build).

Positive impact	●
No or Minimal Impact	○
Negative impact	▲

Table 4-2

Summit 18 Corridor Study Evaluation Matrix
SR 18 Concepts

Category / Sub-Factor	Access Management (Medina Line to South Hametown)			Capacity Additions (South Hametown to Crystal Lake)		
	No-Build	Two-Way Left Turn Lane (Medina Line to South Hametown)	Raised Median (Medina Line to South Hametown)	No-Build	Basic Lane Addition (Two additional thru lanes)	Montrose West Relocation (One additional thru lane)
Congestion / Intersection Delay	○	○	○	▲	●	●
North Hametown Intersection				▲	●	●
Heritage Woods Intersection				▲	●	●
Montrose West/Crystal Lane Intersection						
Safety	○	○	●			
Heritage Woods Drive				▲	○	●
Crystal Lake Road				▲	○	●
SR 18 from S. Hametown to Springside Drive				▲	●	●
Drainage on SR 18	○	●	●	○	○	○
Access Concerns	○	▲	●	○	○	●
Environmental						
Wetlands	○	○	○	○	○	○
Streams	○	○	○	○	○	○
100-Yr. Flood Plains	○	○	○	○	○	○
Hazardous Materials	○	○	○	○	▲	▲
Historic / Landmarks	○	○	○	○	○	○
Air Quality / Vehicle Emissions	○	○	○	○	●	●
Species (Threatened / Endangered)	○	○	○	○	○	○
Noise	○	○	○	○	▲	▲
Neighborhoods	○	○	○	○	○	○
Community / Business Disruptions during Construction	○	○	○	○	▲	▲
Cost / Other						
Project Cost (Including R/W)	$1.87 M	$4.25 M	$2.61 M	$854 K	$11.59 M	$9.16 M
Right-of-Way (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 of categorized measures for each of the conceptual alternatives. For the initial evaluation, the factors are displayed using shaded shapes to represent the relative level of change in relation to No-Build. Subsequent evaluations might entail comparisons relative to other concepts. Positive impacts are indicated using solid green circles and negative impacts are represented by solid red triangles. The shapes are filled proportionately to their perceived relative level of impact (See Below). Alternatives which have no change, or very small changes, relative to No-Build, are represented by unfilled balls. The combination of color and fill level allows the person assessing the criteria to determine, at a glance, whether the impact of the performance measure is positive or negative and to what extent the measure is positive or negative relative to the baseline (i.e., No-Build).

Positive impact	●
No or Minimal Impact	○
Negative impact	▲

Table 4-3

Summit 18 Corridor Study Evaluation Matrix
Interchange Concepts

Category / Sub-Factor	I-77 & SR 18 Interchange															I-77 & SR 21 Interchange	
		Reconfigure Interchange With SR 18 Build															
		Tight Diamond				Single Point Urban Interchange (SPUI)				Offset SPUI (W/ Early 21 Split		Modified Clover					
	No-Build Interchange & No-Build SR 18	Tight Diamond	With Early 18 Split	With Southbound C-D	With Early 18 Split & Southbound C-D	Spui	With Early 18 Split	With Southbound C-D	With Early 18 Split & Southbound C-D	Offset SPUI (W/ Early 21 Split	With Early 18 Split	Modified Clover	With Early 18 Split	With Southbound C-D	With Early 21 Split & Southbound C-D	No-Build	Upgrade Geometrics
Congestion / Intersection Delay (SR 18)	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○
Freeway LOS																	
I 77 NB																	
Cleveland Massillon Road to SR 21	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SR 21 to SR 18	▲	▲	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲	●	○	○
North of SR 18	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○
I 77 SB																	
Cleveland Massillon Road to SR 21	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SR 21 to SR 18	▲	▲	▲	●	●	▲	▲	●	●	●	●	▲	▲	●	●	○	○
North of SR 18	○	▲	○	▲	○	▲	▲	▲	▲	●	●	○	○	●	○	○	○
Weave Areas																	
I-77 NB																	
SR 21 to SR 18 EB Off	▲	▲	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲	●		
Between Loop Ramps @ SR 18 Interchange	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
I-77 SB																	
Between Loop Ramps @ SR 18 Interchange	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
SR 18																	
Between EB Ramps @ Interchange	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Between WB Ramps @ Interchange	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Safety																	
SR 18 Eastbound to I 77 Southbound ramp	▲	▲	▲	●	●	▲	▲	●	●	●	●	▲	▲	●	●	○	○
I 77 Northbound to SR 18 Westbound ramp	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○
Number of Geometric Deficiencies	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●
Environmental																	
Wetlands	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○	▲	▲	○	○
Streams	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
100-Yr. Flood Plains	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hazardous Materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Historic / Landmarks	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Air Quality / Vehicle Emissions	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○
Species (Threatened / Endangered)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Noise	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Neighborhoods	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Community / Business Disruptions during Construction	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	▲
Cost / Other																	
Project Cost (Including R/W)	$6.08 M	$22.6 M	$45.0 M	$29.1 M	$42.2 M	$26.2 M	$39.3 M	$32.7 M	$45.8 M	$43.6 M	$56.5 M	$23.9 M	$37.0 M	$30.4 M	$43.5 M	$4.14 M	$12.7 M
Right-of-Way (No. of Additional Acres)	0	0.39	6.06	0.39	6.06	0.39	6.06	0.39	6.06	0.39	6.06	0.32	5.99	0.32	5.99	0	0
Relocations - Residential	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Relocations - Business	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The matrix is a simplified summary graphic to represent composite performance of categorized measures for each of the conceptual alternatives. For the initial evaluation, the factors are displayed using shaded shapes to represent the relative level of change in relation to No-Build. Subsequent evaluations might entail comparisons relative to other concepts. Positive impacts are indicated using solid green circles and negative impacts are represented by solid red triangles. The shapes are filled proportionately to their perceived relative level of impact (See Below). Alternatives which have no change, or very small changes, relative to No-Build, are represented by unfilled balls. The combination of color and fill level allows the person assessing the criteria to determine, at a glance, whether the impact of the performance measure is positive or negative and to what extent the measure is positive or negative relative to the baseline (i.e., No-Build).

Positive impact ●

No or Minimal Impact ○

Negative impact ▲

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	sq yd	$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	sq yd	$38	$0	0
Asphalt Surfacing w/planing	sq yd	$11	$51,667	4697
Curb and Gutter	ft	$36	$0	0
Shoulder	sq yd	$38	$0	0
Lighting (roadway 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	$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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			$328,767	
Right of Way Acquisition	acre	$750,000	$0	0
Project Traffic Control				
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$1,643,834	
Preliminary Development Phase/Final Development Phase (12%)			$197,260	
Contraction Administration and Inspection (10%)			$164,383	
Contingencies (30%)			$601,643	
Summary of Probable Total Project Costs 2006			**$2,607,120**	

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
Drainage				
Drainage for uncurbed pavement	ft	$80	$0	0
Drainage for curbed pavement	ft	$200	$0	0
Pavement				
Asphalt Widening	sq yd	$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	$0	0
Rail Road Bridge over Highway	sq ft	$780	$0	0
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			
Misc. Additional Costs (80/20 Rule)			$536,139	
Right of Way Acquisition	acre	$750,000	$0	0
Project Traffic Control				
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$2,680,695	
Preliminary Development Phase/Final Development Phase (12%)			$321,683	
Contraction Administration and Inspection (10%)			$268,070	
Contingencies (30%)			$981,134	
Summary of Probable Total Project Costs 2006			**$4,251,582**	

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
Concrete Barrier	lf	$100	$0	0
Drainage				
Drainage (uncurbed)	ft	$80	$8,000	100
Drainage for curbed pavement	ft	$200	$0	0
Pavement				
Asphalt Widening/New	sq yd	$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	$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
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				
Project MOT				
Summary of Probable Total Construction Costs 2006			$488,463	
Preliminary Development Phase/Final Development Phase (12%)			$58,616	
Contraction Administration and Inspection (10%)			$48,846	
Contingencies (30%)			$178,777	
Summary of Probable Total Project Costs 2006			**$774,702**	

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				
Pavement Removed	sq yd	$8	$28,312	3539
Excavation/Embankment	mile	$168,000	$0	0
Rock Excavation	cu yd	$30	$0	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	$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				
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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			$46,621	
Right of Way Acquisition	acre	$750,000	$0	0
Project Traffic Control				
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$233,105	
Preliminary Development Phase/Final Development Phase (12%)			$27,973	
Contraction Administration and Inspection (10%)			$23,311	
Contingencies (30%)			$85,316	
Summary of Probable Total Project Costs 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
Rock Excavation	cu yd	$30	$0	0
Clearing/Trees	acre	$9,500	$4,655	0.49
Concrete Barrier	lf	$100	$0	0
Drainage				
Drainage (uncurbed)	ft	$80	$0	0
Drainage for curbed pavement	ft	$200	$0	0
Pavement				
Asphalt Widening/New	sq yd	$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
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)			$35,622	
Right of Way Acquisition	acre	$250,000	$1,510,000	6.04
Project Traffic Control			$130,000	
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$1,818,111	
Preliminary Development Phase/Final Development Phase (12%)			$218,173	
Contraction Administration and Inspection (10%)			$181,811	
Contingencies (30%)			$665,429	
Summary of Probable Total Project Costs 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
Rock Excavation	cu yd	$30	$0	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	$0	0
Pavement				
Asphalt Widening/New	sq yd	$42	$173,572	4132.667
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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
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 Construction Costs 2006			$252,355	
Preliminary Development Phase/Final Development Phase (12%)			$30,283	
Contraction Administration and Inspection (10%)			$25,236	
Contingencies (30%)			$92,362	
Summary of Probable Total Project Costs 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
Concrete Barrier	lf	$100	$0	0
Drainage				
Drainage (uncurbed)	ft	$80	$0	0
Drainage for curbed pavement	ft	$200	$0	0
Pavement				
Asphalt Widening/New	sq yd	$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	$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
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				
Summary of Probable Total Construction Costs 2006			$1,844,361	
Preliminary Development Phase/Final Development Phase (12%)			$221,323	
Contraction Administration and Inspection (10%)			$184,436	
Contingencies (30%)			$675,036	
Summary of Probable Total Project Costs 2006			**$2,925,157**	

North Hametown Rd Intersection
Realignment to South Hametown 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	$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	lf	$100	$0	0
Drainage				
Drainage (uncurbed)	ft	$80	$0	0
Drainage for curbed pavement	ft	$200	$240,000	1200
Pavement				
Asphalt Widening/New	sq yd	$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
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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			$101,937	
Right of Way Acquisition	acre	$250,000	$275,000	1.1
Project Traffic Control				
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$784,684	
Preliminary Development Phase/Final Development Phase (12%)			$94,162	
Contraction Administration and Inspection (10%)			$78,468	
Contingencies (30%)			$287,194	
Summary of Probable Total Project Costs 2006			**$1,244,509**	

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				
Roadway				
Pavement Removed	sq yd	$8	$22,400	2800
Excavation/Embankment	mile	$168,000	$0	0
Rock Excavation	cu yd	$30	$0	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
Miscellaneous Major Additional Costs				
Utility Relocations	lump		$0	
High Voltage Transmission Line Relocation	lump		$0	
Misc. Additional Costs (80/20 Rule)			$118,780	
Right of Way Acquisition	acre	$750,000	$187,500	0.25
Project Traffic Control			$130,000	
Project Erosion Control				
Project MOT				
Summary of Probable Total Construction Costs 2006			$911,399	
Preliminary Development Phase/Final Development Phase (12%)			$109,368	
Contraction Administration and Inspection (10%)			$91,140	
Contingencies (30%)			$333,572	
Summary of Probable Total Project Costs 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				
Asphalt Widening	sq yd	$38	$630,496	16592
Asphalt Surfacing w/planing	sq yd	$11	$351,285	31935
Curb and Gutter	ft	$36	$359,208	9978
Shoulder	sq yd	$38	$64,575	1699
Lighting (roadway lighting)	ft	$35	$0	
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	
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			
Misc. Additional Costs (80/20 Rule)			$1,057,933	
Right of Way Acquisition	acre	$750,000	$1,185,000	1.58
Project Traffic Control			$520,000	
Project Erosion Control			$50,000	
Project MOT			$264,483	
Summary of Probable Total Construction Costs 2006			$7,309,150	
Preliminary Development Phase/Final Development Phase (12%)			$877,098	
Contraction Administration and Inspection (10%)			$730,915	
Contingencies (30%)			$2,675,149	
Summary of Probable Total Project Costs 2006			**$11,592,313**	

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				
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
Lighting	ft	$35	$0	
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
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	
Summary of Probable Total Construction Costs 2006			$5,649,584	
Preliminary Development Phase/Final Development Phase (12%)			$677,950	
Contraction Administration and Inspection (10%)			$564,958	
Contingencies (30%)			$2,067,748	
Summary of Probable Total Project Costs 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
Drainage				
Drainage (uncurbed)	ft	$80	$1,215,280	15191
Drainage for curbed pavement	ft	$200	$0	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				
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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			$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 Construction Costs 2006			$8,285,881	
Preliminary Development Phase/Final Development Phase (12%)			$994,306	
Contraction Administration and Inspection (10%)			$828,588	
Contingencies (30%)			$3,032,632	
Summary of Probable Total Project Costs 2006			**$13,141,407**	

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				
Pavement Removed	sq yd	$8	$39,112	4889
Excavation/Embankment	mile	$168,000	$0	
Drainage for curbed pavement	ft	$200	$0	0
Pavement				
Asphalt Widening/New	sq yd	$42	$988,983	23547.22
Asphalt Surfacing w/planing	sq yd	$11	$0	0
Curb and Gutter	ft	$36	$0	0
Shoulder	sq yd	$38	$332,513	8750.333
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
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
Miscellaneous Major Additional Costs				
Utility Relocations	lump			
High Voltage Transmission Line Relocation	lump			
Misc. Additional Costs (80/20 Rule)			$780,312	
Right of Way Acquisition	acre			
Project Traffic Control				
Project Erosion Control			$20,000	
Project MOT			$195,078	
Summary of Probable Total Construction Costs 2006			$4,116,638	
Preliminary Development Phase/Final Development Phase (12%)			$493,997	
Contraction Administration and Inspection (10%)			$411,664	
Contingencies (30%)			$1,506,690	
Summary of Probable Total Project Costs 2006			**$6,528,988**	

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				
Roadway				
Pavement Removed	sq yd	$8	$416,808	52101
Excavation/Embankment	mile	$168,000	$386,400	2.3
Rock Excavation	cu yd	$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	sq yd	$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	sq ft	$90	$0	0
Bridge Replacement (over 30'span)	sq 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
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			0
High Voltage Transmission Line Relocation	lump			0
Misc. Additional Costs (80/20 Rule)			$2,762,581	
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	
Preliminary Development Phase/Final Development Phase (12%)			$1,708,249	
Contraction Administration and Inspection (10%)			$1,423,541	
Contingencies (30%)			$5,210,159	
Summary of Probable Total Project Costs 2006			**$22,577,354**	

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				
Roadway				
Pavement Removed	sq yd	$8	$411,304	51413
Excavation/Embankment	mile	$168,000	$470,400	2.8
Rock Excavation	cu yd	$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
Light Rail / Transit Bridge	sq ft	$275	$0	0
Rail Road Bridge over Highway	sq ft	$780	$0	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			
Misc. Additional Costs (80/20 Rule)			$3,215,768	
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			$16,501,341	
Preliminary Development Phase/Final Development Phase (12%)			$1,980,161	
Contraction Administration and Inspection (10%)			$1,650,134	
Contingencies (30%)			$6,039,491	
Summary of Probable Total Project Costs 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				
Pavement Removed	sq yd	$8	$314,848	39356
Excavation/Embankment	mile	$168,000	$386,400	2.3
Rock Excavation	cu yd	$30	$225,000	7500
Clearing/Trees	acre	$9,500	$3,230	0.34
Concrete Barrier	lf	$100	$388,700	3887
Guard Rail	lf	$14	$0	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
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	$4,620,000	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
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			0
High Voltage Transmission Line Relocation	lump			0
Misc. Additional Costs (80/20 Rule)			$2,766,553	0
Right of Way Acquisition	acre	$750,000	$240,000	0.32
Project Traffic Control			$260,000	
Project Erosion Control			$50,000	
Project MOT			$691,638	
Summary of Probable Total Construction Costs 2006			$15,074,405	
Preliminary Development Phase/Final Development Phase (12%)			$1,808,929	
Contraction Administration and Inspection (10%)			$1,507,440	
Contingencies (30%)			$5,517,232	
Summary of Probable Total Project Costs 2006			**$23,908,006**	

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				
Roadway				
Pavement Removed	sq yd	$8	$452,448	56556
Excavation/Embankment	mile	$168,000	$806,400	4.8
Rock Excavation	cu yd	$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
Shoulder	sq yd	$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
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	$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
Misc. Additional Costs (80/20 Rule)			$5,411,523	0
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			$27,480,113	
Preliminary Development Phase/Final Development Phase (12%)			$3,297,614	
Contraction Administration and Inspection (10%)			$2,748,011	
Contingencies (30%)			$10,057,721	
Summary of Probable Total Project Costs 2006			**$43,583,458**	