D COST ESTIMATE DETAILS

Cost estimates for construction of recommendations were developed to complement the Plan. They were developed by identifying pay items and establishing rough per-mile quantities. Unit costs are based on 2015 dollars and were assigned based on historical cost data from Oklahoma Department of Transportation bid prices and the estimator's experience and judgement.

The costs shown reflect only the cost associated with construction of the particular bicycle facility indicated and do not reflect other costs that may be associated with a larger project such as signal timing assessment and design. Costs considered in the estimate include pavement markings, standard signage for the facility type, pavement, curb and gutter, limited grading, and sidewalk as appropriate. Landscaping, drainage improvements, maintenance of traffic, and utility adjustments were also considered as percentages of the calculated project cost, as appropriate. The costs are intended to be general and used for planning purposes. A 10 to 30 percent contingency is applied to the cost for each item based on the type of project. The component unit costs for each facility type are detailed in the first set of tables in this appendix.

It is worth noting a number of assumptions for particular facility types:

- Urban Signed Route v. Rural Signed Route: sign frequency for urban signed routes is assumed to be greater than rural ones owing to a greater

density of turns and greater number of streets involved. Most rural signed routes in this Plan are along county roads and have a significantly lower density of turns.

- Trail v. Sidepath:
  - Both of these facilities are assume to be 10-foot asphalt paths.
  - Both facility costs include earthwork and excavation (sidewalk removal for sidepath), but the trail cost also includes grading and fill to account for a 20-foot wide disturbance in open land.
  - Both costs incorporate curb ramps and crosswalks at intersections, with a greater frequency assumed for the sidepath. The sidepath cost also includes driveway adjustments and raised crossings.
- Urban Signed Route, Shared Lane Marking, Priority Shared Lane Marking, Bike Lane and Buffered Bike Lane costs all include replacement of storm grates with bicycle-safe grates to ensure bicyclists' safety when riding along the road edge.
- The Cycle Track cost assumes a street-level facility separated from traffic by flexible delineators.
- Bike Lane, Buffered Bike Lane and Cycle Track costs include the cost for eradication of existing pavement markings. In many cases, the recommended facilities will be implemented as part of resurfacing programs, and this cost will not be applicable, but the goal was to provide a conservative (high) estimate.

It is also worth noting what is NOT included in these bicycle facility cost estimates:

- Signal adjustments including changes to signal timing or installation of new signals
- Intersection crossing treatments that may be necessary where a Signed Route on a local street crosses a major arterial at an unsignalized location
- Surveying, engineering design, right-of-way acquisition, addition of closed drainage systems, mobilization or future maintenance.

Construction costs will vary based on the ultimate project scope (i.e. combination with other projects) and economic conditions at the time of construction.

Live Excel files of these cost estimates have been provided to INCOG so costs may be scaled in future years and so elements may be altered as local designers see fit once a project moves to implementation.

Signed Route (Rural)

Includes: sign and post.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Sign Panel (Class I)	EA	3	$150.00	$396	1 Sign every 4000 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	3	$100.00	$264	
Subtotal				**$660**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$66.00	$66	
			Subtotal	**$726**	
			10% Contingency	$73	
			Total Estimated Cost	**$800**	→ **$0.15** **Per Linear Foot**

Signed Route (Urban)

Includes: sign and post.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Sign Panel (Class I)	EA	13	$150.00	$1,980	1 Sign every 800 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	13	$100.00	$1,320	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Subtotal				**$15,268**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$1,527.00	$1,527	
			Subtotal	**$16,795**	
			10% Contingency	$1,680	
			Total Estimated Cost	**$18,500**	→ **$3.50** **Per Linear Foot**

Shared Lane Markings (Sharrows)

Includes: shared lane pavement marking at 250 foot spacing. No markings on existing roadway require removal.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Symbol	EA	42	$250.00	$10,560	1 Symbol every 250 feet per side of the road
Sign Panel (Class I)	EA	20	$150.00	$3,000	1 Sign every 500 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	20	$100.00	$2,000	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Subtotal				**$27,528**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$2,753.00	$2,753	
			Subtotal	**$30,281**	
			10% Contingency	$3,028	
			Total Estimated Cost	**$33,400**	→ **$6.33** **Per Foot**

Priority Shared Lane Markings

Includes: shared lane pavement marking at 125 foot spacing with green color bracketing symbol. No markings on existing roadway require removal.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Symbol	EA	84	$250.00	$21,120	1 Symbol every 125 feet per side of the road
Green Bike Lane Paint	SF	5,069	$4.00	$20,275	6'x10' color at $325 per gal./100sf per gal. rounded to $4/sf
Sign Panel (Class I)	EA	20	$150.00	$3,000	1 Sign every 500 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	20	$100.00	$2,000	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Subtotal				**$58,363**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$5,836.00	$5,836	
			Subtotal	**$64,199**	
			20% Contingency	$12,840	
			Total Estimated Cost	**$77,100**	→ **$14.60** **Per Foot**

Bike Lanes

Includes: bicycle lane markings in both directions with bicycle lane signs. Up to 2 traffic lane lines removed.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Lines (4")	LF	21,120	$0.75	$15,840	4 solid lines entire length
Thermoplastic Pavement Marking Symbol	EA	53	$250.00	$13,200	1 Symbol every 200 feet, each side of road
Sign Panel (Class I)	EA	20	$150.00	$3,000	1 Sign every 500 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	20	$100.00	$2,000	
Eradication (Skip Lines)	LF	2,640	$0.50	$1,320	eradicate 2 skip lines
Replace Skip Lines	LF	2,640	$2.60	$6,864	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Subtotal				**$54,192**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$5,419.00	$5,419	
			Subtotal	**$59,611**	
			20% Contingency	$11,922	
			Total Estimated Cost	**$71,600**	→ **$13.56** **Per Linear Foot**

Buffered Bike Lane

Includes: add buffer markings to existing roadway in both directions with bicycle lane signs. Eradicate and reinstall lane lines on road.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Lines (4")	LF	25,608	$0.75	$19,206	2 solid lines entire length, each side of road, and gore for buffer
Thermoplastic Pavement Marking Buffer Lines (6")	LF	1,056	$1.00	$1,056	1 solid line, 4 feet long, every 40 feet
Thermoplastic Pavement Marking Symbol	EA	53	$250.00	$13,200	1 Symbol every 200 feet, each side of road
Sign Panel (Class I)	EA	20	$150.00	$3,000	1 Sign every 500 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	20	$100.00	$2,000	
Eradication (Skip Lines)	LF	2,640	$0.50	$1,320	eradicate 2 skip lines
Replace Skip Lines	LF	2,640	$0.75	$1,980	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Subtotal				**$53,730**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$5,373.00	$5,373	
			Subtotal	**$59,103**	
			20% Contingency	$11,821	
			Total Estimated Cost	**$71,000**	→ **$13.45** **Per Foot**

Cycle Track - Retrofit with Flexible Delineators

Includes: Cycle Track with no widening.Note: Cost may be adjusted for some cycle track recommendations where design is intended to be two-way on one side of street.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Lines (4")	LF	25,608	$0.75	$19,206	2 solid lines entire length, each side of road, and gore for buffer
Thermoplastic Pavement Marking Buffer Lines (6")	LF	1,056	$1.00	$1,056	1 solid line, 4 feet long, every 40 feet
Thermoplastic Pavement Marking Symbol	EA	53	$250.00	$13,200	1 Symbol every 200 feet, each side of road
Sign Panel (Class I)	EA	20	$150.00	$3,000	1 Sign every 500 feet, each side of road
Steel Sign Post (2x2 Inch Tubing)	EA	20	$100.00	$2,000	
Eradication (Skip Lines)	LF	2,640	$0.50	$1,320	eradicate 2 skip lines
Replace Skip Lines	LF	2,640	$0.75	$1,980	
Bicycle Safe Grate	EA	18	$680.00	$11,968	Every 600', each side of road
Flexible Delineators	EA	528	$58.00	$30,624	1 every 20' each side
Subtotal				**$84,354**	
Lump Sum Items					
Maintenance of Traffic (10%)	LS	1.00	$8,435.00	$8,435	
			Subtotal	**$92,789**	
			30% Contingency	$27,837	
			Total Estimated Cost	**$120,700**	→ **$22.86** **Per Foot**

Sidepath

Includes: Removal of existing sidewalk for a 10' wide curb-side path with markings,signage, and intersection crosswalk/curb ramp improvements.

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Lines (4")	LF	1,320	$0.75	$990	1 dashed lines entire length
Sign Panel (Class I)	EA	18	$150.00	$2,640	2 Sign every 600 feet (back-to-back on one post)
Steel Sign Post (2x2 Inch Tubing)	EA	9	$100.00	$900	
Earthwork, Excavation	CY	3,911	$20.00	$78,222	10 wide disturbance / 2 feet depth (incl. sidewalk removal)
Aggregate Base Course	CY	1,956	$40.00	$78,222	10 feet width, 1 feet depth
Asphalt Surface Course	TON	587	$85.00	$49,867	10 feet width and 2" depth, 1.8 Ton/CY
Asphalt Base Course	TON	1,760	$70.00	$123,200	10 feet width and 0.5 feet depth, 1.8 Ton/CY
Geotextile Filter Cloth	SY	5867	$3.00	$17,600	
Intersection Treatments	EA	9	$4,000.00	$36,000	Assumed every 600' w/ curb ramps, raised crossings, & crosswalk markings
Driveway Adjustments	EA	10	$2,200.00	$22,000	Assumed every 500' w/ raised driveway crossings
Subtotal				**$409,641**	Note: Does not include signal upgrades
Lump Sum Items					
Landscaping (5%)	LS	1.00	$20,482.00	$20,482	
Drainage and E&S (10%)	LS	1.00	$40,964.00	$40,964	
Maintenance of Traffic (10%)	LS	1.00	$40,964.00	$40,964	
Utility Adjustments (10%)	LS	1.00	$40,964.00	$40,964	
			Subtotal	**$553,015**	
			30% Contingency	$165,905	
			Total Estimated Cost	**$719,000**	→ **$136.17** **Per Foot**

Trail

Includes: New path with markings and signage

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Thermoplastic Pavement Marking Lines (4")	LF	1,320	$0.75	$990	1 dashed lines entire length
Sign Panel (Class I)	EA	10	$150.00	$1,500	1 Sign every 1000 feet, each side of path
Steel Sign Post (2x2 Inch Tubing)	EA	10	$100.00	$1,000	
Earthwork, Excavation, Grading, Fill	CY	7,822	$25.00	$195,556	20 wide disturbance / 2 feet depth
Aggregate Base Course	CY	2,347	$40.00	$93,867	12 feet width, 1 feet depth
Asphalt Surface Course	TON	704	$85.00	$59,840	12 feet width and 2" depth, 1.8 Ton/CY
Asphalt Base Course	TON	2,112	$70.00	$147,840	12 feet width and 0.5 feet depth, 1.8 Ton/CY
Geotextile Filter Cloth	SY	7040	$3.00	$21,120	
Intersection Treatments	EA	3	$1,250.00	$3,750	Assumed 3 every 1-mile segment. Curb ramps & crosswalk markings
Subtotal				**$525,462**	
Lump Sum Items					
Landscaping (5%)	LS	1.00	$26,273.00	$26,273	
Drainage and E&S (10%)	LS	1.00	$52,546.00	$52,546	
Maintenance of Traffic (5%)	LS	1.00	$26,273.00	$26,273	
Utility Adjustments (10%)	LS	1.00	$52,546.00	$52,546	
			Subtotal	**$683,100**	
			30% Contingency	$204,930	
			Total Estimated Cost	**$888,100**	→ **$168.20** **Per Foot**

This page intentionally left blank.