



Oakland Mills Streetscape Improvements

Concept Design Report



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Project Overview

In Spring of 2014, the Howard County Government’s Department of Planning & Zoning requested that Whitman, Requardt and Associates (WR&A) and Mahan Rykiel Associates (MRA) advance objectives identified in previous Oakland Mills Village Center Master Planning concepts by developing concepts for the re-design of Stevens Forest Road and White Acre Road around the Oakland Mills Village Center; the limits of scope being the intersection at Santiago Road to the south, and Basket Ring Road to the north. These two streets would be evaluated for maximizing their potential for a green street design, providing for a Complete Streets multi-modal use design, and creating a functional and aesthetic gateway for the Village Center.

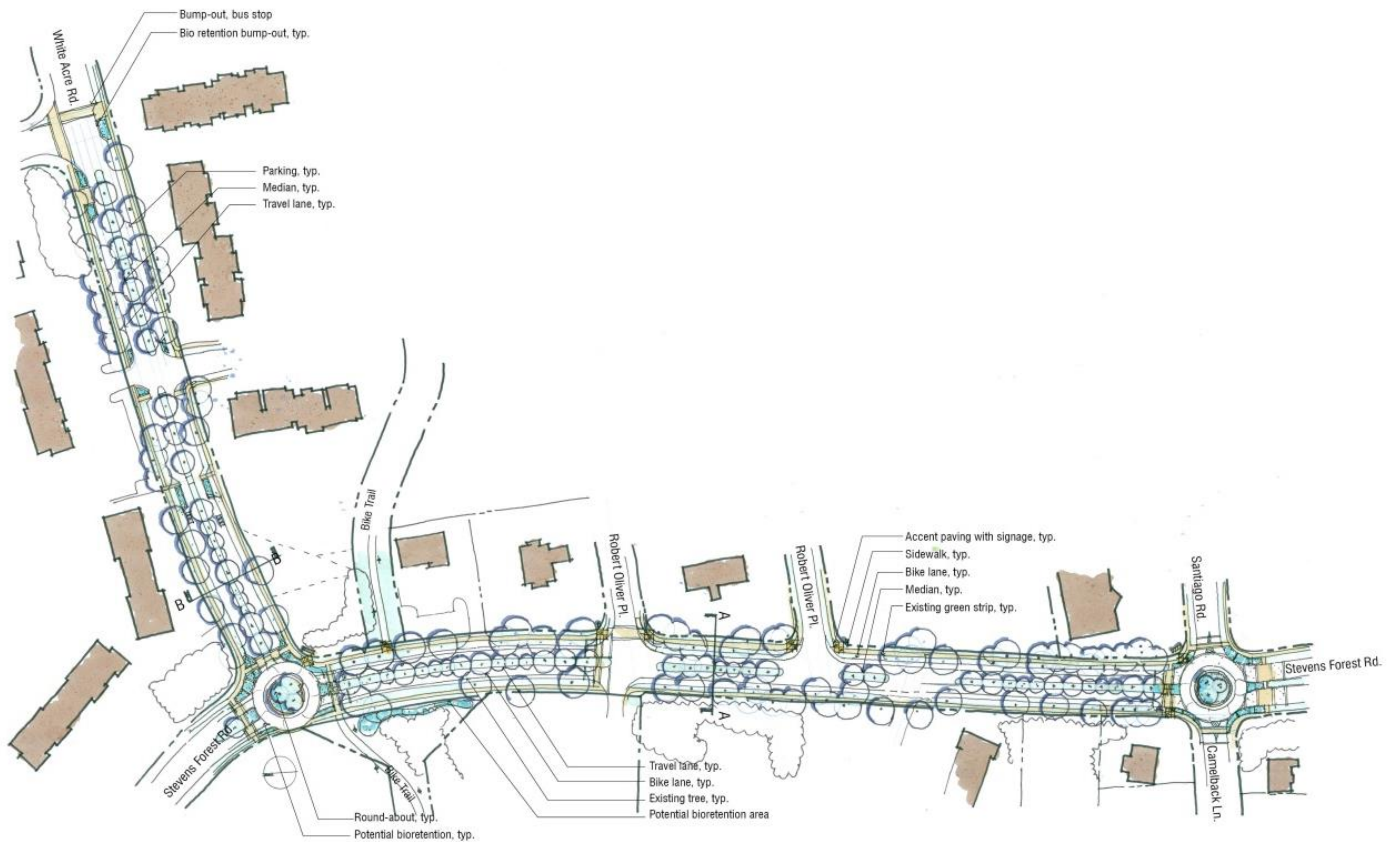
MRA prepared two concept plans, both very different in features, but similar in intent, with components that could be easily interchanged amongst them, or be applied to future development in the County. The base features included the addition of locations for bioretention or bio-swale facilities to proactively treat stormwater runoff, preservation of existing trees and the planting of new street trees, creating a bike-friendly environment with the addition of dedicated bike lanes, introduction of safer pedestrian crossings and new pedestrian lighting, and provision of locations for one or more gateway features. The concepts were submitted to the Department of Planning & Zoning, and Public Works for review and comment, and then presented to the Oakland Mills Village Board for their input, in an attempt to reach an agreement on a selected alternative.

The following is a description of each concept.

Concept 1

Stevens Forest Road would be anchored at Santiago Road and White Acre Road with roundabouts, providing traffic calming, a sense of transition into the Village Center area, and locations for gateway features to frame the Oakland Mills Village Center. New, landscaped medians would be added to Stevens Forest Road to link the two roundabouts, minimize pavement, and increase green space. A well-defined connection to the shared use path proposed by Howard Hughes would be provided. Decorative paving treatments would be introduced at intersections to extend the village center's emerging aesthetic to its edge. As an important transitional element, the paving features are carried through both design concepts.

On White Acre Road, bump-outs were added to help define the on-street parking while at the same time providing locations for bioretention facilities to help mitigate stormwater runoff. Both streets included new 5' wide sidewalks, pedestrian lighting, travel lanes narrowed to 11' wide. Due to the posted speed of the roadway, this concept incorporates a "bike boulevard" on White Acre Road, wherein cyclists would share the travel lane with motor vehicles. New pedestrian crossings with pedestrian refuge areas are provided in the medians, as are supplemental street trees. Both concepts would include modified barrier curbing along White Acre Road to discourage the existing practice of vehicles parking with their right wheels up on the back (grass) side of the existing rolled curb, in an effort to avoid the impacts of parking on the streetscape.

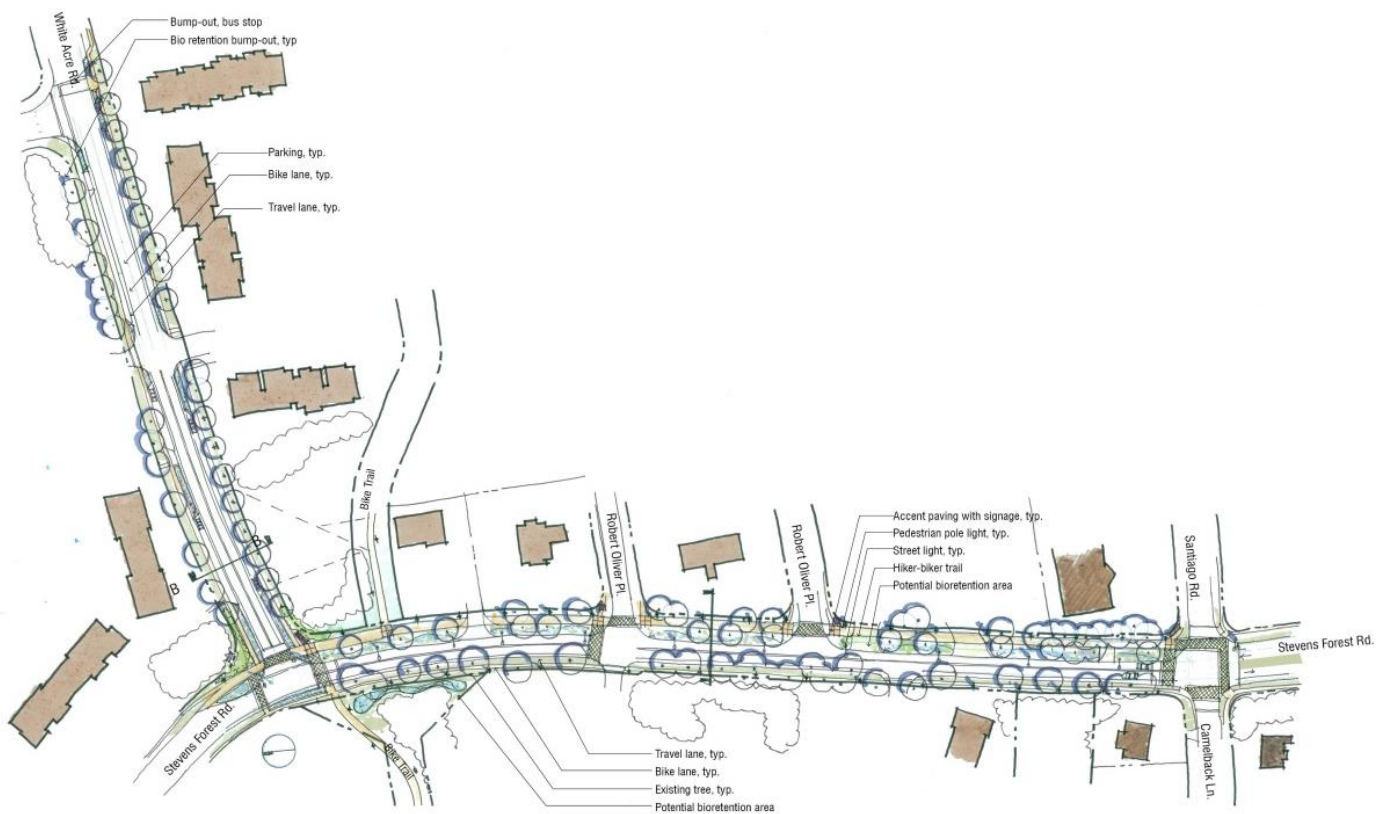


Concept 1 – May 2014

Concept 2

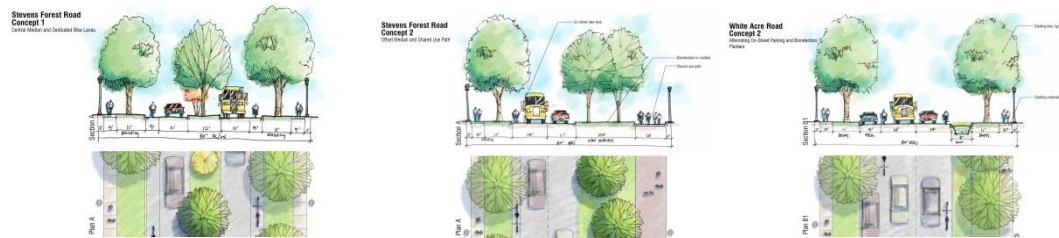
In this concept, the travel lanes for Stevens Forest Road are shifted west, so that a much wider median can provide separation between the vehicular travel lanes and a new 10' dedicated shared-use path running along the east side of the roadway. This pathway would put more of an emphasis on bikers and pedestrians, and slow traffic due to the narrower roadway section. The median would incorporate bioretention facilities, picking up stormwater run-off from the roadway and shared-use path. The existing trees between the sidewalk and curb on Stevens Forest would be removed to accommodate the wider shared-use path. However, the new wide median could support many additional new street trees. This concept lacks the roundabouts, but uses the green space and the shared-use path as a linear gateway feature and 'front door' to the adjacent and proposed commercial properties. The median could also manage stormwater runoff from the new shared use path.

White Acre Road is treated similarly to Concept 1 in that the bump-outs are utilized to accommodate bio-retention facilities and provide a means to better delineate the on-street parking and shorter crossing distances across White Acre for pedestrians. A landscaped median is not provided on White Acre in this concept, but striped bike lanes in the roadway are provided for cyclists.



Concept 2 – May 2014

Illustrative cross-sections were prepared for both concepts to help illustrate the ideas being presented (examples below).



Public Reception

The two concepts and the cross-sections were presented to the Oakland Mills Village Board on 10 June 2014 at The Other Barn in the Oakland Mills Village Center, Columbia, Maryland. Both concepts were received with positive feedback from the Board and the Community. It was stated during the meeting that the concepts were basically prepared as a “kit of parts” and that to some degree the components from the concepts were interchangeable, e.g.; the roundabouts could be used in either scheme, or the configuration of White Acre Road was interchangeable to either concept, depending on the desired project approach.

One concern raised during the meeting involved pedestrian safety should roundabouts be installed, especially in the context of children walking to school. While statistics on the actual effects of roundabouts on pedestrian safety in the United States do not appear to be available, several agencies have compiled an expected reduction in fatal or injury type pedestrian accidents when a roundabout is installed. The following highlight findings from these studies:

- *Statistics suggest an average reduction in fatal or injury type accidents of 27% with a standard error of 12%¹, thus expressing confidence that introduction of a roundabout will normally reduce pedestrian accidents.*
- *Roundabouts are expected to effect a 25% to 42% reduction in the 85th percentile speed for lower-speed suburban roadways²*

While the CALTRANS document expresses some challenges regarding pedestrian and bicycle accommodation with roundabouts, single-lane roundabouts on lower-speed roads typically operate better for both of these users. CALTRANS notes that the pedestrian movements are uncontrolled, but the concept would provide pedestrian refuges and allow pedestrians to focus on one approach crossing both the entry and exit lanes from the roundabout, instead of needing to monitor two or three approaches for exit lanes in the existing configuration. Also, concerns about bicycles needing to ‘control the lane’ should be minimized by actual travel speeds; if it is felt this is insufficient FHWA provides countermeasures in its “Roundabouts: An Informational Guide” to allow exit and entry ramps to circulatory paths parallel to the roundabout (although this would require additional right of way.)

¹ “Safety Effects of Roundabouts in Flanders: Signal type, speed limits and vulnerable road users” by B. De Brabander and L. Vereeck, 2006, as referenced by FHWA’s 2008 “Toolbox of Countermeasures.”

² “Engineering Countermeasures for Reducing Speeds: A Desktop Reference of Potential Effectiveness”, FHWA, 2009, as referenced by the CALTRANS document “Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians,” 2010, p. 28.

The Safe Routes to School guide (<http://guide.saferoutesinfo.org/engineering/roundabouts.cfm>) additionally indicates that pedestrians benefit from lower vehicle speeds, increased yielding behavior, fewer conflict points, higher pedestrian visibility, simpler crossings, and shortened crossing distances. However, the guide notes that there is little research about the ability for children to judge vehicle speed and traffic stream gaps and that adult supervision for these crossings may be warranted for smaller children.

Moving Forward

After the presentation to the County and the Oakland Mills Board of Directors, The project team prepared rough conceptual cost estimates based on the two concept plans. Estimates anticipate that Neat Construction Costs for Concept 1 would be \$2.8 M - \$3.6 M and Neat Construction Costs for Concept 2 would be \$2.6 M - \$3.1 M (see Appendix A, cost estimates.) The larger variation in the Concept 1 cost is related to greater uncertainty in the amount of pavement reconstruction that will be necessary for roundabout construction. Rough Conceptual Neat Construction Cost Estimates were developed based on SHA guidelines in the 2012 “Highway Construction Cost Estimating Manual.”

Further review of the options by the County resulted in the selection of Concept 1 as the preferred alternative that would progress to Preliminary and Final Design.

With the selection of this Concept for advancement, the project team developed a phased approach that will allow implementation of initial construction beginning as early as the fall of 2014. Phase 1 will include the full construction of the improvements on White Acre Road, to about 150 feet east of the intersection of Stevens Forest Road. This will allow for an immediate benefit to the community in an area that will not require right of way acquisition, complex traffic analysis, or complex design. Phase 2 would be aligned to complete the remainder of the project, including the roundabout construction, tie in to Phase 1, and all work along Stevens Forest Road. This will allow necessary time for coordination with adjacent projects, right of way acquisition, and traffic analysis of the roundabouts. Simultaneously with design of Phase 1, the design team will advance Phase 2 to a Preliminary level of design to validate the limits of Phase 1 and align the design elements for a cohesive aesthetic. Phase 2 can be further broken out into project elements as funding becomes available or as adjacent projects are carried forward. As reflected in the cost estimates in Appendix B, Phase 1 is anticipated to have a neat construction cost of \$700,000-\$800,000 and Phase 2 is anticipated to have a neat construction cost of \$2.2 M to 2.8M (see Appendix B.)



Oakland Mills Streetscape Improvements

Appendix A:
Option 1 and Option 2 Cost Estimates

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 404,512.50	\$ 404,512.50
Sub-Total Preliminary					\$ 404,512.50
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,480	CY	\$ 32.00	\$ 47,360.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	2,500	CY	\$ 40.00	\$ 100,000.00
204	Test Pit Excavation	200	CY	\$ 130.00	\$ 26,000.00
205	Removal of Existing Curb and Gutter	400	LF	\$ 12.00	\$ 4,800.00
206	Saw Cuts	3,670	LF	\$ 3.00	\$ 11,010.00
207	Removal of Existing Pavement	1,280	CY	\$ 35.00	\$ 44,800.00
208	Removal of Existing Sidewalk	300	CY	\$ 40.00	\$ 12,000.00
Sub-Total Grading					\$ 245,970.00
CATEGORY 3 - DRAINAGE					
301	Drainage (25% of Categories 2, 5 & 6)	1	LS	\$ 288,937.50	
Sub-Total Drainage					\$ 288,937.50
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,430	TON	\$ 120.00	\$ 171,600.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	340	TON	\$ 120.00	\$ 40,800.00
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	810	TON	\$ 120.00	\$ 97,200.00
504	Grinding Hot Mix Asphalt Pavement 0"-2"	8,850	SY	\$ 3.00	\$ 26,550.00
505	6 Inch Graded Aggregate Base	2,730	SY	\$ 10.00	\$ 27,300.00
506	5" Yellow Pavement Marking Paint Lines	10,070	LF	\$ 0.50	\$ 5,035.00
507	5" White Pavement Marking Paint Lines	5,150	LF	\$ 0.50	\$ 2,575.00
508	24" White Permanent Preformed Pavement Markings	170	LF	\$ 5.00	\$ 850.00
Sub-Total Paving					\$ 371,910.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	6,130	LF	\$ 35.00	\$ 214,550.00
602	4" Concrete Sidewalk, 5' Wide	22,780	SF	\$ 9.00	\$ 205,020.00
603	Detectable Warning Surface for Curb Ramps	420	SF	\$ 40.00	\$ 16,800.00
604	Paver Apron for Roundabouts	5,000	SF	\$ 15.00	\$ 75,000.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 537,870.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	34	EA	\$ 550.00	\$ 18,700.00
702	Flowering Trees, 10" Ht.	28	EA	\$ 360.00	\$ 10,080.00
703	Bioretention plantings, #1 Cont.	3,261	EA	\$ 11.00	\$ 35,871.00
704	Underdrain for Bioretention	520	LF	\$ 5.00	\$ 2,600.00
705	Sod Establishment	1,360	SY	\$ 3.50	\$ 4,760.00
706	Topsoil for Median (18" Depth)	848	CY	\$ 35.00	\$ 29,662.50
707	Selective Tree Pruning	12	EA	\$ 400.00	\$ 4,800.00

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	5	EA	\$ 2,000.00	\$ 10,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	3,360	LF	\$ 5.00	\$ 16,800.00
710	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
Sub-Total Landscaping					\$ 173,273.50
CATEGORY 8 - UTILITIES, LIGHTING & TRAFFIC					
801	Utilities (30% of Categories 2, 5 & 6)	1	LS	\$ 346,725.00	\$ 346,725.00
802	Lighting	0.50	MI	\$ 440,000.00	\$ 220,000.00
803	Signing	0.50	MI	\$ 17,600.00	\$ 8,800.00
Sub-Total Utilities, Lighting & Traffic					\$ 575,525.00
Subtotal					\$2,597,998.50
35% Contingency					\$ 909,299.48
TOTAL NEAT CONSTRUCTION					\$ 3,507,297.98
Total					\$ -
Total					\$ 3,507,297.98
SAY					\$ 3,600,000.00

Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 376,255.46	\$ 376,255.46
Sub-Total Preliminary					\$ 376,255.46
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,480	CY	\$ 32.00	\$ 47,360.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	2,500	CY	\$ 40.00	\$ 100,000.00
204	Test Pit Excavation	200	CY	\$ 130.00	\$ 26,000.00
205	Removal of Existing Curb and Gutter	400	LF	\$ 12.00	\$ 4,800.00
206	Saw Cuts	3,670	LF	\$ 3.00	\$ 11,010.00
207	Removal of Existing Pavement	1,218	CY	\$ 35.00	\$ 42,620.60
208	Removal of Existing Sidewalk	300	CY	\$ 40.00	\$ 12,000.00
Sub-Total Grading					\$ 243,790.60
CATEGORY 3 - DRAINAGE					
301	Drainage (15% of Categories 2, 5 & 6)	1	LS	\$ 161,252.34	
Sub-Total Drainage					\$ 161,252.34
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,430	TON	\$ 120.00	\$ 171,600.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	170	TON	\$ 120.00	\$ 20,400.00
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	405	TON	\$ 120.00	\$ 48,600.00
504	Grinding Hot Mix Asphalt Pavement 0"-2"	10,215	SY	\$ 3.00	\$ 30,645.00
505	6 Inch Graded Aggregate Base	1,365	SY	\$ 10.00	\$ 13,650.00
506	5" Yellow Pavement Marking Paint Lines	10,070	LF	\$ 0.50	\$ 5,035.00
507	5" White Pavement Marking Paint Lines	5,150	LF	\$ 0.50	\$ 2,575.00
508	24" White Permanent Preformed Pavement Markings	170	LF	\$ 5.00	\$ 850.00
Sub-Total Paving					\$ 293,355.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	6,130	LF	\$ 35.00	\$ 214,550.00
602	4" Concrete Sidewalk, 5' Wide	22,780	SF	\$ 9.00	\$ 205,020.00
603	Detectable Warning Surface for Curb Ramps	420	SF	\$ 40.00	\$ 16,800.00
604	Paver Apron for Roundabouts	5,000	SF	\$ 15.00	\$ 75,000.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 537,870.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	34	EA	\$ 550.00	\$ 18,700.00
702	Flowering Trees, 10" Ht.	28	EA	\$ 360.00	\$ 10,080.00
703	Bioretention plantings, #1 Cont.	3,261	EA	\$ 11.00	\$ 35,871.00
704	Underdrain for Bioretention	520	LF	\$ 5.00	\$ 2,600.00
705	Sod Establishment	1,360	SY	\$ 3.50	\$ 4,760.00
706	Topsoil for Median (18" Depth)	848	CY	\$ 35.00	\$ 29,662.50
707	Selective Tree Pruning	12	EA	\$ 400.00	\$ 4,800.00

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	5	EA	\$ 2,000.00	\$ 10,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	3,360	LF	\$ 5.00	\$ 16,800.00
710	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
Sub-Total Landscaping					\$ 173,273.50
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (15% of Categories 2, 5 & 6)	1	LS	\$ 161,252.34	\$ 161,252.34
802	Lighting	0.50	MI	\$ 440,000.00	\$ 220,000.00
803	Signing	0.50	MI	\$ 17,600.00	\$ 8,800.00
Sub-Total Utilities, Lighting & Traffic					\$ 390,052.34
Subtotal					\$2,175,849.24
25% Contingency					\$ 543,962.31
TOTAL NEAT CONSTRUCTION					\$ 2,719,811.55
Total					\$ 2,719,811.55
SAY					\$ 2,800,000.00

Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 288,657.25	\$ 288,657.25
Sub-Total Preliminary					\$ 288,657.25
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,500	CY	\$ 32.00	\$ 48,000.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	1,300	CY	\$ 40.00	\$ 52,000.00
204	Test Pit Excavation	200	CY	\$ 130.00	\$ 26,000.00
205	Removal of Existing Curb and Gutter	770	LF	\$ 12.00	\$ 9,240.00
206	Saw Cuts	1,250	LF	\$ 3.00	\$ 3,750.00
207	Removal of Existing Pavement	960	CY	\$ 35.00	\$ 33,600.00
208	Removal of Existing Sidewalk	-	CY	\$ 40.00	\$ -
Sub-Total Grading					\$ 172,590.00
CATEGORY 3 - DRAINAGE					
301	Drainage (25% of Categories 2, 5 & 6)	1	LS	\$ 206,183.75	
Sub-Total Drainage					\$ 206,183.75
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,300	TON	\$ 120.00	\$ 156,000.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
504	Grinding Hot Mix Asphalt Pavement 0"-2"	10,520	SY	\$ 3.00	\$ 31,560.00
505	6 Inch Graded Aggregate Base	-	SY	\$ 10.00	\$ -
506	5" Yellow Pavement Marking Paint Lines	8,120	LF	\$ 0.50	\$ 4,060.00
507	5" White Pavement Marking Paint Lines	2,430	LF	\$ 0.50	\$ 1,215.00
508	24" White Permanent Preformed Pavement Markings	630	LF	\$ 5.00	\$ 3,150.00
Sub-Total Paving					\$ 195,985.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	2,820	LF	\$ 35.00	\$ 98,700.00
602	4" Concrete Sidewalk, 5' Wide	14,390	SF	\$ 9.00	\$ 129,510.00
603	Detectable Warning Surface for Curb Ramps	420	SF	\$ 40.00	\$ 16,800.00
604	Paver Apron for Roundabouts	12,310	SF	\$ 15.00	\$ 184,650.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 456,160.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	31	EA	\$ 550.00	\$ 17,050.00
702	Flowering Trees, 10" Ht.	12	EA	\$ 360.00	\$ 4,320.00
703	Bioretention plantings, #1 Cont.	8,591	EA	\$ 11.00	\$ 94,501.00
704	Underdrain for Bioretention	1,300	LF	\$ 5.00	\$ 6,500.00
705	Sod Establishment	620	SY	\$ 3.50	\$ 2,170.00
706	Topsoil for Shared Use Path Median	1,924	CY	\$ 35.00	\$ 67,340.00
707	Selective Tree Pruning	6	EA	\$ 400.00	\$ 2,400.00

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	27	EA	\$ 2,000.00	\$ 54,000.00
709	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
710	Tree Protection Fence (Blaze Orange Construction Fence)	2,480	LF	\$ 5.00	\$ 12,400.00
711	Pedestrian Light Poles w/ LED	34	EA	\$4,500.00	\$ 153,000.00
Sub-Total Landscaping					\$ 453,681.00
CATEGORY 8 - UTILITIES, LIGHTING & TRAFFIC					
801	Utilities (30% of Categories 2, 5 & 6)	1	LS	\$ 247,420.50	\$ 247,420.50
801	Lighting	0.50	MI	\$ 440,000.00	\$ 220,000.00
801	Signing	0.50	MI	\$ 17,600.00	\$ 8,800.00
Sub-Total Utilities, Lighting & Traffic					\$ 476,220.50
Subtotal					\$2,249,477.50
35% Contingency					\$ 787,317.13
TOTAL NEAT CONSTRUCTION					\$ 3,036,794.63
					\$ -
Total					\$ 3,036,794.63
SAY					\$ 3,100,000.00

Notes:

- Unit costs are based on MDSHA's July 2012 Estimator catalog.

OAKLAND MILLS STREETSCAPE
 CONCEPTUAL ESTIMATE
 Howard County, Maryland
 Concept 2: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 288,657.25	\$ 288,657.25
Sub-Total Preliminary					\$ 288,657.25
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,500	CY	\$ 32.00	\$ 48,000.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	1,300	CY	\$ 40.00	\$ 52,000.00
204	Test Pit Excavation	200	CY	\$ 130.00	\$ 26,000.00
205	Removal of Existing Curb and Gutter	770	LF	\$ 12.00	\$ 9,240.00
206	Saw Cuts	1,250	LF	\$ 3.00	\$ 3,750.00
207	Removal of Existing Pavement	960	CY	\$ 35.00	\$ 33,600.00
208	Removal of Existing Sidewalk	-	CY	\$ 40.00	\$ -
Sub-Total Grading					\$ 172,590.00
CATEGORY 3 - DRAINAGE					
301	Drainage (15% of Categories 2, 5 & 6)	1	LS	\$ 123,710.25	
Sub-Total Drainage					\$ 123,710.25
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 2: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,300	TON	\$ 120.00	\$ 156,000.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
504	Grinding Hot Mix Asphalt Pavement 0"-2"	10,520	SY	\$ 3.00	\$ 31,560.00
505	6 Inch Graded Aggregate Base	-	SY	\$ 10.00	\$ -
506	5" Yellow Pavement Marking Paint Lines	8,120	LF	\$ 0.50	\$ 4,060.00
507	5" White Pavement Marking Paint Lines	2,430	LF	\$ 0.50	\$ 1,215.00
508	24" White Permanent Preformed Pavement Markings	630	LF	\$ 5.00	\$ 3,150.00
Sub-Total Paving					\$ 195,985.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	2,820	LF	\$ 35.00	\$ 98,700.00
602	4" Concrete Sidewalk, 5' Wide	14,390	SF	\$ 9.00	\$ 129,510.00
603	Detectable Warning Surface for Curb Ramps	420	SF	\$ 40.00	\$ 16,800.00
604	Shared-Use Path, Integral Color	12,310	SF	\$ 15.00	\$ 184,650.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 456,160.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	31	EA	\$ 550.00	\$ 17,050.00
702	Flowering Trees, 10" Ht.	12	EA	\$ 360.00	\$ 4,320.00
703	Bioretention plantings, #1 Cont.	8,591	EA	\$ 11.00	\$ 94,501.00
704	Underdrains for Bioretention	1,300	LF	\$ 5.00	\$ 6,500.00
705	Sod Establishment	620	SY	\$ 3.50	\$ 2,170.00
706	Topsoil for Shared Use Path Median	1,924	CY	\$ 35.00	\$ 67,340.00

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland
Concept 2: Low Range Estimate**

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
707	Selective Tree Pruning	6	EA	\$ 400.00	\$ 2,400.00
708	Tree Removal	27	EA	\$ 2,000.00	\$ 54,000.00
709	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
710	Tree Protection Fence (Blaze Orange Construction Fence)	2,480	LF	\$ 5.00	\$ 12,400.00
711	Pedestrian Light Poles w/ LED	34	EA	\$4,500.00	\$ 153,000.00
Sub-Total Landscaping					\$ 453,681.00
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (15% of Categories 2, 5 & 6)	1	LS	\$ 123,710.25	\$ 123,710.25
801	Lighting	0.50	MI	\$ 440,000.00	\$ 220,000.00
801	Signing	0.50	MI	\$ 17,600.00	\$ 8,800.00
Sub-Total Utilities, Lighting & Traffic					\$ 352,510.25
Subtotal					\$2,043,293.75
25% Contingency					\$ 510,823.44
TOTAL NEAT CONSTRUCTION					\$ 2,554,117.19
Total					\$ 2,554,117.19
SAY					\$ 2,600,000.00

Notes:

- Unit costs are based on MDSHA's July 2012 Estimator catalog.



Oakland Mills Streetscape Improvements

Appendix B:
Option 1, Phase 1 and Phase 2 Cost Estimates

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 76,947.54	\$ 76,947.54
Sub-Total Preliminary					\$ 76,947.54
CATEGORY 2 - GRADING					
201	Class 1 Excavation	340	CY	\$ 32.00	\$ 10,880.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	255	CY	\$ 40.00	\$ 10,209.32
204	Test Pit Excavation	70	CY	\$ 130.00	\$ 9,100.00
205	Removal of Existing Curb and Gutter	300	LF	\$ 12.00	\$ 3,600.00
206	Saw Cuts	1,150	LF	\$ 3.00	\$ 3,450.00
207	Removal of Existing Pavement	174	CY	\$ 35.00	\$ 6,090.79
208	Removal of Existing Sidewalk	90	CY	\$ 40.00	\$ 3,600.00
Sub-Total Grading					\$ 46,930.11
CATEGORY 3 - DRAINAGE					
301	Drainage (25% of Categories 2, 5 & 6)	1	LS	\$ 54,962.53	
Sub-Total Drainage					\$ 54,962.53
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	370	TON	\$ 120.00	\$ 44,400.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
504	Grinding Hot Mix Asphalt Pavement 0"-2"	3,100	SY	\$ 3.00	\$ 9,300.00
505	6 Inch Graded Aggregate Base	-	SY	\$ 10.00	\$ -
506	5" Yellow Pavement Marking Paint Lines	1,380	LF	\$ 0.50	\$ 690.00
507	5" White Pavement Marking Paint Lines	2,760	LF	\$ 0.50	\$ 1,380.00
508	24" White Permanent Preformed Pavement Markings	130	LF	\$ 5.00	\$ 650.00
Sub-Total Paving					\$ 56,420.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	1,600	LF	\$ 35.00	\$ 56,000.00
602	4" Concrete Sidewalk, 5' Wide	6,500	SF	\$ 9.00	\$ 58,500.00
603	Detectable Warning Surface for Curb Ramps	50	SF	\$ 40.00	\$ 2,000.00
604	Paver Apron for Roundabouts	-	SF	\$ 15.00	\$ -
605	Special Paving Features at Trail Crossings	-	SF	\$ 25.00	\$ -
Sub-Total Shoulders					\$ 116,500.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	12	EA	\$ 550.00	\$ 6,600.00
702	Flowering Trees, 10" Ht.	10	EA	\$ 360.00	\$ 3,600.00
703	Bioretention plantings, #1 Cont.	1,100	EA	\$ 11.00	\$ 12,100.00
704	Underdrain for Bioretention	175	LF	\$ 5.00	\$ 875.00
705	Sod Establishment	450	SY	\$ 3.50	\$ 1,575.00
706	Topsoil for Median (18" Depth)	300	CY	\$ 35.00	\$ 10,500.00
707	Selective Tree Pruning	4	EA	\$ 400.00	\$ 1,600.00

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	3	EA	\$ 2,000.00	\$ 6,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	1,120	LF	\$ 5.00	\$ 5,600.00
710	Gateway Features	-	LS	\$ 20,000.00	\$ -
Sub-Total Landscaping					\$ 48,450.00
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (30% of Categories 2, 5 & 6)	1	LS	\$ 65,955.03	\$ 65,955.03
802	Lighting	0.17	MI	\$ 440,000.00	\$ 74,800.00
803	Signing	0.17	MI	\$ 17,600.00	\$ 2,992.00
Sub-Total Utilities, Lighting & Traffic					\$ 143,747.03
Subtotal					\$543,957.22
35% Contingency					\$ 190,385.03
TOTAL NEAT CONSTRUCTION					\$ 734,342.24
Total					\$ 734,342.24
SAY					\$ 800,000.00

Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 76,947.54	\$ 76,947.54
Sub-Total Preliminary					\$ 76,947.54
CATEGORY 2 - GRADING					
201	Class 1 Excavation	340	CY	\$ 32.00	\$ 10,880.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	255	CY	\$ 40.00	\$ 10,209.32
204	Test Pit Excavation	70	CY	\$ 130.00	\$ 9,100.00
205	Removal of Existing Curb and Gutter	300	LF	\$ 12.00	\$ 3,600.00
206	Saw Cuts	1,150	LF	\$ 3.00	\$ 3,450.00
207	Removal of Existing Pavement	174	CY	\$ 35.00	\$ 6,090.79
208	Removal of Existing Sidewalk	90	CY	\$ 40.00	\$ 3,600.00
Sub-Total Grading					\$ 46,930.11
CATEGORY 3 - DRAINAGE					
301	Drainage (15% of Categories 2, 5 & 6)	1	LS	\$ 32,977.52	
Sub-Total Drainage					\$ 32,977.52
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	370	TON	\$ 120.00	\$ 44,400.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	-	TON	\$ 120.00	\$ -
504	Grinding Hot Mix Asphalt Pavement 0"-2"	3,100	SY	\$ 3.00	\$ 9,300.00
505	6 Inch Graded Aggregate Base	-	SY	\$ 10.00	\$ -
506	5" Yellow Pavement Marking Paint Lines	1,380	LF	\$ 0.50	\$ 690.00
507	5" White Pavement Marking Paint Lines	2,760	LF	\$ 0.50	\$ 1,380.00
508	24" White Permanent Preformed Pavement Markings	130	LF	\$ 5.00	\$ 650.00
Sub-Total Paving					\$ 56,420.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	1,600	LF	\$ 35.00	\$ 56,000.00
602	4" Concrete Sidewalk, 5' Wide	6,500	SF	\$ 9.00	\$ 58,500.00
603	Detectable Warning Surface for Curb Ramps	50	SF	\$ 40.00	\$ 2,000.00
604	Paver Apron for Roundabouts	-	SF	\$ 15.00	\$ -
605	Special Paving Features at Trail Crossings	-	SF	\$ 25.00	\$ -
Sub-Total Shoulders					\$ 116,500.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	12	EA	\$ 550.00	\$ 6,600.00
702	Flowering Trees, 10" Ht.	10	EA	\$ 360.00	\$ 3,600.00
703	Bioretention plantings, #1 Cont.	1,100	EA	\$ 11.00	\$ 12,100.00
704	Underdrain for Bioretention	175	LF	\$ 5.00	\$ 875.00
705	Sod Establishment	450	SY	\$ 3.50	\$ 1,575.00
706	Topsoil for Median (18" Depth)	300	CY	\$ 35.00	\$ 10,500.00
707	Selective Tree Pruning	4	EA	\$ 400.00	\$ 1,600.00

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 1: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	3	EA	\$ 2,000.00	\$ 6,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	1,120	LF	\$ 5.00	\$ 5,600.00
710	Gateway Features	-	LS	\$ 20,000.00	\$ -
Sub-Total Landscaping					\$ 48,450.00
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (15% of Categories 2, 5 & 6)	1	LS	\$ 32,977.52	\$ 32,977.52
802	Lighting	0.17	MI	\$ 440,000.00	\$ 74,800.00
803	Signing	0.17	MI	\$ 17,600.00	\$ 2,992.00
Sub-Total Utilities, Lighting & Traffic					\$ 110,769.52
Subtotal					\$488,994.69
25% Contingency					\$ 122,248.67
TOTAL NEAT CONSTRUCTION					\$ 611,243.36
Total					\$ 611,243.36
SAY					\$ 700,000.00

Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 327,564.96	\$ 327,564.96
Sub-Total Preliminary					\$ 327,564.96
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,140	CY	\$ 32.00	\$ 36,480.00
202	Class 1-A Excavation	-	CY	\$ 30.00	\$ -
203	Common Borrow	2,245	CY	\$ 40.00	\$ 89,790.68
204	Test Pit Excavation	130	CY	\$ 130.00	\$ 16,900.00
205	Removal of Existing Curb and Gutter	100	LF	\$ 12.00	\$ 1,200.00
206	Saw Cuts	2,520	LF	\$ 3.00	\$ 7,560.00
207	Removal of Existing Pavement	1,106	CY	\$ 35.00	\$ 38,709.21
208	Removal of Existing Sidewalk	210	CY	\$ 40.00	\$ 8,400.00
Sub-Total Grading					\$ 199,039.89
CATEGORY 3 - DRAINAGE					
301	Drainage (25% of Categories 2, 5 & 6)	1	LS	\$ 233,974.97	
Sub-Total Drainage					\$ 233,974.97
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,060	TON	\$ 120.00	\$ 127,200.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	340	TON	\$ 120.00	\$ 40,800.00
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	810	TON	\$ 120.00	\$ 97,200.00
504	Grinding Hot Mix Asphalt Pavement 0"-2"	5,750	SY	\$ 3.00	\$ 17,250.00
505	6 Inch Graded Aggregate Base	2,730	SY	\$ 10.00	\$ 27,300.00
506	5" Yellow Pavement Marking Paint Lines	8,690	LF	\$ 0.50	\$ 4,345.00
507	5" White Pavement Marking Paint Lines	2,390	LF	\$ 0.50	\$ 1,195.00
508	24" White Permanent Preformed Pavement Markings	40	LF	\$ 5.00	\$ 200.00
Sub-Total Paving					\$ 315,490.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	4,530	LF	\$ 35.00	\$ 158,550.00
602	4" Concrete Sidewalk, 5' Wide	16,280	SF	\$ 9.00	\$ 146,520.00
603	Detectable Warning Surface for Curb Ramps	370	SF	\$ 40.00	\$ 14,800.00
604	Paver Apron for Roundabouts	5,000	SF	\$ 15.00	\$ 75,000.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 421,370.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	22	EA	\$ 550.00	\$ 12,100.00
702	Flowering Trees, 10" Ht.	18	EA	\$ 360.00	\$ 6,480.00
703	Bioretention plantings, #1 Cont.	2,161	EA	\$ 11.00	\$ 23,771.00
704	Underdrain for Bioretention	345	LF	\$ 5.00	\$ 1,725.00
705	Sod Establishment	910	SY	\$ 3.50	\$ 3,185.00
706	Topsoil for Median (18" Depth)	548	CY	\$ 35.00	\$ 19,162.50
707	Selective Tree Pruning	8	EA	\$ 400.00	\$ 3,200.00

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: High Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	2	EA	\$ 2,000.00	\$ 4,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	2,240	LF	\$ 5.00	\$ 11,200.00
710	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
Sub-Total Landscaping					\$ 124,823.50
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (30% of Categories 2, 5 & 6)	1	LS	\$ 280,769.97	\$ 280,769.97
802	Lighting	0.33	MI	\$ 440,000.00	\$ 145,200.00
803	Signing	0.33	MI	\$ 17,600.00	\$ 5,808.00
Sub-Total Utilities, Lighting & Traffic					\$ 431,777.97
Subtotal					\$2,054,041.28
35% Contingency					\$ 718,914.45
TOTAL NEAT CONSTRUCTION					\$ 2,772,955.73
Total					\$ 2,772,955.73
SAY					\$ 2,800,000.00

Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.

**OAKLAND MILLS STREETSCAPE
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 1 - PRELIMINARY					
101	Preliminary (35% of Categories 2, 5 & 6)	1	LS	\$ 299,307.92	\$ 299,307.92
Sub-Total Preliminary					\$ 299,307.92
CATEGORY 2 - GRADING					
201	Class 1 Excavation	1,140	CY	\$ 32.00	\$ 36,480.00
202	Class 1-A Excavation	0	CY	\$ 30.00	\$ -
203	Common Borrow	2,245	CY	\$ 40.00	\$ 89,790.68
204	Test Pit Excavation	130	CY	\$ 130.00	\$ 16,900.00
205	Removal of Existing Curb and Gutter	100	LF	\$ 12.00	\$ 1,200.00
206	Saw Cuts	2,520	LF	\$ 3.00	\$ 7,560.00
207	Removal of Existing Pavement	1,044	CY	\$ 35.00	\$ 36,529.81
208	Removal of Existing Sidewalk	210	CY	\$ 40.00	\$ 8,400.00
Sub-Total Grading					\$ 196,860.49
CATEGORY 3 - DRAINAGE					
301	Drainage (15% of Categories 2, 5 & 6)	1	LS	\$ 128,274.82	
Sub-Total Drainage					\$ 128,274.82
CATEGORY 4 - STRUCTURES					
					\$ -
					\$ -
					\$ -
Sub-Total Structures					\$ -

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
CATEGORY 5 - PAVING					
501	HMA Superpave 12.5 mm for Surface, PG 64-22, Level 2	1,060	TON	\$ 120.00	\$ 127,200.00
502	HMA Superpave 12.5 mm for Intermediate Surface, PG 64-22, Level 2	170	TON	\$ 120.00	\$ 20,400.00
503	HMA Superpave Base 19.0 mm, PG 64-22, Level 2	405	TON	\$ 120.00	\$ 48,600.00
504	Grinding Hot Mix Asphalt Pavement 0"-2"	7,115	SY	\$ 3.00	\$ 21,345.00
505	6 Inch Graded Aggregate Base	1,365	SY	\$ 10.00	\$ 13,650.00
506	5" Yellow Pavement Marking Paint Lines	8,690	LF	\$ 0.50	\$ 4,345.00
507	5" White Pavement Marking Paint Lines	2,390	LF	\$ 0.50	\$ 1,195.00
508	24" White Permanent Preformed Pavement Markings	40	LF	\$ 5.00	\$ 200.00
Sub-Total Paving					\$ 236,935.00
CATEGORY 6 - SHOULDERS					
601	7" Concrete Combination Curb and Gutter	4,530	LF	\$ 35.00	\$ 158,550.00
602	4" Concrete Sidewalk, 5' Wide	16,280	SF	\$ 9.00	\$ 146,520.00
603	Detectable Warning Surface for Curb Ramps	370	SF	\$ 40.00	\$ 14,800.00
604	Paver Apron for Roundabouts	5,000	SF	\$ 15.00	\$ 75,000.00
605	Special Paving Features at Trail Crossings	1,060	SF	\$ 25.00	\$ 26,500.00
Sub-Total Shoulders					\$ 421,370.00
CATEGORY 7 - LANDSCAPING					
701	Shade Trees, 2.5" Cal.	22	EA	\$ 550.00	\$ 12,100.00
702	Flowering Trees, 10" Ht.	18	EA	\$ 360.00	\$ 6,480.00
703	Bioretention plantings, #1 Cont.	2,161	EA	\$ 11.00	\$ 23,771.00
704	Underdrain for Bioretention	345	LF	\$ 5.00	\$ 1,725.00
705	Sod Establishment	910	SY	\$ 3.50	\$ 3,185.00
706	Topsoil for Median (18" Depth)	548	CY	\$ 35.00	\$ 19,162.50
707	Selective Tree Pruning	8	EA	\$ 400.00	\$ 3,200.00

**OAKLAND MILLS STREETScape
CONCEPTUAL ESTIMATE
Howard County, Maryland**

Concept 1 - Phase 2: Low Range Estimate

ENGINEER'S CONSTRUCTION COST ESTIMATE

Item No.	Item Description	Qty.	Unit	Unit Cost	Cost
708	Tree Removal	2	EA	\$ 2,000.00	\$ 4,000.00
709	Tree Protection Fence (Blaze Orange Construction Fence)	2,240	LF	\$ 5.00	\$ 11,200.00
710	Gateway Features	2	LS	\$ 20,000.00	\$ 40,000.00
Sub-Total Landscaping					\$ 124,823.50
CATEGORY 8 - UTILITIES & TRAFFIC					
801	Utilities (15% of Categories 2, 5 & 6)	1	LS	\$ 128,274.82	\$ 128,274.82
802	Lighting	0.33	MI	\$ 440,000.00	\$ 145,200.00
803	Signing	0.33	MI	\$ 17,600.00	\$ 5,808.00
Sub-Total Utilities, Lighting & Traffic					\$ 279,282.82
Subtotal					\$1,686,854.56
25% Contingency					\$ 421,713.64
TOTAL NEAT CONSTRUCTION					\$ 2,108,568.19
Total					\$ 2,108,568.19
SAY					\$ 2,200,000.00

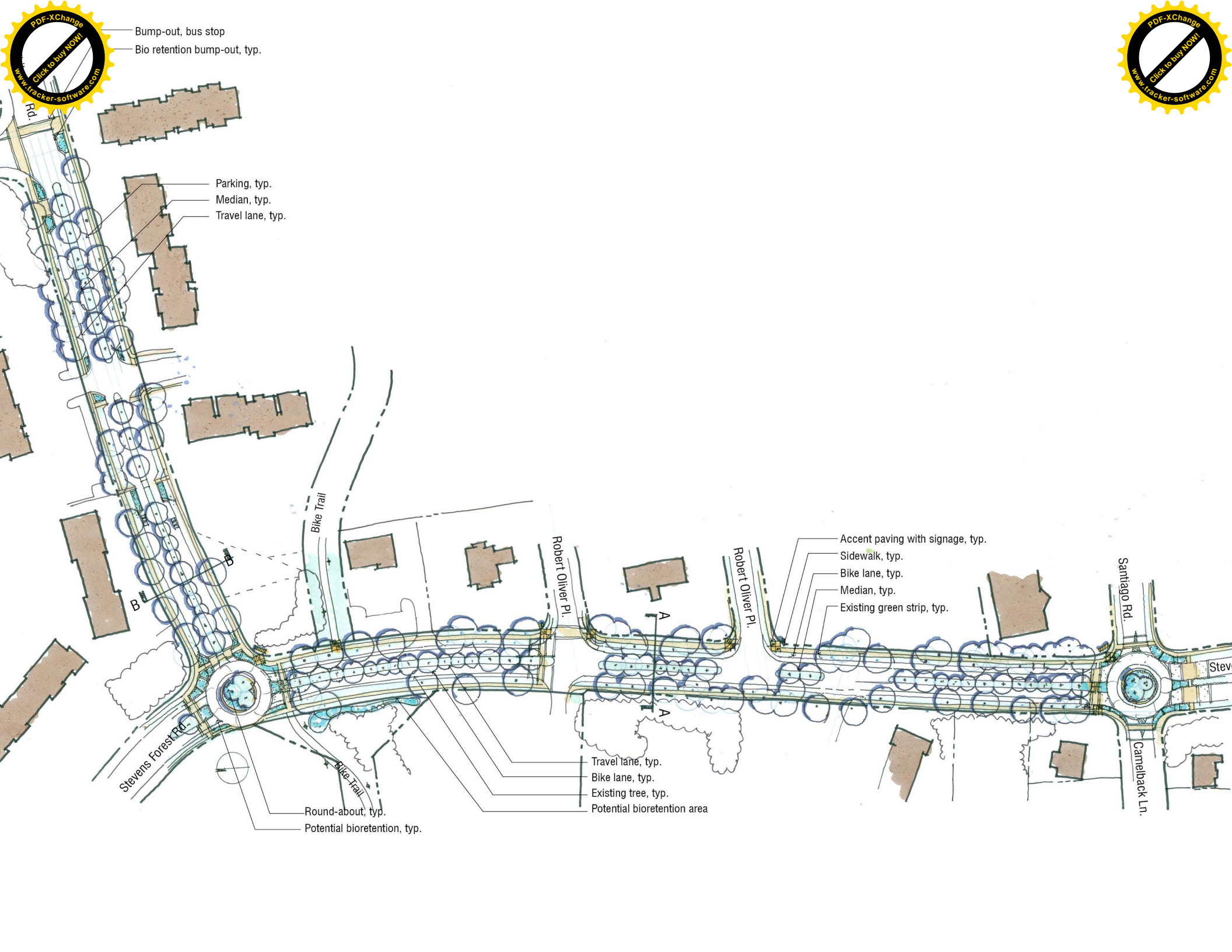
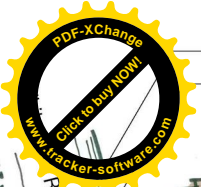
Notes:

1. Unit costs are based on MDSHA's July 2012 Estimator catalog.



Oakland Mills Streetscape Improvements

Appendix C:
Option 1 and Option 2 Graphics, 10 June 2014



Bump-out, bus stop
 Bio retention bump-out, typ.

Parking, typ.
 Median, typ.
 Travel lane, typ.

Accent paving with signage, typ.
 Sidewalk, typ.
 Bike lane, typ.
 Median, typ.
 Existing green strip, typ.

Round-about, typ.
 Potential bioretention, typ.

Travel lane, typ.
 Bike lane, typ.
 Existing tree, typ.
 Potential bioretention area

Santiago Rd.
 Camelback Ln.

Robert Oliver Pl.

Robert Oliver Pl.

Stevens Forest Rd.

Bike Trail

Bike Trail

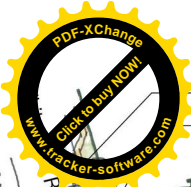
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- Bump-out, bus stop
- Bio retention bump-out, typ

- Parking, typ.
- Bike lane, typ.
- Travel lane, typ.

- Accent paving with signage, typ.
- Pedestrian pole light, typ.
- Street light, typ.
- Hiker-biker trail
- Potential bioretention area

- Travel lane, typ.
- Bike lane, typ.
- Existing tree, typ.
- Potential bioretention area

Stevens Forest Rd.

Bike Trail

Robert Oliver Pl.

Robert Oliver Pl.

Santiago Rd.

Camelback Ln.

Stev