



APPENDIX L – PLANNING LEVEL COST ESTIMATES

Development of Costs

Tabular Summary of Planning Level Cost Estimates



DEVELOPMENT OF COSTS FOR NON-STANDARD COMPONENTS

This section will detail the process, assumptions, and sources involved in developing a cost for each component that is not part of the VDOT Statewide Planning Level Cost Estimates spreadsheet. These items are listed in order of when they first appeared in the FCP-FSP Improvements Matrix.

Detectable Warning Surface (SI-01)

Detectable warning surface is listed at \$424 per square yard in the NOVA District per the VDOT District Averages. It was assumed that each curb ramp would be designed with the minimum necessary detectable warning surface necessary – 2' wide by 5' long, or 1.1 square yards for each detectable warning surface suggested.

LOW: \$475 each

HIGH: \$570 each

Construct ADA-Compliant Curb Ramp (SI-02)

Installing a new curb ramp at a corner is assumed to include the following: constructing a CG-12 with aggregate, a detectable warning surface, a 4' wide strip of concrete along the back of the ramp (about 10 square yards), 8 linear feet of new radial CG-6, sawcutting the existing pavement (about 22 LF), demolishing and then replacing a 1' strip of asphalt pavement along the new curb and curb ramp (about 22 LF), and 5 cubic yards of borrow for any grading that might be necessary behind the new ramp.

The Fairfax County Unit Price Schedule lists CG-12 at \$651.34 each, concrete sidewalk as \$50.36 per square yard, and borrow at \$26 per CY. The VDOT District Averages for the NOVA District list sawcut at \$2.50 per LF, radial CG-6 at \$33.21 per LF. The cost for the detectable warning surface is the same as that shown under **SI-01**. The cost for new full-depth asphalt pavement is the same as that shown under **SI-06**. The cost for demolition of asphalt pavement is the same as that shown under **SI-21**.

LOW: \$2350 each

HIGH: \$2820 each

Replace Existing Curb Ramp with ADA-Compliant Curb Ramp (SI-03)

Replacing a curb ramp is assumed to involve the following actions: removing the existing concrete curb ramp (assumed to be 12 SY), removing 4 feet of concrete sidewalk along the back of the ramp for grading purposes (about 10 square yards), and installing a new curb ramp.

The 2017 Fairfax County Unit Price Schedule lists removal of concrete curb ramp at \$35 per square yard. Constructing a curb ramp is the same cost as listed under **SI-02**. The cost for demolition of asphalt pavement is the same as that shown under **SI-21**.

LOW: \$3200 each

HIGH: \$3840 each

Construct 5' Sidewalk with Aggregate (SI-04)

Concrete sidewalk with aggregate is listed at \$50.36 per square yard in the 2017 Fairfax County Unit Price Schedule. A 5' wide strip of sidewalk is .55 SY per LF.

LOW: \$28 per LF

HIGH: \$33.60 per LF

Install Curb and Gutter (SI-05)

The installation of curb and gutter includes the costs of sawcutting asphalt pavement, removing a 1' wide strip of existing asphalt pavement, installing a 1' wide strip of full depth asphalt pavement, the cost of the combination concrete curb and gutter itself, and grading behind the curb.

The 2017 Fairfax County Unit Price Schedule lists CG-6 Curb & Gutter at \$27.36 per LF and saw cut at \$2.50 per LF. The cost for full depth asphalt pavement is the same as listed under **SI-06**. The cost for demolition of asphalt pavement is the same as listed under **SI-21**.

LOW: \$43 per LF

HIGH: 51.60 per LF

Full-Depth Asphalt Pavement (SI-06)

Full depth asphalt pavement is assumed to be 2" of surface course, 4" of intermediate course, 6" of base course, and 8" of aggregate – per the 2017 Fairfax County Unit Price Schedule, these cost \$13.03, \$24.60, \$38.70, and \$24.30 per square yard, a total of \$100.63 per square yard.

LOW: \$101 per Square Yard

HIGH: \$121.20 per Square Yard

Mill and Overlay (SI-07)

Mill and Overlay consists of milling the top layer of flexible pavement and installing a 2" thick overlay on top. The 2" surface course is \$13.03 per SY. Type A Milling (1 ½" depth) is listed at \$30.92 in the VDOT Statewide Averages.

LOW: \$49 per SY

HIGH: \$58.80 per SY

Install Bus Stop Pad (SI-08)

The cost of installing a bus stop pad was based on cost estimates for a group of 11 Fairfax County Bus stops designed by Kimley-Horn. These bus stop pads did not include shelters, and about half included benches. The five most expensive bus stop pads were averaged to produce our "high" cost and six least expensive were averaged to produce our "low" cost. These costs reflect only the construction costs associated with the construction of the bus stop pad and do not include mobilization, maintenance of traffic, utility relocations, professional engineering services, surveys, production of plats, or any contingencies.

LOW: \$5000 each

HIGH: \$9200 each

Rebuild Bridge Parapet (SI-09)

Rebuilding a bridge parapet is assumed to include the demolition of existing parapet, hauling the demolished concrete to a site within 10 miles to dump, constructing a new VDOT Standard BR27C-13 Bridge Railing, and constructing an 8' pedestrian fence on that railing. Demolition of existing parapet was listed at \$7.50 per LF in the 2016 Ways & Means Handbook. Dumping rubble was listed at \$34.29 per CY in the 2017 Fairfax County Unit Price Schedule, and existing barriers are assumed to be standard F Barriers with a cross-sectional area of 3.39 SF, which converts to 0.13 CY per LF. BR27C-13 bridge railing is listed at \$190 per LF in the VDOT District Averages for the NOVA District. 8' Pedestrian Fence is listed at 30 per LF in the VDOT District Averages for the NOVA District. This all sums to \$231.96 per LF.

LOW: \$235 per LF

HIGH: \$282 per LF

Guardrail GR-2 (SI-10)

VDOT Standard GR-2 Guardrail is listed at \$16.38 per LF in the VDOT District Averages for the NOVA District.

LOW: \$17 per LF

HIGH: \$20.40 per LF

Guardrail Terminal Section GR-7 (SI-11)

VDOT Standard Guardrail Terminal Section GR-7 is listed at \$1488.12 each in the VDOT District Averages for the NOVA District.

LOW: \$1500 Each

HIGH: \$1800 Each

Concrete Median (SI-12)

VDOT Standard Median Strip MS-1 is listed at \$102.56 per SY in the VDOT District Averages for the NOVA District.

LOW: \$105 per SY

HIGH: \$126 per SY

Grass Median (SI-13)

VDOT Standard Median Strip MS-2 is listed at \$39.72 per SY in the VDOT District Averages for the NOVA District.

LOW: \$40 per SY

HIGH: \$48 per SY

Channelizing Island (SI-14)

Dimensions for a standard channelizing island were found by sampling the dimensions of existing channelizing islands within the project study. It is assumed that a standard channelizing island will require 80 SY of concrete and 145 LF of curb and gutter. The installation of Curb and Gutter assumes the same price as **SI-05**, and the cost of concrete with aggregate is \$50.36 per SY per the 2017 Fairfax County Unit Price Schedule.

LOW: \$10,500 Each

HIGH: \$12,600 Each

Widening – 1 Lane – Urban Environment (SI-15)

There is no road widening item in the VDOT Statewide Planning Level Cost Estimates spreadsheet, so the costs of a 2-lane Urban Typical Section from that spreadsheet were divided in half. Because costs from this tool already include PE and Construction Contingency, no additional costs for PE & Construction Contingencies, maintenance of traffic, potential utility relocations, erosion and sediment control, construction surveying, or construction mobilization are added to this item.

LOW: \$2,050,000 per mile

HIGH: \$3,105,000 per mile

Plant Grass (SI-16)

The VDOT NOVA District Average for seeding, fertilizer, and lime combine to \$12,120 per acre.

LOW: \$2.50 per square yard

HIGH: \$3.00 per square yard

Excavation (SI-17)

Regular Excavation is listed at \$32.57 per CY in the 2017 Fairfax County Unit Price Schedule.

LOW: \$33 per CY

HIGH: \$39.60 per CY

Borrow (SI-18)

Borrow is listed at \$26.06 per CY in the 2017 Fairfax County Unit Price Schedule.

LOW: \$26 per CY

HIGH: 31.20 per CY

Clearing and Grubbing (SI-19)

The 2017 Fairfax County Unit Price Schedule has four options for clearing and grubbing – light, moderate, heavy, and very heavy. Because most locations along the study corridor are so close to a road, it was assumed that only moderate clearing of grubbing would be needed. Moderate clearing and grubbing is priced at \$11,724.15 per acre.

LOW: \$2.50 per square yard

HIGH: \$3.00 per square yard

Removal of Concrete Sidewalk and Entrance (SI-20)

Removal of Concrete Sidewalk and Entrance is listed at \$18.39 per SY in the VDOT District Averages for the NOVA District.

LOW: \$19 per SY

HIGH: \$22.80 per SY

Demolition of Asphalt Pavement (SI-21)

Demolition of flexible pavement is listed at \$10.68 per SY in the VDOT District Averages for the NOVA District.

LOW: \$11 per SY

HIGH: \$13.20 per SY

Remove and Reset Guardrail (SI-22)

Remove and Reset Guardrail is listed at \$39.08 per LF in the 2017 Fairfax County Unit Price Schedule.

LOW: \$40 per LF

HIGH: \$48 per LF

Curbed Sidewalk (SI-23)

Curbed sidewalk is bid as curb-abutted sidewalk with no buffer space. The cost for the curb is the same as listed under **SI-05**, and the cost for the 5' sidewalk is the same as listed under **SI-06**.

LOW: \$63 per LF

HIGH: \$75.60 per LF

Demolish Concrete Median Nose (SI-24)

This item includes the demolition of 5 LF of concrete median nose, replacing that space with full-depth pavement, and relocating the sign that was in the median nose. The cost for demolishing the median nose is assumed to be the same as demolition of curb and gutter, which is listed at \$18.10 in the VDOT District Averages for the NOVA District. The 5 SY of full depth pavement are at the same cost as is listed under **SI-06**. The cost of relocating the sign is the same as is listed under **SI-69**.

LOW: \$1600 each

HIGH: \$1920 Each

[Items SI-25 through SI-40 are held for additional heavy construction items that may arise]

Relocate Pedestrian Signal Pole (SI-41)

Relocating a pedestrian signal pole requires the removal and disposal of the existing pedestal pole and associated push buttons, signs, signal heads, wiring, and junction boxes. The total cost of these items is \$2,650 as derived from previous project experience. The new pole requires a PF-2 Pole and PF-2 Pole Foundation, 500 LF of both 14 AWG/7C and 14 AWG/2C conductor cable, a push button with associated sign, and a LED pedestrian signal head. The cost for the PF-2 Pole and foundation is a combined \$1,570 per the VDOT District Averages for the NOVA District. The cost for the conductor cables, push button and sign, and a pedestrian LED Signal Head is a combined \$5,665 as derived from previous project experience.

LOW: \$10,000 each

HIGH: \$12,000 each

New Pedestrian Signal Pole (SI-42)

The new pole requires a PF-2 Pole and PF-2 Pole Foundation, 500 LF of both 14 AWG/7C and 14 AWG/2C conductor cable, a push button with associated sign, a LED pedestrian signal head, and a new junction box. The cost for the PF-2 Pole and foundation is a combined \$1,570 per the VDOT District Averages for the NOVA District. The cost for the conductor cables, push button and sign, a pedestrian LED Signal Head, and new junction box is a combined \$6,125 as derived from previous project experience.

LOW: \$7,800 Each

HIGH: \$9,360 Each

Update Signal Display (SI-43)

Updating a signal display requires a new 3-Section Signal Head, 500' of 14AWG/7C conductor cable, and removing and disposing of the existing signal heads. From past projects, we've estimated this cost at \$2,300 per updated signal head.

LOW: \$2,300 per updated signal head

HIGH: \$2,760 per updated signal head

Implement Split Phase Operations (SI-44)

Implementing split phase operations is assumed to include the installation of a new 4-Section Signal Head, 500 LF of 14AWG/7C, a new elongated double arrow, and the removal of existing signal head for each approach. Implementing split phase operations assumes doing this to both sides of an approach, so costs are doubled.

LOW: \$7,300 per pair of approaches

HIGH: \$8,760 per pair of approaches

Intersection Lighting Study (SI-45)

Prior experience with lighting studies led us to assume a cost of \$25,000 for conducting an intersection lighting study.

LOW: \$25,000 Each

HIGH: \$30,000 Each

Install Near-Side Signal Display (SI-46)

Installing a near-side signal display assumes the installation of a new PF-2 Pole and PF-2 Pole Foundation, 500 LF of 14 AWG/7C Conductor Cable, and a new 3-Section Signal Head. The cost of the PF-2 Pole and Foundation is a combined \$1,570 per the VDOT District Averages for the NOVA District. The cost for the signal head and conductor cable is \$2,975 based on prior project experience.

LOW: \$4,600 Each

HIGH: \$5,520 Each

Relocate Traffic Signal Cabinet (SI-47)

Relocating a traffic signal cabinet has been priced at \$30,000 based on prior project experience.

LOW: \$30,000

HIGH: \$36,000

Install Retroreflective Backplates on all Signal Heads at Intersection (SI-48)

Installation of Retroreflective Backplates on signal heads has been priced at \$10,000 for an entire intersection based on prior project experience.

LOW: \$10,000

HIGH: \$12,000

Overhead Street Lighting (SI-49)

Overhead Street Lighting is assumed to include the installation of 1000 feet down each approach to an intersection. Light poles are spaced 200' on center on both sides of the approach, or 12 total light poles per approach. 1200 LF of conduit and conductor cable will be required, and a junction box will be required every 300 feet, or 5 per approach.

The VDOT District Averages for the NOVA District list LP-1 Lighting Pole & Luminaires at \$3500 each. Prior project experience gives a cost of \$800 per junction box and \$10 per linear foot of conduit and conductor cable.

LOW: \$60,000 per approach

HIGH: \$72,000 per approach

Overhead Street Lighting Control System

Each intersection with overhead street lighting will need a single control system that will cover all approaches, priced at \$15,000 based on previous project experience. The system will also need electrical service installed, priced at \$2,000 based on previous project experience.

LOW: \$17,000 per intersection

HIGH: \$20,400 per intersection

Queue-Activated Flashing Beacon (SI-51)

A queue-activated flashing beacon is assumed to include the construction of an overhead sign gantry with foundation, a sign panel, and a loop detection system over 1200'. Based on prior project experience, the price of the sign gantry is \$40,000, the foundation is \$1,200, and the detection system is \$20,000. The VDOT District Averages for the NOVA District list sign panels at \$61.77 per SF, or \$2,223 for a 3x12 sign.

LOW: \$63,500 Each

HIGH: \$76,200 Each

Replace Mast Arm (SI-52)

Replacing a mast arm has been priced at \$20,000 based on prior project experience.

LOW: \$20,000 Each

HIGH: \$24,000

[Items SI-53 through SI-60 have been reserved for any future signal-related items that may arise]

Install Sign (SI-61)

Traffic control signs are listed at \$438.82 in the Fairfax 2016 Unit Price Schedule.

LOW: \$450 each

HIGH: \$540 each

Bicycle/Pedestrian (W11-15) warning sign w/supplemental TRAIL X-ING (W11-15P) plaque (SI-62)

The combined warning sign with supplemental plaque assembly is assumed to include one STP-1 concrete foundation, one 7' tall STP-1 sign post, and 12 SF of sign panel. The W11-15 Warning Sign is 3'x3', and the W11-15P plaque is 3'x1'. VDOT District Averages for the NOVA District list STP-1 foundations at \$246.36 each, STP-1 posts at \$25.91 per LF, and sign panel at \$61.77 per SF.

LOW: \$1,200 Each

HIGH: \$1,440 Each

D-3 Street Name signs (SI-63)

Street name signs are assumed to be 10' long and 2' tall on average, or 20 SF each. The VDOT District Averages for the NOVA District list sign panel at \$61.77 per SF.

LOW: \$1,250 Each

HIGH: \$1,500 Each

D3-2 Next Signal Signs (SI-64)

Two-line next signal signs are 30" high by 10' long per MUTCD. These signs require 2 STP-1 sign posts and foundations. VDOT District Averages for the NOVA District list STP-1 foundations at \$246.36 each, STP-1 posts at \$25.91 per LF, and sign panel at \$61.77 per SF.

LOW: \$2,400 Each

HIGH: \$2,880 Each

Install Speed Feedback Sign (SI-65)

A speed feedback sign is assumed to include a sign and solar panel assembly and a foundation. From prior project experience, the foundation is priced at \$1,000. A review of speed feedback sign manufacturer websites gave a rough cost of \$6,000 per sign and solar panel assembly.

LOW: \$7,000 Each

HIGH: \$8,400 Each

Flashing Signal Beacon (SI-66)

It is assumed that flashing signal beacons will be hard-wired to the signal cabinet. Each pair of flashing signal beacons includes signs, beacons, poles, foundations, conduit, conductor cable, and junction boxes. Based on prior project experience, the combined cost of these items will be \$15,000.

LOW: \$15,000 per pair

HIGH: \$18,000 per pair

Construct Overhead Sign Gantry with Concrete Foundation and Sign (SI-67)

This item includes the construction of an overhead sign gantry, a concrete foundation, and a 10'x12' sign. Based on prior project experience, the gantry and foundation are priced at a combined \$41,200. VDOT District Averages for the NOVA District list sign panels at \$61.77 per SF.

LOW: \$48,750 Each

HIGH: \$58,500 Each

Replace Overhead Signs (SI-68)

This item includes the installation of a new 10'x12' sign panel and the removal and disposal of the existing sign. VDOT District Averages for the NOVA District list sign panel at \$61.77 per SF and the removal and disposal of an existing overhead sign at \$13,582 each.

LOW: \$22,000 per sign

HIGH: \$26,400 per sign

Relocate Sign (SI-69)

This item is to be used for the relocation of a ground-level, single post sign onto a new foundation and 7' sign post. The VDOT District Averages for the NOVA District list the relocation of an existing sign panel at \$430.75 each, the construction of STP-1 foundations at \$238.65 each, and STP-1 posts at \$26.06 per LF.

LOW: \$850 Each

HIGH: \$1,020 Each

Remove Sign (SI-70)

This item is to be used for the removal of ground-level signs. Experience from prior projects gives a cost of \$200 each.

[Items SI-71 through SI-80 have been reserved for any future sign-related items that may arise]

Striping (SI-81)

4" pavement markings are listed at \$0.61 per linear foot in the NOVA District per VDOT District averages.

LOW: \$0.61 per linear foot

HIGH: \$0.73 per linear foot

Re-Striping (SI-82)

Re-striping a road requires both eradicating pavement markings and laying down new pavement markings. Eradicating pavement markings is listed at \$0.53 per linear foot in the NOVA District per VDOT District averages, and 4" pavement markings are listed at \$0.61 per linear foot.

LOW: \$1.14 per linear foot

HIGH: \$1.37 per linear foot

Striping for Turn Lane (SI-83)

Striping for a turn lane is assumed to include three elongated single turn arrows, and two "ONLY" pavement markings. Costs for these items are the same as is listed in items **SI-84**, **SI-85**, and **SI-86** below.

LOW: \$950 per turn lane

HIGH: \$1140 per turn lane

Elongated Arrow (SI-84)

Elongated single arrows are listed at \$107.73 each in the NOVA District per VDOT District averages.

LOW: \$110 each

HIGH: \$132 each

Elongated Double Arrow (SI-85)

Elongated double arrows are listed at \$152.20 each in the NOVA District per VDOT District averages.

LOW: \$160 each

HIGH: \$192 each

Pavement Marking "ONLY" (SI-86)

The VDOT District Averages for the NOVA District list the pavement marking message "ONLY" at \$298.07 each.

LOW: \$300 Each

HIGH: \$360 Each

Stop Bar (SI-87)

The VDOT District Averages for the NOVA District list 24" Type B Class IV Pavement Markings at \$16.05 per LF.

LOW: \$16 per LF

HIGH: \$19.20 per LF

Yield Markings (SI-88)

Yield marking dimensions used for this cost estimate are based off the MUTCD, showing a 2' base, 3' height, and 6" between triangles. Measured across an intersection, you have 1 triangle every 2.5' on centers. Each triangle contains 3 square feet of Type B Cl. I paint, and 24" Type B Cl. I paint is listed at \$16.05 per linear foot, which converts to \$8.03 per square foot of paint. Assuming the costs of painting a triangle are equal to those of painting a stripe, each triangle is \$24.09. And given that there is one triangle every 2.5' across an intersection, a cost per linear foot can be derived. In this case, that cost is \$9.64 per linear foot across the intersection.

LOW: \$9.64 per linear foot across an intersection

HIGH: \$11.57 per linear foot across an intersection.

High-Visibility Crosswalk Markings (SI-89)

This project assumes that High-Visibility Crosswalk Markings consist of 24" wide by 10' long markings spaced 4' on centers. This provides three markings per 12 lane, or 2.5 feet of striping per LF across the intersection. The VDOT District Averages for the NOVA District list 24" Type B Class IV Pavement Markings at \$16.05 per LF.

LOW: \$40 per LF across intersection

HIGH: \$48 per LF across intersection

Realign High-Visibility Crosswalk Markings (SI-90)

This item includes the cost of High-Visibility Crosswalk Markings listed in SI-89 as well as eradication of existing 24" wide by 10' long markings spaced 4' on centers. The VDOT District Averages for the NOVA District list eradication of existing pavement markings at \$0.50 per LF.

LOW: \$42 per LF across intersection

HIGH: \$50.40 per LF across intersection

Crosswalk Pavement Markings (SI-91)

Crosswalk pavement markings under this title are 6" Type B Cl. I pavement markings per VDOT Standard PM-3. Crosswalk pavement markings are tallied by the width of the intersection at the centerline of the crosswalk.

LOW: \$2.12

HIGH: \$2.54

Route Shield Pavement Markings (SI-92)

Per the MUTCD, interstate route shield markings are roughly 6'x15', or 90 SF. This project assumes that the costs of a route shield marking are comparable to that of striping a stop bar on a per-square-foot basis. Each LF of 24" Type B Class IV striping is 2 SF. The VDOT District Averages for the NOVA District list 24" Type B Class IV Pavement Markings at \$16.05 per LF, or \$8.03 per SF.

LOW: \$1,100 Each

HIGH: \$1,320 Each

Pavement Marking “SIGNAL AHEAD” (SI-93)

This project assumes that the cost of striping any letter on pavement is roughly the same cost. The pavement marking message ONLY has four letters and is \$300 (see SI-86). “SIGNAL AHEAD” has 2.75 times the letters as “ONLY”, and is priced at 2.75 times that of SI-86.

LOW: \$825 Each

HIGH: \$990 Each

Eradicate Pavement Markings (SI-94)

The VDOT District Averages for the NOVA District list “eradicate existing pavement markings” at \$0.50 per LF.

LOW: \$0.50 per LF

HIGH: \$0.60 per LF

Shared Lane Markings (SI-95)

Based on prior project experience, shared lane markings have been priced at \$250 each.

LOW: \$250 Each

HIGH: \$300 Each

[Items SI-96 through SI-100 have been reserved for any future pavement marking related items that may arise]

Repair Intersection Drainage @ Roberts Pkwy/Karmich St (SI-3921)

This standalone item combines all items that may be needed to repair the intersection drainage at the Roberts Pkwy/Karmich St intersection. This project assumes that repairing this issue requires the reconstruction of the whole NW corner of the intersection up to 50’ beyond the curb return on both the north and west legs. This includes:

- Demolishing 150 LF of curb and gutter (\$18.10 per LF per VDOT District Averages for the NOVA District)
- Demolishing 1 existing curb inlet (\$470 each per 2017 Fairfax County Unit Price Schedule)
- 950 square yards of Mill & Overlay (see SI-07)
- Constructing 150 LF of new curb and gutter (see SI-05)
- Replacing 1 curb ramp (See SI-03)
- Constructing 1 new curb ramp (See SI-02)

LOW: \$75,000

HIGH: \$90,000

Repair Intersection Drainage @ Burke Lake Parkway (SI-4421)

This standalone item combines all items that may be needed to repair the intersection drainage at the Burke Lake Parkway intersection. This project assumes that repairing this issue requires the reconstruction of the whole intersection up to 100' beyond the curb return on each leg. This includes:

- 200 SY of clearing and grubbing (See **SI-19**)
- Demolishing 400 LF of curb and gutter (\$18.10 per LF per VDOT District Averages for the NOVA District)
- 3200 square yards of Mill & Overlay (see **SI-07**)
- Constructing 400 LF of new curb and gutter (see **SI-05**)
- Replacing 4 curb ramps (See **SI-03**)
- Constructing 3 new curb ramps (See **SI-02**)

LOW: \$200,000

HIGH: \$240,000

Repair Intersection Drainage @ Fox Mill Road (SI-6021)

This standalone item combines all items that may be needed to repair the intersection drainage at the Fox Mill Road intersection. This project assumes that repairing this issue requires the reconstruction of the whole intersection up to 100' beyond the curb return on each leg. This includes:

- Demolishing 600 LF of curb and gutter (\$18.10 per LF per VDOT District Averages for the NOVA District)
- 2500 square yards of Mill & Overlay (see **SI-07**)
- Constructing 40600 LF of new curb and gutter (see **SI-05**)
- Replacing 4 curb ramps (See **SI-03**)
- Remove and reset 50 LF of guardrail (See **SI-22**)

LOW: \$180,000

HIGH: \$216,000

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
1121 Fairfax (Fairfax County Parkway at Richmond Highway (Route 1))														\$ 526,210.00	\$ 631,452.00
	1	N/A		\$ -	\$ -									\$ -	\$ -
	2	Install queue activated flashing beacon with Watch for Stopped Vehicles warning sign	-Install 1 Queue Activate Beacon (SI-51)	\$ 63,500.00	\$ 76,200.00	\$ 15,875.00	\$ 19,050.00							\$ 128,270.00	\$ 153,924.00
	3	Install overhead street lighting	-Install Overhead Street Lighting (SI-49) on 3 approached -Install 1 Overhead Street Lighting Control System (SI-50)	\$ 197,000.00	\$ 236,400.00	\$ 49,250.00	\$ 59,100.00							\$ 397,940.00	\$ 477,528.00
1321 Fairfax (Fairfax County Parkway at John Kingman Road/Farrar Drive)														\$ 3,991.52	\$ 71,559.74
	2	Increase northbound right-turn storage	-Restripe (SI-82) Shoulder for 200' -Pavement Markings for 1 Turn Lane (SI-83) -Demo 270 SY of pavement (SI-21) and construct 270 SY of full-depth pavement (SI-06) (HIGH COST ONLY, IN CASE EXISTING SHOULDER PAVEMENT INADEQUATE)	\$ 1,178.00	\$ 37,701.60	\$ 294.50	\$ 9,425.40							\$ 2,167.52	\$ 69,370.94
	3	Install detectable warning surface where mixed use trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
1521 Fairfax County Parkway Northbound Ramps at Telegraph Road														\$ 159,140.23	\$ 400,083.79
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 22,400.00	\$ 26,880.00	\$ 5,600.00	\$ 6,720.00							\$ 45,248.00	\$ 54,297.60
	2	Construct curbed sidewalk to connect to the existing trail network to the north, east, and west. Install ADA-compliant curb ramps. Provide appropriate barrier devices where grades adjacent to sidewalk are determined to be a hazard.	-Construct 2 New Curb Ramps (SI-02) -Construct 210 LF of New Sidewalk (STND-178) to the north, 650 LF to the west	\$ 66,919.70	\$ 195,719.55	\$ 1,175.00	\$ 1,410.00	Y	STND-224	0.55	0.7	\$ 36,857.53	\$ 137,082.64	\$ 111,156.23	\$ 342,502.99
	3	Install detectable warning surface where trail meets the vehicular travel lane	-Install 1 New Detectable Warning Surface (SI-01)	\$ 475.00	\$ 570.00	\$ 118.75	\$ 142.50							\$ 912.00	\$ 1,094.40
	4	Install detectable warning surface where median refuge meets the vehicular travel lane	-Install 2 New Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
1522 Fairfax County Parkway Southbound Ramps at Telegraph Road														\$ 2,736.00	\$ 3,283.20
	2	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 3 New Detectable Warning Surfaces (SI-01)	\$ 1,425.00	\$ 1,710.00	\$ 356.25	\$ 427.50							\$ 2,736.00	\$ 3,283.20
1721 Fairfax County Parkway at Terminal Road														\$ 1,855,170.28	\$ 3,026,602.99
	3	Install Next Signal (D3-2) sign in median and replace existing sign on right shoulder (NB direction) with larger font for Terminal Road	-Install 2 new D3-2 Signs (SI-64) -Remove 1 Sign (SI-70) -Install Sign (SI-61)	\$ 5,450.00	\$ 6,540.00	\$ 1,362.50	\$ 1,635.00							\$ 7,793.50	\$ 9,352.20
	4	Construct a third northbound through lane beginning at the bridge at Backlick Road	-2800 LF of Road Widening (SI-15)	\$ 1,087,121.21	\$ 1,646,590.91	\$ -	\$ -	Y	STND-224	0.55	0.7	\$ 597,916.67	\$ 1,152,613.64	\$ 1,685,037.88	\$ 2,799,204.55
	5	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	6	Install high-visibility crosswalks, curb ramps, pedestrian signals, and push buttons across the southern leg of the intersection; adjust trail location as necessary	-Construct 1 new curb ramp (SI-02) at channelizing island -Replace two curb ramps (SI-03) as part of trail adjustment -Stripe 90' of crosswalk markings (SI-91) -Stripe 110' of high-visibility crosswalk markings (SI-89) -Install 5 Pedestrian Poles (SI-42)	\$ 64,155.56	\$ 93,762.24	\$ 13,778.00	\$ 16,533.60							\$ 120,369.80	\$ 161,219.33
	7	Relocate downstream of intersection, add sidewalk connection and pedestrian bus pad	-Construct 1 Bus Stop Pad (SI-08) -Construct 1 new Curb Ramp (SI-02) -Remove 55 SY of Concrete Sidealk (SI-20) -Plant 64 SY of Grass (SI-16) -Construct 125 LF of new sidewalk (STND-178)	\$ 17,598.56	\$ 41,093.84	\$ 2,138.75	\$ 3,366.50							\$ 26,324.66	\$ 54,829.16
	8	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	9	n/a		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	10	Relocate crosswalk, ramps, and pedestrian signals closer to FCP	-Replace 2 curb ramps (SI-03) -Construct 3 new curb ramps (SI-02) -Stripe 100 LF of Crosswalk Markings (SI-91) -Relocate 2 Pedestrian Poles (SI-41)	\$ 26,612.00	\$ 31,934.40	\$ 6,653.00	\$ 7,983.60							\$ 53,756.24	\$ 64,507.49
1821 Fairfax County Parkway at Loisdale Road														\$ 1,347,107.61	\$ 2,324,029.13
	2	Construct a full-length northbound through lane (shared with right-turn lane)	-Widen by 1 Lane for 1200 LF (SI-15)	\$ 465,909.09	\$ 705,681.82	\$ -	\$ -	Y	stnd-224	0.55	0.7	\$ 256,250.00	\$ 493,977.27	\$ 722,159.09	\$ 1,199,659.09
	3	Remove asphalt at corner and replace with grass/landscaping so pedestrians do not try to cross at the intersection	-Remove 10 SY of Pavement (SI-21) -Plant 10 SY of Grass (SI-16)	\$ 135.00	\$ 162.00	\$ 33.75	\$ 40.50							\$ 272.70	\$ 327.24
	4	Install Wayfinding signage for trail users to continue along the route to the north via Loisdale Road	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,287.00	\$ 1,544.40
	5	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 16,800.00	\$ 20,160.00
	6	Add interstate shield pavement markings to the rightmost through lane (NB) and the rightmost right-turn lane (WB). Add overhead guide signage.	-Add 6 Route Shield Pavement Markings (SI-92) -Install 2 Overhead Guide Signs (SI-67)	\$ 104,100.00	\$ 124,920.00	\$ 26,025.00	\$ 31,230.00							\$ 210,282.00	\$ 252,338.40
	7	N/A		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	8	Improve trail segment and provide buffer between the roadway and the trail	-Construct 1200 LF of trail (STND-191)	\$ 255,681.82	\$ 500,000.00	\$ -	\$ -	Y	STND-224	0.55	0.7	\$ 140,625.00	\$ 350,000.00	\$ 396,306.82	\$ 850,000.00

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
2122 Fairfax County Parkway at Rolling Road														\$ 37,589.75	\$ 45,107.70
	4	Install advance guide signs pertaining to FCP access in the southbound direction	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 90.00	\$ 108.00							\$ 1,152.00	\$ 1,382.40
	5	Install Wayfinding signage for trail users to continue along the route to the south via Franconia-Springfield Parkway	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,287.00	\$ 1,544.40
	6	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	7	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning Sign with Supplemental Plaque (SI-62) -Install 24 LF of Yield Markings (SI-88)			\$ 357.84	\$ 429.41							\$ 2,261.55	\$ 2,713.86
	8	Install high visibility crosswalk across Fairfax County Parkway (north leg)	-Stripe 80 LF of High Visibility Crosswalk (SI-89) -Construct 2 New Curb Ramps (SI-02) -Construct 20 LF of 5' Sidewalk (SI-04)	\$ 8,460.00	\$ 10,152.00	\$ 2,115.00	\$ 2,538.00							\$ 17,089.20	\$ 20,507.04
2231 Fairfax County Parkway at Stream Way														\$ 38,779.39	\$ 77,999.92
	1	Remove sidewalk ramp	-Remove 26 SY of concrete sidewalk (SI-20) -Construct 36 LF of Curb & Gutter (SI-05) -Plant 26 SY of Grass (SI-16)	\$ 2,107.00	\$ 2,528.40	\$ 526.75	\$ 632.10							\$ 3,497.62	\$ 4,197.14
	2	Replace sidewalk along Stream Way with wider trail	-Remove 40 SY of Concrete (SI-20) -Construct 100' of Trail (STND-191)	\$ 22,045.71	\$ 42,553.33	\$ 184.72	\$ 221.67	Y	stnd-224	0.55	0.7	\$ 12,112.95	\$ 29,768.71	\$ 35,281.77	\$ 73,802.78
2321 Fairfax County Parkway at Whitlers Creek Drive/Hooes Road														\$ 43,071.20	\$ 58,149.44
	1	Add signage/pavement markings on eastbound and westbound approaches	-Install 1 Elongated Arrow (SI-84) -Install 1 Elongated Double Arrow (SI-85)	\$ 540.00	\$ 648.00	\$ 135.00	\$ 162.00							\$ 853.20	\$ 1,023.84
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 Curb Ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	3	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity	-Construct 100 LF of Curbed Sidewalk (SI-23)	\$ 6,300.00	\$ 7,560.00	\$ 1,575.00	\$ 1,890.00							\$ 12,726.00	\$ 15,271.20
	4	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
2421 Fairfax County Parkway Northbound Ramps at Olde Lantern Way														\$ 87,288.00	\$ 104,745.60
	1	Install pedestrian signals and push buttons at existing crosswalks	-Install 4 pedestrian signals w/ push buttons (SI-42)	\$ 31,200.00	\$ 37,440.00	\$ 7,800.00	\$ 9,360.00							\$ 63,024.00	\$ 75,628.80
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 curb ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	3	Install high visibility crosswalk across Fairfax County Parkway Off-Ramp	-Stripe 70 LF of high-visibility crosswalk (SI-89)	\$ 2,800.00	\$ 3,360.00	\$ 700.00	\$ 840.00							\$ 4,872.00	\$ 5,846.40
2422 Fairfax County Parkway Southbound Ramps at Gambrill Road														\$ 329,948.40	\$ 556,922.93
	1	Install high visibility crosswalk across Gambrill Road	-Stripe 100 LF of high-visibility crosswalk (SI-89)	\$ 4,000.00	\$ 4,800.00	\$ 1,000.00	\$ 1,200.00							\$ 6,320.00	\$ 7,584.00
	2	Install high visibility crosswalks across Fairfax County Parkway	-Stripe 60 LF of High-Visibility Crosswalk (SI-89)	\$ 2,400.00	\$ 2,880.00	\$ 600.00	\$ 720.00							\$ 3,792.00	\$ 4,550.40
	3	Install pedestrian signals and push buttons at existing and proposed crosswalks	-Install 4 pedestrian signals w/ push buttons (SI-42)	\$ 31,200.00	\$ 37,440.00	\$ 7,800.00	\$ 9,360.00							\$ 63,024.00	\$ 75,628.80
	4	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 curb ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	5	Install curb ramp	-Install 2 new curb ramps (SI-02)	\$ 4,700.00	\$ 5,640.00	\$ 1,175.00	\$ 1,410.00							\$ 9,494.00	\$ 11,392.80
	6	Reconstruct sidewalk as a shared use trail	-Remove 1000 feet of 5' concrete sidewalk (SI-20) -Construct 1000 feet of shared-use path (STND-191)	\$ 223,623.74	\$ 429,333.33	\$ 2,638.89	\$ 3,166.67							\$ 234,390.40	\$ 442,253.33
2521 Fairfax County Parkway Northbound Ramps at Sydenstricker Road														\$ 218,192.36	\$ 261,830.84
	1	Realign crosswalk (east leg)	Stripe 60 LF of high-visibility crosswalk SI-89)	\$ 2,400.00	\$ 2,880.00	\$ 600.00	\$ 720.00							\$ 4,176.00	\$ 5,011.20
	2	Install pedestrian signals and push buttons at existing crosswalks	-Install 4 pedestrian signals w/ push buttons (SI-42)	\$ 31,200.00	\$ 37,440.00	\$ 7,800.00	\$ 9,360.00							\$ 63,024.00	\$ 75,628.80
	3	Provide guide signs for commuters to park-and-ride lot on Sydenstricker Road	-Install 2 large signs (SI-64)	\$ 4,800.00	\$ 5,760.00	\$ 1,200.00	\$ 1,440.00							\$ 7,584.00	\$ 9,100.80
	4	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	5	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity (potentially within existing shoulder area)	-Install 2 new curb ramps (SI-02) -Construct 150 feet of new sidewalk (SI-04) -Construct 200' of new curb and gutter (SI-05) -Remove and Reset 70 LF of Guardrail (SI-22) -Construct 150 LF of new bridge parapet (SI-09)	\$ 55,550.00	\$ 66,660.00	\$ 13,887.50	\$ 16,665.00							\$ 112,211.00	\$ 134,653.20
	6a	Relocate crosswalk, ramps, and sidewalk to the northeast corner of the existing island to position the crosswalk in the direct line-of-sight of vehicles approaching from the east (south)	-Replace 3 curb ramps (SI-03) -Install trail crossing sign w/plaque (SI-62) -Stripe 16 LF of yield markings (SI-88) -Stripe 16 LF of high-visibility crosswalk striping (SI-89) -Construct 100 feet of new sidewalk (SI-04)	\$ 14,394.24	\$ 17,273.09	\$ 3,598.56	\$ 4,318.27							\$ 29,076.36	\$ 34,891.64

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
2522 Fairfax County Parkway Southbound Ramps at Sydenstricker Road														\$ 550,082.13	\$ 982,427.07
	1	Update signal displays per the MUTCD	-Update 3 Signal Heads (SI-43) -Replace 1 Mast Arm (SI-52)	\$ 26,900.00	\$ 32,280.00	\$ -	\$ -							\$ 40,081.00	\$ 48,097.20
	2	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	4	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity (potentially within existing shoulder area)	-Construct 2 New Curb Ramps (SI-02) -Construct 150 LF of 5' Sidewalk (SI-04) -Rebuild 150' of Bridge Parapet (SI-09) -Construct 150 LF of new curb and gutter (SI-05) -Remove and Reset 70 LF of Guardrail (SI-22)	\$ 53,400.00	\$ 64,080.00	\$ 13,350.00	\$ 16,020.00							\$ 107,868.00	\$ 129,441.60
	5	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
	6	Reconstruct sidewalk as a shared use trail	-Remove 1000 feet of 5' concrete sidewalk (SI-20) -Construct 1000 feet of shared-use path (STND-191)	\$ 223,623.74	\$ 429,333.33	\$ 2,638.89	\$ 3,166.67	Y	STND-224	0.55	0.7	\$ 123,109.17	\$ 300,710.67	\$ 363,305.13	\$ 751,830.67
2722 Fairfax County Parkway Southbound Ramps at Pohick Road														\$ 39,592.00	\$ 47,510.40
	1	Shift eastbound stop bar forward, realign crosswalk, relocate sidewalk ramp, and relocate pushbutton	-Replace 2 Curb Ramps (SI-03) -Relocate Pedestrian Signal Pole (SI-41) -Stripe 80 LF of High-Visibility Crosswalk markings (SI-89)	\$ 19,600.00	\$ 23,520.00	\$ 4,900.00	\$ 5,880.00							\$ 39,592.00	\$ 47,510.40
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
2723 Fairfax County Parkway Northbound Ramps at Seabrook Lane														\$ 245,228.00	\$ 300,737.60
	1	Install sidewalk, curb ramps, high-visibility crosswalks, pedestrian signals, and push buttons	-Install 4 pedestrian signals w/ push buttons (SI-42)	\$ 31,200.00	\$ 37,440.00	\$ 7,800.00	\$ 9,360.00							\$ 63,024.00	\$ 75,628.80
	2	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
	3	Install sidewalk in the existing shoulder area	-Construct 2 New Curb Ramps (SI-02) -Construct 250 LF of 5' Sidewalk (SI-04) -Construct 250 LF of curb and gutter (SI-05) -Rebuild 250 LF of bridge parapet (SI-09) -Remove and Reset 100 LF of Guardrail (SI-22)	\$ 85,200.00	\$ 102,240.00	\$ 21,300.00	\$ 25,560.00							\$ 172,104.00	\$ 206,524.80
2724 Fairfax County Parkway Southbound Ramps at Seabrook Lane														\$ 253,934.20	\$ 311,185.04
	1	Realign crosswalk (west leg) and adjust median nose	-Realign 150 LF of High-Visibility Crosswalk (SI-90) -Construct 2 Curb Ramps in Median (SI-02)	\$ 9,110.00	\$ 10,932.00	\$ 2,277.50	\$ 2,733.00							\$ 18,402.20	\$ 22,082.64
	2	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	4	Install sidewalk in the existing shoulder area and new crosswalk, pedestrian signals, and push buttons	-Construct 2 New Curb Ramps (SI-02) -Construct 250 LF of 5' Sidewalk (SI-04) -Construct 250 LF of curb and gutter (SI-05) -Rebuild 250 LF of bridge parapet (SI-09) -Remove and Reset 100 LF of Guardrail (SI-22)	\$ 98,800.00	\$ 118,560.00	\$ 24,700.00	\$ 29,640.00							\$ 199,576.00	\$ 239,491.20
2831 Fairfax County Parkway at Cervantes Lane														\$ 12,928.00	\$ 15,513.60
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
2931 Fairfax County Parkway at Modisto Lane														\$ 36,726.85	\$ 63,956.67
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 Curb Ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	2	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity	-Construct 100 LF of new Sidewalk (STND-178)	\$ 7,234.85	\$ 22,102.27	\$ -	\$ -							\$ 7,234.85	\$ 22,102.27
	3	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
3031 Fairfax County Parkway at Huntsman Court														\$ 13,520.30	\$ 16,224.36
	1	Install crosswalk across Huntsman Court	-Stripe 70 LF of Crosswalk Markings (SI-91) -Stripe 12 LF of Stop Bar (SI-87)	\$ 340.40	\$ 408.48	\$ 85.10	\$ 102.12							\$ 592.30	\$ 710.76
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
3121 Fairfax County Parkway at Huntsman Boulevard														\$ 2,424,405.15	\$ 3,985,756.95
	1	Install pedestrian signals and push buttons for west leg crossing	-Install 2 Pedestrian Signal Poles (SI-42)	\$ 15,600.00	\$ 18,720.00	\$ 3,900.00	\$ 4,680.00							\$ 31,512.00	\$ 37,814.40
	2	Install high visibility crosswalk across Huntsman Boulevard	-Install 80' of high-visibility crosswalk pavement markings (SI-89)	\$ 3,200.00	\$ 3,840.00	\$ 800.00	\$ 960.00							\$ 5,568.00	\$ 6,681.60
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 Curb Ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	4	Relocate pedestrian pushbutton adjacent to curb ramp	-Relocate 1 Pedestrian Signal Pole (SI-41)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	5	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
	6	Using a Median U-Turn treatment, restrict the westbound and northbound left-turns and reroute to a new signalized intersection approximately 800-1000 feet north	-Install new signal (STND-153) -Construct median crossover (STND-125) -Reconstruct 800' of trail (STND-191) -Construct 1200 SY asphalt bumpout (SI-06) w/800' of CG-6 (SI-05) and 5500 CY of excavation (SI-17) -Construct 1500 SY of median (SI-13)	\$ 1,102,554.55	\$ 1,792,853.33	\$ 99,275.00	\$ 119,130.00							\$ 2,336,774.65	\$ 3,874,136.35
	7	Remove landscaping on southwest corner	-Clear 170 square yards of landscaping (SI-19)	\$ 425.00	\$ 510.00	\$ 106.25	\$ 127.50		STND-224	0.55	0.7	\$ 610,773.10	\$ 1,147,653.46	\$ 858.50	\$ 1,030.20

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
3221 Fairfax County Parkway at Reservation Drive														\$ 92,954.18	\$ 118,009.02
	1	Install pedestrian signals and push buttons for west leg crossing	-Install 2 pedestrian signals w/ push buttons (SI-42)	\$ 15,600.00	\$ 18,720.00	\$ 3,900.00	\$ 4,680.00							\$ 31,512.00	\$ 37,814.40
	2	Shift crosswalk closer to Fairfax County Parkway and change to high visibility crosswalk across Reservation Drive	-Realign 40 LF of high-visibility crosswalk (SI-90) -Stripe new stop bar (SI-87) -Remove 40 SY of concrete (SI-20) -Replace 2 curb ramps (SI-03) -Rebuild 60' of curb & gutter (SI-05)	\$ 11,804.00	\$ 14,164.80	\$ 2,951.00	\$ 3,541.20							\$ 20,538.96	\$ 24,646.75
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 8 curb ramps (SI-03)	\$ 25,600.00	\$ 30,720.00	\$ 6,400.00	\$ 7,680.00							\$ 51,712.00	\$ 62,054.40
	4	Relocate bus stop sign to pedestrian bus stop pad	-Relocate 1 sign (SI-69)	\$ 850.00	\$ 1,020.00	\$ 212.50	\$ 255.00							\$ 1,215.50	\$ 1,458.60
	5	Install pedestrian bus stop pad	-Install 1 bus stop pad (SI-08)	\$ 5,000.00	\$ 9,200.00	\$ 1,250.00	\$ 2,300.00							\$ 10,100.00	\$ 18,584.00
	6	Add pavement markings on westbound approach	-Install 1 elongated turn arrow (SI-84) -Install 1 elongated double turn arrow (SI-85)	\$ 270.00	\$ 324.00	\$ 67.50	\$ 81.00							\$ 426.60	\$ 511.92
	2+3		-Replace 6 Curb Ramps (SI-03) -Remove 40 SY of Concrete (SI-20) -Construct 60 LF of Curb and Gutter (SI-05) -Realign 40 LF of High-Visibility Crosswalk (SI-90) -Stripe new stop bar (SI-87)	\$ 24,604.00	\$ 29,524.80	\$ 6,151.00	\$ 7,381.20							\$ 49,700.08	\$ 59,640.10
3321 Fairfax County Parkway at Lee Chapel Road														\$ 443,383.22	\$ 655,428.41
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 8 curb ramps (SI-03)	\$ 25,600.00	\$ 30,720.00	\$ 6,400.00	\$ 7,680.00							\$ 51,712.00	\$ 62,054.40
	3	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity and pedestrian bus stop pad	-Replace 1 Curb Ramp (SI-03) -Install 1 Bus Stop Pad -Construct 120 LF of new sidewalk (STND-178)	\$ 16,881.82	\$ 39,562.73	\$ 2,050.00	\$ 3,260.00							\$ 25,245.82	\$ 52,863.53
	4	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28
	5	Relocate pedestrian pushbutton adjacent to curb ramp	-Relocate 1 Pedestrian Signal Pole (SI-41)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	6	Increase eastbound right-turn storage	-Install 1 Right Turn Lane (STND-121)	\$ 220,000.00	\$ 300,000.00	\$ -	\$ -	Y	STND-224	0.55	0.7	\$ 121,000.00	\$ 210,000.00	\$ 341,000.00	\$ 510,000.00
	7	Remove vegetation to establish clear line of sight	-215 SY of Clearing and Grubbing (SI-19)	\$ 537.50	\$ 645.00	\$ 134.38	\$ 161.25							\$ 946.00	\$ 1,135.20
3431 Fairfax County Parkway at Rolling View Drive/Pilot House Road														\$ 47,064.00	\$ 56,476.80
	1	Install high visibility crosswalk across Rolling View Drive	-Replace 2 Curb Ramps (SI-03) -Stripe 60 LF of High-Visibility Crosswalk (SI-89)	\$ 8,800.00	\$ 10,560.00	\$ 2,200.00	\$ 2,640.00							\$ 17,776.00	\$ 21,331.20
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 Curb Ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
	3	Install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) on the right-side shoulder (both directions)	-Install 2 trail warning signs (SI-62)	\$ 2,400.00	\$ 2,880.00	\$ 600.00	\$ 720.00							\$ 3,432.00	\$ 4,118.40
3531 Fairfax County Parkway at Portside Drive/Waterline Drive														\$ 17,884.00	\$ 21,460.80
	1	Install high visibility crosswalk across Portside Drive	-Stripe 45' of high-visibility pavement markings (SI-89)	\$ 1,800.00	\$ 2,160.00	\$ 450.00	\$ 540.00							\$ 3,132.00	\$ 3,758.40
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 curb ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	3	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
3621 Fairfax County Parkway at Old Keene Mill Road														\$ 506,021.85	\$ 766,033.04
	1	Widen eastbound Old Keene Mill Road to provide adequate lane reduction advance notice and taper	-Widen Old Keene Mill Road by 1 lane for 1300' (SI-15)	\$ 504,734.85	\$ 764,488.64	\$ -	\$ -							\$ 504,734.85	\$ 764,488.64
	2	Install Wayfinding signage for trail users to continue along the route to the west of FCP	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,287.00	\$ 1,544.40
3721 Fairfax County Parkway at Burke Lake Road														\$ 1,744,895.35	\$ 2,764,703.97
	1	Install pedestrian signal for crossing of west leg	-Install 2 pedestrian signals w/ push buttons (SI-42)	\$ 15,600.00	\$ 18,720.00	\$ 3,900.00	\$ 4,680.00							\$ 31,512.00	\$ 37,814.40
	2	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time	-Install 20' of high-visibility crosswalk markings (SI-89)	\$ 840.00	\$ 1,008.00	\$ 210.00	\$ 252.00							\$ 1,461.60	\$ 1,753.92
	3	Install Wayfinding signage for trail users to continue along the route to the south via Lakehaven Court	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,287.00	\$ 1,544.40
	4	Replace existing curb ramps with latest ADA-compliant curb ramps	-Construct 1 New Curb Ramp (SI-02) -Replace 7 curb Ramps (SI-03)	\$ 24,750.00	\$ 29,700.00	\$ 6,187.50	\$ 7,425.00							\$ 49,995.00	\$ 59,994.00
	5	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,139.70	\$ 2,567.64
	6	Relocate or provide access to pedestrian pushbutton	-Relocate 1 Pedestrian Signal Pole (SI-41)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	7	Using a Median U-Turn treatment, restrict the eastbound and southbound left-turns and reroute to a new intersection approximately 2500-2700 feet south	-Install median crossover (STND-125) -Install new signal (STND-153) -Widen road 1 lane for 2700' (SI-15) -150 SY Asphalt bumpout (SI-06) w/ 160' of curb and gutter (SI-05) and 200 CY of borrow (SI-18)	\$ 1,610,525.45	\$ 2,603,460.09	\$ 6,807.50	\$ 8,169.00							\$ 1,638,300.05	\$ 2,636,789.61

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
3921 Fairfax County Parkway at Karmich Street/Roberts Parkway															
	1	Repair intersection drainage	-Repair Intersection Drainage @ Roberts Pkwy/Karmich St (SI-3921)	\$ 75,000.00	\$ 90,000.00	\$ 18,750.00	\$ 22,500.00							\$ 210,484.00	\$ 252,580.80
	2	Replace existing curb ramps with latest ADA-compliant curb ramps, including the median refuge	-Replace 6 Curb Ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 151,500.00	\$ 181,800.00
	3	Relocate pedestrian pushbutton adjacent to crosswalk	-Relocate 1 Pedestrian Signal Pole (SI-41)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 38,784.00	\$ 46,540.80
4131 Fairfax County Parkway at New Road															
	1	Extend guardrail along southbound Fairfax County Parkway to the intersection of New Road	-Install 33 feet of GR-2 guardrail (SI-10) -Install 1 GR-7 guardrail end section (SI-11)	\$ 2,061.00	\$ 2,473.20	\$ 515.25	\$ 618.30							\$ 20,200.00	\$ 24,240.00
4231 Fairfax County Parkway at Freds Oak Road															
	1	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 4,163.22	\$ 4,995.86
	2	Install high visibility crosswalk across Fred Oaks Road	-Stripe 36 LF of high-visibility crosswalk (SI-89)	\$ 1,512.00	\$ 1,814.40	\$ 378.00	\$ 453.60							\$ 4,606.08	\$ 5,527.30
4321 Northbound Fairfax County Parkway at Ox Road															
	1	Install northbound left-turn lane line extension through the intersection	-140 LF of Striping (SI-81)	\$ 85.40	\$ 102.48	\$ 21.35	\$ 25.62							\$ 27,197.88	\$ 32,637.45
	2	Install left-side pedestrian warning and supplemental arrow signs for the channelized right-turn onto FCP NB	-Install 1 Trail Warning sign (SI-62)	\$ 1,200.00	\$ 1,440.00	\$ 300.00	\$ 360.00							\$ 157.14	\$ 188.56
	3	Realign crosswalks to be perpendicular to the direction of travel to minimize crossing distance	-Replace 1 curb ramp (SI-03) -Stripe 60 LF of high-visibility crosswalk (SI-89) -Replace detectable warning surface (SI-01) -Rebuild 15' of 10' asphalt trail (SI-06)	\$ 7,912.00	\$ 9,494.40	\$ 1,978.00	\$ 2,373.60							\$ 1,716.00	\$ 2,059.20
	4	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 15,982.24	\$ 19,178.69
	5	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 4 Detectable Warning Surfaces (SI-01)	\$ 1,900.00	\$ 2,280.00	\$ 475.00	\$ 570.00							\$ 12,928.00	\$ 15,513.60
	6	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)			\$ 677.12	\$ 812.54							\$ 3,838.00	\$ 4,605.60
				\$ 2,708.48	\$ 3,250.18									\$ 4,279.40	\$ 5,135.28
4322 Southbound Fairfax County Parkway at Ox Road/Robert Carter Road															
	1	Realign crosswalks to be perpendicular to the direction of travel	-Replace 2 curb ramps (SI-03) -Stripe 30 LF of high-visibility crosswalk (SI-89)	\$ 4,935.00	\$ 5,922.00	\$ 1,233.75	\$ 1,480.50							\$ 56,205.50	\$ 67,446.60
	2	Widen crosswalks to 10-feet	-Stripe 230 LF of high-visibility cross-walk (SI-89)	\$ 9,660.00	\$ 11,592.00	\$ 2,415.00	\$ 2,898.00							\$ 9,968.70	\$ 11,962.44
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 16,808.40	\$ 20,170.08
	4	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 7 detectable warning surfaces (SI-01)	\$ 3,325.00	\$ 3,990.00	\$ 831.25	\$ 997.50							\$ 25,856.00	\$ 31,027.20
	5	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)			\$ 677.12	\$ 812.54							\$ 6,384.00	\$ 7,660.80
				\$ 2,708.48	\$ 3,250.18									\$ 4,279.40	\$ 5,135.28
4421 Fairfax County Parkway at Burke Centre Parkway															
	1	Repair intersection drainage	-Repair Intersection Drainage @ Burke Center Parkway (SI-4421)	\$ 200,000.00	\$ 240,000.00	\$ 50,000.00	\$ 60,000.00							\$ 533,593.70	\$ 640,312.44
	2	Install U-Turn Yield to Right-Turn sign (R10-16)	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 404,000.00	\$ 484,800.00
	3	Install flashing beacon with Signal Ahead (W3-3) warning signs on the left and right-hand shoulders	-Install Flashing Beacon (SI-66)	\$ 15,000.00	\$ 18,000.00	\$ 3,750.00	\$ 4,500.00							\$ 1,287.00	\$ 1,544.40
	4	Install speed feedback signs to reduce speed.	-Install Speed Feedback Sign (SI-65)	\$ 7,000.00	\$ 8,400.00	\$ 1,750.00	\$ 2,100.00							\$ 30,300.00	\$ 36,360.00
	5	Eliminate the WB left-turn movement to reduce green time allocated to Burke Centre Parkway	-Construct 800 SY of Grass Median (SI-13)	\$ 32,000.00	\$ 38,400.00	\$ 8,000.00	\$ 9,600.00							\$ 14,140.00	\$ 16,968.00
	6	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 64,640.00	\$ 77,568.00
	7	Install Wayfinding signage for trail users to continue along the route to the south via Burke Centre Parkway and Ox Road	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 15,800.00	\$ 18,960.00
	8	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 5 Curb Ramps (SI-03)	\$ 16,000.00	\$ 19,200.00	\$ 4,000.00	\$ 4,800.00							\$ 1,287.00	\$ 1,544.40
	9	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 3 Detectable Warning Surfaces (SI-01)	\$ 1,425.00	\$ 1,710.00	\$ 356.25	\$ 427.50							\$ 32,320.00	\$ 38,784.00
	10	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)			\$ 338.56	\$ 406.27							\$ 2,736.00	\$ 3,283.20
				\$ 1,354.24	\$ 1,625.09									\$ 2,139.70	\$ 2,567.64

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
4531 Fairfax County Parkway at Nomes Court/Ladues End Lane														\$ 60,122.94	\$ 104,344.49
	1	Realign trail and crosswalk so that pedestrians cross in front of stop line	-Rebuild 200 LF of Trail (STND-191) -Construct 2 Curb Ramps (SI-02) -Demolish 144 SY of asphalt pavement (SI-21) -Realign 35 LF of High-Visibility Crosswalk Markings	\$ 50,378.64	\$ 92,651.33	\$ 1,941.25	\$ 2,329.50							\$ 58,298.94	\$ 102,155.69
	2	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
4631 Fairfax County Parkway at Colchester Meadow Lane														\$ 1,824.00	\$ 2,188.80
	1	Install detectable warning surface where asphalt trail meets the vehicular travel lane	Install 2 detectable warning surfaces	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
4721 Fairfax County Parkway at Popes Head Road														\$ 4,697,597.73	\$ 7,755,918.03
	1	Consider flashing yellow arrow (FYA) and protected only left-turns during peak hour	-Update 2 Signal Heads (SI-43) -Replace 1 Mast Arm (SI-52)	\$ 24,600.00	\$ 29,520.00	\$ 6,150.00	\$ 7,380.00							\$ 42,804.00	\$ 51,364.80
	2	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	3	Consider constructing a third travel lane in the southbound direction between Braddock Road (starting at the on-ramp) and Colechester Meadow Lane	Approximately 1.25 miles of construction would be required and may result in a curb and gutter section to minimize ROW impacts. Potential candidate for NVTA funds. Shirley Gate Road Extended Planning Study underway to identify a roadway alignment and interchange concept with FCP at this intersection.	\$ 2,562,500.00	\$ 3,881,250.00	\$ -	\$ -	Y	stnd-224	0.55	0.7	\$ 1,409,375.00	\$ 2,716,875.00	\$ 3,971,875.00	\$ 6,598,125.00
	4	Install supplemental, near-side signal displays for the southbound and eastbound approaches	-Install near side signal display for two approaches (SI-46)	\$ 9,200.00	\$ 11,040.00	\$ 2,300.00	\$ 2,760.00							\$ 18,584.00	\$ 22,300.80
	5	Consider constructing an acceleration lane for the WB right-turn movement	-Construct 1020 feet of new acceleration lane (SI-15) -Construct 1 channelizing island (SI-14)	\$ 406,522.73	\$ 612,429.55	\$ 2,625.00	\$ 3,150.00	Y	stnd-224	0.55	0.7	\$ 223,703.00	\$ 428,877.08	\$ 646,710.73	\$ 1,062,978.63
	6	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,824.00	\$ 2,188.80
4821 Southbound Fairfax County Parkway Ramps at Braddock Road														\$ 55,991.40	\$ 67,189.68
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 8 curb ramps (SI-03)	\$ 25,600.00	\$ 30,720.00	\$ 6,400.00	\$ 7,680.00							\$ 51,712.00	\$ 62,054.40
	3	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28
4822 Northbound Fairfax County Parkway Ramps/Community Center at Braddock Road														\$ 45,797.78	\$ 54,957.33
	1	Install crosswalk across the Mott Community Center entrance to connect trail along the south side of Braddock Road	-Install 90 LF of high-visibility crosswalk (SI-89)	\$ 3,600.00	\$ 4,320.00	\$ 900.00	\$ 1,080.00							\$ 6,264.00	\$ 7,516.80
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	3	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 4 Detectable Warning Surfaces (SI-01)	\$ 1,900.00	\$ 2,280.00	\$ 475.00	\$ 570.00							\$ 3,648.00	\$ 4,377.60
	4	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,356.38	\$ 2,827.65
	5	Widen crosswalks to 10-feet	-Realign 105 LF of high-visibility crosswalk (SI-90)	\$ 4,410.00	\$ 5,292.00	\$ 1,102.50	\$ 1,323.00							\$ 7,673.40	\$ 9,208.08
4921 Northbound Fairfax County Parkway at West Ox Road (North)														\$ 70,223.40	\$ 84,268.08
	1	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 Curb Ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
	3	Install high visibility crosswalk perpendicular to travel lane	-Install 20 LF of high-visibility crosswalk markings (SI-89)	\$ 4,000.00	\$ 4,800.00	\$ 1,000.00	\$ 1,200.00							\$ 6,960.00	\$ 8,352.00
	4	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28
4922 Northbound Fairfax County Parkway at West Ox Road (South)														\$ 40,551.50	\$ 48,661.80
	1	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 Curb Ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	3	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 1 Detectable Warning Surface (SI-01)	\$ 475.00	\$ 570.00	\$ 118.75	\$ 142.50							\$ 959.50	\$ 1,151.40

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
4923 Northbound Fairfax County Parkway Ramps at Route 29 C-D Road (North)														\$ 115,703.30	\$ 167,016.30
	1	Evaluate signal timings to minimize progression of the EB left-turn at 4924 into a red indication	-Evaluate Signal Timings for 6 signals (SI-53)	\$ 15,000.00	\$ 18,000.00	\$ -	\$ -							\$ 15,000.00	\$ 18,000.00
	2	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	4	Widen crosswalk to 10 feet and realign perpendicular to channelized right-turn. Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity. Install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) and yield line prior to proposed crosswalk across channelized right-turn.	-Realign 20 LF of high-visibility crosswalk (SI-90) -Construct 75' of trail (STND-191) -Replace 2 Curb Ramps (SI-03) -Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 45,881.17	\$ 83,229.75	\$ 2,148.56	\$ 2,578.27							\$ 54,647.30	\$ 93,749.10
4924 Northbound Fairfax County Parkway Ramps at Route 29 C-D Road (South)														\$ 28,728.00	\$ 34,473.60
	1	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
4925 Southbound Fairfax County Parkway Ramps at Route 29 C-D Road (North)														\$ 28,728.00	\$ 34,473.60
	1	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
4926 Southbound Fairfax County Parkway Ramps at Route 29 C-D Road (South)														\$ 28,728.00	\$ 34,473.60
	1	Install retroreflective backplates on signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
5103 Northbound Fairfax County Parkway Off-Ramp to Fair Lakes Parkway														\$ 1,327.20	\$ 1,592.64
	1	Install arrow pavement markings	-Install 2 elongated turn arrows (SI-84) -Install 2 elongated double turn arrows (SI-85) -Install 1 "ONLY" pavement marking (SI-86)	\$ 840.00	\$ 1,008.00	\$ 210.00	\$ 252.00							\$ 1,327.20	\$ 1,592.64
5321 Fairfax County Parkway at Eastbound Route 50														\$ 140,583.11	\$ 181,578.52
	1	Improve roadway grading for eastbound left-turn movement	-Mill & Overlay 750 SY of pavement (SI-07)	\$ 36,750.00	\$ 44,100.00	\$ 9,187.50	\$ 11,025.00							\$ 74,235.00	\$ 89,082.00
	2	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,139.70	\$ 2,567.64
	3	Relocate the crosswalk closer to the gore for the ramp and signalize the crosswalk as part of the existing traffic signal.	-Install 2 new pedestrian poles (SI-42) -Construct 80' of new trail (STND-191) -Stripe 16' of stop bar (SI-87) -Stripe 26' of high visibility crosswalk (SI-89)	\$ 40,393.45	\$ 61,350.93	\$ 5,837.00	\$ 7,004.40							\$ 64,208.41	\$ 89,928.89
5322 Fairfax County Parkway at Westbound Route 50														\$ 309,280.97	\$ 549,984.89
	1	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,139.70	\$ 2,567.64
	2	Realign the off-ramp to be controlled by the traffic signal to provide a controlled crossing for trail users across all ramp movements.	-Widen off ramp for 300 LF (SI-15) -Demolish 1200 SY of asphalt pavement (SI-21) -Modify Signal (STND-155)	\$ 293,677.27	\$ 531,260.45	\$ 3,300.00	\$ 3,960.00							\$ 307,141.27	\$ 547,417.25
5421 Fairfax County Parkway at Rugby Road														\$ 104,442.86	\$ 125,331.44
	1	Improve sight distance for eastbound right-turn movement by adjusting the stop line location	-Stripe 36 feet of new stop bar (SI-87)	\$ 576.00	\$ 691.20	\$ 144.00	\$ 172.80							\$ 910.08	\$ 1,092.10
	2	Install high visibility crosswalk across Fairfax County Parkway and Rugby Road	-Stripe 230 LF of high visibility crosswalk (SI-89)	\$ 9,200.00	\$ 11,040.00	\$ 2,300.00	\$ 2,760.00							\$ 16,008.00	\$ 19,209.60
	3	Consider split phase operations on Rugby Road and adjust left-turn phase sequencing to optimize green time allocation	-Implement Split Phase Operations (SI-44) -Replace 2 Mast Arms (SI-52)	\$ 47,300.00	\$ 56,760.00	\$ 11,825.00	\$ 14,190.00							\$ 82,302.00	\$ 98,762.40
	4	Change lane designations to provide three westbound left-turn lanes	-Restripe 500 feet of pavement (SI-82) -Install 8 elongated arrows (SI-84) and 3 elongated double arrows (SI-85)	\$ 3,001.60	\$ 3,601.92	\$ 750.40	\$ 900.48							\$ 5,222.78	\$ 6,267.34
5531 Southbound Fairfax County Parkway at Old Plains Road														\$ 1,277,179.59	\$ 2,477,146.76
	1	Install stop bar for eastbound approach	-Stripe 12 LF of stop bar striping (SI-87)	\$ 192.00	\$ 230.40	\$ 48.00	\$ 57.60							\$ 303.36	\$ 364.03
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 curb ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	3	Install crosswalk across Old Plains Road	-Install 160 feet of striping (SI-81)	\$ 97.60	\$ 117.12	\$ 24.40	\$ 29.28							\$ 169.82	\$ 203.79
	4	Construct an acceleration lane to allow free-flow access and adequate merging distance for traffic entering SB FCP	Table 10-3 in the AASHTO Green Book indicates an acceleration length of 1,140 feet is required (plus taper) assuming a low entry travel speed to reach a design speed of 60 mph. Improvement assumes 1140' widening + 720' taper	\$ 722,159.09	\$ 1,093,806.82	\$ -	\$ -	Y	stnd-226	0.75	1.25	\$ 541,619.32	\$ 1,367,258.52	\$ 1,263,778.41	\$ 2,461,065.34

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
5621 Fairfax County Parkway at Stringfellow Road/Stringfellow Court														\$ 45,129.99	\$ 101,127.58
	1	Improve visibility of existing yield sign and install yield bar in advance of the channelized right-turn yield sign	-Stripe 20 LF of yield bar (SI-88) -Relocate 1 sign (SI-69)	\$ 1,042.80	\$ 1,251.36	\$ 260.70	\$ 312.84							\$ 1,647.62	\$ 1,977.15
	2	Increase southbound right-turn storage	-Restripe 500 feet of pavement and shoulder into right-turn lane (SI-81, SI-83) -Demolish 270 SY of Pavement (SI-21) and construct 270 SY of full-depth pavement (SI-06) (HIGH COST ONLY, IN CASE EXISTING SHOULDER PAVEMENT INADEQUATE)	\$ 1,255.00	\$ 1,506.00	\$ 313.75	\$ 376.50							\$ 2,309.20	\$ 2,771.04
	3	Install high visibility crosswalk across Stringfellow Court	-Install 40 LF of high-visibility crosswalk (SI-89)	\$ 1,680.00	\$ 2,016.00	\$ 420.00	\$ 504.00							\$ 2,923.20	\$ 3,507.84
	4	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity to Fairfax County Parkway	-Replace 2 curb ramps (SI-03) -Construct 350 feet of new sidewalk (STND-178)	\$ 31,721.97	\$ 85,037.95	\$ 1,600.00	\$ 1,920.00							\$ 38,249.97	\$ 92,871.55
5721 Fairfax County Parkway at Tuckaway Drive/Springhaven Drive														\$ 23,916.00	\$ 28,699.20
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 curb ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	2	Install high visibility crosswalk across Tuckaway Drive	-Stripe 65' of high-visibility crosswalk (SI-89)	\$ 2,600.00	\$ 3,120.00	\$ 650.00	\$ 780.00							\$ 4,524.00	\$ 5,428.80
5821 Fairfax County Parkway at Franklin Farm Road														\$ 1,474,945.80	\$ 2,344,987.16
	1	Increase eastbound left-turn storage	-Widen road for 200' (SI-15)	\$ 77,651.52	\$ 117,613.64	\$ -	\$ -							\$ 77,651.52	\$ 117,613.64
	2	Increase southbound and northbound left-turn storage	-Widen road for 200' (SI-15)	\$ 155,303.03	\$ 235,227.27	\$ -	\$ -							\$ 155,303.03	\$ 235,227.27
	3	Increase eastbound left-turn and southbound right-turn lane storage	-Widen road for 200' for each right turn (SI-15)	\$ 155,303.03	\$ 235,227.27	\$ -	\$ -							\$ 155,303.03	\$ 235,227.27
	4	Install a right-turn overlap for the eastbound right-turn movement	Already completed	\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	5	Install detectable warning surface where median refuge meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,919.00	\$ 2,302.80
	6	Extend the eastbound left-turn lane at FCP by shortening the existing left-turn lane at Hidden Meadow Drive	-Widen Road for 200' (SI-15)	\$ 77,651.52	\$ 117,613.64	\$ -	\$ -							\$ 77,651.52	\$ 117,613.64
	7	Reconfigure the eastbound approach to include 2 WB departure lanes, 2 EBL, 2 EBT, and 1 EBR lanes; widen the eastbound departure to two lanes (1000' total)	-Demolish 550 SY of asphalt pavement (SI-21) -Clear and grub 700 SY (SI-19) -Construct 180 SY of 4' median (SI-12) -Striping for 7 lanes (SI-83) -500 LF of widening on west leg, 1000 LF of widening on east leg (SI-15)	\$ 615,736.36	\$ 922,122.27	\$ 8,337.50	\$ 10,005.00	Y	STND-224	0.55	0.7	\$ 339,021.85	\$ 646,045.87	\$ 1,007,117.71	\$ 1,637,002.54
Fairfax County Parkway Trail over Horsepen Run (between Franklin Farm Road and West Ox Road)														\$ 693,068.18	\$ 1,216,666.67
	1	Construct bridge at a higher elevation to reduce grade along the approach and to provide a consistent trail width	-1600 square feet of new bridge (STND-145) -500' of trail reconstruction on either side of the approach (STND-191)	\$ 693,068.18	\$ 1,216,666.67	\$ -	\$ -							\$ 693,068.18	\$ 1,216,666.67
5921 Fairfax County Parkway at West Ox Road														\$ 23,875.56	\$ 28,650.68
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 3 Curb Ramps (SI-03)	\$ 9,600.00	\$ 11,520.00	\$ 2,400.00	\$ 2,880.00							\$ 19,392.00	\$ 23,270.40
	2	Provide consistent signage - install combined Bicycle/Pedestrian (W11-15) warning sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,735.56	\$ 3,282.68
	3	Reconfigure the westbound approach to include a shared through and right-turn lane	-Adjust Striping for 1 Lane (SI-83)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,748.00	\$ 2,097.60
6021 Fairfax County Parkway at Fox Mill Road														\$ 880,992.20	\$ 1,137,190.64
	1	Install high visibility crosswalks across Fox Mill Road	-Realign 205' of high-visibility crosswalk (SI-90)	\$ 8,610.00	\$ 10,332.00	\$ 2,152.50	\$ 2,583.00							\$ 17,392.20	\$ 20,870.64
	2	Repair intersection drainage	-Repair intersection drainage @ Fox Mill Road (SI-6021)	\$ 180,000.00	\$ 216,000.00	\$ 45,000.00	\$ 54,000.00							\$ 363,600.00	\$ 436,320.00
	3	Add second southbound and northbound left-turn lanes to add intersection capacity	-Construct 2 new left lanes (STND-123)	\$ 500,000.00	\$ 680,000.00	\$ -	\$ -							\$ 500,000.00	\$ 680,000.00

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies LOW	PE & Construction Contingencies HIGH	ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
6121 Fairfax County Parkway at Sunrise Valley Drive														\$ 985,537.61	\$ 2,059,921.51
	1	Remove the existing yield sign controlling the EB right-turn movement	-Remove 1 Sign (SI-70)	\$ 200.00	\$ 240.00	\$ 50.00	\$ 60.00							\$ 404.00	\$ 484.80
	2	Improve guide signage to Route 267 in the NB direction to position drivers in the correct lane	-Replace 2 Overhead Signs (SI-68)	\$ 44,000.00	\$ 52,800.00	\$ 11,000.00	\$ 13,200.00							\$ 88,880.00	\$ 106,656.00
	3	Consider removing the WB right-turn add lane to improve the NB weave between Sunrise Valley Drive and the Dulles Toll Road; adjust high-visibility crosswalk and trail accordingly	-Widen road for 500 LF (SI-15) -Construct 500' of relocated sidewalk (STND-178)	\$ 230,303.03	\$ 404,545.45	\$ -	\$ -	y	stnd-226	0.75	1.25	\$ 172,727.27	\$ 505,681.82	\$ 403,030.30	\$ 910,227.27
	4	Install Next Signal (D3-2) signs on the right and left-hand shoulders (NB direction)	-Install 2 D3-2 Signs (SI-64)	\$ 4,800.00	\$ 5,760.00	\$ 1,200.00	\$ 1,440.00	y	STND-226	0.75	1.25	\$ 3,672.00	\$ 7,344.00	\$ 16,968.00	\$ 26,179.20
	5	Widen FCP to six lanes County Comprehensive Plans shows an interchange at this location.	-Restripe 2500 LF (SI-82) -2 Elongated Double Arrows (SI-85) -Demolish 110 SY of concrete median (SI-20) -Replace 1 signal head (SI-43) -Replace 2 signal heads (SI-43)	\$ 9,860.00	\$ 11,832.00	\$ 2,465.00	\$ 2,958.00							\$ 19,917.20	\$ 23,900.64
	6	Adjust signal timings Add second westbound left-turn lane to add intersection capacity	-Widen road for 500 LF (SI-15) -Construct 500' of relocated sidewalk (STND-178) -2000 LF of restriping (SI-82), striping for 2 turn lanes (SI-83), Realign 150 LF of high-visibility crosswalk (SI-90) -Replace 2 signal heads (SI-43)	\$ 245,383.03	\$ 422,641.45	\$ 3,770.00	\$ 4,524.00	y	STND-226	0.75	1.25	\$ 184,263.47	\$ 528,754.22	\$ 456,338.10	\$ 992,473.59
6221/6222 Fairfax County Parkway at Dulles Toll Road Ramps														\$ 1,015,004.05	\$ 1,505,795.70
	1	Improve guide signage to Route 267 in the NB and SB directions to position drivers in the correct lane	-Replace 6 overhead signs (SI-68)	\$ 132,000.00	\$ 158,400.00	\$ 33,000.00	\$ 39,600.00							\$ 266,640.00	\$ 319,968.00
	2	Provide overhead signage to indicate the downstream left-turn lane trap at Sunrise Valley Drive (SB)	-Construct 2 overhead sign gantries (SI-67) -Install 3 large ground-mounted signs (SI-64)	\$ 104,700.00	\$ 125,640.00	\$ 26,175.00	\$ 31,410.00							\$ 211,494.00	\$ 253,792.80
	3	Optimize signal operations to improve progression through the Dulles Toll Road intersections	-VDOT to evaluate timing of 5 signals (SI-53)	\$ 12,500.00	\$ 15,000.00	\$ -	\$ -							\$ 12,500.00	\$ 15,000.00
	4	Install detectable warning surface where asphalt trail meets the vehicular travel lane	-Install 2 Detectable Warning Surfaces (SI-01)	\$ 950.00	\$ 1,140.00	\$ 237.50	\$ 285.00							\$ 1,919.00	\$ 2,302.80
	5	Remove channelized right-turn movement and construct single right-turn lane to reduce turning travel speeds. Relocate high-visibility crosswalk and trail from ramp closer to intersection.	-Demolish 750 SY of pavement (SI-21) -Construct 300' of asphalt trail (STND-191) -Construct 500 SY of full depth pavement (SI-06) -Stripe 100' of high-visibility crosswalk markings (SI-89) -Construct 1 channelizing island (SI-14) with 2 new curb ramps (SI-02)	\$ 180,070.45	\$ 264,380.00	\$ 29,037.50	\$ 34,845.00	y	STND-226	0.75	1.25	\$ 136,795.09	\$ 333,959.50	\$ 522,451.05	\$ 914,732.10
6321 Fairfax County Parkway Ramp at Spring Street														\$ 2,139.70	\$ 2,567.64
	1	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,139.70	\$ 2,567.64
6421 Fairfax County Parkway at New Dominion Parkway														\$ 13,571.50	\$ 16,285.80
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 2 Curb Ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	2	Install "Stop Here on Red" (R10-6) sign at the stop bar for the northbound right-turn	-Install 1 Sign (SI-61)	\$ 450.00	\$ 540.00	\$ 112.50	\$ 135.00							\$ 643.50	\$ 772.20
6521 Fairfax County Parkway at Baron Cameron Avenue														\$ 148,023.04	\$ 177,627.64
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 18 Curb Ramps (SI-03)	\$ 57,600.00	\$ 69,120.00	\$ 14,400.00	\$ 17,280.00							\$ 116,352.00	\$ 139,622.40
	2	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time; relocate stop line accordingly	-Stripe 120' of high-visibility crosswalk (SI-89) -Stripe 48' of stop bar (SI-87)	\$ 5,808.00	\$ 6,969.60	\$ 1,452.00	\$ 1,742.40							\$ 9,176.64	\$ 11,011.97
	3	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 4 Trail Warning signs (SI-62) -Stripe 64 LF of yield markings (SI-88) -Realign 210 LF of high-visibility crosswalk (SI-90)	\$ 14,236.96	\$ 17,084.35	\$ 3,559.24	\$ 4,271.09							\$ 22,494.40	\$ 26,993.28
6721 Fairfax County Parkway at North Walnut Branch Road (North)														\$ 38,784.00	\$ 46,540.80
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 curb ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
6821 Fairfax County Parkway at Lake Newport Road														\$ 40,071.00	\$ 48,085.20
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 curb ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
	2	Install School Area (S1-1) sign and supplemental arrow plaques (W16-6p) along the northbound and southbound approaches 250 feet before the stop line	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,287.00	\$ 1,544.40

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
7021 Fairfax County Parkway at Wiehle Avenue														\$ 616,811.55	\$ 841,253.40
	1	Realign crosswalks (north and south legs) and modify curb ramps, sidewalk/trail connections, and pedestrian signal/push button equipment	-Replace 6 curb ramps (SI-03) -Stripe 155' of high-visibility crosswalk (SI-89) -Relocate 3 pedestrian signal poles (SI-41) -Stripe 48' of new stop bar (SI-87) -Demolish concrete median nose (SI-24)	\$ 57,768.00	\$ 69,321.60	\$ 14,442.00	\$ 17,330.40							\$ 116,691.36	\$ 140,029.63
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 14 Curb Ramps (SI-03)	\$ 44,800.00	\$ 53,760.00	\$ 11,200.00	\$ 13,440.00							\$ 90,496.00	\$ 108,595.20
	3	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28
	4	Construct a 2nd NB left-turn lane and extend left-turn lanes to be ~400-500 feet	-Construct 1 new Left Turn Lane (STND-123)	\$ 444,128.79	\$ 634,034.09	\$ -	\$ -							\$ 444,128.79	\$ 634,034.09
7131 Fairfax County Parkway at Heather Way														\$ 86,961.00	\$ 104,353.20
	1	Install concrete median treatment (~75 from the median nose on the north and south side)	-Install 410 SY of Concrete Median Treatment (SI-12)	\$ 43,050.00	\$ 51,660.00	\$ 10,762.50	\$ 12,915.00							\$ 86,961.00	\$ 104,353.20
7221 Fairfax County Parkway at Sugarland Road														\$ 55,142.44	\$ 66,170.93
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	2	Realign high-visibility crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time; relocate stop line and trail accordingly	-Realign 40' of high-visibility crosswalk (SI-90) -Replace 1 curb ramp (SI-03) -Replace 24' of stop bar (SI-87) -Construct 60 SY of trail (SI-06) -Striping for two turn lanes (SI-83)	\$ 13,144.00	\$ 15,772.80	\$ 3,286.00	\$ 3,943.20							\$ 26,550.88	\$ 31,861.06
	3	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,735.56	\$ 3,282.68
7321 Fairfax County Parkway at Leesburg Pike Eastbound Ramps														\$ 70,249.30	\$ 84,299.16
	1	Replace "no turns" sign with graphical "no left-turn" (R3-2) sign (northbound direction)	-Install new sign (SI-61) -Remove sign (SI-70)	\$ 650.00	\$ 780.00	\$ 162.50	\$ 195.00							\$ 929.50	\$ 1,115.40
	2	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time	-Realign 30 LF of high-visibility crosswalk (SI-90) -Replace 2 Curb Ramps	\$ 7,660.00	\$ 9,192.00	\$ 1,915.00	\$ 2,298.00							\$ 13,328.40	\$ 15,994.08
	3	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 8 curb ramps (SI-03)	\$ 25,600.00	\$ 30,720.00	\$ 6,400.00	\$ 7,680.00							\$ 51,712.00	\$ 62,054.40
	4	Provide consistent signage - install Bicycle/Pedestrian (W11-15) sign with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28
7322 Fairfax County Parkway at Leesburg Pike Westbound Ramps														\$ 73,346.50	\$ 88,015.80
	1	Replace "no turns" sign with graphical "no left-turn" (R3-2) sign (southbound direction)	-Install new sign (SI-61) -Remove sign (SI-70)	\$ 650.00	\$ 780.00	\$ 162.50	\$ 195.00							\$ 929.50	\$ 1,115.40
	2	Install route shield pavement markings for the inside lane to indicate advance storage (no turns at immediate intersection) (northbound direction)	-Install 2 Route Shield Markings (SI-92)	\$ 2,200.00	\$ 2,640.00	\$ 550.00	\$ 660.00							\$ 3,828.00	\$ 4,593.60
	3	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time	-Replace 2 Curb Ramps (SI-03) -Construct 30 LF of 5' Sidewalk (SI-04)	\$ 7,240.00	\$ 8,688.00	\$ 1,810.00	\$ 2,172.00							\$ 12,597.60	\$ 15,117.12
	4	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 8 curb ramps (SI-03)	\$ 25,600.00	\$ 30,720.00	\$ 6,400.00	\$ 7,680.00							\$ 51,712.00	\$ 62,054.40
	5	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - install yield line prior to high visibility crosswalk.	-Install 2 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 2,708.48	\$ 3,250.18	\$ 677.12	\$ 812.54							\$ 4,279.40	\$ 5,135.28

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
7521 Franconia-Springfield Parkway at Bonniemill Lane/Spring Village Drive														\$ 1,487,767.52	\$ 2,489,405.70
	1	Relocate pedestrian pushbutton on the northeast corner to a separate pedestal pole adjacent to the curb ramp	-Relocate 1 pedestrian pole (SI-41)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	2	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 Curb Ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
	3	Install crosswalk across Bonniemill Lane	-Stripe 85' of crosswalk (SI-91) -Stripe 12' of new stop bar (SI-87)	\$ 276.80	\$ 332.16	\$ 69.20	\$ 83.04							\$ 481.63	\$ 577.96
	4	Install pedestrian signal for crossing of north and south legs	-Install 4 pedestrian signals w/ push buttons (SI-42)	\$ 31,200.00	\$ 37,440.00	\$ 7,800.00	\$ 9,360.00							\$ 63,024.00	\$ 75,628.80
	5	Install high visibility crosswalk across Spring Village Drive	-Stripe 80' of high-visibility crosswalk (SI-89)	\$ 3,360.00	\$ 4,032.00	\$ 840.00	\$ 1,008.00							\$ 5,846.40	\$ 7,015.68
	6	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity and pedestrian bus stop pad	-Construct 130' of new sidewalk (STND-178)	\$ 14,405.30	\$ 37,932.95	\$ 1,250.00	\$ 2,300.00	y	stnd-226	0.75	1.25	\$ 10,878.98	\$ 47,646.19	\$ 34,134.28	\$ 106,463.15
	7	Install Wayfinding signage for trail users to continue along the route to the north/south of FSP; install guide signage to access Metrorail by foot/bicycle	-Install 4 signs (SI-61)	\$ 1,800.00	\$ 2,160.00	\$ 450.00	\$ 540.00							\$ 2,574.00	\$ 3,088.80
	8	Signalize Hooes Road as part of a signal cluster with Franconia-Springfield Road; operate Hooes Road as an exclusive phase		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	9	Construct new sidewalk, shared use path, or trail, as applicable, to provide connectivity to Bethnal Court	-Construct 630' of new sidewalk (STND-178)	\$ 45,579.55	\$ 139,244.32	\$ -	\$ -	y	stnd-226	0.75	1.25	\$ 34,184.66	\$ 174,055.40	\$ 79,764.20	\$ 313,299.72
	10A	Create a median u-turn (EB) and displaced left-turn (WB) to eliminate left-turn movements from FSP at Bonniemill Lane. Retain full access for movements from Bonniemill Lane/Spring Village Drive and the pedestrian phase at the existing traffic signal.	-Install new signal (STND-153) -Construct crossover (STND-125) -Construct two new left turn lanes (STND-123) -Construct 800 SY of raised grass median (SI-13) -Construct 500' of guardrail (SI-10) with end section (SI-11)	\$ 1,077,000.00	\$ 1,713,400.00	\$ 10,500.00	\$ 12,600.00							\$ 1,119,840.00	\$ 1,764,808.00
	10B	Create jughandle intersection with right-turn movements replacing existing left-turn movements from FSP. Retain full access for movements from Bonniemill Lane/Spring Village Drive and the pedestrian phase at the existing traffic signal.		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	11	Install near-side traffic signal displays	-Install 2 Near-Side Traffic Signal Displays (SI-46)	\$ 9,200.00	\$ 11,040.00	\$ 2,300.00	\$ 2,760.00							\$ 18,584.00	\$ 22,300.80
	12	Install retroreflective backplates on signal heads to enhance visibility	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 20,200.00	\$ 24,240.00
	13	Relocate traffic signal cabinet	-Relocate traffic signal cabinet (SI-47)	\$ 30,000.00	\$ 36,000.00	\$ 7,500.00	\$ 9,000.00							\$ 60,600.00	\$ 72,720.00
	14	Install 12" font size Street Name (D3-1) signs to improve visibility of street names of cross streets at the intersection	-Install 4 D-3 Street Name Signs	\$ 5,000.00	\$ 6,000.00	\$ 1,250.00	\$ 1,500.00							\$ 10,100.00	\$ 12,120.00
	15	Install Signal Ahead (W3-3) signs on the right and left-hand shoulders (EB and WB directions) with "SIGNAL AHEAD" pavement marking legends in all travel lanes	-Install 4 signs (SI-61) -Stripe 6 "SIGNAL AHEAD" pavement markings (SI-93)	\$ 6,750.00	\$ 8,100.00	\$ 1,687.50	\$ 2,025.00							\$ 13,635.00	\$ 16,362.00
7531 Bonniemill Lane at Hooses Road														\$ 39,157.66	\$ 67,119.88
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 curb ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	2	Install crosswalk across Bonniemill Lane (south side) and Hooses Road (east side)	-Stripe 120 LF of Crosswalk (SI-91) -Stripe 24 Lf of new stop bar (SI-87)	\$ 638.40	\$ 766.08	\$ 159.60	\$ 191.52							\$ 1,008.67	\$ 1,210.41
	3	Install approximately 150 feet of sidewalk between Hooses Road and Manchester Woods	-Construct 150 LF of Sidewalk (STND-178)	\$ 10,852.27	\$ 33,153.41	\$ -	\$ -							\$ 10,852.27	\$ 33,153.41
	4	Install "Do Not Block the Box" pavement markings or other pavement markings to prevent blocking of the intersection		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	5	Signalize Hooes Road as part of a signal cluster with Franconia-Springfield Road; operate Hooes Road as an exclusive phase		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	6	Restripe the section of Bonniemill Lane between Hooses Road and Franconia-Springfield Parkway to provide a SB thru-right, SB left, NB left, NB thru, and NB right (5 lanes total)	-Install 4 elongated arrows (SI-84) -Install 1 elongated double arrow (SI-85) -300 LF of Striping (SI-81)	\$ 783.00	\$ 939.60	\$ 195.75	\$ 234.90							\$ 1,440.72	\$ 1,728.86
7621 Backlick Road at Franconia-Springfield Parkway Eastbound Ramps														\$ 218,210.50	\$ 261,852.60
	1	Relocate pedestrian pushbuttons adjacent to curb ramp or provide connectivity to existing pushbuttons	-Relocate 4 pedestrian signal poles (SI-41)	\$ 40,000.00	\$ 48,000.00	\$ 10,000.00	\$ 12,000.00							\$ 80,800.00	\$ 96,960.00
	2	Install pedestrian signal for crossing of south leg	-Install 2 Pedestrian Signal Poles (SI-42)	\$ 15,600.00	\$ 18,720.00	\$ 3,900.00	\$ 4,680.00							\$ 31,512.00	\$ 37,814.40
	3	Construct raised median to control the movement of traffic into and out of the site at the signal only	-Construct 35 SY of Concrete Median (SI-12)	\$ 3,675.00	\$ 4,410.00	\$ 918.75	\$ 1,102.50							\$ 7,423.50	\$ 8,908.20
	4	Install improved guide signage to eastbound Franconia-Springfield Parkway from southbound Backlick Road	-Install overhead sign gantry (SI-67)	\$ 48,750.00	\$ 58,500.00	\$ 12,187.50	\$ 14,625.00							\$ 98,475.00	\$ 118,170.00

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
7622 Backlick Road at Franconia-Springfield Parkway Westbound Ramps														\$ 221,468.78	\$ 265,762.54
	1	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 1 Trail Warning sign (SI-62) -Stripe 16 LF of yield markings (SI-88)	\$ 1,354.24	\$ 1,625.09	\$ 338.56	\$ 406.27							\$ 2,139.70	\$ 2,567.64
	2	Reconstruct pedestrian sidewalk and ramps in channelizing islands on the northwest corners	-Replace 2 Curb Ramps (SI-03) -Construct 30 LF of 5' Sidewalk (SI-04)	\$ 7,240.00	\$ 8,688.00	\$ 1,810.00	\$ 2,172.00							\$ 14,624.80	\$ 17,549.76
	3	Realign crosswalk (east leg)	-Realign 70 LF of high-visibility crosswalk (SI-90)	\$ 2,940.00	\$ 3,528.00	\$ 735.00	\$ 882.00							\$ 5,115.60	\$ 6,138.72
	4	Install crosswalk across the north leg of the intersection with pedestrian signals and ADA compliant curb ramps	-Construct 2 new curb ramps (SI-02) -Realign 90 LF of high-visibility crosswalk (SI-90)	\$ 8,480.00	\$ 10,176.00	\$ 2,120.00	\$ 2,544.00							\$ 17,129.60	\$ 20,555.52
	5	Install improved guide signage to westbound Franconia-Springfield Parkway from Backlick Road (northbound and southbound)	-Install overhead sign gantry (SI-67)	\$ 48,750.00	\$ 58,500.00	\$ 12,187.50	\$ 14,625.00							\$ 98,475.00	\$ 118,170.00
	6	Shift the eastbound through and left-turn lane stop bars back approximately 10 feet	-Install 24 LF of stop bar (SI-87) -Eradicate 44 LF of pavement markings (SI-94)	\$ 406.00	\$ 487.20	\$ 101.50	\$ 121.80							\$ 682.08	\$ 818.50
	7	Replace existing protected-permissive signal display with a protected only signal display for the southbound left-turn movement	-Update 3 Signal Heads (SI-43) -Replace 1 Mast Arm (SI-52)	\$ 26,900.00	\$ 32,280.00	\$ 6,725.00	\$ 8,070.00							\$ 42,502.00	\$ 51,002.40
	8	Install retroreflective backplates on all signal heads	-Install Retroreflective Backplates on All Signal Heads (SI-48)	\$ 10,000.00	\$ 12,000.00	\$ 2,500.00	\$ 3,000.00							\$ 15,800.00	\$ 18,960.00
	9	Evaluate intersection lighting improvements to reduce potential glare	-Intersection Lighting Study (SI-45)	\$ 25,000.00	\$ 30,000.00	\$ -	\$ -							\$ 25,000.00	\$ 30,000.00
7721 Franconia-Springfield Parkway at I-95 HOV (Express Lanes as of December 2014)														\$ 47,656.00	\$ 57,187.20
	1	Install improved westbound guide signage to Backlick Road prior to the I-95 HOV (Express Lanes) intersection	-Install 2 large signs (SI-64)	\$ 4,800.00	\$ 5,760.00	\$ 1,200.00	\$ 1,440.00							\$ 8,832.00	\$ 10,598.40
	2	Install near-side traffic signal displays	-Install 4 near-side signal displays (SI-46)	\$ 18,400.00	\$ 22,080.00	\$ 4,600.00	\$ 5,520.00							\$ 37,168.00	\$ 44,601.60
	3	Install Signal Ahead (W3-3) signs on the right and left-hand shoulders (EB and WB directions)	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,656.00	\$ 1,987.20
	4	See item 3 above		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
7821 Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps														\$ 145,595.00	\$ 174,714.00
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 12 curb ramps	\$ 38,400.00	\$ 46,080.00	\$ 9,600.00	\$ 11,520.00							\$ 77,568.00	\$ 93,081.60
	2	Relocate pedestrian pushbuttons adjacent to curb ramp or provide connectivity to existing pushbuttons	-Install 3 new pedestrian signal poles (SI-42)	\$ 23,400.00	\$ 28,080.00	\$ 5,850.00	\$ 7,020.00							\$ 47,268.00	\$ 56,721.60
	3	Install supplemental, near-side signal displays for the northbound approach	-Install 2 Near-Side Traffic Signal Displays (SI-46)	\$ 9,200.00	\$ 11,040.00	\$ 2,300.00	\$ 2,760.00							\$ 18,584.00	\$ 22,300.80
	4	Provide bike lane markings (or shared lane use markings) to guide bicyclists to/from the Metrorail station	-Install Shared Lane Markings Every 500' (SI-95)	\$ 1,250.00	\$ 1,500.00	\$ 312.50	\$ 375.00							\$ 2,175.00	\$ 2,610.00
7822 Frontier Drive at Franconia-Springfield Parkway Westbound Ramps														\$ 209,592.13	\$ 251,510.56
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 10 Curb Ramps (SI-03)	\$ 32,000.00	\$ 38,400.00	\$ 8,000.00	\$ 9,600.00							\$ 64,640.00	\$ 77,568.00
	2	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 3 trail warning signs (SI-62) -Stripe 32 LF of yield bar (SI-88)	\$ 3,908.48	\$ 4,690.18	\$ 977.12	\$ 1,172.54							\$ 7,895.13	\$ 9,474.16
	3	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time	-Replace 4 curb ramps (SI-03) -Realign 150 LF of high-visibility crosswalk (SI-90)	\$ 19,100.00	\$ 22,920.00	\$ 4,775.00	\$ 5,730.00							\$ 38,582.00	\$ 46,298.40
	4	Install guide signage to I-95 concurrently with guide signage to Frontier Drive; install additional signage on the off-ramp to Frontier Drive	-Install overhead sign gantry (SI-67)	\$ 48,750.00	\$ 58,500.00	\$ 12,187.50	\$ 14,625.00							\$ 98,475.00	\$ 118,170.00
7931 Franconia-Springfield Parkway at Franconia-Springfield Metrorail Station Loop														\$ 34,907.06	\$ 41,888.47
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 Curb Ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	2	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings.	-Install 3 trail warning signs (SI-62) -Stripe 16 LF of yield bar (SI-88)	\$ 3,754.24	\$ 4,505.09	\$ 938.56	\$ 1,126.27							\$ 5,931.70	\$ 7,118.04
	3	Install crosswalk across ramps	-Realign 32 LF of high-visibility crosswalk (SI-90)	\$ 1,344.00	\$ 1,612.80	\$ 336.00	\$ 403.20							\$ 2,714.88	\$ 3,257.86
	4	Install stop bar for southbound approach	-Stripe 16 LF of stop bar (SI-87)	\$ 256.00	\$ 307.20	\$ 64.00	\$ 76.80							\$ 404.48	\$ 485.38
8031 Franconia-Springfield Parkway at Walker Lane														\$ 29,590.04	\$ 35,508.05
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 4 Curb Ramps (SI-03)	\$ 12,800.00	\$ 15,360.00	\$ 3,200.00	\$ 3,840.00							\$ 25,856.00	\$ 31,027.20
	2	Install crosswalk across Walker Lane. Install perpendicular to the direction of travel to reduce pedestrian crossing time.	-Realign 45 LF of high-visibility crosswalk (SI-90) -Strip 16 LF of stop bar (SI-87)	\$ 2,146.00	\$ 2,575.20	\$ 536.50	\$ 643.80							\$ 3,734.04	\$ 4,480.85

Appendix L - Planning Level Cost Estimate Summary

LOCATION NUMBER	NO.	IMPROVEMENT	NOTES/Assumptions	Low	High	PE & Construction Contingencies		ROW IMPACT?	Description	RW-LOW	RW-HIGH	RW-LOW	RW-HIGH	LOW	HIGH
						LOW	HIGH								
8121 Franconia-Springfield Parkway at Beulah Street			Eliminate Channelized Right Turns Do Not Eliminate Channelized Right Turns											\$ 3,018,723.21	\$ 5,623,182.62
														\$ 2,920,679.23	\$ 5,497,529.85
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 10 Curb Ramps (SI-03)	\$ 32,000.00	\$ 38,400.00	\$ 8,000.00	\$ 9,600.00							\$ 64,640.00	\$ 77,568.00
	2	Provide consistent signage - install pedestrian warning sign (W11-2) with supplemental arrow sign (W16-7p) for sidewalk crossings or combined Bicycle/Pedestrian (W11-15) with supplemental TRAIL X-ING (W11-15P) plaque for trail crossings. Provide consistent markings - yield line prior to high visibility crosswalk.	-Install 4 trail warning signs (SI-62) -Stripe 64 LF of yield bar (SI-88)	\$ 5,416.96	\$ 6,500.35	\$ 1,354.24	\$ 1,625.09							\$ 8,558.80	\$ 10,270.56
	3	Realign crosswalk to be perpendicular to the direction of travel to reduce pedestrian crossing time	-Reconstruct island (SI-14) -Stripe 85' of high-visibility crosswalk (SI-89) -Adjust channelized right turn (widen turn radius) (STND-168)	\$ 384,900.00	\$ 546,680.00	\$ 3,475.00	\$ 4,170.00							\$ 399,078.00	\$ 563,693.60
	4	Reconstruct pedestrian sidewalk and ramps in channelizing islands on the northwest, northeast, and southeast corners	-Reconstruct 9 curb ramps (SI-03) -Construct 30' of sidewalk (SI-04)	\$ 29,640.00	\$ 35,568.00	\$ 7,410.00	\$ 8,892.00							\$ 59,872.80	\$ 71,847.36
	5	Extend eastbound left-turn lanes	-Extend eastbound left turn lanes 200' each (SI-15)	\$ 155,303.03	\$ 235,227.27	\$ -	\$ -							\$ 155,303.03	\$ 235,227.27
	6	Modify approach geometry along the northbound and westbound approaches to provide three northbound left-turn lanes and three westbound through lanes	-Widen road 1000' each direction (SI-15) -Reconstruct 1000' of trail (STND-191), 1000' of sidewalk (STND-178)	\$ 1,061,931.82	\$ 1,813,825.76	\$ -	\$ -	y	STND-226	0.75	1.25	\$ 796,448.86	\$ 2,012,784.09	\$ 1,858,380.68	\$ 4,081,107.95
	7	Create a quadrant intersection by rerouting left-turn movements through Walker Lane to convert the existing Beulah Street intersection to a two-phase signal		\$ -	\$ -	\$ -	\$ -							\$ -	\$ -
	8	Consider eliminating channelized right-turns and convert to right-angle approaches. This will provide controlled pedestrian access throughout the intersection and allow for the operation of right-turn overlaps.	-Demolish 800 SY of pavement (SI-21) -Stripe 48 LF of stop bar (SI-87) -Striping for 4 lanes (SI-87) -Replace 8 curb ramps (SI-03) -Provide new pedestrian phase (STND-158)	\$ 98,968.00	\$ 126,761.60	\$ 9,742.00	\$ 11,690.40							\$ 138,715.36	\$ 174,458.43
	9	Install bike lane striping through the intersection in the northbound and southbound directions	-Stripe 200 LF of 6" Pavement Markings (SI-91)	\$ 424.00	\$ 508.80	\$ 106.00	\$ 127.20							\$ 780.16	\$ 936.19
	10	Eliminate the channelized free-flow southbound right-turn movement and provide controlled pedestrian access across all southbound lanes	-Demolish 400 SY of pavement (SI-21) -Stripe 24' of stop bar (SI-86) -Striping for 2 lanes (SI-87) -Replace 4 curb ramps (SI-03) -Provide pedestrian signal phase (STND-158)	\$ 79,484.00	\$ 103,380.80	\$ 4,871.00	\$ 5,845.20							\$ 99,357.68	\$ 127,229.22
	10A	Extend the existing white solid line striping to delineate free-flow right-of-way for the southbound right-turn movement; install Added Lane Sign (W4-3)	-Install 1 Sign (SI-61) -500 LF of striping (SI-81)	\$ 755.00	\$ 906.00	\$ 188.75	\$ 226.50							\$ 1,313.70	\$ 1,576.44
	11	Relocate or install new Next Signal (D3-2) signs sufficient distance from the stop bar (minimum 565 feet)	-Install 8 new D3-2 Signs (SI-64)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 27,456.00	\$ 32,947.20
	12	Extend mini-skip markings and install right-turn arrow pavement markings to a distance of 1500 feet from the stop bar, install additional Right Lane Must Turn Right (R3-7) sign	-Install 1 Sign (SI-61) -1500 LF of striping (SI-81)	\$ 1,365.00	\$ 1,638.00	\$ 341.25	\$ 409.50							\$ 2,156.70	\$ 2,588.04
	13	Supplement the existing Signal Ahead (W3-3) signs with active flashing beacons overhead. Install Next Signal (D3-2) sign on the mast arm.	-Install Queue-Activated Flashing Beacon (SI-51)	\$ 63,500.00	\$ 76,200.00	\$ 15,875.00	\$ 19,050.00							\$ 128,270.00	\$ 153,924.00
	14	Install lane control sign on the mast arm to indicate the dual eastbound left-turn lanes also serve the u-turn movement from the leftmost lane. Install U-Turn Yield to Right-Turn sign (R10-16) in median.	-Install 2 Signs (SI-61)	\$ 900.00	\$ 1,080.00	\$ 225.00	\$ 270.00							\$ 1,818.00	\$ 2,181.60
	15	Install near-side traffic signal displays	-Install 8 near-side traffic signal displays (SI-46)	\$ 36,800.00	\$ 44,160.00	\$ 9,200.00	\$ 11,040.00							\$ 74,336.00	\$ 89,203.20
8131 Beulah Street at Alforth Avenue														\$ 15,018.61	\$ 18,022.33
	1	Existing curb ramps are non-compliant with ADA	-Replace 2 curb ramps (SI-03)	\$ 6,400.00	\$ 7,680.00	\$ 1,600.00	\$ 1,920.00							\$ 12,928.00	\$ 15,513.60
	2	Channelizing island does not provide ADA compliant access across Alforth Avenue	-Remove 10 square yards of concrete (SI-20) -Install about 10 feet of curb along new ADA compliant path (SI-05) -Install about 5 LF of 5' sidewalk (SI-04)	\$ 760.00	\$ 912.00	\$ 190.00	\$ 228.00							\$ 1,535.20	\$ 1,842.24
	3	No crosswalk across Alforth Avenue	-Stripe 60 LF of crosswalk (SI-91)	\$ 127.20	\$ 152.64	\$ 31.80	\$ 38.16							\$ 221.33	\$ 265.59
	4	No stop bar on eastbound approach	-Stripe 12 LF of stop bar (SI-87)	\$ 192.00	\$ 230.40	\$ 48.00	\$ 57.60							\$ 334.08	\$ 400.90
8132 Beulah Street at Lewin Drive/Shopping Center														\$ 39,667.75	\$ 47,601.30
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 6 Curb Ramps (SI-03)	\$ 19,200.00	\$ 23,040.00	\$ 4,800.00	\$ 5,760.00							\$ 38,784.00	\$ 46,540.80
	2	Install crosswalk across Shopping Center driveway		\$ 507.90	\$ 609.48	\$ 126.98	\$ 152.37							\$ 883.75	\$ 1,060.50
8133 Beulah Street at Metro Park Drive/Charles Arrington Drive														\$ 32,633.55	\$ 39,160.26
	1	Replace existing curb ramps with latest ADA-compliant curb ramps	-Replace 5 Curb Ramps (SI-03)	\$ 16,000.00	\$ 19,200.00	\$ 4,000.00	\$ 4,800.00							\$ 32,320.00	\$ 38,784.00
	2	Install crosswalk across Metro Park Drive	-Stripe 85' of crosswalk markings (SI-91)	\$ 180.20	\$ 216.24	\$ 45.05	\$ 54.06							\$ 313.55	\$ 376.26