Biohabitats

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MEMORANDUM

Date: November 11, 2021

To: Charles Smith and Meghan Fellows, Fairfax County Department of Public Works and Environmental Services

From: Biohabitats, Inc.
Rebecca Winer-Skonovd, Meghan Gloyd, Greg Zuknick, Jennifer Missett

Subject: Long Branch Watershed Management Area Phase 1B Report

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Fairfax County is taking a watershed approach to restoration and ecological uplift to meet Total Maximum Daily Load (TMDL) requirements for sediment reductions within the Long Branch watershed. Identification of restoration projects was completed through desktop analysis and field assessments that emphasize cost-effective restoration strategies that also address community concerns, ecological impacts, and collectively maximize nutrient and sediment removal and functional uplift. The field assessment in particular, focused on the identification of potential stream and existing facility restoration projects. The goals of the field assessments were to characterize stream corridor and evaluate existing facility (stormwater retrofit) opportunities and prioritize restoration opportunities.

The purpose of this memorandum is to summarize efforts conducted within Phase 1B (Field Assessment and Opportunity Identification). A description of the field assessments followed by an overview of the prioritization process is provided below.

Stream Assessments

The stream corridor assessment consisted of a continuous assessment of approximately 12 miles of stream and more than 150 outfalls. The stream assessment documented existing conditions such as physical in-stream habitat, floodplain conditions, and erosion potential. Data anomalies, repair needs, and potential for Regenerative Stormwater Conveyance (RSC) implementation were evaluated for outfalls within the stream corridor. Nomenclature was established to give each data point a unique identifier (ID). This nomenclature is described in **Attachment A**. Unique IDs were assigned by field assessment type and catchment location. A map of catchment locations and associated IDs is provided in **Attachment B**.

Field work was conducted with two-person field crews over the course of November and December 2020 and January 2021. An overview of the various assessments conducted within the Long Branch watershed is provided below. For additional detail on the specific fields collected within each assessment, see **Attachment C.** Field data results were provided to the County in the form of an ArcGIS geodatabase.

Stream Restoration Assessment

The Stream Restoration Assessment is an existing assessment used by Fairfax County staff to score a stream reach for its restoration potential using two primary bins of factors: planning and instability. Planning evaluates sites for factors such as access, utility conflicts, and ownership while instability looks at stream bank vegetation, mass erosion and stream bank cutting.

Physical Habitat Assessment

Fairfax County utilizes a customized version of the EPA rapid bioassessment protocol to assess the physical habitat of County streams. The habitat assessment form is intended for perennial reaches and was not completed on ephemeral channels. This assessment rates the physical habitat quality of the stream corridor for a wide variety of factors including bank stability, embeddedness, and frequency of riffles (or bends). Typically, each factor is given a score of 1 – 20 with 20 representing optimal conditions. For the purposes of this project, a zero was added to capture instances of no feature present. A yes/no question was included to address if a stream was previously restored. This allowed restored reaches to be flagged to recognize the influence of that effort on the channel alteration score.

Floodplain Vegetation Assessment

Biohabitats, in conjunction with Fairfax County, created a floodplain quality assessment form to evaluate the quality of the vegetation within the floodplain. The results of this assessment helps to inform project prioritization and we may want to limit project extent in areas of high quality vegetation and identify areas with non-native vegetation. The main focus of the assessment is the type of vegetation (forest, shrub, old field, herbaceous etc.), diversity of strata within a forest, and the invasive species composition. Additional information about the floodplain was recorded such as the presence of plant regeneration (indicating deer browse intensity), standing snags, or coarse woody debris.

BANCS Assessment

The Bank Assessment of Nonpoint source Consequences of Sediment (BANCS) is a method to determine the rate of erosion of a segment of bank along a stream. This is calculated by combining the Bank Erosion Hazard Index (BEHI) score and the Near Bank Stress (NBS) score of a bank segment. The BEHI score is calculates the potential erosion due to the condition of the bank whereas the NBS scores the amount of stress the flow of water imparts on the bank. Each segment is determined by its relative BEHI score, NBS score and bank height. If one of these factors changes significantly a new segment is created. These segments are independent of reaches defined during the habitat, floodplain, and stream scoping assessments. The BEHI score is calculated by comparing several factors including bank height, bankfull depth, root density, and bank material. After BEHI score is determined three times a team can be calibrated to that condition and can use a rapid

assessment to determine the BEHI score of a segment. The NBS score is determined by using a reference sheet provided to the field crew developed for the BANCS method.

Miscellaneous

The miscellaneous layer is provided for field crews to document either resident interactions or point of interest that do not fit into other categories. The homeowner interaction is important to track because it allows for the field crew to both give the resident more information about the project and also learn more about the resident's history with the area and concerns or support for potential projects. Points of interaction also documented areas that residents value and would like to see protected and left in its current condition. This is information was incorporated in the prioritization framework.

Pipe Crossing

The pipe crossing layer documents instances where a utility or unknown pipe is exposed. The exposed pipe could be at risk of damage if it is not properly covered. This would likely occur at a known utility crossing, however unpredicted locations are equally important to note.

Outfall: RSC Potential

Biohabitats created a form to evaluate RSC potential at outfalls within the stream corridor. The form evaluated contributing sources to erosion, existing conditions such as head cutting and erosion, immediate vegetation quality, and ease of access.

Outfall: Repair Needs

This field assessment documented if any pipe outfall or receiving channel (structural or earthen) requires a repair. Field crews used best professional judgement to determine the need for a repair. Examples include erosion that has caused the headwall and/or apron to be undercut, pipe corrosion, the concrete pipe or liner is breaking apart, etc.

Existing Facility Assessment

A total of 23 sites were assessed throughout the Long Branch watershed in November 2020 using a two-person field crew. The, the sites included 21 existing stormwater management facilities along with potential new facilities identified at the Brandywine Swim Club and Fairfax Memorial Park. The 21 existing stormwater management facilities were identified by filtering Fairfax County's stormwater facility data base by watershed and facility type (dry pond, farm pond, and wet ponds) to identify facilities with restoration potential. Dry ponds included both those classified as peak shavers (ponds designed to reduce peak flows from stormwater runoff) and extended detention. Field work occurred in November of 2020 using a two-person field crew. For additional detail on the specific fields collected within each assessment, see **Attachment C.** Field data results were provided to the County in the form of an ArcGIS geodatabase.

The field assessment of existing stormwater facilities included a characterization of the existing conditions, identification of site constraints, and recommended retrofit. The characterization of existing conditions included comparison to design plans where available, inventory of facility components (inflows, embankments, basin, outlet works, etc.), and the condition of these

components. Site constraints included presence of utilities, presence of regulated natural resources (mature trees, wetlands, etc.), location of existing property boundaries, presence of steep slopes, limited or obstructed construction access, and limitation to vertical storage adjustments were assessed on a binary (yes/no) basis. Comment fields and site sketches were used to provide detail on the nature of observed constraints. Based on the field observations, crews selected a potential retrofit type for the facility, the level of expected benefits of that retrofit, created a field sketch of the proposed retrofit, and wrote a brief description of the proposed retrofit. Photographs taken included a site overview, observed deficiencies, critical site constraints, and field sketches.

The field assessments at Brandywine Swim Club and Fairfax Memorial Park sought to identify locations for installation of new stormwater best management practices (BMPs). A unique point was added to the database to record the location of the proposed practice. Data collected included identification of site constraints and characterization of the proposed practice. The site constraints fields were assessed in the same manner as existing facilities. The proposed practice characterization included recommended practice type, level of expected benefits, existing land use, proposed embankment height, footprint type (excavated or impounded), inlet configuration (open channel, closed conduit, or overland flow), and proposed outfall channel (existing, new, or modified). Comment fields, photographs, and site sketches were used to provide further details.

Prioritization Framework

Data from the field assessment was used to identify and prioritize potential restoration projects. Scoring schemas were developed for three different project types: stream restoration, RSCs, and stormwater BMP retrofits. For stream restoration, the prioritization scoring criteria was applied on a reach-by-reach basis. Each potential project was scored within its project type; prioritization did not cut across project types. While scoring metrics varied by project type, a similar scoring framework was developed and applied across all three project types. Scoring metrics were organized into three bins:

- Ecological benefits: parameters included sediment load addressed, floodplain vegetation quality, etc.
- Ancillary benefits: parameters included public input obtained via County complaints database, correspondence with County staff, field crew interactions, and the public input map.
- Feasibility: parameters included constraints, property ownership, access, etc.

Individual metrics within each bin were normalized by scoring by quartile for comparative ranking. Each "bin" was assigned equal weight and was worth a total of one point each. Therefore, the highest possible score was three points. In this scoring schema, a lower score is better. Highly scored projects indicate that the project may be infeasible and/or have little benefit. The metrics and scoring established by the prioritization framework for the three project types (stream restoration, RSC, and stormwater BMP retrofit) can be found in **Attachment D**. Prioritization results, in spreadsheet format, are available in **Attachment E**. Maps showing prioritization results by quartile in **Attachments F and G** (Stream & Outfall and Stormwater BMP, Retrofit, respectively).

The County established a Design Group to provide input and oversight throughout the entirety of the Long Branch effort (beyond Phase 1B). The Design Group includes more than a dozen representatives from a range of interests and backgrounds relevant to the restoration of the Long Branch watershed. Participation included, but was not limited to, representatives from Department of Public Works, Park Authority, Soil and Water Conservation District, Friends of Accotink Creek, and Friends of Long Branch. During Phase 1B, the Design Group provided input and feedback on the prioritization framework and results during work sessions held in March and April 2020.

Next Steps

Restoration of the Long Branch watershed is an ongoing, multi-year effort with multiple phases leading up to the construction of restoration projects. The prioritization of potential restoration projects from this Phase (1B) will inform future steps which include the following:

- Ongoing stakeholder outreach to continue communicating project intent and results to date while also obtaining input and feedback from the community.
- Initiating pre-construction monitoring to establish a baseline of conditions in the Long Branch watershed with the ultimate goal of demonstrating ecological uplift post-construction.
- Developing an implementation work plan (Phase 1C) that will aggregate the prioritization results into 22 projects. Descriptions will be developed for each project and will include details critical to restoration design including the identification of the restoration approach and design intent and areas for access and staging.

Attachments

A: Unique ID Nomenclature

B: Long Branch Catchment Map

C: Assessment Form Layout

D: Prioritization Framework

E: Prioritization Results Spreadsheets (available as Microsoft Excel files)

F: Stream & Outfall Prioritization Results Maps

G: Stormwater BMP Retrofit Prioritization Results Map

Attachment A: Unique ID Nomenclature

ATTACHMENT A: FIELD ASSESSMENT NOMENCLATURE

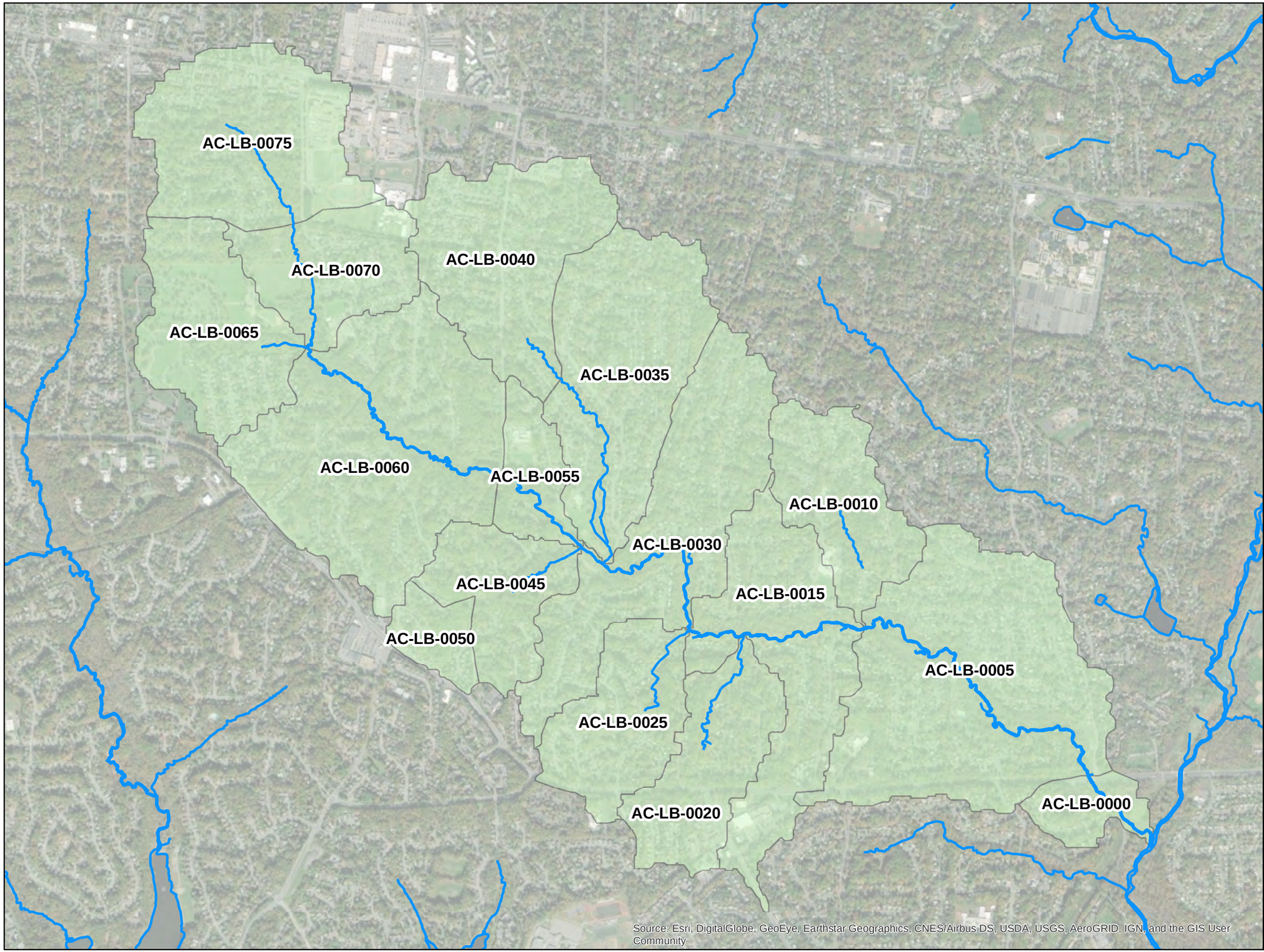
Updated February 22, 2021

Assessment	Abbreviation
Habitat Assessment	HA
Stream Scoping	SC
Floodplain Assessment	FP
BANCS	R or L
Outfall Assessment	OF
RSC	RC
Pipe Crossing	PC
BMP Retrofit	BMP

REACH ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] i.e., AC-LB-0050-001
RBP HABITAT ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – HA – [UNIQUE ID] i.e., AC-LB-0050-001-HA-01
STREAM SCOPING ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – SC – [UNIQUE ID] i.e., AC-LB-0050-001-SC-01
FLOODPLAIN ASSESSMENT ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – FP – [UNIQUE ID] i.e., AC-LB-0050-001-FP-01
BANCS ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – [BANK SIDE (R OR L)] – [UNIQUE ID] i.e., AC-LB-0050-001-L-12
OUTFALL ASSESSMENT ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – OF – [UNIQUE ID] i.e., AC-LB-0050-001-OF-05
RSC ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – SC – [UNIQUE ID] i.e., AC-LB-0050-001-RC-02
PIPE CROSSING ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – PC – [UNIQUE ID] i.e., AC-LB-0050-001-PC-01
BMP RETROFIT ID	[WATERSHED ID] – [SUBWATERSHED ID] – [SUBWATERSHED CODE] – [REACH ID] – BMP – [UNIQUE ID] i.e., AC-LB-0040-BMP-01

Note: Reach IDs were assigned moving from downstream to upstream, a confluence receive the next ID number before continuing upstream to the next reach. This method was modeled after the Subwatershed code.

Attachment B: Long Branch Watershed Catchment Map



Long Branch

Assessment Subsheds

Fairfax County, VA

Legend

Streams

Subsheds

Subshed

Feet

0 750 1,500 3,000

N

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October, 2021

Document Path: W:\GIS\PROJECTS\19040.00 Long Branch Watershed Management Area\MXD\Field_Assessments\AssessmentAreas.mxd

Attachment C: Assessment Form Layout

Stream Restoration Assessment

Field	Description	Type	Method								
PROJECT_NAME		Text	Entry								
PROJECT_ID		Text	Entry								
DRAINAGE_AREA		Double	Entry								
PERC_IMPERVIOUS		Double	Entry								
SCOPING_TEAM		Text	Entry								
DATE		Date	Entry								
WEATHER		Text	Entry								
EASEMENTS		Text	Dropdown	1-All necessary easements exist	3- Partial easements exist	5-No easements exist					
UTILITIES		Text	Dropdown	1-No utilities in the area	3-Some utilities in the area of the stream, but don't appear to present a large proble	5-Utilities exist in the immediate area of the stream					
StwOwnership		Text	Dropdown	1-Public ownership	3-Private ownership, mostly HOA (limited number of owners	5-Multiple private owners					
StwStreamOrder		Text	Dropdown	1- 0-2nd	3-3rd	5-4th-5th					
UNCRC_AREA		Text	Entry								
UNCRC_WIDTH		Text	Entry								
UNCRC_DEPTH		Text	Entry								
NOM_YEAR		Text	Entry								
StwScopingPhase		Text	Dropdown	Scoped	Desktop Rejected	Field Scope Rejected	Candidate				
StwSpvrDist		Text	Dropdown	Braddock	Dranesville	Hunter Mill	Lee	Mason	Mount Vernon	Springfield	Sully
COMMENT_2		Text	Entry								
STREAM_NAME2		Text	Entry								
ACCESS2		Text	Dropdown	1-Good access exists	3-Access is marginal	5-No access points					
HEADCUTS2		Text	Entry								
RESTORATION2		Text	Dropdown	Priority 1 (bankfull channel at historical floodplain elevation)	Priority 2 (new floodplain and stream pattern at present elevation)	Priority 3 (widen floodplain at existing elevation)	Priority 4 (stabilize in place)				
HEADCUTS3		Text	Entry								
REACH1_LTB		Text	Entry								
REACH1_RTB		Text	Entry								
REACH1_BW		Text	Entry								
REACH1_CW		Text	Entry								
REACH1_LEN		Text	Entry								
CEM_R1		Text	Dropdown	I (Stable)	II (Incision)	III (Widening)	IV (Aggradation)	V (Quasi Stable)			
BRIDGE_COM		Text	Entry								
OUTFALL_COM		Text	Entry								
SAFETY_COM	StreamScopingID	Text	Entry								
BUFF_WIDL		Text	Entry								
BIFF_WIDR		Text	Entry								
HMN_IMPACT		Text	Entry								
VEG_ISBA		Text	Dropdown	1-Bare spots common; grass or shallow rooting (<25% bank height) plants; mostly herbaceous; very sparse trees – low root density and depth, overhanging roots or cantilevered banks are common.	2-Significant gaps in root systems. Fairly shallow rooting (<50% bank height)	3-Moderate root density and gaps in root systems along reach. Overhanging roots. Tree roots do not extend to channel bed (~1/2 bank height)	4-Good root density from top of bank to toe of slope through most of reach. Some isolated gaps or overhanging roots.	5-Excellent, consistent root density from top of bank to toe of slope throughout reach; bare spots are rare.			
DOM_SLOPE		Text	Dropdown	1-Vertical to near vertical banks (~90 degree slope)	2-Banks slope back steep (difficult walk/climb - >2:1); 70-90 degree slope	3-Banks slope back gently (easy walk); 40-70 degree slope	4-Connected to floodplain or wide bankfull bench, low slope (10-40 degree slope). (Small channels with an easy step out should be in this category, even if banks are vertical)				
MASS_EROS		Text	Dropdown	1-Multiple sites at least 2 channel widths in length; Contributing large amounts of sediment OR potential to contribute large amounts	2-One or more sites at least 2 channel widths in length of significant mass erosion; significant toe erosion.	3-Occasional sites 1 channel width in length of moderate mass erosion contributing sediment introduction; toe erosion.	4-Infrequent and/or very small. Mostly healed over, relatively stable, & may have veg.	5-No evidence of past events of mass erosion into the channel. Scalloped banks with no slumped material.			
CUTTING		Text	Dropdown	1-Almost continuous raw bank over 2 – 3 feet in bank top. Banks frequently undercut	2- 75% of reach with raw, vertical banks	3-Significant portion (~50%) of reach with raw, vertical banks. Root mat overhangs and sloughing prevalent	4-Cutting is evident on ~25% of reach	5-Limited to some outside bends and constrictions; length of cuts <1 bankfull width			
SCOPE_SCOR		Text	Dropdown	2-Stream needs work and a project would have great environmental benefit	4-Good candidate. Recommend moving forward	6-Work needed but may not rise to top tier due to need, benefit, constructability, other issues	8-Bank stabilization needed in spots OR channel may be healing	10-Problems exist but not that bad of a site in comparison to other county streams			
ADJ1		Text	Dropdown	-2 – Accelerated bar development/excessive bar growth of gravel and/or fines; and/or most pools filled with sediment; >50% of reach affected by exce	-1 – Significant deposition of gravel and/or coarse sand forming new bars; some pools filled with sediment. 30-50% of reach affected by excess agg						
ADJ2		Text	Dropdown	-2 – Majority (>50%) of reach scoured to bedrock/hardpan	-1 – 30 – 50% of reach scoured to bedrock/hardpan						
HeadcutAdj		Text	Dropdown	-3 – Multiple (3+) ~2-ft headcuts or one (or more) headcuts >4-ft	-2 – Two ~2-ft headcuts or one 3-4-ft headcut	-1 – One ~2-foot headcut in reach					

Fairfax County Rapid Bioassessment Protocol (RBP) Physical Habitat Assessment

Field	Description	Type	Method																		
Assessor		Text	Dropdown																		
DateTime		Date	Auto Populate																		
Perennial	Is the stream perennial? (If ephemeral/intermittent do not complete remainder of form)	Text	Dropdown	Yes	No																
Restored	Previous channel restoration?	Text	Dropdown	Yes	No																
EpifCover	Epifaunal Substrate/Available Cover	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
Embed	Ebeddedness of stone in riffle	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
VelDepReg	Velocity/Depth Regime	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
SedDep	Sediment Deposition	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
ChanFlow	Channel Flow Status	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
ChanAlt	Channel Alteration	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
RifFreq	Frequency of riffles (or bends)	Short	Dropdown	20 (Optimal)	19 (Optimal)	18 (Optimal)	17 (Optimal)	16 (Optimal)	15 (Suboptimal)	14 (Suboptimal)	13 (Suboptimal)	12 (Suboptimal)	11 (Suboptimal)	10 (Marginal)	9 (Marginal)	8 (Margina	7 (Marginal)	6 (Marginal)	5 (Poor)	4 (Poor)	3 (Poor)	2 (Poor)	1 (Poor)	0 (Poor)
BankStabLB	Left Bank Stability	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
BankStabRB	Right Bank Stability	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
VegProtLB	Left Bank Vegetation Protection	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
VegProtRB	Right Bank Vegetation Protection	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
RipVegLB	Left Bank Riparian Vegetation	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
RipVegRB	Right Bank Riparian Vegetation	Short	Dropdown	10 (Optimal)	9 (Optimal)	8 (Suboptimal)	7 (Suboptimal)	6 (Suboptimal)	5 (Marginal)	4 (Marginal)	3 (Marginal)	2 (Poor)	1 (Poor)	0 (Poor)										
FieldNotes		Text	Entry																		
RBPHabitatID		Text	Entry																		
ReachID		Text	Entry																		

Floodplain Vegetation Assessment

Field	Description	Type	Method					
Assessor		Text	Dropdown					
DateTime		Date	Auto Populate					
Bank		Text	Dropdown	Left	Right	Both		
MatForPerc	% Mature Forest (>12" dbh trees present)	Long	Entry					
MatForDiv	Matural Forest Vertical Diversity	Text	Dropdown	1 Strata	2 Strata	3 Strata	4 Strata	>4 Strata
YngForPerc	% Young Forest (>12" dbh trees present)	Long	Entry					
YngForDiv	Young Forest Vertical Diversity	Text	Dropdown	1 Strata	2 Strata	3 Strata	4 Strata	>4 Strata
SapSrbPerc	% Dense sapling or shrub only (<4" dbh)	Long	Entry					
OfRpPerc	% Old field or recent planting	Long	Entry					
HerbPerc	% Herbaceous	Long	Entry					
MowPerc	% Mowed grass	Long	Entry					
ParkPerc	% Park trees over grass	Long	Entry					
HerbNNI	NNI Cover % Herbaceous	Text	Dropdown	0%	1 - 25 %	26 - 50 %	51 - 75 %	>75%
HerbNNIC	NNI Herb Species of Concern	Text	Entry					
ShrubNNI	NNI Cover % Shrub	Text	Dropdown	0%	1 - 25 %	26 - 50 %	51 - 75 %	>75%
ShrubNNIC	NNI Shrub Species of Concern	Text	Entry					
TreeNNI	NNI Cover % Tree	Text	Dropdown	0%	1 - 25 %	26 - 50 %	51 - 75 %	>75%
TreeNNIC	NNI Tree Species of Concern	Text	Entry					
SigTree	Presence of Large Diameter >24" dbh Trees	Text	Dropdown	Absent	Present			
Regen	Regeneration	Text	Dropdown	Absent	Present < 18" ht	Present > 18"ht		
CWD	CWD (>6" dam & 10' Length)	Text	Dropdown	Absent	Present			
Snags	Snags (Standing dead > 12" dbh)	Text	Dropdown	Optimal Abundant	Suboptimal	Marginal Present	Fair	Poor Absent
Duff	Duff(Fine woody debris, leaf litter, organics)	Text	Dropdown	Absent (bare ground visible)	Thin (<1/2" thick)	Thick (> 1/2" thick)		
UtlTree	Are there trees near utilities	Text	Dropdown	Yes	No			
FallTree	Are there trees threatening to fall into the channel	Text	Dropdown	Yes	No			
EaseTree	Are there trees in the easement	Text	Dropdown	Yes	No			
SenseFeat	Sensitive feature notes (Wetland , RTE, Slopes)	Text	Entry					
MatAvail	Available material notes	Text	Entry					
Encroach	Encroachment of private property	Text	Entry					
Notes		Text	Entry					
Photo1		Text	Entry					
Photo2		Text	Entry					
Photo3		Text	Entry					
FloodplainAssessmentID		Text	Entry					
ReachID		Text	Entry					

BANCS

Field	Description	Type	Method						
Assessor		Text	Dropdown						
DateTime		Date	Auto Populate						
SUBSHED		Text	Entry						
ReachID		Text	Entry						
BEHI	BEHI Rating	Text	Dropdown	Very Low	Low	Moderate	High	Very High	Extreme
NBS	NBS Rating	Text	Dropdown	Very Low	Low	Moderate	High	Very High	Extreme
Length		Double	Calculated						
BankHeight		Double	Entry						
Erosion_CY_YR		Text	Entry						
BANCS_ID		Text	Entry						
SegmentID		Text	Entry						

Miscellaneous

Field	Description	Type	Method
Assessor		Text	Dropdown
DateTime		Date	Auto Populate
HomeonwerInteraction		Text	Entry
Notes1		Text	Entry
Notes2		Text	Entry
Photo1		Text	Entry
Photo2		Text	Entry
Photo3		Text	Entry
Photo4		Text	Entry
Photo5		Text	Entry

Pipe Crossing

Field	Description	Type	Method																				
Assessor		Text	Dropdown																				
DateTime		Date	Auto Populate																				
Exp_type	Type of pipe exposure	Text	Dropdown	bottom	Exposed along stream	Exposed manhole	Above stream	Other															
Exp_type_other	Description of other pipe exposed	Text	Entry																				
Exp_pipe_mat	Exposed pipe Material	Text	Dropdown	Reinforced Concrete pipe	Corrugated Metal pipe	High Density Polyethylene	Ductile Iron pipe	Polyvinyl Chloride	Concrete (Non-Reinforced)	Vitrified Clay pipe	Clay Tile	Asbestos Cement	Plastic / Steel Composite	Steel pipe	Roller Compacted Concrete pipe	Brick	Cast iron	Reinforced Plastic (Truss)	Transite pipe	Segmented Block	Pre-stressed Concrete Cylinder pipe	Not Known	Other	Polypropylene
Exp_pipe_mat_other	Description of other pipe material	Text	Entry																				
Pipe_diam_in	Diameter of exposed pipe (in)	Double	Entry																				
Pipe_length_ft	Estimated length of pipe that is exposed (ft)	Long	Entry																				
Pipe_purp	Purpose of pipe	Text	Dropdown	Sewage	Water supply	Stormwater	Unknown	Other															
Pipe_purp_other	Description of other pipe purpose	Text	Entry																				
Pipe_dis	States presence of pipe discharge	Text	Dropdown	Yes	No																		
Pipe_dis_color	Pipe discharge color, if pipe discharge is present	Text	Dropdown	Clear	Medium brown	Dark brown	Green brown	Yellow brown	Green	Blue	Other												
Pipe_dis_color_other	Additional description of pipe discharge color if "Other" was chosen	Text	Entry																				
Pipe_dis_odor	Pipe discharge odor, if pipe discharge is present	Text	Dropdown	Sewage	Oily	Musky	Fishy	Rotten eggs	Chlorine	None	Unknown												
Ii_potential	Exposed pipe infiltration/ inflow potential	Text	Dropdown	Yes	No	Maybe	Unknown																
Notes		Text	Entry																				
Photo1		Text	Entry																				
Photo2		Text	Entry																				
Photo3		Text	Entry																				
Photo4		Text	Entry																				
Photo5		Text	Entry																				
PipeCrossingID		Text	Entry																				

Outfall: RSC Assessment

Field	Description	Type	Method						
Assessor		Text	Dropdown						
DateTime		Date	Auto Populate						
Severity		Long	Dropdown	Severe	Moderate	Minor			
Access		Long	Dropdown	Excellent	Good	Fair	Poor	Very Poor	
AccessNotes	Potental access path type ie trail, park entrance, clearing needed etc…	Text	Entry						
OutfallOrigin	Does the RSC originate at an outfall?	Text	Dropdown	Yes	No				
HerbQual	Quality of the herbaceous vegetation at the RSC potent	Text	Dropdown	Very Poor	Poor	Fair	Good	Excellent	
ShrubQual	Quality of the shrub vegetation at the RSC potential loc	Text	Dropdown	Very Poor	Poor	Fair	Good	Excellent	
CanopyQual	Quality of the canopy vegetation at the RSC potential lc	Text	Dropdown	Very Poor	Poor	Fair	Good	Excellent	
UtilityConflict	Any evident utility conflicts?	Text	Dropdown	Sewer	Gas	Electric	Cable	Multiple	Unknown
ConflictComment	Optional field for any additional comments related to potential RSC conflicts	Text	Entry						
RegConf	RSC located within Waters of the US or Wetland	Text	Dropdown	WOTUS	Wetland	Both	Neither		
OpenArea	Is there sufficient area nearby that could be used for staging and stockpile?	Text	Dropdown	Yes	No				
UniqueFeat	Particular feature that makes this location well suited for a retrofit	Text	Entry						
Headcut	State presence of a drop, nickpoints, or headcuts in the channel	Text	Dropdown	Yes	No				
EstLengthFt	Estimated potential RSC length (ft)	Long	Entry						
EstElevFt	Estimated potential RSC drop (ft)	Double	Entry						
GullyWidthFt	Average width of the existing gully (ft)	Double	Entry						
GullyDepthFt	Average depth of the existing gully (ft)	Double	Entry						
TreeConf	State presence of mature trees at the RSC potential location	Text	Dropdown	Yes	No				
Notes		Text	Entry						
Photo1		Text	Entry						
Photo2		Text	Entry						
Photo3		Text	Entry						
Photo4		Text	Entry						
Photo5		Text	Entry						
RSCID		Text	Entry						

Outfall: Repair Needs

Field	Description	Type	Method																			
STORMNET_ID		Text	Populated																			
Assessor		Text	Dropdown																			
DateTime		Date	Auto Populate																			
LocMatch	Does the location match the inventory?	Text	Dropdown	Yes	No																	
Present	Outfall found in the field?	Text	Dropdown	Yes	No																	
NewAdd	New addition to the inventory	Text	Dropdown	Yes	No																	
AttMatch	Do the attributes match the inventory?	Text	Dropdown	Yes	No																	
Material	Outfall pipe material	Text	Dropdown	Reinforced Concrete pipe	Corrugated Metal pipe	High Density Polyethylene	Ductile Iron pipe	Polyvinyl Chloride	Concrete (Non-Reinforced)	Vitrified Clay pipe	Clay Tile	Asbestos Cement	Plastic / Steel Composite	Steel pipe	Roller Compacted Concrete pipe	Brick	Cast iron	Reinforced Plastic (Truss)	Transite pipe	Segmented Block	Pre-stressed Concrete Cylinder pipe	Not Known	Other	Polypropylene
Condition	Outfall condition	Text	Dropdown	Very Poor	Poor	Fair	Good	Excellent																
AssetShape	Pipe shape	Text	Dropdown	Circular	Oval (elliptical)	Rectangular	Egg shaped	Square	Horseshoe	Barrel	Arched	Other												
Height_Dia	Diameter (in)	Double	Entry																					
OR_Desc	Description of outfall repair needed	Text	Entry																					
Imm_Repair	Is immediate repair needed?	Text	Dropdown	Yes	No																			
SF_prox	The estimated proximity to single family homes	Text	Dropdown	>200'	150' - 200'	100' - 150'	50' - 100''	<50'																
Comm_prox	The estimated proximity to multi-family or commercial structures	Text	Dropdown	>200'	150' - 200'	100' - 150'	50' - 100''	<50'																
Public_prox	The estimated possible damage to public facilities	Text	Dropdown	Major	Minor	None																		
Damage_future	The estimated length of potential future damage	Text	Dropdown	>50'	25' - 50'	<25'																		
Prox_other	The estimated proximity to other structures	Text	Dropdown	>20'	<20'																			
AboveSTM	The estimated height of the outfall above the stream	Double	Entry																					
DamageAMT	The amount of damage to the outfall	Text	Dropdown	>3 Sections of pipe	1-2 Sections of pipe	Endwall Damage	Outfall Channel	No Damage																
StreamIMP	The impacts to the stream channel	Text	Dropdown	Major bank erosion	Banks >5' high	Banks < 5' high	Minor bank erosion at outfall only	Stream banks vegetated																
Access	Access score	Text	Dropdown	Excellent	Good	Fair	Poor	Very Poor																
PrivProp	Private property constraint?	Text	Dropdown	Left Bank	Right Bank	Both	None																	
Notes		Text	Entry																					
Photo1		Text	Entry																					
Photo2		Text	Entry																					
Photo3		Text	Entry																					
OutfallID		Text	Entry																					

Stormwater BMP Retrofit

Field	Description	Type	Method						
Assessor		Text	Dropdown						
DateTime		Date	Auto Populate						
Facility ID		Text	Auto Populate						
Drainage_Area		Text	Auto Populate						
Treated_Area		Text	Auto Populate						
PFM_CAT		Text	Auto Populate						
FA_Present	Facility Present	Text	Dropdown	Yes	No				
FA_New	Facility New	Text	Dropdown	Yes	No				
FA_Inline	Inline Facility	Text	Dropdown	Yes	No				
FA_DA	Facility Drainage Area Accuracy	Text	Dropdown	Accurate	Needs Revision	N/A			
FA_Plan	Facility Matches Plans	Text	Dropdown	Yes	No	N/A			
OW_Cond	Outlet Works Condition	Text	Dropdown	Good Condition	Needs Repair				
OW_Cond_Com	Outlet Works Condition Comment	Text	Entry						
OW_Type	Outlet Works Type	Text	Dropdown	Concrete Riser	Metal Riser	No Riser	Other		
OW_Type_Com	Outlet Works Type Comment	Text	Entry						
OW_LF	Outlet Works - Low Flow	Text	Dropdown	Yes	No				
OW_ES	Outlet Works - Emergency Spillway	Text	Dropdown	Yes	No				
OW_OfC	Outlet Works - Outfall Condition	Text	Dropdown	Good	Needs Repair				
OW_OfCom	Outlet Works - Outfall Comment	Text	Entry						
EM_Cond	Embankment Condition	Text	Dropdown	Good Condition	Needs Repair				
EM_Height	Embankment - Height	Text	Dropdown	Less than 3'	3-5'	5'-8'	8-12'	12'-15'	Greater than 15'
EM_Com	Embankment Comment	Text	Entry						
BA_Fb	Basin - Forebay	Text	Dropdown	Yes	No				
BA_SW	Basin - Standing Water	Text	Dropdown	Yes	No				
BA_Horiz	Basin - Room for Horizontal Expansion	Text	Dropdown	Yes	No				
BA_Vert	Basin - Room for Vertical Expansion	Text	Dropdown	Yes	No				
BA_Veg_Cond	Basin - Vegetation	Text	Dropdown	Good (100%-85% Coverage)	Fair (85-50% Coverage)	Sparse (under 50% coverage)			
BA_Veg_T	Basin - Vegetation Type	Text	Dropdown	Grasses Only	Grass and Shrubs	Trees	None		
BA_Com	Basin Comments	Text	Entry						
SC_Utl	Site Constraints - Utility	Text	Dropdown	Yes	No				
SC_NR	Site Constraints - Natural Resources	Text	Dropdown	Yes	No				
SC_Prop	Site Constraints - Property Boundaries	Text	Dropdown	Yes	No				
SC_SS	Site Contraints - Steep Slopes	Text	Dropdown	Yes	No				
SC_Vert	Site Constraints - Vertical Storage	Text	Dropdown	Yes	No				
SC_Acc	Site Contraints - Access	Text	Dropdown	Yes	No				
SC_Com	Site Constraints Comments	Text	Entry						
IN_Num	Inflow - Number of Inflows	Long	Dropdown	1	2	3	4	5	
IN_Type	Inflow - Type	Text	Dropdown	Circular Pipe	Stream Channel	Swale	Other		
IN_Cond	Inflow - Condition	Text	Dropdown	Good	Fair	Poor			
IN_Vert	Inflow - Vertical Offset	Text	Dropdown	Vertical Clearance	At Basin Bottom	Submerged			
IN_VertCon	Inflow - Vertical Constraints	Text	Dropdown	Yes	No				
IN_Com	Inflow Comment	Text	Entry						
PR_Type	Proposed Retrofit Type	Text	Dropdown	Wet Pond	Wetland	Submerged Gravel Wetland	Bioretention	Sand Filter	Wet Meadow
PR_Ben	Proposed Retrofit - Expected Benefits	Text	Dropdown	High (likley to achieve significant water quality benefits)	Minimal (likely to achieve some water quality benefit)	None			
PR_Com	Proposed Retrofit Comment	Text	Entry						
PR_FpSize	Proposed Retrofit - Footprint Size	Long	PostProcess						
PR_Depth	Proposed Retrofit - Depth	Long	PostProcess						
PR_WQ	Proposed Retrofit - Expected Water Quality	Long	PostProcess						
New_LU	New Facility - Existing Landuse	Text	Dropdown	Forest	Open Space	Paved	Other		
New_Emb	New Facility - Embankment	Text	Dropdown	0 ft	1-3 ft	3-10 ft	10-15 ft	Greater than 15 ft	
New_FP	New Facility - Footprint	Text	Dropdown	Excavated	Impondment				
New_Inlets	New Facility - Inlets	Text	Dropdown	Open Channel	Piped	Overland only			
New_Outfall	New Facility - Outfall	Text	Dropdown	Existing flow path sufficient	Modify existing flow path	Would require new flow path			
New_Com	New Facility Comment	Text	Entry						
Photo 1	Overview of Site								
Photo 2	Sketch								
Photo 3	Detail								
Photo 4	Detail								
BMPRetrofitID	BMPRetrofitID	Text							

If New Facility is Yes Show: FA, SC, PR, and New fields. If New Facility is No: All fields except New

Stream Assessment Status

Field	Description	Type	Method
SubShed	Subwatershed	Text	Prepopulated
StreamType	Perennial or Ephemeral	Text	Drop down
Status	Assessed or not eligible for assessment	Text	Entry
ReachID	Unique Reach ID	Text	Assigned
StreamScopingID	Unique stream scoping ID	Text	Calculated
FloodplainAssessmentID	Unique floodplain assessment ID	Text	Calculated
RBPHabitatID	Unique RBPHabitat ID	Text	Calculated
MilesCalc	Lengthin miles	Double	Calculated

Attachment D: Prioritization Framework

LONG BRANCH FIELD ASSESSMENT
STREAM PRIORITIZATION FRAMEWORK

Metrics	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 1: Ecological Benefits					**1.0**
Floodplain Connection	Where is greatest need; greatest disconnect 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Bankfull/bank height: BANCS Index 1 - 10 inversed (low score = more erosive/ worse conditions) Headcut adjustment: 0 to -3 (No headcuts to multiple large headcuts) *Total score and quartiling*	Bank height / Bankfull: BANCS Index Headcut adjustment (Stream Scoping)	Compare the bankfull depth to bank height, use headcut adjustments to locate reaches of abrupt change	0.25
Floodplain Vegetation Quality	High quality = low priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	*Total score and quartiling*	Floodplain Assessment Form	Poor quality indicative of potential improvement- wetland restoration, least impacts, etc.	0.20
Invasive control	High % invasives = greater opportunity to address 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Herbaceous, Shrub, and Canopy % Cover *Total score and quartiling*	Floodplain Assessment: %NNI	Opportunity for improvement; controlling can be challenging.	0.10

Metrics	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Sediment Load Addressed	Higher sediment load = higher priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Summed loading rate per reach divided by length *Loading Rate quartiling*	BEHI/NBS: Average rate (sq ft/yr) per reach	Highlight disproportionately high load areas (hotspots)	0.25
RBP Habitat Score	Low RBP score = High priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	*Total score and quartiling*	RBP Habitat: Total Score	Low score = more need Need to separate out ephemeral since RBP Assessment not performed on these stream reaches	0.20
Tier 2: Ancillary Benefits					**1.0**
Opportunity to address high flows	Conditions for high flow = greater opportunity 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Combination of watershed slope, impervious percentage, occurrence of outfall, RSC opportunity, BMPs connection quartiling	GIS Watershed Metrics: Watershed slope High IA Uncontrolled outfalls	Existing outfalls with no BMP	0.40
Alignment with Neighborhood Needs	Density of concerns	*Density of concern proximity* 10: Most dense 20: 30: 40: Least dense	Public input geodatabase; stormwater complaints database	Public input geodatabase; stormwater complaints database	0.40

Metrics	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Utility Protection Tie-In	Exposed Pipe = higher priority	10: Above stream 20: Across bottom 30: Along stream/Exposes manhole 40: None	Pipe Crossing Location		0.20
Tier 3: Feasibility					**1.0**
Ownership	Parks/County = higher priority	10: Parks/County 20: Institutional 30: HOA 40: Private	GIS Parcel Layer: Property Owner Type – Parks/County, HOA, Institutional, Residential/Private	Who owns the land	0.20
Private Property distance and elevation difference	Distance and elevation from private property to assess floodplain reconnection impacts	10: >75' and >2' elev 25: >75 and <2' or <75' and >2' 40: <75' and <2'	Parcel distance from stream centerline and average elevation above the stream channel	Concern of water entering private property	0.20
Access	Good access = higher priority	Scoping access field: 10: 1 20: 2 25:3 30: 4 40: 5	Stream scoping: Access	Stream scoping, RSC, and outfall have access scores	0.15
Utility Conflicts	Little to no utility conflicts = higher priority	10: 1 25: 3 40: 5	Stream scoping: Utilities		0.20
Easements	Existing easement = higher priority	10: 1 25: 3 40: 5	Stream scoping: Easements (data was desktop generated)	County, Easement, No Easement (Scoping Form scoring)	0.15

Metrics	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Trail Adjacency	Trail too close (10 ft) or too far (100 ft) from stream	10: 10’ – 50’ 25: 50’ – 100’ 40: >100’or <10’	GIS: trail and stream layers Score lower if too close (<10 ft), due to potential collapse, medium if access if reasonable (10-100 ft) or lower if not reasonable for access (>100 ft)	Low weighting for this metric since trail adjacent may not prevent a project from occurring; may require more thoughtful design; there is also an upside to trail adjacency from outreach/ public engagement standpoint	0.10

Notes:

- Every reach gets a score (perennial or ephemeral)
- 108 individual reaches; largest one is 1800; avg 460ft
- Larger tend to be more towards mainstem; smaller ones are side tributaries

LONG BRANCH FIELD ASSESSMENT
RSC PRIORITIZATION FRAMEWORK

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 1: Ecological Benefits					**1.0**
Adjacent Vegetation	Low quality = higher priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Veg Quality: Very Poor to Excellent: 1 – 5 pt for each (Herb, Shrub, Canopy) Tree Conflicts: Y: 5 pts N: 1 pt	RSC form attributes: • HerbQual • ShrubQual • CanopyQual • TreeConf: mature trees (Y/N)		0.3
Pollutant removal benefits	Greater area = higher priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Determine footprint area; score then based on quartile	RSC form fields: • length • gully depth		0.4
Severity	Higher severity = higher priority	Based on severity rating: 1 (Severe) to 5 (Minor) 10: 1 20: 2 25: 3 30: 4 40: 5	RSC form severity field		0.3

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 2: Ancillary Benefits					**1.0**
Runoff Contribution	Higher amount of uncontrolled IA = higher priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Uncontrolled IA (acres); scoring based on quartile	Desktop/GIS exercise: • % or quantity of DA footprint IA	Auto generate DAs; calc IA; identify areas largely untreated (i.e., no US BMPs)	0.4
Utility Protection Tie-In	Exposed pipe/outfall in need of repair = higher priority 10: 75 – 100% 20: 50 - 75 % 30: 25 – 50% 40: 0 – 25%	Damage to outfall channel: 1 1: Major bank erosion 2: Banks >5' 3: Banks <5' 4: Minor erosion at outfall only 5: None or Not Applicable Immediate Outfall Repair Needed: Yes: 1pt No: 5 pts	Outfall Assessment • Impact to Stream Channel • Outfall Assessment • Immediate Outfall Repair Needed	just one; also count outfalls in need of repair?	0.2
Alignment with neighborhood needs	alignment with public input and stormwater complaints database; more public input = higher priority	Determine the 'statistically likely' count of public input responses based on existing public input responses; density of concern proximity 10: most dense 20: 30: 40: least dense	Field interactions, public input online map, Fairfax County communication; complaints database	Public input geodatabase; stormwater complaints database	0.4

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 3: Feasibility					**1.0**
Ownership	Parks/County = higher priority	10: Parks/County 20: Institutional 30: HOA 40: Private	GIS Parcel Layer fields: • OWN1 (owner name) – need to make data request to see if more specific ownership information is available		0.2
Access	Better access – higher priority	Access: Very Poor to Excellent: 5 – 1pts 10: 1 20: 2 25: 3 30: 4 40: 5	RSC Form fields: • Access		0.15
Utility Conflicts	Little to no utility conflicts = higher priority	Utility Conflict: 10: no conflicts 25: 2 conflict 40: multiple conflicts	RSC Form fields: • UtilityConflict		0.2
Easement	Existing easement = higher priority	Easement Status: 10: County owned 25: Easement 40: No Easement	Easement layer and RSC field data		0.15
Adequate Space	Adequate space = higher priority	Open Area: 10: Yes 40: No	RSC Form	Open area available for staging and stockpiling (per RSC form)	0.15
Regulatory Conflicts	No conflict = higher priority	Regulatory Conflicts: 10: None 25: WOTUS or Wetland 40: Both	RSC Form	All the same value, no regulatory issues	0.15

LONG BRANCH FIELD ASSESSMENT
STORMWATER BMP RETROFIT PRIORITIZATION FRAMEWORK

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 1: Ecological Benefits					**1.0**
Environmental Benefits	Retrofit Type with greatest WQ benefits = high priority	Wet Pond = Low Sand Filter = Medium Bioretention = Medium Wet Meadow = Medium Submerged Gravel Wetland = High Wetland = High Other = Low 10: High 25: Medium 40: Low	BMP form attributes: • PR_Type		0.5
Pollutant Removal Benefits	Greater benefits = high priority	Weight PR_Ben field as follows: 10: High 25: Minimal 40: Low	BMP form attributes: • PR_Ben		0.5
Tier 2: Ancillary Benefits					**1.0**
Direct discharge to stream	Drains to stream reach(es) exhibiting significant erosion = highest priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Sediment load quartiling from each downstream reach averaged starting from pond outfall to next confluence	BANCS Assessment combined with GIS calculation to determine distance	GIS Calculation	0.3

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Alignment with neighborhood needs	Density of concerns	*Density of concern proximity* 10: Most dense 20: 30: 40: Least dense	Public input geodatabase; stormwater complaints database	Public input geodatabase; stormwater complaints database	0.4
Flow Reduction	Increased storage = highest priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Score = BA_Horiz+BA_Vert+EM_Height BA_Horiz: Y = 1 N = 3 BA_Vert: Y = 1 N = 3 EM_Height: 8-12’ = 1 5-8’ = 2 3-5’ = 5 Less than 3’ = 10	BMP form attributes: • BA_Horiz • BA_Vert • EM_Height		0.3

Metric	Scoring	Scoring Breakdown	Source of Data/ Scoring Metrics	Notes	Weight
Tier 3: Feasibility					**1.0**
Complexity	Less Complex = high priority 10: 75 – 100% 20: 50 – 75% 30: 25 – 50% 40: 0 – 25%	Constraints (SC) fields: Yes = 5 No = 1 EM_Height: 8-12’ = 10 5-8’ = 5 3-5’ = 2 Less than 3’ = 1 MAINT_RESP Public = 1 Private = 5	BMP form attributes: • SC_Utl • SC_NR • SC_Prop • SC_SS • SC_Vert • SC_Acc • SC_Com • EM_Height StormNET layer: • MAINT_RESP		0.5
Maintenance Needs	Needs Maintenance = highest priority	Condition: 10: Needs Repair 40: Good Condition	BMP form attributes: • EM_Cond • OW_Cond • OUT_Cond		0.5

Attachment E: Prioritization Results
[only available as Microsoft Excel Spreadsheets]

Attachment F: Stream & Outfall Prioritization Results Map

Long Branch Watershed Assessment

Field Assessments

Fairfax County, VA

Legend

Stream Prioritization

- 1
- 2
- 3
- 4

RSC Prioritization

- 1
- 2
- 3
- 4

- Outfall Assessment
- Subwatersheds

AC-LB-0030

AC-LB-0010

AC-LB-0015

AC-LB-0005

AC-LB-0020

AC-LB-0000

Feet

0 300 600

N

Biohabitats

October, 2021

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Long Branch Watershed Assessment

Field Assessments

Fairfax County, VA

AC-LB-0060
AC-LB-0055
AC-LB-0035
AC-LB-0010
AC-LB-0030
AC-LB-0015
AC-LB-0045
AC-LB-0050
AC-LB-0025
AC-LB-0020
AC-LB-0005

Legend

Stream Prioritization

- 1
- 2
- 3
- 4

RSC Prioritization

- 1
- 2
- 3
- 4

- Outfall Assessment
- Subwatersheds

Feet

0 300 600

N

Biohabitats

October, 2021

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Long Branch Watershed Assessment

Field Assessments

Fairfax County, VA

Legend

Stream Prioritization

- 1
- 2
- 3
- 4

RSC Prioritization

- 1
- 2
- 3
- 4

- Outfall Assessment
- Subwatersheds

AC LB 0075
AC LB 0070
AC LB 0040
AC LB 0065
AC LB 0035
AC LB 0060
AC LB 0055
AC-LB-0045
AC-LB-0030
AC LB 0050

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Feet

0 300 600

N

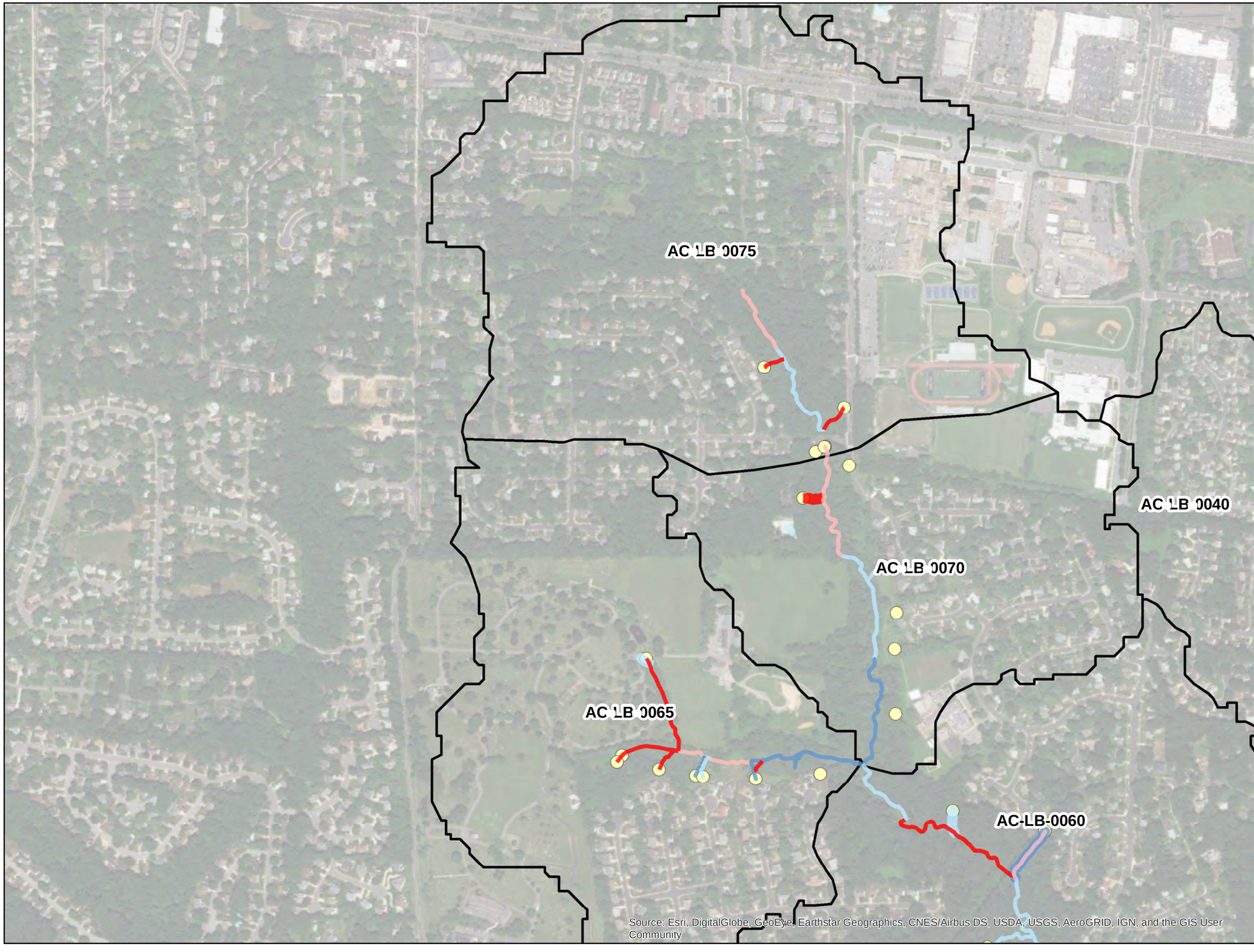
Biohabitats

October, 2021

Long Branch Watershed Assessment

Field Assessments

Fairfax County, VA



Legend

Stream Prioritization

- 1
- 2
- 3
- 4

RSC Prioritization

- 1
- 2
- 3
- 4

- Outfall Assessment
- Subwatersheds

Feet

0 300 600

N

Biohabitats

October, 2021

Attachment G: Stormwater BMP Retrofit Prioritization Results Map

Long Branch Watershed Assessment

BMP Retrofit Assessments

Fairfax County, VA

Legend

BMP Prioritization

- 1
- 2
- 3
- 4

Subwatersheds

Watershed Boundary

Streams

Data Source: Fairfax County

0 0.2 0.4 Miles

N

Biohabitats

October, 2021

AC-LB-0075-BMP-01
AC-LB-0075-BMP-02
AC-LB-0040-BMP-03
AC-LB-0040-BMP-06
AC-LB-0040-BMP-04
AC-LB-0040-BMP-02
AC-LB-0065-BMP-06
AC-LB-0065-BMP-01
AC-LB-0065-BMP-05
AC-LB-0040-BMP-05
AC-LB-0065-BMP-04
AC-LB-0040-BMP-01
AC-LB-0065-BMP-03
AC-LB-0065-BMP-02
AC-LB-0060-BMP-04
AC-LB-0060-BMP-01
AC-LB-0060-BMP-02
AC-LB-0060-BMP-03
AC-LB-0050-BMP-01
AC-LB-0005-BMP-02
AC-LB-0025-BMP-01
AC-LB-0005-BMP-01
AC-LB-0015-BMP-01
AC-LB-0025-BMP-02
AC-LB-0020-BMP-01
AC-LB-0020-BMP-02

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Document Path: W:\GIS\PROJECTS\19040.00 Long Branch Watershed Management Area\MXD\Existing_Conditions\BMPs.mxd