5.0 WMA Area Restoration Strategies for Sugarland Run Watershed and Horsepen Creek Watershed

Section 5.0 provides descriptions of the restoration strategies proposed for the Sugarland Run and Horsepen Creek watersheds. Restoration strategies were chosen based on needs of each WMA.

A large portion of the Sugarland Run watershed is urbanized. The majority of open space is located along the stream corridors and along the northern edge of the watershed. The southern portion of the watershed contains mostly medium and high density residential and industrial land uses. The northern portion of the watershed contains mostly low density and estate residential land uses. The expected changes in land use within Fairfax County show decreases in lower density land uses and increases in urban land uses.

There are 157 existing stormwater facilities located in the Sugarland Run watershed within Fairfax County. Approximately 74 percent of the portion of Sugarland Run watershed within Fairfax County is not treated by an existing stormwater facility. This large area of the Sugarland Run watershed that lacks existing stormwater controls is significantly affecting flooding and water quality; therefore, there is a definite need for new stormwater projects in this area.

A large portion of the Horsepen Creek watershed is also urbanized. The majority of open space is located along stream corridors and along the western edge of the watershed. The eastern portion of the watershed contains mostly medium density residential land uses. The central portion of the watershed contains mostly high density residential and industrial uses. The western portion of the watershed, which is located in Loudoun County, contains a mixture of low and medium density residential, industrial and open space land uses. As with Sugarland Run, the expected changes in land use within Fairfax County show decreases in lower density land uses and increases in urban land uses.

There are 147 existing stormwater facilities located in the Horsepen Creek watershed within Fairfax County. Approximately 69 percent of the portion of Horsepen Creek watershed located within Fairfax County is not treated by an existing stormwater facility. This large area of the Horsepen Creek watershed that lacks existing stormwater controls indicates the need for new watershed management projects.

5.1 Sugarland Run Watershed WMAs

Each subsection of Section 5.1 includes a description of key WMA conditions, a description of proposed structural and non-structural 10-year projects in the WMA, a listing of 10-year and 25-year projects for the WMA, and a map showing the types and locations of all 10-year and 25-year projects within the WMA. Each WMA in the Sugarland Run watershed is described separately. Additional project details, benefits, and design considerations for the projects in the 10-year implementation plan are included on the project fact sheets located in Section 5.3.

5.1.1 Folly Lick WMA

Description of Key WMA Conditions

Approximately 78 percent of the Folly Lick WMA is urbanized. The expected changes in land use show an increase in higher density urban areas and decreases in lower density and rural areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Folly Lick WMA contains 22 existing stormwater facilities. Approximately 80 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Folly Lick WMA contributes approximately 16 percent of the total suspended solids, 17 percent of the total nitrogen, and 17 percent of the total phosphorus annual loads to the Sugarland Watershed.

Folly Lick WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Folly Lick WMA.

SU9117 Improve existing dry pond (0827DP) to extended detention dry basin and existing dry ponds (0637DP and 0934DP) to single enhanced extended detention dry basin with marsh areas. Remove trickle ditches, install forebay and install/retrofit outlet structure.

SU9123 Improve existing regional dry pond S-04 (1440DP) to enhanced extended detention dry basin with marsh areas. Remove concrete trickle ditch and retrofit outlet structure.

SU9201 The community around Fantasia Drive does not have existing stormwater controls and significant stream erosion is occurring downstream. Construct an extended detention dry pond, improve the outfall and repair stream erosion impacts.

SU9204 The streams in the golf course have been straightened and lack sufficient buffer. Create meander and add structures to channel to slow flow. Install riparian buffer planting as allowed by height restrictions. Stabilize right bank at lower extent of reach.

SU9511 This community does not have existing stormwater controls. Install seven rain gardens around existing storm sewer inlets and within existing swale.

The following non-structural project is designed to reduce stormwater flow volume and decrease peak flows in areas with no existing stormwater management and no opportunity for new structural stormwater controls.

SU9900

- Targeted Rain Barrel Program at Westfield Subdivision
- Targeted Rain Barrel Program at Chandon Subdivision
- Targeted Rain Barrel Program at Fortnightly Square, Haloyon of Herndon Section 5, Van Vlecks Subdivision, Ballou Subdivision, Saubers Subdivision, Herndon Station, & Herndon Park Station

10-Year and 25-Year Project Information Tables for Folly Lick WMA

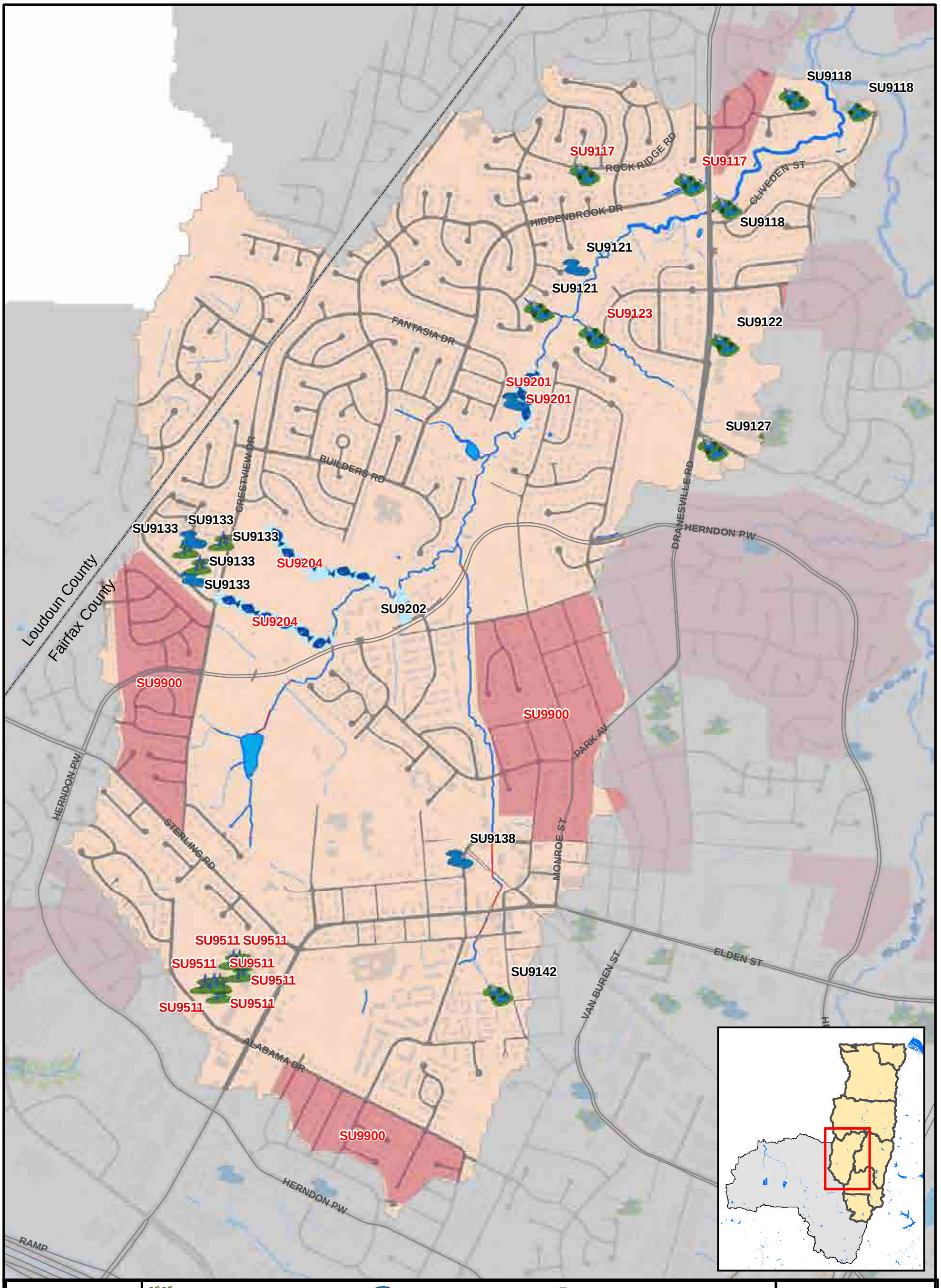
Table 5.1 lists all structural and non-structural projects proposed in the Folly Lick WMA. Project locations for all structural and non-structural projects are shown on Map 5.1.

Table 5.1
Project List – Folly Lick WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9117	Stormwater Pond Retrofit	SU-FL-0002	Dranesville Road & Hiddenbrook Drive	Quality/ Quantity	County	0-10
SU9123	Stormwater Pond Retrofit	SU-FL-0003	Near Philmont Drive & Judd Court	Quality/ Quantity	County	0-10
SU9201	New Stormwater Pond, Stream Restoration	SU-FL-0004	Folly Lick stream corridor between Fantasia Dr & Monroe St	Quality/ Quantity	County, Private	0-10
SU9204	Stream Restoration	SU-FL-0006	Herndon Centennial Park golf course	Quality/ Quantity	Local	0-10
SU9511	BMP/LID	SU-FL-0007	Dulles Park Court & Alabama Drive	Quality	Private	0-10
SU9118	Stormwater Pond Retrofit	SU-FL-0001	Near stream corridor in Dranesville Estate Section 1 & 2	Quantity/ Quality	County	11-25
SU9121	Stormwater Pond Retrofit, New Stormwater Pond	SU-FL-0002	East of Millikens Bend Road near Millbank Way & Westlodge Court	Quantity/ Quality	County	11-25
SU9122	Stormwater Pond Retrofit	SU-FL-0002	Baptist Temple of Herndon	Quantity/ Quality	County	11-25
SU9127	Stormwater Pond Retrofit	SU-FL-0003	Herndon United Methodist Church	Quantity/ Quality	Private	11-25
SU9133	New Stormwater Pond, BMP/LID	SU-FL-0006	Near Crestview Drive & Bond Street	Quantity/ Quality	Private	11-25
SU9138	New Stormwater Pond	SU-FL-0008	Center Street & Vine Street	Quantity/ Quality	Private	11-25
SU9142	Stormwater Pond Retrofit	SU-FL-0009	Near Spring Street & Wood Street	Quantity/ Quality	Private	11-25
SU9202	Stream Restoration	SU-FL-0006	Near Herndon Parkway & Stevenson Court	Quality	Private	11-25

Table 5.1 Project List – Folly Lick WMA					
Non-Structural Projects					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
SU9900	Rain Barrel Programs	SU-FL-0002	Westfield, Fortnightly Square, Haloyon of Herndon Sect 5, Van Vlecks, Ballou, Saubers, Herndon Station, Herndon Park Station, and Chandon Subdivisions	Quantity	Private


SU9118
SU9118
SU9117
ROCK RIDGE RD
SU9117
GLWEDEN ST
HIDDENBROOK DR
SU9118
SU9121
SU9121
SU9123
SU9122
FANTASIA DR
SU9201
SU9201
SU9127
CRESTVIEW DR
BUILDERS RD
DRANESVILLE RD
HERNDON PW
SU9133
SU9133
SU9133
SU9133
SU9133
SU9204
SU9204
SU9202
Loudoun County
Fairfax County
SU9900
SU9900
PARK AV
HERNDON PW
STERLING RD
SU9138
MONROE ST
SU9511 SU9511
SU9511
SU9511
SU9511
SU9511
SU9511
SU9142
VAN BUREN ST
ELDEN ST
ALABAMA DR
SU9900
HERNDON PW
RAMP
0
0.125
0.25
Miles
N
Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other
Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments
Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.
Map 5.1
WMA: Folly Lick
Proposed Projects

5.1.2 Headwaters WMA

Description of Key WMA Conditions

Approximately 85 percent of the Headwaters WMA is urbanized. The expected changes in land use show an increase in medium density residential areas and decreases in low intensity commercial and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Headwaters WMA contains 17 existing stormwater facilities. Approximately 76 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Headwaters WMA contributes approximately nine percent of the total suspended solids, 10 percent of the total nitrogen, and 10 percent of the total phosphorus annual loads to the Sugarland Watershed.

Headwaters WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Headwaters WMA.

SU9149 Headwaters of Sugarland Run race through a network of concrete channels at high flows. Remove concrete channel and replace with a natural stream channel; include cross vanes for energy dissipation and stormwater controls at each incoming tributary.

SU9150 This area does not have existing stormwater controls. Install new extended detention dry basin behind apartments and school. Capture drainage from outfall and drainage channel.

SU9208 The stream channel is a steep concrete channel with no energy dissipation. Restore naturalized stream channel with step pool features, restore/repair two foot bridges, install energy dissipation to incoming storm drain and install educational signage.

SU9209 This stream is eroding below the outfall and also creating overland drainage channels due to lack of energy dissipating structures and vegetation. Repair head cuts, install check dams/energy dissipation, vegetate understory and remove invasive plants.

SU9210 The stream banks in this stream are eroding and the concrete channel provides no energy dissipation. Break up concrete channel and add rock for energy dissipation, re-plant riparian understory and educate homeowners about proper yard waste disposal.

The following non-structural projects are designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity

for new structural stormwater controls. Water quality and wildlife habitat will also be improved with project implementation.

SU9909

- Targeted Rain Barrel Program at Polo Fields Home Owners Association

SU9910

- Naturalize existing County dry pond (DP0164) with native vegetation

SU9911

- Obtain conservation easement or lot purchase to preserve riparian buffer and forested open space
- Obtain conservation easement to preserve riparian buffer, preferably widest and contiguous buffer for habitat preservation

10-Year and 25-Year Project Information Tables for Headwaters WMA

Table 5.2 lists all structural and non-structural projects proposed in the Headwaters WMA. Project locations for all structural and non-structural projects are shown on Map 5.2.

Table 5.2
Project List – Headwaters WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9149	New Stormwater Pond, Stream Restoration, Stormwater Pond Retrofit	SU-SU-0047	Polo Fields Subdivision	Quality/ Quantity	State, County, Private	0-10
SU9150	New Stormwater Pond	SU-SU-0049	Near Nutmeg Lane cul-de-sac	Quality/ Quantity	Private	0-10
SU9208	Stream Restoration	SU-SU-0049	Near Sanibel Drive & Tigers Eye Court culs-de-sac	Quality	Private	0-10
SU9209	Stream Restoration	SU-SU-0051	Pinecrest Road & Glade Drive	Quality	State, Private	0-10
SU9210	Stream Restoration	SU-SU-0050	Fox Mill Road & Keele Drive	Quality	Private	0-10

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
SU9909	Rain Barrel Programs	SU-SU-0047	Polo Fields Subdivision	Quantity	Private
SU9910	Buffer Restoration	SU-SU-0048	Fairfax County Parkway & Dulles Access Road	Quality	County

Table 5.2 Project List – Headwaters WMA					
Non-Structural Projects					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
SU9911	Conservation Acquisition Project/ Land Conservation Coordination Project	SU-SU-0047	Sunrise Valley Wetland Park	Quality	Private

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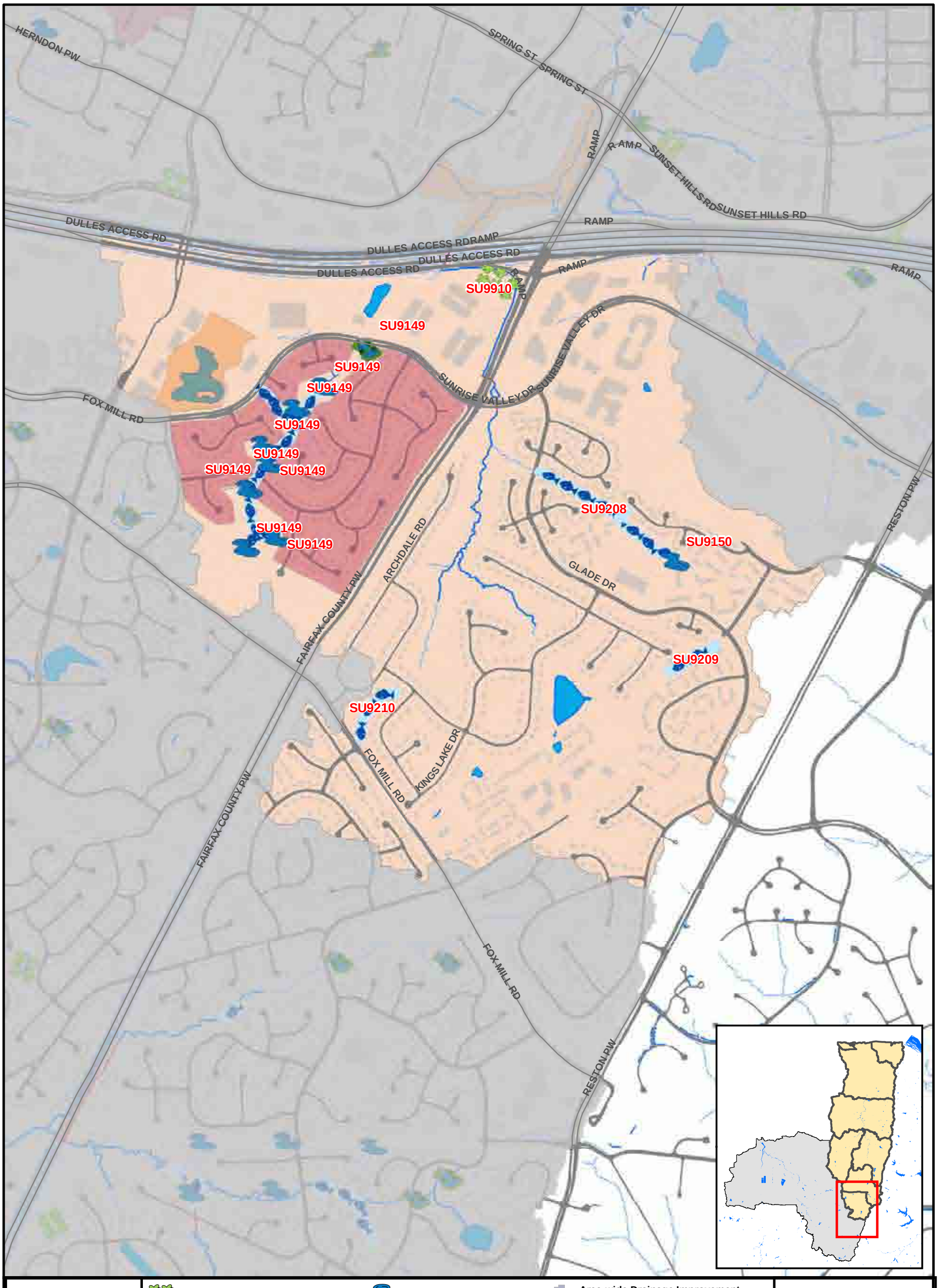
HERNDON PW
SPRING ST
SPRING ST
RAMP
RAMP
SUNSET HILLS RD
SUNSET HILLS RD
DULLES ACCESS RD
DULLES ACCESS RDRAMP
DULLES ACCESS RD
DULLES ACCESS RD
RAMP
RAMP
RAMP
SU9910
SU9149
SU9149
SU9149
SU9149
SU9149
SU9149
SU9149
FOX MILL RD
SUNRISE VALLEY DR
SUNRISE VALLEY DR
SU9208
SU9150
RESTON PW
ARCHDALE RD
GLADE DR
FAIRFAX COUNTY PW
SU9209
SU9210
FOX MILL RD
KINGS LAKE DR
FAIRFAX COUNTY PW
FOX MILL RD
RESTON PW
0
0.125
0.25
Miles
N
Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other
Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments
Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.
Map 5.2
WMA: Sugarland Headwaters
Proposed Projects

5.1.3 Lower Middle Sugarland WMA

Description of Key WMA Conditions

Approximately 65 percent of the Lower Middle Sugarland WMA is urbanized. The expected changes in land use show increases in low and medium density residential and commercial areas and decreases in estate residential and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Lower Middle Sugarland WMA contains 37 existing stormwater facilities. Approximately 83 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Lower Middle Sugarland WMA contributes approximately 23 percent of the total suspended solids, 22 percent of the total nitrogen, and 23 percent of the total phosphorus annual loads to the Sugarland Watershed.

Lower Middle Sugarland WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Lower Middle Sugarland WMA.

SU9007 Subbasins SU-FF-0002, 0003 and 0004 have minimal stormwater controls. A combination of twelve basin retrofits, wetlands, culvert retrofits and a new basin will provide stormwater controls for nearly two-thirds of the subbasins' 457 acres.

SU9106 Improve existing dry ponds (1382DP and 1454DP) to extended detention dry basin areas by removing trickle ditches, retrofitting outlet structures, and naturalizing. Install a rain garden around an existing inlet.

SU9108 This area does not have existing stormwater treatment. Improve Bowl America dry pond to extended detention dry basin and Sugarland Hill dry pond (0570DP) to enhanced extended detention dry basin with marsh areas, retrofit outlet structures and add signs.

SU9110 Enlarge and retrofit Laing at Sugarland existing dry pond (no Storm Net ID) to extended detention dry basin, including removal of concrete trickle ditch and installation of new outlet structure.

The following non-structural projects are designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

SU9901

- Restore riparian buffer downstream of Stuart Hills Way road crossing
- Remove construction debris and cut/fill spoils. Restore riparian buffer

- Restore riparian buffer and provide highway screening along Leesburg Pike at the driving range
- Restore riparian buffer downstream of farm pond
- Vegetate steep slopes with appropriate vegetation. Install terraced gardens/bioretention below outfall. Install meadow vegetation in low, flat area

SU9902

- Targeted Rain Barrel Program at Sugar Creek Sec. 1 Homeowners Association
- Targeted Rain Barrel Program at Stuart Hills Homeowners Association, Cedar Chase Homeowners Association, and Oak Creek Estates
- Targeted Rain Barrel Program at Forest Heights Estates and Stoney Creek Woods Homeowners Association
- Targeted Rain Barrel Program at Hastings Hunt sec. 6 Homeowners Association and portion of Jenkins Ridge Homeowners Association
- Targeted Rain Barrel Program at Holly Knoll Homeowners Association
- Targeted Rain Barrel Program at Crestbrook Homeowners Association

SU9903

- Obtain conservation easement or lot purchase to preserve riparian buffer and forested open space
- Obtain conservation easement to preserve riparian buffer, preferably widest and contiguous buffer for habitat preservation

SU9904

- Educate homeowners on erosion control BMPs and yard waste as an improper control measure

10-Year and 25-Year Project Information Tables for Lower Middle Sugarland WMA

Table 5.3 lists all structural and non-structural projects proposed in the Lower Middle Sugarland WMA. Project locations for all structural and non-structural projects are shown on Map 5.3.

Table 5.3
Project List – Lower Middle Sugarland WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9007	Regional Pond Alternative Suite	SU-FF-0002/03/04	Between Leesburg Pike, Fairfax County Parkway & Wiehle Avenue	Quality/ Quantity	State, County, Private	0-10
SU9106	Stormwater Pond Retrofit, BMP/LID	SU-SU-0021	Near Tralee Drive & Old Holly Drive	Quality/ Quantity	County	0-10
SU9108	Stormwater Pond Retrofit	SU-SU-0028	Dranesville Road & Woodson Drive	Quality/ Quantity	County, Private	0-10
SU9110	Stormwater Pond Retrofit	SU-SU-0028	Methven Court cul-de-sac	Quality/ Quantity	County	0-10

Table 5.3
Project List – Lower Middle Sugarland WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9001	Regional Pond Alternative Suite	SU-FF-0001	Near Rowland Drive & Heather Way	Quality	County, Private	11-25
SU9005	Regional Pond Alternative Suite	SU-SU-0026/27	Near Leesburg Pike, between Rolling Holly Drive & Sugarland Road	Quality	County, Private	11-25
SU9107	Stormwater Pond Retrofit	SU-SU-0028	Near Leesburg Pike & Fairfax County Parkway	Quantity/ Quality	County	11-25
SU9111	Stormwater Pond Retrofit	SU-SU-0029	Dranesville Road & Woodson Drive	Quality	County, Private	11-25
SU9112	Stormwater Pond Retrofit	SU-SU-0030	East of Dranesville Road & Butter Churn Drive	Quantity/ Quality	County	11-25
SU9115	Stormwater Pond Retrofit	SU-MB-0001	Hastings Hunt Section 6 & Jenkins Ridge Subdivisions	Quantity/ Quality	County	11-25
SU9200	Stream Restoration	SU-SU-0028	Near Dranesville Road & Woodson Drive	Quality	County, Private	11-25

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
SU9901	Buffer Restoration	SU-FF-0001	Near Leesburg Pike & Rolling Holly Drive	Quality	State, County, Private
SU9902	Rain Barrel Programs	SU-FF-0001	Sugar Creek Sec. 1, Stuart Hills, Cedar Chase, Oak Creek Estates, Forest Heights Estates, Stoney Creek Woods, Hastings Hunt sec. 6, portion of Jenkins Ridge, Holly Knoll, and Crestbrook Subdivisions	Quantity	Private
SU9903	Conservation Acquisition Project/ Land Conservation Coordination Project	SU-FF-0001	Stream corridor near Leesburg Pike & Holly Knoll Drive	Quality	County, Private
SU9904	Buffer Restoration, Conservation Acquisition Project/ Land Conservation Coordination Project	SU-FF-0001	Near Heather Way cul-de-sac	N/A	Private

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Loudoun County
Fairfax County
LEESBURG PI
HOLLY KNOLL DR
RAMP RD
ROLLING HOLLY DR
SENECA RD
FAIRFAX COUNTY PW
SUGARLAND RD
SHAKER WOODS RD
ROCKRIDGE RD
CLIVEDEN ST
DRANESVILLE RD
HIDDENBROOK DR
FANTASIA DR
CRESTVIEW DR
BUILDERS RD
HERNDON PW
PARK AV

SU9903
SU9106
SU9106 SU9106
SU9901
SU9108
SU9108
SU9200
SU9111
SU9107
SU9110
SU9005
SU9005
SU9005
SU9902
SU9005 SU9005
SU9901
SU9901 SU9005
SU9007
SU9005
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SU9112
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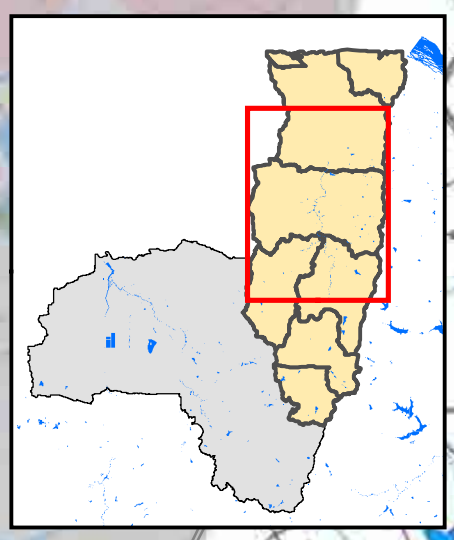

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Miles

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Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other

Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.3

WMA: Sugarland
Lower Middle
Proposed Projects

5.1.4 Lower Sugarland WMA

Description of Key WMA Conditions

Only 18 percent of this WMA is located within Fairfax County, and contains mostly low density and estate residential land uses. Approximately 50 percent of the Lower Sugarland WMA is urbanized. The expected changes in land use show an increase in estate residential areas and a decrease in open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions. The Lower Sugarland WMA contains four existing stormwater facilities within Fairfax County.

Lower Sugarland WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Lower Sugarland WMA.

SU9100 The Great Falls West basin provides only water quantity control. Improve existing dry pond (1445DP) to enhanced extended detention dry basin with marsh areas, including installation of outlet structure and clearing of blocked culvert pipe.

SU9101 The Great Falls West basins provide only water quantity control. Improve existing dry ponds (1447DP and 1446DP) to enhanced extended detention dry basin with marsh areas, remove trickle ditches, install outlet structures and increase spillway elevation.

SU9103 Some of this area does not have any stormwater controls. Improve existing dry pond (no StormNet ID) to an enhanced extended detention dry basin with marsh areas, remove trickle ditch and install a micro-pool. Drain existing farm pond to create wetland.

10-Year and 25-Year Project Information Tables for Lower Sugarland WMA

Table 5.4 lists all structural and non-structural projects proposed in the Lower Sugarland WMA. Project locations for all structural and non-structural projects are shown on Map 5.4.

Table 5.4 Project List – Lower Sugarland WMA						
Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
SU9100	Stormwater Pond Retrofit	SU-SU-0008	Jackson Tavern Way cul-de-sac	Quality/ Quantity	County	0-10
SU9101	Stormwater Pond Retrofit	SU-SU-0012	Near Great Falls Way & Jackson Tavern Way	Quality/ Quantity	County	0-10
SU9103	Stormwater Pond Retrofit	SU-SU-0018	Thomas Run Drive	Quality/ Quantity	County, Private	0-10
SU9105	Stormwater Pond Retrofit	SU-SU-0013	Air View Lane	Quantity/ Quality	Private	11-25
SU9400	Culvert Retrofit	SU-SU-0013	Near Kentland Drive & Parrish Farm Lane	Quantity/ Quality	County, Private	11-25

SU9100
BROCKMAN LA
SU9101
GREAT FALLS WY
SU9101
SU9400
SENECA RD
SENECA RD
SENECA RD
KENTLAND DR
SU9103
PLANTATION DR
SU9103
SU9105
HOLLY KNOLL DR
Loudoun County
Fairfax County
HOLLY KNOLL DR
LEESBURG PI
DRANESVILLE RD
RAMP RD
HOLLY KNOLL DR
ROLLING HOLLY DR
RAMP RD
LEESBURG PI
FAIRFAX COUNTY PW
SUGARLAND RD

N

0 0.125 0.25
Miles

- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other

- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.4

WMA: Lower Sugarland
Proposed Projects

5.1.5 Potomac WMA

Description of Key WMA Conditions

The portion of this WMA that is located within Fairfax County consists of only 70 acres and is comprised of mostly low density residential land use. Approximately 22 percent of the Potomac WMA is urbanized. The expected changes in land use show no changes to this WMA. Limiting new development will protect the watershed by conserving natural resources and limiting new pollution and stormwater runoff sources. The Potomac WMA contains one existing stormwater facility within Fairfax County.

Potomac WMA Projects

Because only 70 acres of the Potomac WMA are located in Fairfax County, there are no projects proposed in the Potomac WMA.

5.1.6 Upper Middle Sugarland WMA

Description of Key WMA Conditions

Approximately 82 percent of the Upper Middle Sugarland WMA is urbanized. The expected changes in land use show increases in higher density residential, industrial, and open space areas and decreases in lower density residential and institutional areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Upper Middle Sugarland WMA contains 38 existing stormwater facilities. Approximately 76 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Upper Middle Sugarland WMA contributes approximately 20 percent of the total suspended solids, 20 percent of the total nitrogen, and 20 percent of the total phosphorus annual loads to the Sugarland Watershed.

Upper Middle Sugarland 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Upper Middle Sugarland WMA.

SU9002 Improve existing dry pond (0337DP) to an enhanced extended detention dry basin with marsh area. Install new enhanced extended detention dry pond. Install new rain garden with educational signage. Repair eroded stream banks and culvert. Install micro-pool.

SU9120 Existing dry ponds (0434DP and 0845DP) provide only water quantity control. Improve them to enhanced extended detention dry basins with marsh areas, remove the trickle ditches, and install outlet structures.

SU9129 Some of this area has no existing stormwater treatment. Improve dry pond (0336DP) by installing micro-pool with wetland vegetation above outlet structure. Vegetate with floodplain vegetation and remove concrete channel upstream.

SU9130 This area does not have existing stormwater controls. Install new extended detention dry basin and install vegetated swale behind homes to direct runoff to new facility.

SU9135 Existing dry pond (no StormNet ID) has no stormwater treatment. Improve basin to enhanced extended detention dry basin with marsh areas. Remove concrete trickle ditch, retrofit outlet structure, and install rain garden and infiltration trenches.

SU9136 Runnymede Park has no existing stormwater controls. Install a new extended detention dry basin by Herndon Parkway.

SU9144 Some of this area does not have existing stormwater treatment. Install three new extended detention dry basins. Daylight stormwater runoff from storm sewers into basin. Install rain garden around existing depressed inlet.

SU9203 Remove concrete channel and use concrete and rock as toe protection. Install a v-notch weir upstream of the culvert to help develop a floodplain. Remove Multiflora Rose obstruction, repair stream banks and restore riparian buffer.

SU9205 A straightened stream channel increases the velocity of stormwater flows. Install step pools to account for increased slope of straightened stream, improve habitat with native riparian vegetation and add in-stream structures such as cross vanes.

SU9500 Herndon High School does not have existing stormwater controls. Install green roof on portion of roof if possible, install rain gardens in interior courtyards and direct roof leaders to them, and implement education programs.

SU9502 Herndon Elementary School does not have existing stormwater controls. Install green roof and initiate educational program.

SU9504 The Reston North Park does not have existing stormwater controls. Install new infiltration basin in upper baseball field, daylight storm sewers to basin, vegetate and naturalize existing swales, and install educational signage.

SU9509 Install a new rain garden in the central island of the Trader Joe's parking lot and investigate head cuts in the adjacent stream.

SU9512 The majority of Reston Hospital does not have existing stormwater controls. Install bioretention area along walking path with vegetated swales to direct parking lot drainage into bioretention. Install educational signage.

The following non-structural projects are designed to reduce stormwater flow volumes and decrease peak flows in areas with no existing stormwater management and no opportunity for new structural stormwater controls.

SU9908

- Targeted Rain Barrel Program at Stuart Ridge Homeowners Association
- Targeted Rain Barrel Program Shaker Woods, Shaker Grove & Kingstream Homeowners Association
- Targeted Rain Barrel Program Kingstream Homeowners Association
- Targeted Rain Barrel Program at Hunters Creek, Potomac Fairways, Iron Ridge Sec. 2, Graymoor, Chestnut Grove, Old Drainsville Hunt Club and Jeneba Woods
- Targeted Rain Barrel Program at Reston Sec. 49
- Targeted Rain Barrel Program at Sugar Land Heights

10-Year and 25-Year Project Information Tables for Upper Middle Sugarland WMA

Table 5.5 lists all structural and non-structural projects proposed in the Upper Middle Sugarland WMA. Project locations for all structural and non-structural projects are shown on Map 5.5.

Table 5.5
Project List – Upper Middle Sugarland WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9002	Regional Pond Alternative Suite	SU-RI-0003	Near Wheile Avenue, between Pellow Circle Terrace & Reston Avenue	Quality/ Quantity	County, Private	0-10
SU9120	Stormwater Pond Retrofit	SU-SU-0032	Near Eddyspark Drive & Kingsvale Circle	Quality/ Quantity	County, Private	0-10
SU9129	Stormwater Pond Retrofit	SU-RI-0002	Near Quail Ridge Court cul-de-sac	Quality	County, Private	0-10
SU9130	New Stormwater Pond	SU-SU-0034	Near Jenny Ann Court cul-de-sac	Quality/ Quantity	Private	0-10
SU9135	Stormwater Pond Retrofit, BMP/LID	SU-SU-0039	Trinity Presbyterian Church	Quality/ Quantity	County, Private	0-10
SU9136	New Stormwater Pond	SU-SU-0039	Runnymede Park	Quality/ Quantity	State, Local	0-10
SU9144	New Stormwater Pond, BMP/LID	SU-SU-0037	Bowman Towne Drive & Fountain Drive	Quality/ Quantity	County, Private	0-10
SU9203	Stream Restoration	SU-SU-0039	Hunters Creek HOA & Runnymede Park	Quality/ Quantity	Local, Private	0-10
SU9205	Stream Restoration	SU-SU-0035	Fairfax County Parkway & Walnut Branch Road	Quality/ Quantity	State, Private	0-10
SU9500	BMP/LID	SU-SU-0032	Herndon High School	Quality	County	0-10
SU9502	BMP/LID	SU-SU-0039	Herndon Elementary School	Quality/ Quantity	County	0-10
SU9504	BMP/LID	SU-SU-0035	Reston North Park	Quality/ Quantity	County	0-10

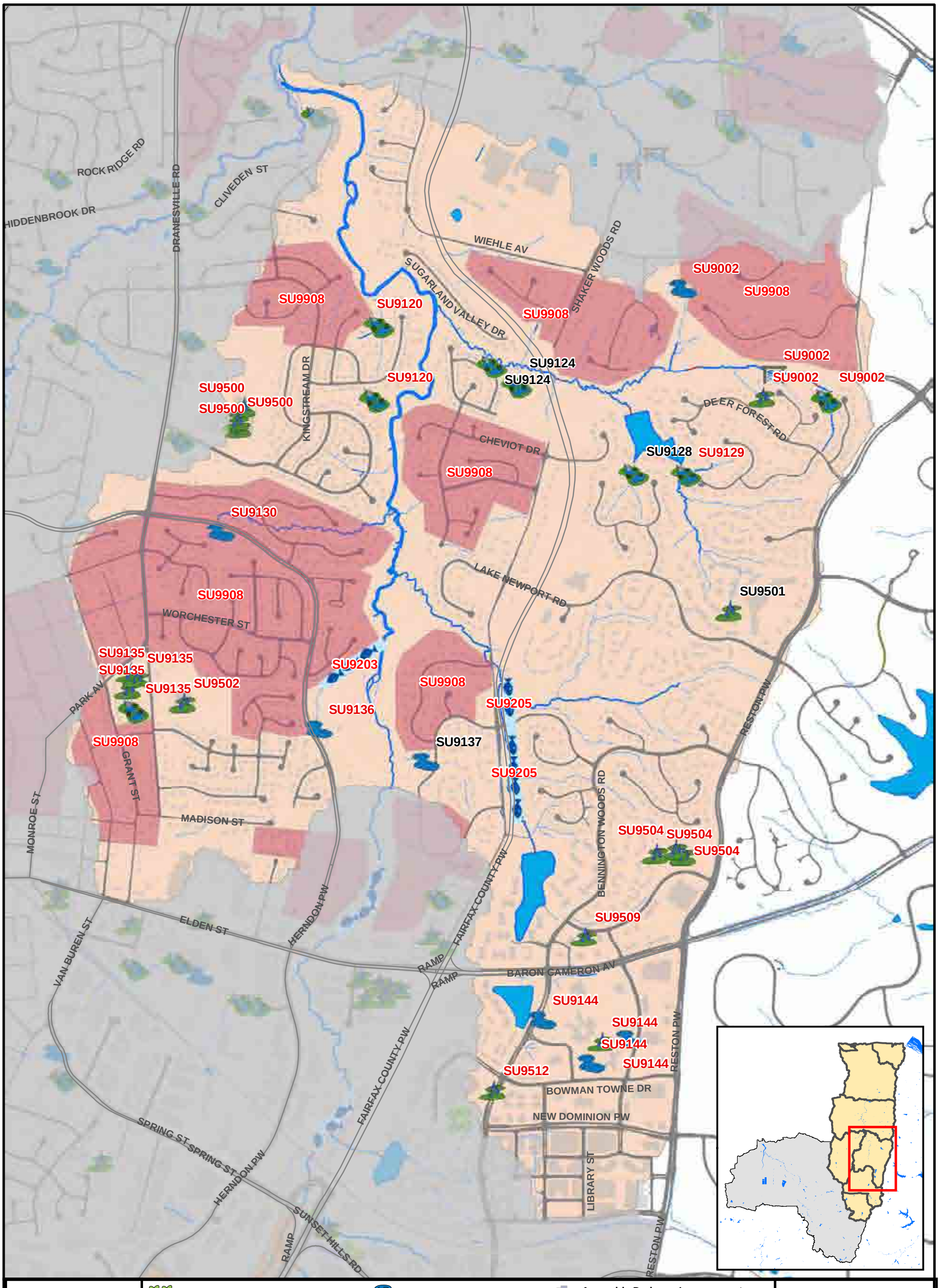
Table 5.5
Project List – Upper Middle Sugarland WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9509	BMP/LID	SU-SU-0035	Trader Joe's	Quality	County, Private	0-10
SU9512	BMP/LID	SU-SU-0037	Reston Hospital	Quality	Private	0-10
SU9124	Stormwater Pond Retrofit	SU-RI-0001	Near Rosiers Branch Drive & Heather Down Drive	Quantity/ Quality	County	11-25
SU9128	Stormwater Pond Retrofit	SU-RI-0002	Between the Fawn Ridge Lane culs-de-sac	Quantity/ Quality	County, Private	11-25
SU9137	New Stormwater Pond	SU-SU-0038	Walnut Branch Road & Purple Sage Court	Quantity/ Quality	County, Private	11-25
SU9501	BMP/LID	SU-RI-0002	Lake Newport Road & North Point Drive	Quality	County, Private	11-25

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
SU9908	Rain Barrel Programs	SU-RI-0003	Stuart Ridge, Shaker Woods, Shaker Grove, Kingstream, Hunters Creek, Potomac Fairways, Iron Ridge Sec. 2, Graymoor, Chestnut Grove, Old Drainsville Hunt Club, Jeneba Woods, Reston Sec. 49, and Sugar Land Heights Subdivisions	Quantity	Private



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Miles

- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other

- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.5

WMA: Upper Middle Sugarland
Proposed Projects

5.1.7 Upper Sugarland WMA

Description of Key WMA Conditions

Approximately 88 percent of the Upper Sugarland WMA is urbanized. The expected changes in land use show increases in high density residential, high intensity commercial and industrial areas and decreases in lower density residential, lower intensity commercial and rural areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Upper Sugarland WMA contains 38 existing stormwater facilities. Approximately 70 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Upper Sugarland WMA contributes approximately 15 percent of the total suspended solids, 17 percent of the total nitrogen, and 15 percent of the total phosphorus annual loads to the Sugarland Watershed.

Upper Sugarland WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Upper Sugarland WMA.

SU9139 Improve Towns at Stuart Pointe dry pond (1456 DP) to enhanced extended detention with marsh areas. Remove concrete trickle ditch and install an outlet structure.

SU9141 This area does not have existing stormwater treatment. Improve dry pond (no StormNet ID) to extended detention basin. Raise and retrofit outlet structure and naturalize with native plantings.

SU9143 This area does not have existing stormwater treatment. Improve two existing dry ponds (no StormNet IDs) to enhanced extended detention dry basins. Re-grade basins and Install new outlet structures.

SU9146 The residential and institutional area along Van Buren Street has inadequate existing stormwater control. Construct new extended detention dry pond and improve the existing dry pond by removing concrete trickle ditch and planting wetland vegetation.

SU9147 This property does not have existing stormwater treatment. Improve dry pond (DP0372) to enhanced extended detention basin with marsh areas, daylight inlet pipes, remove concrete trickle ditch and install new outlet structure.

SU9505 The commercial areas along Elden Street have no stormwater management controls and high impervious coverage and pollutant runoff. Install rain gardens, infiltration trenches and vegetated swales within the already developed commercial area.

SU9514 Some of this area has stormwater treatment, but provides only water quantity control. Remove trapezoidal ditch and replace with natural stream channel with cross-vanes to dissipate energy. Construct new pocket wetland at upstream end of channel.

The following non-structural projects are designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

SU9905

- Targeted Rain Barrel Program at Crestview Sec. 1 and Runnymede Manor
- Targeted Rain Barrel Program at Stuart Woods, Reston Sec. 49 and Towns at Stuart Pointe

SU9906

- Naturalize existing County dry pond (DP0564) with native wetland plantings
- Vegetate existing dry pond
- Vegetate existing swale
- Vegetate existing County dry pond (DP0421) with native vegetation
- Vegetate existing County dry pond (DP0440) with native vegetation
- Vegetate existing County dry pond (DP0202) with native vegetation

SU9907

Obtain conservation easement and restore riparian buffer to a minimum of 100' wide

10-Year and 25-Year Project Information Tables for Upper Sugarland WMA

Table 5.6 lists all structural and non-structural projects proposed in the Upper Sugarland WMA. Project locations for all structural and non-structural projects are shown on Map 5.6.

Table 5.6
Project List – Upper Sugarland WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
SU9139	Stormwater Pond Retrofit	SU-SU-0040	Towns at Stuart Pointe Subdivision, Stuart Pointe Lane	Quality/ Quantity	County	10yr
SU9141	Stormwater Pond Retrofit	SU-SU-0041	Substation near Grove Street & Grant Street	Quality/ Quantity	Private	0-10
SU9143	Stormwater Pond Retrofit	SU-SU-0041	Near Grove Street & Herndon Parkway	Quality/ Quantity	Private	0-10
SU9146	Stormwater Pond Retrofit, New Stormwater Pond	SU-SU-0041	Next to St. Timothy's Episcopal Church, Spring Street	Quality/ Quantity	County, Private	0-10

Table 5.6 Project List – Upper Sugarland WMA						
Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
SU9147	Stormwater Pond Retrofit	SU-SU-0046	Near Edmund Halley Drive & Sunrise Valley Drive	Quality/ Quantity	County	0-10
SU9505	BMP/LID	SU-SU-0041	Near Elden Street & Van Buren Street	Quality/ Quantity	Private	0-10
SU9514	BMP/LID	SU-SU-0045	Sunset Hills Road & Fairfax County Parkway	Quality	State, County	0-10
SU9140	New Stormwater Pond, Stormwater Pond Retrofit	SU-SU-0041	Safeway; corner of Post Drive & Grove Street	Quantity/ Quality	Private	11-25
SU9206	Stream Restoration	SU-SU-0040	Near Herndon Parkway & Tamarack Way	Quality	Private	11-25
SU9207	Stream Restoration	SU-SU-0042	Near Fairfax County Parkway & New Dominion Parkway	Quality	Private	11-25
SU9510	BMP/LID	SU-SU-0040	Near Elden Street & Fairfax County Parkway	Quality	State, Private	11-25
SU9513	BMP/LID	SU-SU-0043	Near Old Dominion Avenue & Aspen Drive	Quality	Private	11-25
Non-Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	
SU9905	Rain Barrel Programs	SU-SU-0040	Crestview Sec. 1, Runnymede Manor, Stuart Woods, Reston Sec. 49, and Towns at Stuart Pointe Subdivisions	Quantity	Private	
SU9906	Buffer Restoration	SU-SU-0040	Near Fairfax County Parkway & Sunset Hills Rd	Quality	County, Private	
SU9907	Buffer Restoration, Conservation Acquisition Project/Land Conservation Coordination Project	SU-SU-0040	Stream corridors near Herndon Parkway & Fairbrook Drive	Quality	Private	

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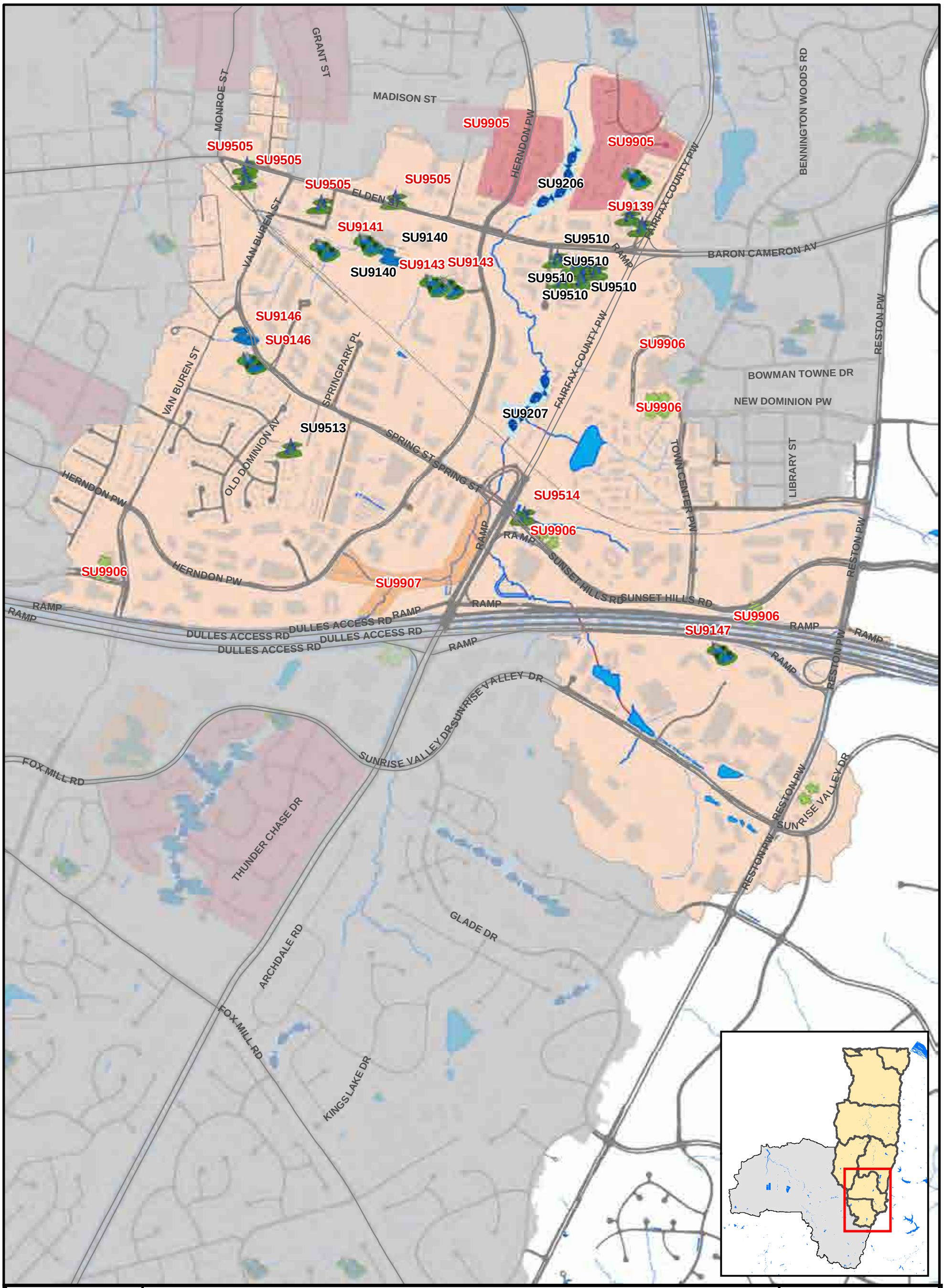
MONROE ST
GRANT ST
MADISON ST
HERNDON PW
FAIRFAX COUNTY PW
BENNINGTON WOODS RD
SU9505
SU9505
SU9505
SU9505
SU9905
SU9905
SU9206
SU9139
ELDEN ST
VAN BUREN ST
SU9141
SU9140
SU9140
SU9143
SU9143
SU9510
SU9510
SU9510
SU9510
RAMP
BARON CAMERON AV
SU9146
SU9146
SU9906
BOWMAN TOWNE DR
NEW DOMINION PW
RESTON PW
SPRINGPARK PL
SU9513
SU9207
SU9906
OLD DOMINION AV
SPRING ST
SPRING ST
TOWN CENTER PW
LIBRARY ST
SU9514
SU9906
HERNDON PW
HERNDON PW
SU9906
SU9907
SUNSET HILLS RD
SUNSET HILLS RD
DULLES ACCESS RD
DULLES ACCESS RD
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DULLES ACCESS RD
SU9906
SU9147
SUNRISE VALLEY DR
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SUNRISE VALLEY DR
FOX MILL RD
THUNDER CHASE DR
GLADE DR
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Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other
Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments
Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.
Map 5.6
WMA: Upper Sugarland
Proposed Projects

5.2 Horsepen Creek Watershed WMAs

Each subsection of Section 5.2 includes a description of key WMA conditions, a description of proposed structural and non-structural 10-year projects in the WMA, a listing of 10-year and 25-year projects for the WMA, and a map showing the types and locations of all 10-year and 25-year projects within the WMA. Each WMA in the Horsepen Creek watershed is described separately. Additional project details, benefits, and design considerations for the projects in the 10-year implementation plan are included on the project fact sheets located in Section 5.3.

5.2.1 Cedar Run WMA

Description of Key WMA Conditions

Approximately 73 percent of the Cedar Run WMA is urbanized. The expected changes in land use show increases in high and low density residential areas and decreases in estate residential and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Cedar Run WMA contains 16 existing stormwater facilities. Approximately 67 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Cedar Run WMA contributes approximately five percent of the total suspended solids, seven percent of the total nitrogen, and seven percent of the total phosphorus annual loads to the Horsepen Watershed.

Cedar Run WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Cedar Run WMA.

HC9007 HC-CR-0002 does not have any existing stormwater controls. Construct a new in-line enhanced extended detention basin (modified scope of RP H-07) and various energy dissipation and stream and habitat restoration projects throughout the subwatershed.

HC9013 Subbasins HC-CR-0004 and 0005 have minimal stormwater controls. A combination of eighteen basin retrofits, wetlands, BMPs, and drainage improvements will provide stormwater controls for more than two-thirds of the subbasins' 421 acres.

The following non-structural project is designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

HC9901

- Restore and improve riparian buffer with native vegetation.
- Restore riparian buffer and educate homeowners about yard waste.
- Targeted Rain Barrel Program for residences on Cross Creek Lane and Cross Creek Court.
- Remove invasive and undesirable vegetation from pond and replant quality wetland and riparian vegetation.

10-Year and 25-Year Project Information Tables for Cedar Run WMA

Table 5.7 lists all structural and non-structural projects proposed in the Cedar Run WMA. Project locations for all structural and non-structural projects are shown on Map 5.7.

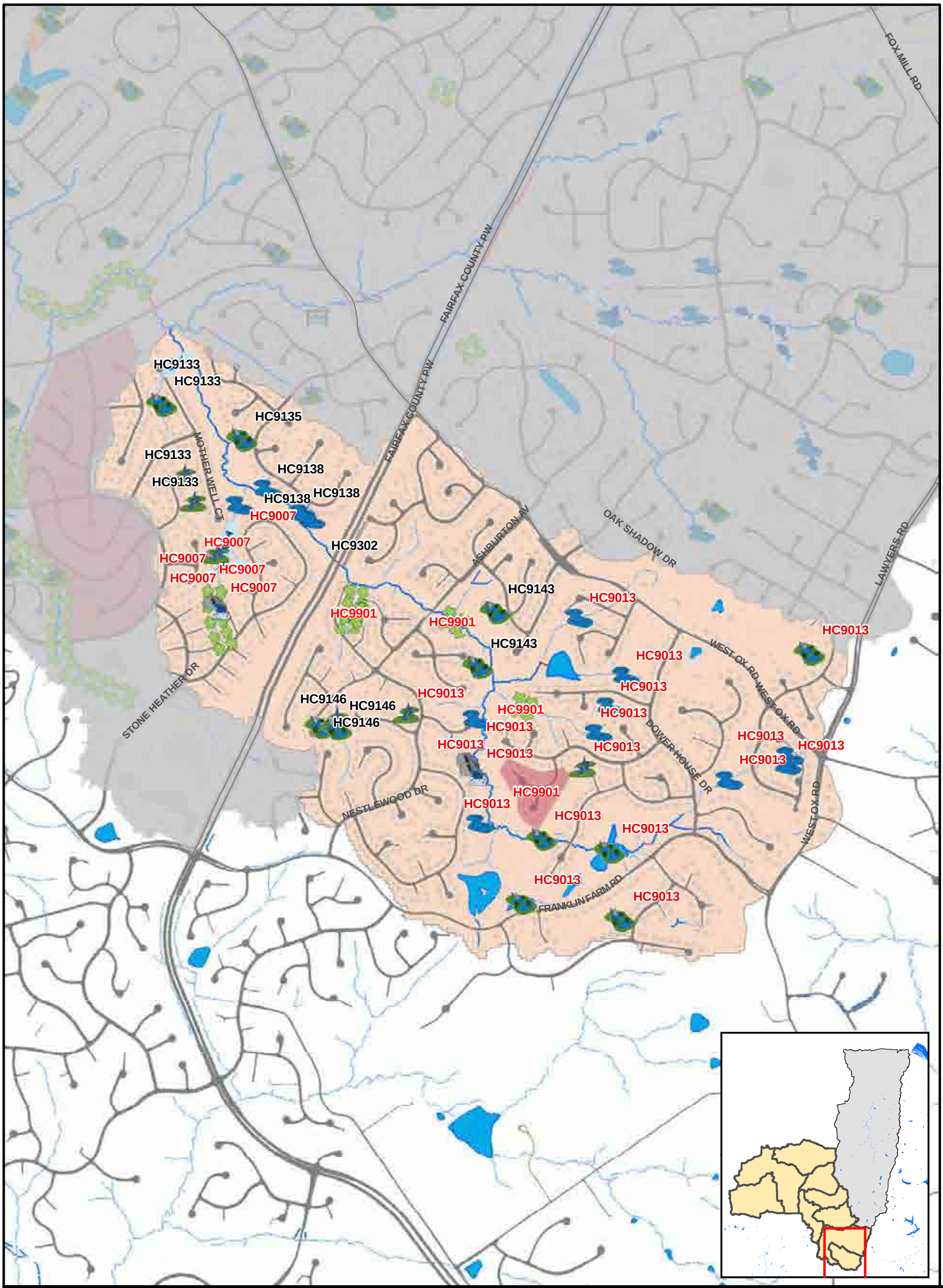
Table 5.7
Project List – Cedar Run WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
HC9007	Regional Pond Alternative Suite	HC-CR-0002	Between Ladybank Lane & Mother Well Court	Quality/ Quantity	County, Private	0-10
HC9013	Regional Pond Alternative Suite	HC-CR-0004/05	Between Franklin Farm Rd, West Ox Rd & Ashburton Ave	Quality/ Quantity	County, Private	0-10
HC9133	Stormwater Pond Retrofit, BMP/LID, Stream Restoration	HC-CR-0001	Near Glen Taylor Lane & Mother Well Court	Quantity/ Quality	County, Private	11-25
HC9135	Stormwater Pond Retrofit	HC-CR-0001	Near Emerald Chase Drive & Rover Glen Court	Quantity/ Quality	County	11-25
HC9138	New Stormwater Pond	HC-CR-0001	FCPA, Near Emerald Chase Drive & Ruby Lace Court	Quality	County	11-25
HC9143	Stormwater Pond Retrofit	HC-CR-0003	Off of Ashburton Avenue, near Thistlethorn Drive & Saffron Drive	Quantity/ Quality	County	11-25
HC9146	Stormwater Pond Retrofit, BMP/LID	HC-CR-0003	Near Ashburton Avenue & Wheeler Way	Quantity/ Quality	County	11-25
HC9302	Area-wide Drainage Improvement	HC-CR-0001	Burchlawn Street cul-de-sac	Quality	N/A	11-25

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
HC9901	Buffer Restoration, Rain Barrel Programs	HC-CR-0002	Near Ashburton Avenue & Thistlethorn Drive	Quality/ Quantity	County, Private



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Miles

- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other
- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.7

WMA: Horsepen-Cedar
Proposed Projects

5.2.2 Frying Pan WMA

Description of Key WMA Conditions

Approximately 72 percent of the Frying Pan WMA is urbanized. The expected changes in land use show increases in higher density residential and commercial/industrial areas and decreases in low density residential, institutional, and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Frying Pan WMA contains 24 existing stormwater facilities. Approximately 59 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Frying Pan WMA contributes approximately seven percent of the total suspended solids, 10 percent of the total nitrogen, and 10 percent of the total phosphorus annual loads to the Horsepen Watershed.

Frying Pan WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Frying Pan WMA.

HC9106 The current outlet structure for dry pond 1288DP is a large five foot culvert. The pond will be improved by adding a box weir to the culvert with a low flow orifice, re-grading the bottom of the pond for more capacity and replanting with native vegetation.

HC9109 Existing dry pond (0406DP) will be improved to an enhanced extended dry detention basin by removing the concrete trickle ditch, creating a forebay at each inlet, installing marsh areas and by retrofitting the outlet structure for extended detention.

HC9114 Existing dry pond (1416DP) will be improved to an enhanced extended dry detention basin by installing a forebay north of the walking path, re-grading the basin bottom with a meander and marsh areas, and installing an outlet structure.

HC9116 Sycamore Ridge area does not have existing stormwater controls. The drainage channels show signs of erosion. Construct new pocket wetlands at outfalls to slow stormwater and increase nutrient uptake. Repair drainage channels with rock and vegetation.

HC9119 Existing dry pond (0610DP) provides only water quantity control. Improve basin to an enhanced extended detention dry basin, disconnect three upstream outfalls and install two small forebays and an outlet structure.

HC9127 Existing dry ponds (0563DP and 0631DP) provide only water quantity control. Improve basins to enhanced extended dry detention basins with marsh areas including the removal of a concrete trickle ditch and the installation of outlet structures.

HC9503 Frying Pan Park/Kidwell Farm does not have existing stormwater controls. Install vegetated swale along east side of horse ring to intercept overland flow from parking lot and divert to new bioretention area.

The following non-structural project is designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

HC9902

- Restore riparian buffer along stream corridor

10-Year and 25-Year Project Information Tables for Frying Pan WMA

Table 5.8 lists all structural and non-structural projects proposed in the Frying Pan WMA. Project locations for all structural and non-structural projects are shown on Map 5.8.

Table 5.8
Project List – Frying Pan WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
HC9106	Stormwater Pond Retrofit	HC-FP-0001	Frying Pan Road & Centreville Road	Quality/ Quantity	State, County	0-10
HC9109	Stormwater Pond Retrofit	HC-FP-0002	Between Coppermine Road, Thomas Jefferson Drive & Masons Ferry Drive	Quality/ Quantity	County	0-10
HC9114	Stormwater Pond Retrofit	HC-FP-0004	Fox Mill Road & Cabin Creek Road	Quality/ Quantity	County	0-10
HC9116	New Stormwater Pond	HC-FP-0003	Near Halterbreak Court & Curved Iron Road culs-de sac	Quality	County	0-10
HC9119	Stormwater Pond Retrofit	HC-FP-0005	Colts Brook Drive & Fox Mill Road	Quality/ Quantity	County	0-10
HC9127	Stormwater Pond Retrofit	HC-FP-0003	Near Meadow Hall Drive & New Carson Drive	Quality/ Quantity	County	0-10
HC9503	BMP/LID	HC-FP-0001	Frying Pan Park/Kidwell Farm	Quality	County	0-10
HC9111	Stormwater Pond Retrofit	HC-FP-0004	Near Frying Pan Road & Coppermine Road	Quantity/ Quality	County	11-25
HC9117	Stormwater Pond Retrofit	HC-FP-0004	Monroe Manor Drive cul-de-sac	Quantity/ Quality	County	11-25
HC9124	Stormwater Pond Retrofit	HC-FP-0005	Near Locksley Court cul-de-sac	Quantity/ Quality	County	11-25

Table 5.8 Project List – Frying Pan WMA					
Non-Structural Projects					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
HC9902	Buffer Restoration	HC-FP-0001	Stream corridors near Copper Bed Road & Copper Hill Road	Quality	County

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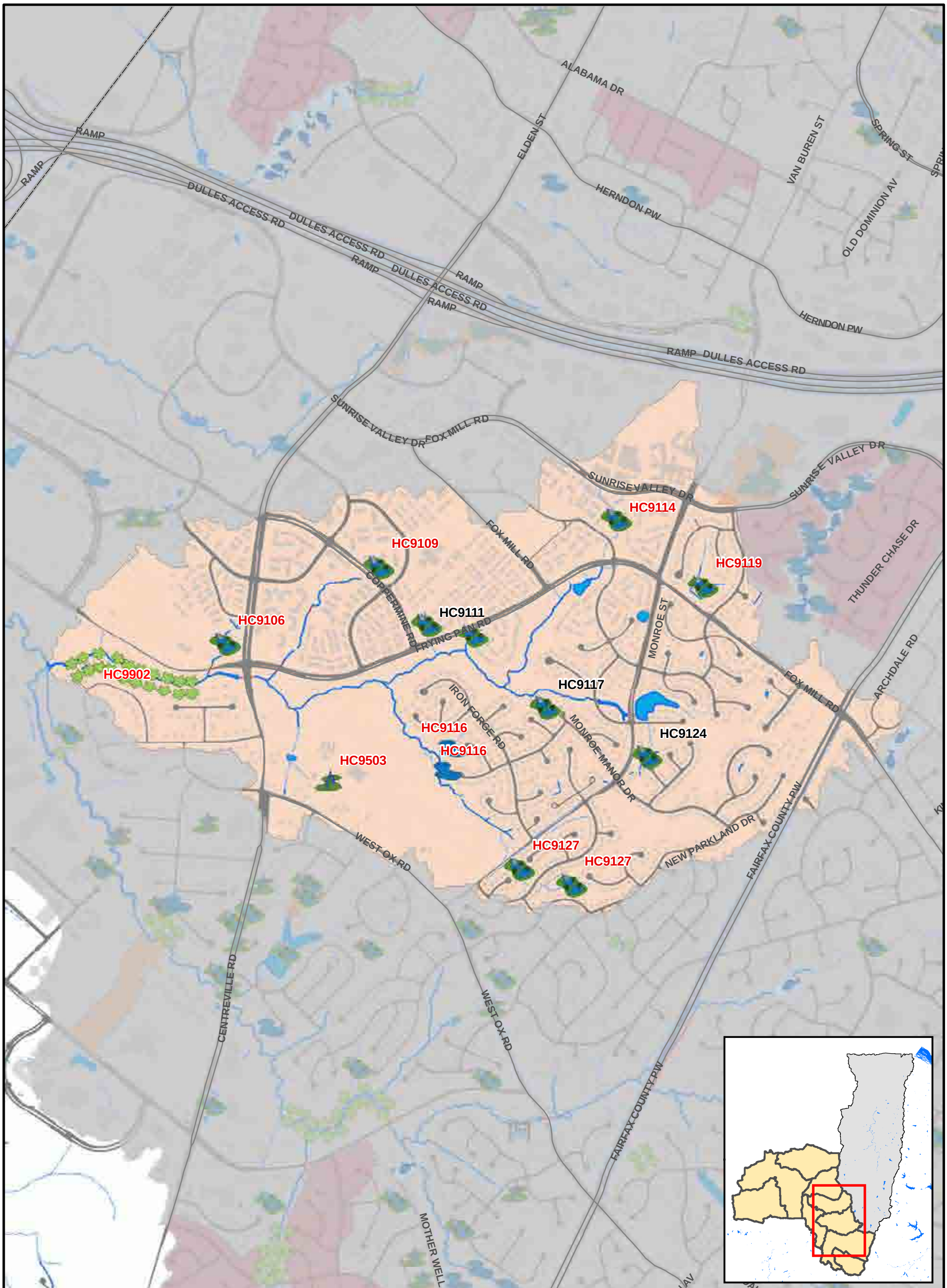

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- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other

- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.8

WMA: Horsepen
Frying Pan
Proposed Projects

5.2.3 Indian WMA, Lower Horsepen WMA, and Stallion WMA

Description of Key WMA Conditions

The portion of the Indian WMA that is located within Fairfax County consists of only 5.3 acres, and contains mostly medium density residential land use. Approximately 49 percent of the Indian WMA is urbanized. The Indian WMA contains no existing stormwater facilities within Fairfax County.

The portion of the Lower Horsepen WMA that is located within Fairfax County consists of only 20.6 acres, and contains mostly industrial land use. Approximately 44 percent of the Lower Horsepen WMA is urbanized. The expected changes in land use show no changes to this WMA within Fairfax County. The Lower Horsepen WMA contains no existing stormwater facilities within Fairfax County.

The Stallion WMA lies entirely within Loudoun County. Approximately 16 percent of the Stallion WMA is urbanized.

Due to the limited areas located within Fairfax County, no projects are proposed in these WMAs.

5.2.4 Lower Middle Horsepen WMA

Description of Key WMA Conditions

Approximately 68 percent of the Lower Middle Horsepen WMA is urbanized. The expected changes in land use show increases in high density/intensity areas and decreases in low density/intensity rural areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Lower Middle Horsepen WMA contains 37 existing stormwater facilities. Approximately 89 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Lower Middle Horsepen WMA contributes approximately 11 percent of the total suspended solids, 12 percent of the total nitrogen, and 13 percent of the total phosphorus annual loads to the Horsepen Watershed.

Lower Middle Horsepen WMA 10-Year Projects

The following structural project is designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Lower Middle Horsepen WMA.

HC9200 This area does not have stormwater controls. Retrofit culvert with micro pool above Parcher Ave., re-grade and stabilize stream banks, vegetate stone drainage channels and install check dams, restore buffer, install educational signage and install new pond.

The following non-structural project is designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity

for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

HC9903

- Targeted Rain Barrel Program at Reflection Lake Homeowners Association and Four Season Homeowners Association
- Restore riparian buffer upstream of Parcher Avenue

10-Year and 25-Year Project Information Tables for Lower Middle Horsepen WMA

Table 5.9 lists all structural and non-structural projects proposed in the Lower Middle Horsepen WMA. Project locations for all structural and non-structural projects are shown on Map 5.9.

Table 5.9
Project List – Lower Middle Horsepen WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
HC9200	Culvert Retrofit, Stream Restoration	HC-HC-0020	Near Parcher Avenue & Monaghan Drive, next to the Reflection Lake pool	Quality	County, Private	0-10
HC9100	Stormwater Pond Retrofit	HC-HC-0018	Rock Hill Road & Turquoise Lane	Quantity/ Quality	County	11-25
HC9101	Stormwater Pond Retrofit	HC-HC-0017	Near Spring Knoll Drive & Summerset Place	Quantity/ Quality	Private	11-25
HC9400	Culvert Retrofit	HC-HC-0019	Near Rock Hill Road & Innovation Avenue	Quality	State, Private	11-25

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
HC9903	Conservation Acquisition Project/Land Conservation Coordination Project	HC-HC-0018	Reflection Lake HOA & Four Season HOA (Herndon)	Quality/ Quantity	Private

Loudoun County
Fairfax County
HC9101
HC9100
HC9400
HC9903
HC9200
HC9903
HC9200
CRESTVIEW DR
HERNDON PW
HERNDON PW
STERLING RD
HERNDON PW
SUMMERFIELD DR
ROCK HILL RD
RAMP
RAMP
RAMP
DULLES ACCESS RD
RAMP
RAMP
DULLES ACCESS RD
RAMP
PARCHER AV
ELDEN ST
DULLES ACCESS RD
DULLES ACCESS RD
RAMP
SULLY RD
SUNRISE VAL
CENTREVILLE RD

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Miles

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Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal

New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other

Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.9

WMA: Horsepen Lower Middle
Proposed Projects

5.2.5 Merrybrook WMA

Description of Key WMA Conditions

Approximately 79 percent of the Merrybrook WMA is urbanized. The expected changes in land use show increases in high and low density residential, commercial and industrial areas and decreases in estate residential, institutional and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Merrybrook WMA contains no existing stormwater facilities. Approximately 76 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Merrybrook WMA contributes approximately seven percent of the total suspended solids, 10 percent of the total nitrogen, and nine percent of the total phosphorus annual loads to the Horsepen Watershed.

Merrybrook WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Merrybrook WMA.

HC9107 The community around Arkansas Ave. and Palmer Dr. does not have existing stormwater controls. Construct new enhanced extended detention dry basin with marsh areas to collect stormwater runoff conveyed in storm sewers and swale outlet to stream channel.

HC9110 The community around Palmer Drive does not have existing stormwater controls. Construct new enhanced extended detention dry basin to collect stormwater runoff conveyed in storm sewers.

The following non-structural project is designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

HC9907

- Restore/enhance riparian buffer around a series of wet ponds
- Obtain conservation easements to preserve the riparian buffer

10-Year and 25-Year Project Information Tables for Merrybrook WMA

Table 5.10 lists all structural and non-structural projects proposed in the Merrybrook WMA. Project locations for all structural and non-structural projects are shown on Map 5.10.

Table 5.10
Project List – Merrybrook WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
HC9107	New Stormwater Pond	HC-MR-0004	Palmer Drive & Dogwood Court	Quality/ Quantity	Local	0-10
HC9110	New Stormwater Pond	HC-MR-0004	Herndon Parkway & Campbell Way	Quality/ Quantity	Private	0-10
HC9104	New Stormwater Pond	HC-MR-0002	Centreville Road & McNair Farms Drive	Quality	Private	11-25

Non-Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner
HC9907	Buffer Restoration, Conservation Acquisition Project/Land Conservation Coordination Project	HC-MR-0002	Centreville Road & Woodland Park Road	Quality	County, Private

HERNDON PW
HERNDON PW
HERNDON PW
STERLING RD
SUMMERFIELD DR
ROCK HILL RD
Loudoun County
Fairfax County
RAMP
RAMP
RAMP
RAMP
ALABAMA DR
ELDEN ST
HC9107
HC9110
HERNDON PW
PARCHER AV
DULLES ACCESS RD
DULLES ACCESS RD
RAMP
DULLES ACCESS RD
RAMP
RAMP
DULLES ACCESS RD
HC9907
SUNRISE VALLEY DR
RIVER BIRCH RD
COPPERMINE RD
HC9104
CENTREVILLE RD
SUNRISE VALLEY DR
SUNRISE VALLEY DR
FOX MILL RD
FOX MILL RDFOX MILL RD
FOX MILL RD
SULLY RD
COPPERMINE RD
FRYING PAN RD
MONROE ST
IRON FORGE RD
WEST OX RDWEST OX RD
SULLY RD
SULLY RD

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- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other

- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.10

WMA: Horsepen
Merrybrook
Proposed Projects

5.2.6 Middle Horsepen WMA

Description of Key WMA Conditions

Approximately 69 percent of the Middle Horsepen WMA is urbanized. The expected changes in land use show increases in high and low density residential, low intensity commercial and industrial areas and decreases in estate residential, high intensity commercial and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Middle Horsepen WMA contains no existing stormwater facilities. Approximately 75 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Middle Horsepen WMA contributes approximately six percent of the total suspended solids, six percent of the total nitrogen, and six percent of the total phosphorus annual loads to the Horsepen Watershed.

Middle Horsepen WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Middle Horsepen WMA.

HC9102 An existing swale with wetland vegetation is a prime location for a new enhanced extended detention dry pond with minimal grading required for low marsh areas and berm along tennis courts.

HC9500 Install rain garden at the entrance of Sutters Mill Drive with curb cuts in the existing curbing. Re-grade and vegetate existing basin bottom. Cut existing outlet pipe and fit with a raised yard drain outlet structure.

The following non-structural project is designed to reduce stormwater flow volumes and decrease peak flows in areas lacking sufficient stormwater management with limited opportunity for new structural stormwater controls. Project implementation will also promote sediment deposition, decrease erosion, improve water quality and increase wildlife habitat.

HC9904

- Restore riparian buffer along stream corridor
- Re-vegetate/expand riparian buffer zone along stream corridor
- Restore riparian buffer along stream corridor
- Obtain conservation easement to preserve riparian buffer along stream corridor

10-Year and 25-Year Project Information Tables for Middle Horsepen WMA

Table 5.11 lists all structural and non-structural projects proposed in the Middle Horsepen WMA. Project locations for all structural and non-structural projects are shown on Map 5.11.

Table 5.11 Project List – Middle Horsepen WMA						
Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
HC9102	New Stormwater Pond	HC-HC-0026	Legacy Circle & Sunrise Valley Drive	Quality/ Quantity	Private	0-10
HC9500	BMP/LID	HC-HC-0026	Wellesley Subdivision, Stratford Glen Place	Quality	Private	0-10
HC9103	Stormwater Pond Retrofit	HC-HC-0025	Dulles Int'l Airport, near Sully Road & electric substation	Quantity/ Quality	Federal	11-25
HC9108	Stormwater Pond Retrofit	HC-HC-0028	Near Copper Creek Road & Copper Creek Court	Quantity/ Quality	County	11-25
HC9113	Stormwater Pond Retrofit	HC-HC-0028	Towerview Road cul-de-sac	Quantity/ Quality	County	11-25
HC9115	Stormwater Pond Retrofit, New Stormwater Pond	HC-HC-0028	Near Mustang Drive & Maverick Lane	Quantity/ Quality	County, Private	11-25
HC9501	BMP/LID	HC-HC-0028	Along stream corridor between Floris Street & Mountainview Court	Quality	Private	11-25
HC9502	BMP/LID	HC-HC-0028	Floris Elementary School	Quality	County	11-25
Non-Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	
HC9904	Buffer Restoration, Conservation Acquisition Project/Land Conservation Coordination Project	HC-HC-0026	Stream corridors near Sully Road & Park Center Road	Quality	County, Private	

Loudoun County

Fairfax County

HC9102

HC9500

HC9500

HC9904

HC9103

HC9108

HC9904

HC9502

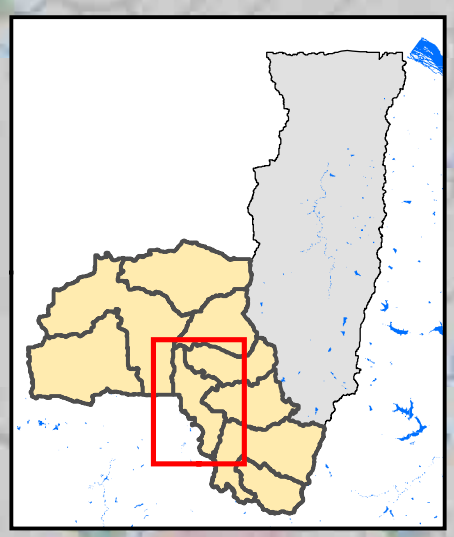
HC9501

HC9113

HC9115 HC9115

HC9904

HC9904



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- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other
- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.11

WMA: Horsepen-Middle
Proposed Projects

5.2.7 Upper Horsepen WMA

Description of Key WMA Conditions

Approximately 80 percent of the Upper Horsepen WMA is urbanized. The expected changes in land use show increases in low and medium density residential, high intensity commercial and industrial areas and decreases in estate residential, low intensity commercial, and open space areas. Higher density urban areas that contain less pervious surface introduce greater volumes of stormwater run off and more intense peak flows. Increases in urban development also lead to degraded wildlife habitat, increased pollutants in stormwater runoff, and worsening stream conditions.

The Upper Horsepen WMA contains 38 existing stormwater facilities. Approximately 67 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Upper Horsepen WMA contributes approximately 12 percent of the total suspended solids, 17 percent of the total nitrogen, and 18 percent of the total phosphorus annual loads to the Horsepen Watershed.

Upper Horsepen WMA 10-Year Projects

The following structural projects are designed to reduce stormwater runoff volumes, decrease peak flows, reduce pollutants in stormwater runoff, and improve overall habitat and stream quality in the Upper Horsepen WMA.

HC9118 Existing dry basins (0803DP and unnamed dry basin) provide only water quantity control. The basins will be improved to enhanced extended dry detention basins by retrofitting existing or installing new outlet structures and planting native vegetation.

HC9121 Three existing dry ponds (VDOT29068, DP0015, DP0015) provide only water quantity control. Improve basins with water quality controls and remove concrete trickle ditches. Install vegetated swales in road dividers.

HC9122 Existing non-stormwater pond (FM0014) will be improved to a stormwater wet pond including a slight draw down of the water level to provide additional storage, installing an outlet structure, installing vegetation and repairing a seep in the dam.

HC9123 Existing dry pond (0196DP) will be improved to an enhanced extended dry detention basin by removing a concrete trickle ditch, adding an outlet structure, restoring the downstream channel with vegetation and restoring access to the site.

HC9126 Existing dry pond (0562DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, enlarge size for more capacity, install a forebay to catch sediment and install an outlet structure.

HC9128 The Korean Orthodox Presbyterian dry pond (no StormNet ID) provides only water quantity control. Improve basin to an enhanced extended dry detention basin including the removal of a concrete trickle ditch and the addition of an outlet structure.

HC9129 Improve existing dry pond (0568DP) to an enhanced extended dry detention basin with marsh areas, install a natural low flow channel and retrofit outlet structure. Concrete swales will be removed/vegetated and educational signage will be installed.

HC9130 Improve Middleton Farm existing dry pond (1349DP) to an enhanced extended dry detention basin by removing the concrete trickle ditch, replacing the concrete apron with riprap, installing an outlet structure, and raising the emergency overflow.

HC9132 Highland Mews existing dry pond (1055DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, remove concrete trickle ditch, install an outlet structure and install riprap at outfalls for energy dissipation.

HC9134 Chantilly Highlands community does not have existing stormwater controls. Improve regional pond H-19 (0747DP) by adding a box weir to detain water and naturalize. Install small forebays at each outfall and naturalize swales to a new bioretention basin.

HC9136 Fox Mill Estates' existing dry pond provides only water quantity control. Improve basin to a constructed wetland. Enlarge basin, install a low v-notch weir as an outlet structure, install a fence and educational signage.

HC9137 Fox Mill Estates does not have existing stormwater controls. Install three constructed wetlands, redirect and meander channels, and restore streambank with grading, boulder toe and vegetation. Restore the riparian vegetated buffer.

HC9140 Fox Mill Estates' existing dry pond (0243DP) provides only water quantity control. Improve basin to an enhanced extended dry detention basin, install outlet structure, raise the emergency spillway and naturalize the basin.

HC9142 Fox Mill Estates' existing dry pond (0176DP) provides only water quantity control. Install forebay, slightly enlarge basin and retrofit outlet structure. Install constructed wetland near Kettering Drive and install riprap in channel below outfall.

HC9149 Remove existing concrete channel between Chasbarb Terrace and Viking Drive and vegetate. Install check dams in the channel for energy dissipation and install a constructed wetland in the lower portion of the channel.

HC9201 The Fox Mill Estates community does not have existing stormwater controls. Re-grade eroded stream banks and vegetate with floodplain vegetation. Restore channel with several rock vanes.

HC9202 This area has significant erosion. Re-grade stream banks to connect to the floodplain and vegetate with floodplain vegetation. Install check dams to dissipate energy.

HC9905

- Obtain conservation easement to preserve riparian buffer and stormwater facility.
- Investigate and remove obstructions at SPA reach 9-1, remove invasive and undesirable vegetation and replant with quality vegetation.
- Restore riparian buffer to property lines with vegetation that can stabilize steep slopes, add rocks for energy dissipation below outfall.
- Restore riparian buffer, approximately 2,500 feet in length.
- Naturalize existing dry pond (no StormNet ID) and stop mowing.
- Vegetate existing County dry pond (0440DP) with native riparian/floodplain vegetation. Break up concrete trickle ditch and leave concrete pieces in place for energy dissipation.

HC9906

- Targeted Rain Barrel Program for western portion of Chantilly Highlands.
- Targeted Rain Barrel Program for eastern portion of Chantilly Highlands.

10-Year and 25-Year Project Information Tables for Upper Horsepen WMA

Table 5.12 lists all structural and non-structural projects proposed in the Upper Horsepen WMA. Project locations for all structural and non-structural projects are shown on Map 5.12.

Table 5.12
Project List – Upper Horsepen WMA

Structural Projects

Project #	Project Type	Subwatershed	Location	Watershed Benefit	Land Owner	Phase
HC9118	Stormwater Pond Retrofit	HC-HC-0030	Between Floris Lane & Merricourt Lane culs-de-sac	Quality/ Quantity	County, Private	0-10
HC9121	Stormwater Pond Retrofit, BMP/LID	HC-HC-0030	Centreville Road & Lake Shore Drive	Quality/ Quantity	State, County, Private	0-10
HC9122	Stormwater Pond Retrofit	HC-HC-0030	Lake Shore Drive & Running Pump Lane	Quality/ Quantity	Private	0-10
HC9123	Stormwater Pond Retrofit	HC-HC-0030	Near Point Rider Lane & Equus Court	Quality/ Quantity	County	0-10
HC9126	Stormwater Pond Retrofit	HC-HC-0034	Monterey Estates Drive & West Ox Road	Quality/ Quantity	County	0-10
HC9128	Stormwater Pond Retrofit	HC-HC-0031	Korean Orthodox Presbyterian Church, Mclearen Road & Centreville Road	Quality/ Quantity	Private	0-10
HC9129	Stormwater Pond Retrofit, BMP/LID	HC-HC-0034	West Ox Road & New Parkland Drive	Quality/ Quantity	County	0-10
HC9130	Stormwater Pond Retrofit	HC-HC-0031	Middleton Farm Subdivision, between Middleton Farm Lane & Blue Holly Lane culs-de-sac	Quality/ Quantity	County	0-10

Table 5.12 Project List – Upper Horsepen WMA						
Structural Projects						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
HC9132	Stormwater Pond Retrofit	HC-HC-0032	Highland Mews Subdivision, Hutumn Court & Highland Mews Court	Quality/ Quantity	County	0-10
HC9134	Stormwater Pond Retrofit, BMP/LID	HC-HC-0033	Kinross Circle & Scotsmore Way	Quality/ Quantity	County, Private	0-10
HC9136	Stormwater Pond Retrofit	HC-HC-0037	Near Viking Drive & Pinecrest Road	Quality/ Quantity	County, Private	0-10
HC9137	Stream Restoration, New Stormwater Pond	HC-HC-0039	Between Tewksbury Drive & Kettering Drive	Quality	Private	0-10
HC9140	Stormwater Pond Retrofit	HC-HC-0037	Huntington Drive cul-de-sac	Quality/ Quantity	County, Private	0-10
HC9142	Stormwater Pond Retrofit, New Stormwater Pond	HC-HC-0040	Quincy Adams Drive & Quincy Adams Court	Quality/ Quantity	County, Private	0-10
HC9149	New Stormwater Pond	HC-HC-0040	Chasbarb Terrace & Chasbarb Court	Quality	Private	0-10
HC9201	Stream Restoration	HC-HC-0037	Between Claxton Drive & Conquest Place culs-de-sac	Quality	Private	0-10
HC9202	Stream Restoration	HC-HC-0039	Between Quincy Adams Court, Viking Court & Prince Harold Court culs-de-sac	Quality	Private	0-10
HC9125	New Stormwater Pond	HC-HC-0031	Near Spring Chapel Court cul-de-sac	Quality	County	11-25
HC9131	Stormwater Pond Retrofit, Culvert Retrofit	HC-HC-0035	Near West Ox Road & Mclearen Road	Quantity/ Quality	County, Private	11-25
HC9139	BMP/LID	HC-HC-0039	Near Bradwell Road & Litchfield Drive	Quality	Private	11-25
HC9148	Stormwater Pond Retrofit, New Stormwater Pond	HC-HC-0039	Near Glenbrooke Woods Drive cul-de-sac	Quality	County	11-25
HC9505	BMP/LID	HC-HC-0035	Near Emerald Chase Drive & Lazy Glen Court	Quality	County	11-25

Table 5.12 Project List – Upper Horsepen WMA					
Non-Structural Projects					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
HC9905	Buffer Restoration, Dumpsite/ Obstruction Removal, Conservation Acquisition Project/Land Conservation Coordination Project	HC-HC-0030	Stream corridors near Mclearen Road & Cobra Drive	Quality	County, Private
HC9906	Rain Barrel Programs	HC-HC-0030	Chantilly Highlands	Quantity	Private

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SUNRISE VALLEY DR
FOX MILL RD
SUNRISE VALLEY DR
SUNRISE VALLEY DR
FOX MILL RD
COPPERMINE RD
FRYING PAN RD
THUNDER CHASE DR
MONROE ST
ARCHDALE RD
GLADE DR
IRON FORGE RD
MONROE MANOR DR
FOX MILL RD
KINGSLAKE DR
MUSTANG DR
WEST OX RD
NEW PARKLAND DR
FAIRFAX COUNTY PW
HC9121
HC9118
HC9118
HC9121
HC9121
HC9905
HC9121
HC9122
HC9123
HC9126
HC9121
HC9129
HC9905
HC9121
HC9129
HC9136
FOX MILL RD
HC9140
HC9201
VIKING DR
HC9125
MIDDLETON FARM LA
FARTHINGALE DR
RESTON PW
CENTREVILLE RD
HC9130
HC9131
HC9139
HC9139
HC9142
MCLEAREN RD
HC9128
HC9142
HC9137
HC9142
MCLEAREN RD
HC9131
HC9905
HC9137
HC9137
HC9202
TEWKSBURY DR
HC9905
HC9505
HC9132
COBRA DR
MOTHER WELL CT
HC9149
HC9905
HC9148
HC9905
HC9906
KINROSS CI
HC9148
REIGN ST
HC9906
HC9134
HC9134
ASHBURTON AV
WEST OX RD
OAK SHADOW DR
TIMBER WOOD WY
LAWYERS RD
HC9134
KINROSS CI
HC9905
WEST OX RD
STONE HEATHER DR
DOWER HOUSE DR
NESTLEWOOD DR
WEST OX RD
FRANKLIN FARM RD

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Miles

- Buffer Restoration
- Stream Restoration
- BMP/LID
- Culvert Retrofit
- Dumpsite/Obstruction Removal
- New Stormwater Pond
- Outfall Improvement
- Stormwater Pond Retrofit
- Other

- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.12

WMA: Horsepen-Upper
Proposed Projects