

## **5.0 WMA Area Restoration Strategies for Nichol Run and Pond Branch Watershed**

Section 5.0 provides descriptions of the restoration strategies proposed for the Nichol Run and Pond Branch watersheds. Restoration strategies were chosen based on needs of each WMA.

A majority of the Nichol Run watershed is rural. The majority of open space is located along the stream corridors and along the northern edge of the watershed. The central and southern portion of the watershed contains mostly estate and low density residential land uses. The expected changes in land use show decreases in open space and increases in estate residential land uses.

There are 16 existing stormwater facilities located in the Nichol Run watershed. Approximately 86 percent of Nichol Run watershed is not treated by an existing stormwater facility. This large area of the Nichol Run watershed that lacks existing stormwater controls indicates the need for new watershed management projects.

A majority of the Pond Branch watershed is also rural. The majority of open space is located along stream corridors and along the northeastern edge of the watershed. The central and southwestern portion of the watershed contains mostly estate and low density residential land uses. A golf course is located near the center of the watershed. As with Nichol Run, the expected changes in land use show decreases in open space and increases in estate residential land uses.

There are 22 existing stormwater facilities located in the Pond Branch watershed. Approximately 92 percent of the Pond Branch watershed is not treated by an existing stormwater facility. This large area of the Pond Branch watershed that lacks existing stormwater controls indicates the need for new watershed management projects.

### **5.1 Nichol Run Watershed WMAs**

Each subsection of Section 5.1 includes a description of key WMA conditions, a description of proposed structural and non-structural 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 Nichol Run watershed is described separately in alphabetical order. 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 Jefferson WMA**

##### **Description of Key WMA Conditions**

Approximately 17 percent of the Jefferson WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Jefferson WMA contains 3 existing stormwater facilities. Approximately 81 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Jefferson WMA contributes approximately 20 percent of the total

suspended solids, 25 percent of the total nitrogen and 24 percent of the total phosphorus annual loads to the Nichol Run Watershed.

### **Jefferson 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 Jefferson WMA.

**NI9113** This culvert at Beach Mill Road is obstructed with debris, stream banks are eroding due to high energy storm flows through the culvert which may flood the road. Construct a micropool with an outlet structure upstream of the culvert in Beach Mill Road.

### **Jefferson WMA 25-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 Jefferson WMA.

**NI9107** Retrofit existing farm pond near Potowmack Street and Montpelier Road to provide storage and water quality benefits by installing an outlet structure and planting pond edges with emergent and riparian vegetation.

**NI9109** Retrofit existing farm pond near Montpelier Road and Potowmack Street to provide storage and water quality benefits by installing an outlet structure and planting pond edges with emergent and riparian vegetation.

**NI9112** Seneca Farms subdivision is in need of additional stormwater treatment. Install a naturalized extended detention dry pond within a small clearing in a natural drainage area.

**NI9115** Retrofit existing dry pond near Elmview Place and Seneca Knoll Drive to enhanced extended detention dry pond with low marsh areas to provide additional water quality and quantity controls.

**NI9300** Culvert under Rich Meadow Drive is clogged with sediment. Clear sediment from culvert and install rain garden to provide quality control and promote infiltration.

**NI9301** Remove concrete obstruction in stream in Richland Meadows subdivision. Repair and stabilize stream erosion impacts and restore riparian buffer.

### **Jefferson WMA Non-Structural Projects**

The following non-structural project is designed to improve water quality and wildlife habitat in areas with no existing stormwater management and no opportunity for new structural stormwater controls.

**NI9900** Restore riparian buffer along stream in Potowmack Farm subdivision.

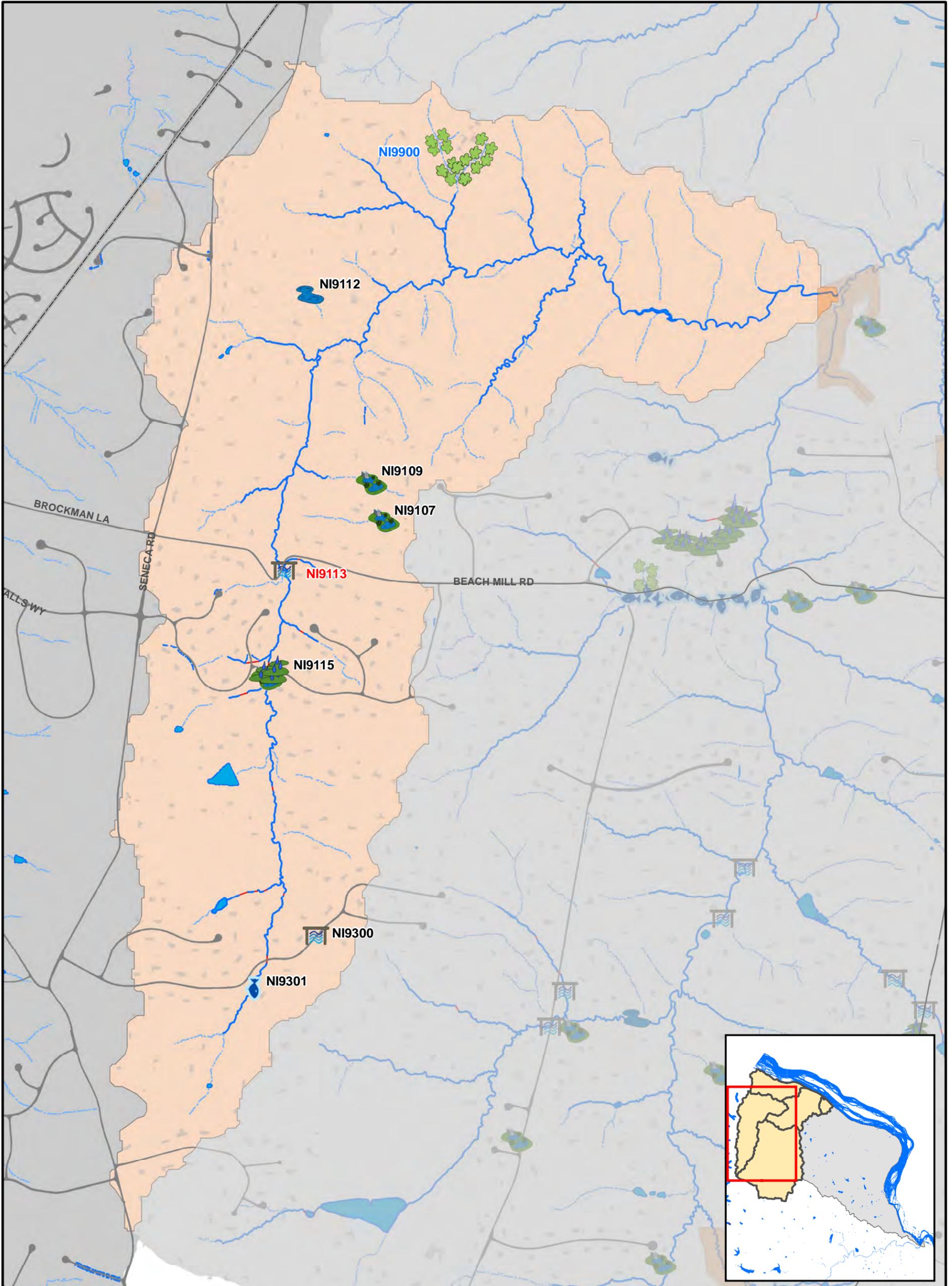
### **10-Year and 25-Year Project Information Tables for Jefferson WMA**

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

**Table 5.1  
Project List – Jefferson WMA**

<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
NI9113	Culvert Retrofit	NI-JB-0004	Near Beach Mill Road & Pipestem	Quality/ Quantity	State/ County/ Private	0 - 10
NI9107	Stormwater Pond Retrofit	NI-JB-0003	Near Potowmack Street & Montpelier Road	Quality/ Quantity	Private	11 - 25
NI9109	Stormwater Pond Retrofit	NI-JB-0003	Near Montpelier Road & Potowmack Street	Quality/ Quantity	Private	11 - 25
NI9112	New Stormwater Pond	NI-JB-0003	Near Richland Grove Drive & Donmore Drive	Quality/ Quantity	Private	11 - 25
NI9115	Stormwater Pond Retrofit, BMP/LID	NI-JB-0005	Near Elmview Place & Seneca Knoll Drive	Quality/ Quantity	County/ Private	11 - 25
NI9300	Culvert Retrofit	NI-JB-0006	Near Rich Meadow Drive & Richland Valley Drive	Quality	Private	11 - 25
NI9301	Stream Restoration	NI-JB-0006	Richland Meadows Subdivision	Quality	Private	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
NI9900	Buffer Restoration	NI-JB-0002	Patowmack Farm	N/ A	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
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.

- 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

# Map 5.1

WMA: Nichol - Jefferson  
Proposed Projects



## 5.1.2 Lower Nichol WMA

### **Description of Key WMA Conditions**

Approximately 48 percent of the Lower Nichol WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Lower Nichol WMA contains 2 existing stormwater facilities. Approximately 79 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Lower Nichol WMA contributes approximately 17 percent of the total suspended solids, 12 percent of the total nitrogen and 13 percent of the total phosphorus annual loads to the Nichol Run Watershed.

### **Lower Nichol 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 Nichol WMA.

**NI9101** The area near Jefferson Run Road does not have existing stormwater treatment or controls. Improve existing wet pond (WP0200) by installing an outlet structure to increase capacity. Repair overflow spillway to prevent breach, vegetate sides of the pond and improve wetlands.

### **Lower Nichol WMA 25-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 Nichol WMA.

**NI9100** Expand existing natural wetland area near High Hill Court and Falcon Ridge Road and stabilize and vegetate eroded channel.

**NI9102** This area does not have existing stormwater treatment or controls. Improve existing non-stormwater farm pond to a constructed wetland and install an outlet structure. Inspect the dam for seepage/breach and repair. Repair downstream streambank erosion.

**NI9103** Retrofit existing wet pond near Springvale Road and Allenwood Lane to provide additional storage and water quality benefits by installing an outlet structure and planting pond edges with emergent and riparian vegetation.

**NI9200** The dam of a former in-line farm pond in Great Falls Hills subdivision was breached and the pond was washed out causing erosion and headcuts to the channel downstream. Repair head-cut and stabilize stream banks.

**NI9500** The Beach Mill Downs subdivision is in need of stormwater controls. Install terraced rain garden on steep slopes near Patowmack Drive cul-de-sac and retrofit road-side swales to bioretention to improve water quality and promote infiltration.

**Lower Nichol WMA Non-Structural Projects**

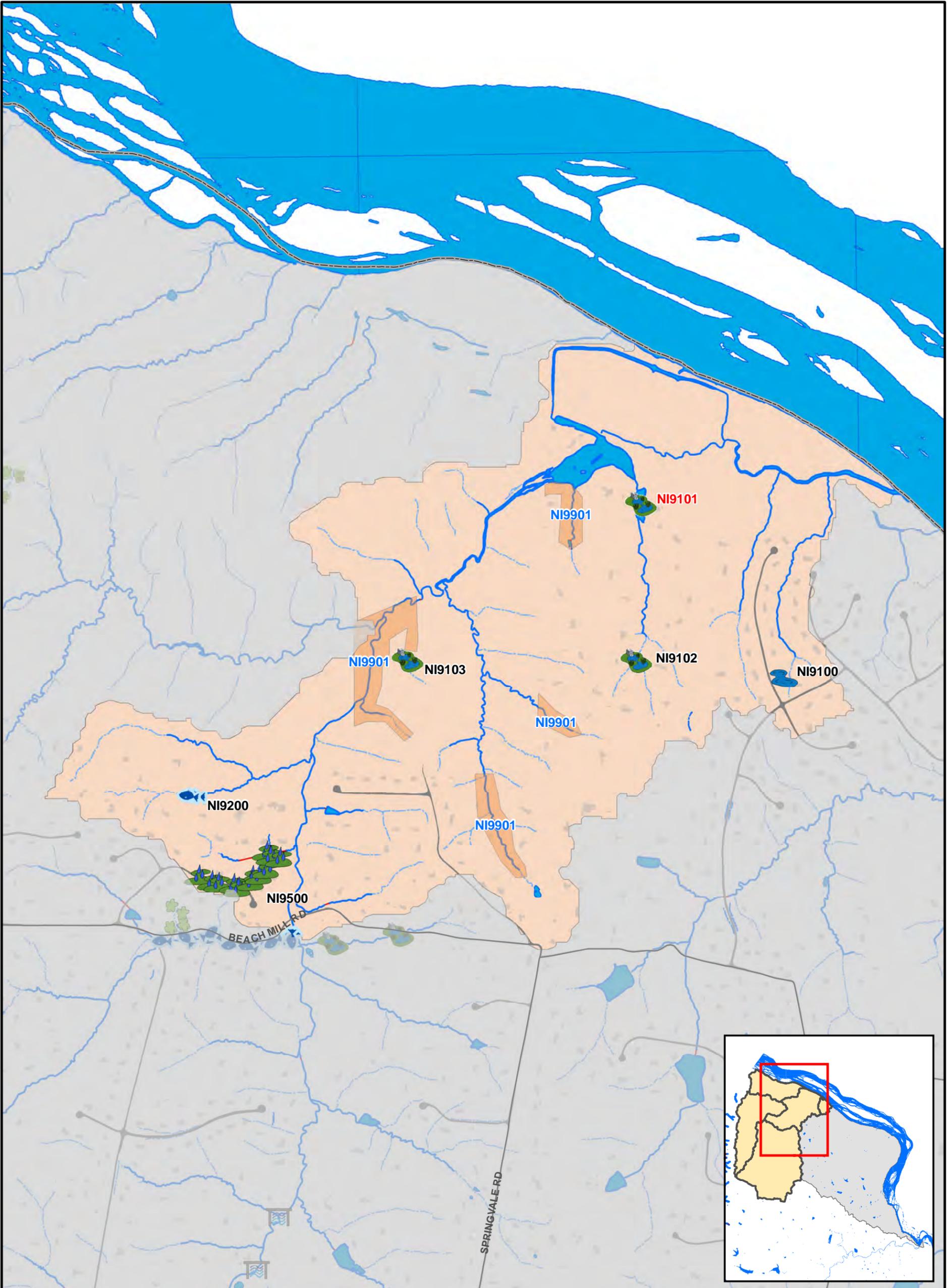
The following non-structural project is designed to improve water quality and wildlife habitat in areas with no existing stormwater management and no opportunity for new structural stormwater controls.

**NI9901** Preserve open space and riparian buffers with conservation easement throughout lower reaches of Nichol Run.

**10-Year and 25-Year Project Information Tables for Lower Nichol WMA**

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

<b>Table 5.2</b>						
<b>Project List – Lower Nichol WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
NI9101	Stormwater Pond Retrofit	NI-NI-0002	Near the end of Jefferson Run Road	Quality/ Quantity	Private	0 - 10
NI9100	New Stormwater Pond	NI-NI-0001	Near High Hill Court & Falcon Ridge Road	Quality	Private	11 - 25
NI9102	Stormwater Pond Retrofit	NI-NI-0002	Southdown Subdivision	Quality	Private	11 - 25
NI9103	Stormwater Pond Retrofit	NI-NI-0002	Near Springvale Road & Allenwood Lane	Quality/ Quantity	Private	11 - 25
NI9200	Stream Restoration	NI-NI-0004	Great Falls Hills Subdivision	Quality	Private	11 - 25
NI9500	BMP/LID	NI-NI-0004	Near Patowmack Drive cul-de-sac	Quality	County/ Private	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
NI9901	Conservation	NI-NI-0002	Riparian Areas in Lower Reaches of Nichol Run	N/ A	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
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.

- 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

# Map 5.2

WMA: Nichol - Lower  
Proposed Projects



### 5.1.3 Potomac (Nichol) WMA

#### **Description of Key WMA Conditions**

Approximately 82 percent of the Potomac WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Potomac WMA does not contain any existing stormwater facilities, and therefore has no stormwater treatment. According to the existing condition STEPL model results, the Potomac WMA contributes approximately 20 percent of the total suspended solids, seven percent of the total nitrogen and nine percent of the total phosphorus annual loads to the Nichol Run Watershed.

There are no projects proposed in Potomac (Nichol) WMA. The majority of land area within this WMA is protected as park land.

### 5.1.4 Upper Nichol WMA

#### **Description of Key WMA Conditions**

Approximately 11 percent of the Upper Nichol WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and increases in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Upper Nichol WMA contains 11 existing stormwater facilities. Approximately 79 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Upper Nichol WMA contributes approximately 43 percent of the total suspended solids, 56 percent of the total nitrogen and 53 percent of the total phosphorus annual loads to the Nichol Run Watershed.

#### **Upper Nichol 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 Nichol WMA.

**NI9106** Finger Lakes Estates does not have any stormwater treatment. Improve two existing non-stormwater ponds to wet retention ponds; naturalize existing swales directing water to ponds and construct rain gardens at the swale outlets.

**NI9111** Patrician Woods is in need of additional stormwater treatment. Improve existing dry pond (1412DP) to an enhanced extended detention dry pond including removal of concrete trickle ditch, introduction of wetland vegetation and new outlet structure.

- NI9118** Dogwood Farm subdivision is in need of water quality treatment. Retrofit existing dry pond (0857DP) to enhanced extended detention dry pond with low marsh areas and replace concrete trickle ditches within and draining to the pond with vegetated swales.
- NI9119** Falls Point and Forestville Estates are in need of additional water quality treatment. Improve existing dry pond (0797DP) to enhanced extended detention dry pond with low marsh areas. Repair eroded streambanks and restore riparian buffers upstream.
- NI9201** The lower portion of Harkney Branch is trying to lengthen and is actively eroding meanders, threatening Beach Mill Road between Utterbach Store Road and its confluence with Nichol Run. Install cross vanes and J-hooks to direct stream energy away from Beach Mill Road.
- NI9202** Nichol Run streambanks are eroded downstream of a culvert and driveway bridge. Install plunge pool below culvert and replace driveway bridge at 732 Springvale Road. Construct new stream channels with step pools and access to floodplain.
- NI9401** Sediment is collecting upstream of a culvert on Springvale Road. Construct a micropool with outlet structure upstream of the culvert and encourage wetland vegetation growth.

#### **Upper Nichol WMA 25-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 Nichol WMA.

- NI9104** Retrofit existing farm pond near Beach Mill Road and Springvale Road to constructed wetland with proper outlet structure, repair eroded spillway and stabilize downstream erosion impacts.
- NI9105** Retrofit existing farm pond Near Beach Mill Road and Springvale Road to provide storage and water quality benefits by installing an outlet structure and planting pond edges with emergent and riparian vegetation.
- NI9108** The area around Mulmary subdivision is in need of additional stormwater treatment. Construct new naturalized extended detention dry basin above culvert to provide quantity and quality stormwater controls.
- NI9110** Erosive impacts are occurring on and downstream of gravel drive off of Creamcup Lane. Retrofit existing pond above drive to a micropool with outlet structure to improve quality and reduce erosion. Stabilize erosion impacts downstream and repair gravel drive.
- NI9116** Retrofit existing dry pond near Woodland Falls Drive cul-de-sac with improved outlet structure for extended detention and continue to allow pond to naturalize.
- NI9117** Retrofit existing dry pond near Green Branch Court and Utterback Store Road with improved outlet structure, removal of concrete channel and natural vegetation to provide additional water quality and water quantity controls.

**NI9120** Retrofit existing dry pond near Farm Road and Utterback Store Road with improved outlet structure and natural vegetation to provide additional water quality and water quantity controls. Naturalize swale below pond to promote infiltration and improve water quality.

**NI9400** Culvert under unnamed road off of Springvale Road is clogged and damaged. Clean out and repair or replace culvert.

**NI9402** Culvert under Fawn Drive is clogged with debris and too small to properly convey water through the culvert during storm events. Increase culvert size, create engineered plunge pool at outfall and create micropool with outlet structure upstream.

**NI9403** Stream is incised and culvert below unnamed road off of Utterback Store Road is too small to properly convey water throughout the culvert during storm events. Increase culvert size and install second, higher, floodplain culvert on the east side of the main culvert to help develop floodplain. Regrade stream banks above and below culvert to create a new floodplain bench.

**NI9404** The area around Running Brook Estates and Beckmans Hills subdivisions is in need of additional stormwater control and improved road crossings. Install plunge pool downstream of culvert on Wolfe Hill Lane. Install micropool above culvert on Utterback Store Road. Retrofit existing farm pond to a wet retention pond with proper outlet structure and improved vegetation to provide water quality and water quantity treatment.

**NI9405** Springvale Knolls Subdivision is in need of additional water quality controls. Install rain garden at the end of the existing swale along Down Patrick Road and naturalize swale to provide water quality control and promote infiltration.

**Upper Nichol WMA Non-Structural Projects**

The following non-structural project is designed to improve water quality and wildlife habitat in areas with no existing stormwater management and no opportunity for new structural stormwater controls.

**NI9902** Stop mowing gas line easement between Patowmack Drive & Beach Mill Road and naturalize to wildflower meadow. Preserve open space and riparian buffers with conservation easement on two headwater reaches of Nichol Run.

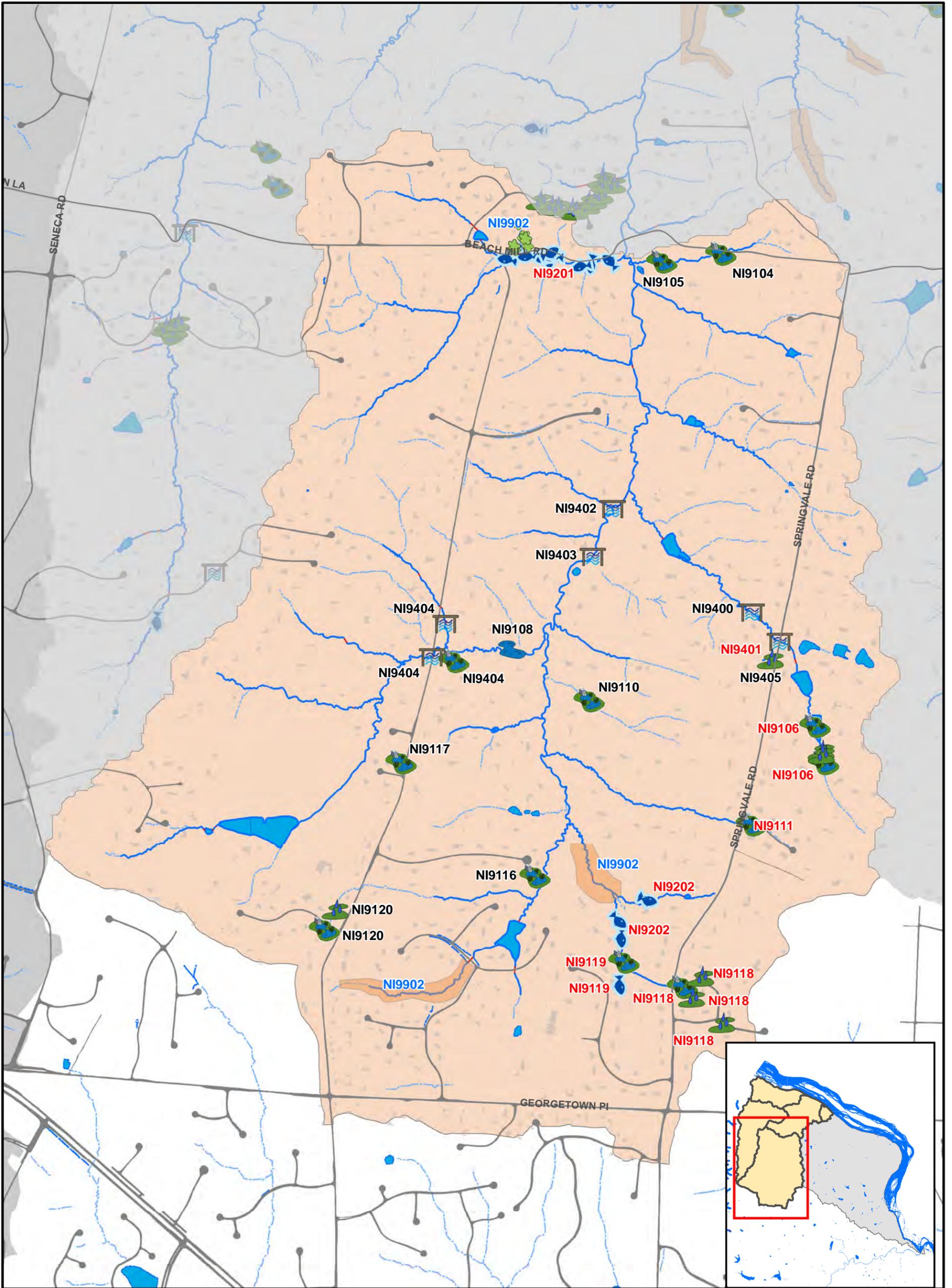
**10-Year and 25-Year Project Information Tables for Upper Nichol WMA**

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

<b>Table 5.3</b>						
<b>Project List – Upper Nichol WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
NI9106	Stormwater Pond Retrofit, BMP/LID	NI-NI-0009	Finger Lakes Estates Subdivision	Quality/ Quantity	County/ Private	0 - 10

**Table 5.3  
Project List – Upper Nichol WMA**

<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
NI9111	Stormwater Pond Retrofit	NI-NI-0014	Patrician Woods Subdivision, Patrician Woods Court & Springvale Road	Quality/Quantity	County	0 - 10
NI9118	Stormwater Pond Retrofit, BMP/LID	NI-NI-0015	Dogwood Farm Section 2 Subdivision	Quality/Quantity	County/Private	0 - 10
NI9119	Stormwater Pond Retrofit, Stream Restoration	NI-NI-0015	Near Falls Pointe Drive cul-de-sac	Quality/Quantity	County	0 - 10
NI9201	Stream Restoration	NI-HB-0001	Woodleaf Subdivision	Quality	State/County/Private	0 - 10
NI9202	Stream Restoration	NI-NI-0015	Spring Valley Woods Subdivision	Quality	Private	0 - 10
NI9401	Culvert Retrofit	NI-NI-0009	Down Patrick Farms Subdivision	Quality/Quantity	Private	0 - 10
NI9104	Stormwater Pond Retrofit	NI-NI-0005	Near Beach Mill Road & Springvale Road	Quality/Quantity	Private	11 - 25
NI9105	Stormwater Pond Retrofit	NI-NI-0005	Near Beach Mill Road & Springvale Road	Quality/Quantity	Private	11 - 25
NI9108	New Stormwater Pond	NI-NI-0010	Mulmary Subdivision	Quality/Quantity	Private	11 - 25
NI9110	Stormwater Pond Retrofit	NI-NI-0013	Near Creamcup Lane cul-de-sac	Quality/Quantity	Private	11 - 25
NI9116	Stormwater Pond Retrofit	NI-NI-0016	Near Woodland Falls Drive cul-de-sac	Quality/Quantity	County	11 - 25
NI9117	Stormwater Pond Retrofit	NI-NI-0013	Green Branch Court & Utterback Store Road	Quality/Quantity	Private	11 - 25
NI9120	Stormwater Pond Retrofit, BMP/LID	NI-NI-0016	Near Farm Road & Utterback Store Road	Quality/Quantity	County/Private	11 - 25
NI9400	Culvert Retrofit	NI-NI-0008	Springvale Knolls Subdivision	N/ A	County/Private	11 - 25
NI9402	Culvert Retrofit	NI-NI-0007	Martin Redmon Subdivision	Quality/Quantity	County/Private	11 - 25
NI9403	Culvert Retrofit	NI-NI-0007	Ross F. Rogers Subdivision	Quality	County/Private	11 - 25
NI9404	Stormwater Pond Retrofit, Culvert Retrofit	NI-NI-0010	Near Utterback Store Road & Wolfe Hill Lane	Quality/Quantity	County/Private	11 - 25
NI9405	BMP/LID	NI-NI-0008	Springvale Knolls Subdivision	Quality	County/Private	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
NI9902	Buffer Restoration, Conservation	NI-HB-0001	Gas Line Easement between Patowmack Drive & Beach Mill Road	N/ A	Private	



<p>0 0.125 0.25 Miles</p>	<ul style="list-style-type: none"> <li> Buffer Restoration</li> <li> Stream Restoration</li> <li> BMP/LID</li> <li> Culvert Retrofit</li> <li> Dumpsite/Obstruction Removal</li> </ul>	<ul style="list-style-type: none"> <li> New Stormwater Pond</li> <li> Outfall Improvement</li> <li> Stormwater Pond Retrofit</li> <li> Other</li> </ul> <p>Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.</p>	<ul style="list-style-type: none"> <li> Area-wide Drainage Improvement</li> <li> Community Outreach/Public Education</li> <li> Land Conservation Project</li> <li> Flood Protection/Mitigation</li> <li> Inspection/Enforcement Enhancement</li> <li> Rain Barrel Program</li> <li> Street Sweeping Program</li> <li> Studies, Surveys and Assessments</li> </ul>	<h2 style="text-align: center;">Map 5.3</h2> <p style="text-align: center;">WMA: Nichol - Upper Proposed Projects</p>
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## 5.2 Pond Branch Watershed WMAs

Each subsection of Section 5.2 includes a description of key WMA conditions, a description of proposed structural and non-structural 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 Pond Branch watershed is described separately in alphabetical order. 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 Clark WMA

#### **Description of Key WMA Conditions**

Approximately 13 percent of the Clark WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Clark WMA contains 7 existing stormwater facilities. Approximately 88 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Clark WMA contributes approximately 28 percent of the total suspended solids, 34 percent of the total nitrogen and 34 percent of the total phosphorus annual loads to the Pond Branch Watershed.

#### **Clark 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 Clark WMA.

**PN9100** Riverside Manor does not have any stormwater treatment. Install a new naturalized extended detention basin in existing depression with mature trees. Replace concrete trickle ditch and grass swale along Chesapeake Drive with vegetated swales.

**PN9101** Eaton Park subdivision has no existing stormwater treatment. Install a new constructed wetland to capture drainage from Eaton Court and Eaton Park Road.

**PN9102** The area around River Bend Road and Oak Falls Court has no existing stormwater treatment. Retrofit breached farm pond to a new constructed wetland. Repair earthen dam, install outlet structure and vegetate with wetland plants.

**PN9103** Fitz Folly Farms is in need of additional water quality treatment. Construct enhanced extended detention dry pond in empty lot and terraced rain gardens on steeper slopes. Intercept overland flow and stabilize overland and in-stream erosion impacts.

**PN9104** Golden Woods and Crampton subdivisions are in need of additional water quality treatment. Enlarge and retrofit dry pond (0649DP) to enhanced extended detention dry pond with low marsh areas. Replace concrete swale with vegetated swale and check dams.

- PN9105** The Morrison Estate is in need of additional water quality treatment. Retrofit existing dry pond (0677DP) to enhanced extended detention dry pond with low marsh areas. Install rain gardens in two natural drainage areas.
- PN9126** A culvert under Walker Road is collapsed or completely blocked with sediment. Replace road culvert and retrofit upstream pond to a wet retention pond to provide storage and water quality treatment for Squire's Haven subdivision.
- PN9127** Riverbend Estates and Dogwood Hills are in need of water quality treatment. Retrofit two dry ponds to enhanced extended detention dry ponds. Install rain garden around existing inlet. Daylight storm sewer and install vegetated swale with check dams.
- PN9400** Culvert at Potomac Forest Drive is clogging with debris and causing severe erosion downstream. Install micropool with control structure to reduce clogging upstream; install energy dissipation and stabilize stream banks downstream.
- PN9408** Stream is eroded below a shared driveway culvert. Construct micropool above culvert; replace culvert and direct pipe toward new stream channel. Relocate stream channel below culvert away from steep bank; stabilize banks with boulder toe and live stakes.

#### **Clark WMA 25-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 Clark WMA.

- PN9125** Flooding is overtopping road. Improve existing farm pond (FM0029) to a stormwater wet pond, lower water level, install outlet structure and aeration, and improve riparian buffer. Replace culvert, raise road bed and stabilize streambanks.
- PN9401** Construct micropool with outlet structure above culvert at Carrwood Road.
- PN9402** Potomac Ridge Road is threatened by an inadequate culvert and resulting stream erosion. Install micropool above culvert, repair damaged culvert and repair stream erosion downstream.
- PN9405** Improve culvert at Forest Brook Lane by constructing a micropool with outlet structure above culvert to provide water quality and water quantity controls.
- PN9406** Streambanks are eroded downstream of the culvert. Retrofit culvert with control structure to create micro-pool. Repair and stabilize eroded streambanks. Replace concrete trickle ditches with vegetated swales with check dams.

### **Clark WMA Non-Structural Projects**

The following non-structural projects are 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.

**PN9902** Preserve open space and riparian buffers with conservation easement on lower reaches of Clarks Branch. Restore degraded riparian buffers along Clarks Branch.

**PN9903** Targeted Rain Barrel and Homeowner Education Programs at the Beach Mill Farms Subdivision, Club View Ridge Subdivision, Eagon Hills Subdivision, Dogwood Hills Subdivision, Riverbend Estates Subdivision, Walker Hill Estates Subdivision, Arnon Meadow Subdivision and along Club View Drive.

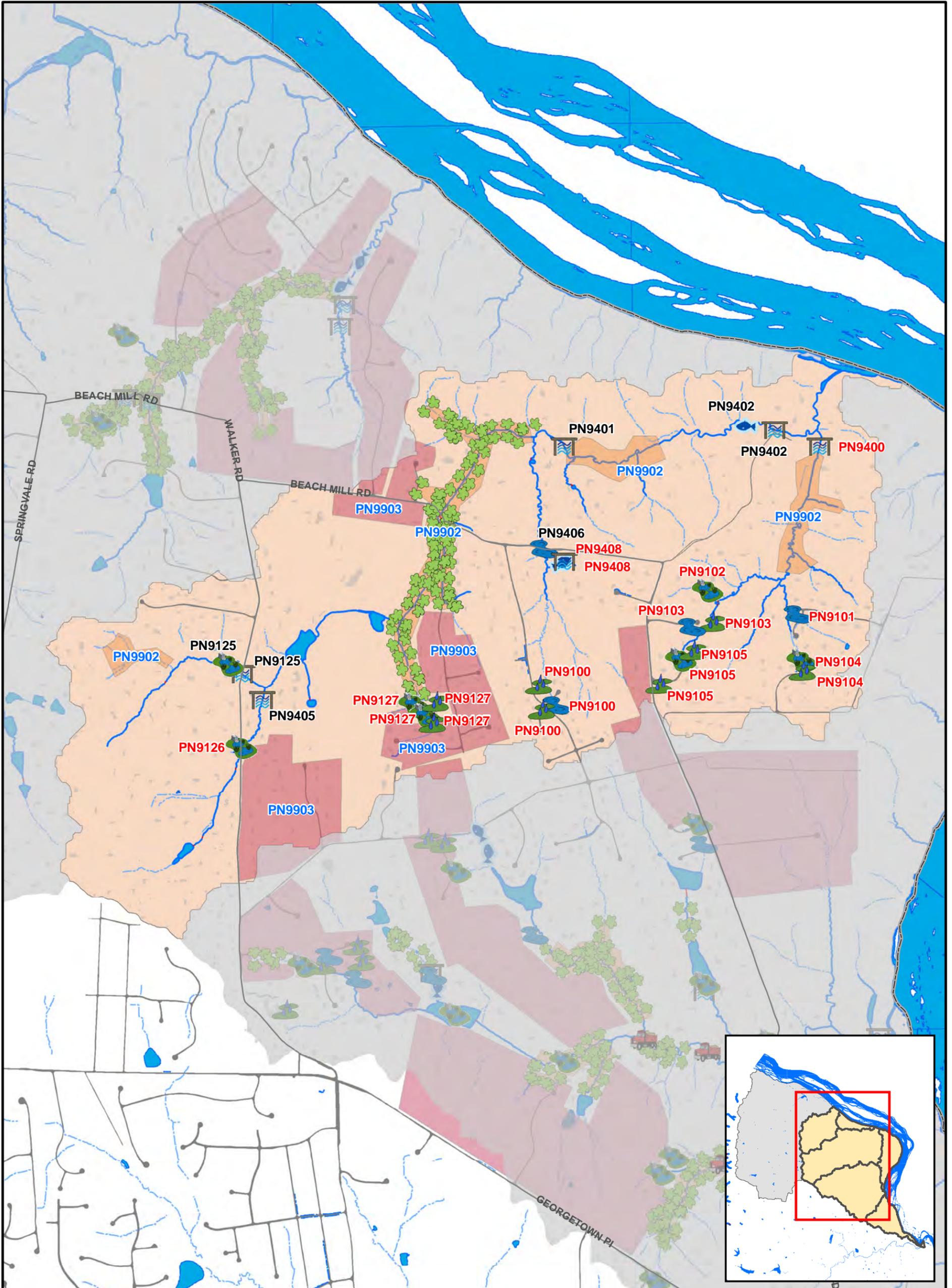
### **10-Year and 25-Year Project Information Tables for Clark WMA**

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

<b>Table 5.4</b>						
<b>Project List – Clark WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9100	New Stormwater Pond, BMP/LID	PN-CL-0004	Riverside Manor Subdivision	Quality/ Quantity	State/ Private	0 - 10
PN9101	New Stormwater Pond	PN-CL-0003	Eaton Court & Eaton Park Road	Quality	Private	0 - 10
PN9102	Stormwater Pond Retrofit	PN-CL-0003	Near River Bend Road & Oak Falls Court	Quality	Private	0 - 10
PN9103	New Stormwater Pond, BMP/LID, Stream Restoration	PN-CL-0003	Fitz Folly Farms Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9104	Stormwater Pond Retrofit, BMP/LID	PN-CL-0003	Golden Woods Subdivision	Quality/ Quantity	County	0 - 10
PN9105	Stormwater Pond Retrofit, BMP/LID	PN-CL-0003	Morison Estate Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9126	Stormwater Pond Retrofit	PN-CL-0008	Squire's Haven Section 2 Subdivision	Quality/ Quantity	Private	0 - 10
PN9127	Stormwater Pond Retrofit, BMP/LID	PN-CL-0006	Eagon Hills & River Bend Estates Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9400	Culvert Retrofit	PN-CL-0002	Potomac Forest Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9408	Stream Restoration	PN-CL-0004	Fitz Folly Farms Subdivision & Riverside Manor Subdivision	Quality/ Quantity	Private	0 - 10
PN9125	Stormwater Pond Retrofit, Culvert Retrofit	PN-CL-0009	Near Walker Road & Forest Brook Lane	Quality/ Quantity	State/ Private	11 - 25
PN9401	Culvert Retrofit	PN-CL-0001	Near Carrwood Road & Bell Drive	Quality/ Quantity	County/ Private	11 - 25

**Table 5.4  
Project List – Clark WMA**

<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9402	Stream Restoration, Culvert Retrofit	PN-CL-0001	Near Potomac Ridge Road & Potomac Forest Drive	Quality/ Quantity	County/ Private	11 - 25
PN9405	Culvert Retrofit	PN-CL-0008	Near Walker Road & Forest Brook Lane	Quality/ Quantity	County/ Private	11 - 25
PN9406	New Stormwater Pond	PN-CL-0004	Riverside Manor Subdivision	Quality/ Quantity	State/ County/ Private	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
PN9902	Conservation, Buffer Restoration	PN-CL-0001/ 02/05/09	Riparian Areas along Lower Reaches of Clarks Branch	Quality/ Quantity	Private	
PN9903	Rain Barrel Program	PN-CL-0005/ 06/08	Club View Ridge, Beach Mill Farms, Eagon Hills, Dogwood Hills, Riverbend Estates, Walker Hill Estates, & Arnon Meadow Subdivisions	Quality	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
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.

- 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

# Map 5.4

WMA: Pond - Clark  
Proposed Projects



## 5.2.2 Mine Run WMA

### **Description of Key WMA Conditions**

Approximately 18 percent of the Mine Run WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Mine Run WMA contains 11 existing stormwater facilities. Approximately 96 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Mine Run WMA contributes approximately 26 percent of the total suspended solids, 34 percent of the total nitrogen and 32 percent of the total phosphorus annual loads to the Pond Branch Watershed.

### **Mine 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 Mine Run WMA.

- PN9108** The area near the northern Deerfield Court cul-de-sac is in need of additional water quality treatment. Construct new enhanced extended detention dry pond. Replace rip-rap swale with vegetated infiltration trench and check dams and install a new rain garden upstream of driveway culvert.
- PN9109** Retrofit an existing non-stormwater pond in Deerfield Pond Subdivision to wet retention pond with increased storage. Improve wetland vegetation above road culvert and add outlet structure to create a new constructed wetland. Install a rain garden around existing inlet on corner.
- PN9110** Install a bioretention area behind the Great Falls Elementary School, along the lower end of the basketball courts. Install educational signage and institute educational programs.
- PN9111** Retrofit existing non-stormwater wet pond (WP0209) located in the Marmota Farm Subdivision to wet retention pond by installing proper outlet structure, constructing sediment forebay in western inlet and lowering water level slightly to provide storage. Repair stream erosion above pond. Install a micropool upstream of road culvert and a constructed wetland below culvert.
- PN9112** The area around the Rossmore Court cul-de-sac does not have existing stormwater treatment. Retrofit existing farm pond to a wet retention pond and enlarge pond for additional storage capacity. Restore riparian buffer around pond and upstream.
- PN9113** Arnon Lake Subdivision does not have existing stormwater treatment. Install a new constructed wetland in a low clearing within the forested area adjacent to a private driveway.
- PN9114** The Arnon Ridge area is in need of additional water quality treatment. Retrofit naturalized dry pond (0182DP) to enhanced extended detention dry pond by installing

outlet structure. Replace concrete and grass swales with vegetated swales and check dams.

**PN9117** Expand existing dry pond (0303DP) to intercept drainage from Monalaine Court; retrofit to naturalized extended detention dry pond. Construct new naturalized extended detention basin in existing depression near Lagovista Ct. and daylight stormwater pipe from Riverbend Road.

**PN9118** Retrofit existing farm pond (FM0002) near River Bend Road & Hidden Springs Road to wet retention pond; install outlet structure and lower water level for additional storage. Repair and stabilize erosion impacts to spillway and downstream channel and culvert at River Bend Road.

**PN9119** Fallswood subdivision is in need of additional water quality treatment. Retrofit existing dry pond (1443DP) to naturalized extended detention dry pond with a new outlet structure and naturalized vegetation.

**PN9120** This area of Cornwell Farm subdivision does not have existing stormwater treatment. Retrofit two existing ponds to wet retention ponds; install outlet structures and lower water levels for additional storage, plant emergent and riparian vegetation.

**PN9122** Streambanks of the Mine Run Branch in the Jackson Hills Subdivision are incised and undercut. Re-grade and stabilize erosion impacts upstream of Riverbend Road. Retrofit nearby farm pond to wet retention pond to provide storage and water quality treatment for homes along Riverbend Road.

**PN9124** This area of Jackson Hills does not have existing stormwater treatment. Retrofit existing pond to a wet retention pond; install outlet structure and lower the water level for additional storage, and plant emergent and riparian vegetation.

**PN9200** A tributary of the Mine Run Branch in the Arnon Lake Subdivision is lengthening and eroding meanders. Re-construct stream channel to start meander below Arnon Chapel Road and lengthen stream more evenly to reduce potential for erosion at downstream tight meanders and sediment deposition in the downstream pond.

### **Mine Run WMA 25-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 Mine Run WMA.

**PN9121** Improve existing farm pond (FM0009) to stormwater wet pond, install outlet structure, lower water level, install aeration, and encourage wetland growth. Improve existing farm pond to constructed wetland, install outlet structure and wetland vegetation.

**PN9404** Culvert at Old Dominion Drive is too small to properly convey stormwater flows. Increase culvert size and repair stream erosion above and below culvert using instream structures to direct the stream energy away from streambanks.

**Mine Run WMA Non-Structural Projects**

The following non-structural projects are 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.

**PN9904** Preserve open space and riparian buffers with conservation easement along headwater reaches of Mine Run Branch. Restore degraded riparian buffers along Mine Run Branch throughout Mine Run watershed.

**PN9905** Targeted Rain Barrel and Homeowner Education Programs at the Jackson Hills Subdivision, Cornwell Farm Subdivision, Weant Subdivision, Washington Great Falls Survey Subdivision, Great Falls Estates Sec. 2 Subdivision, Maria Avenue Subdivision, Deer Park Subdivision, Riverside Meadows Subdivision, Laylin Family Trust, Arnon Ridge Subdivision, Chamborley subdivision, John W. Hanes Jr. Gunnell Run Farm, Deerfield Pond Subdivision and Deerfield Farm Subdivision. Educate homeowners regarding riparian buffers and landscaping in headwaters areas at the John W. Hanes Jr. Gunnell Run Farm, Deerfield Pond, and Deerfield Farm Subdivisions.

**PN9906** Remove obstructions at SPA points PNMR5-2-O5, PNMR5-2-O8 to O10 and PNMR004-T002 in the Cornwell Farm Subdivision.

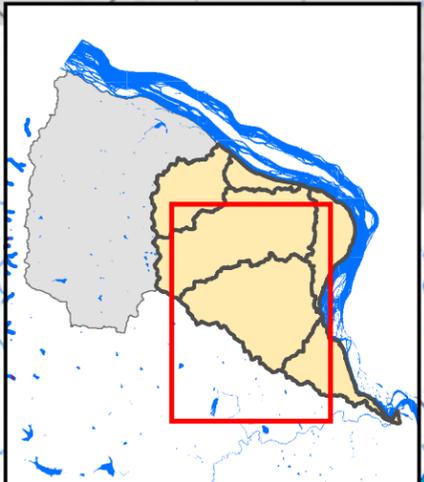
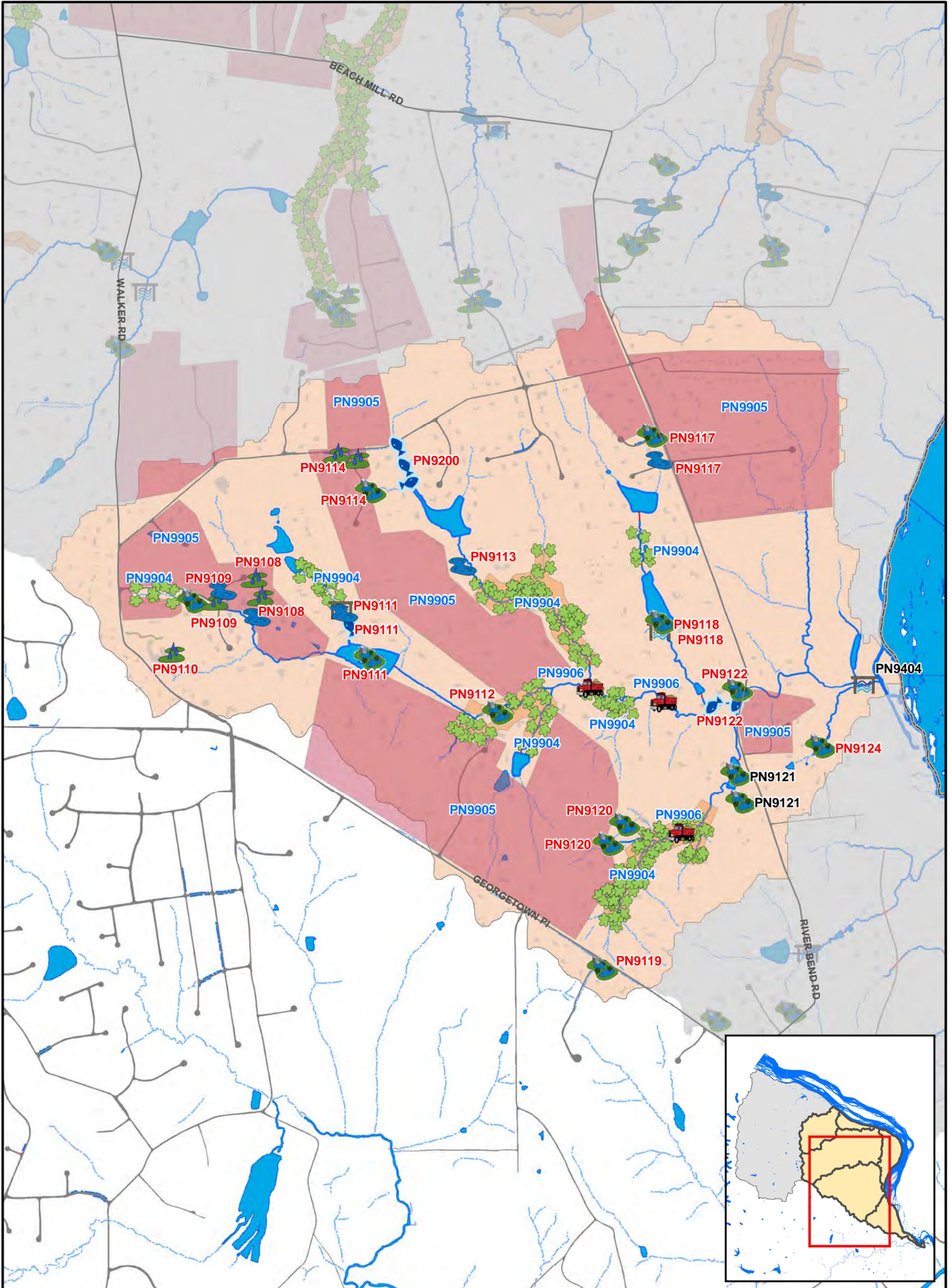
**10-Year and 25-Year Project Information Tables for Mine Run WMA**

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

<b>Table 5.5</b>						
<b>Project List – Mine Run WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9108	New Stormwater Pond, BMP/LID	PN-MR-0008	Near northern Deerfield Court cul-de-sac	Quality/ Quantity	County/ Private	0 - 10
PN9109	New Stormwater Pond, Stormwater Pond Retrofit, BMP/LID	PN-MR-0008	Deerfield Pond Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9110	BMP/LID, Education	PN-MR-0008	Great Falls Elementary School	Quality	County	0 - 10
PN9111	New Stormwater Pond, Stormwater Pond Retrofit, Culvert Retrofit, Stream Restoration	PN-MR-0008	Marmota Farm Subdivision	Quality/ Quantity	Private	0 - 10
PN9112	Stormwater Pond Retrofit	PN-MR-0007	Near Rossmore Court cul-de-sac	Quality/ Quantity	Private	0 - 10
PN9113	New Stormwater Pond	PN-MR-0006	Arnon Lake Subdivision	Quality	Private	0 - 10
PN9114	Stormwater Pond Retrofit, BMP/LID	PN-MR-0006	Arnon Ridge Subdivision	Quality/ Quantity	County/ Private	0 - 10
PN9117	New Stormwater Pond, Stormwater Pond Retrofit	PN-MR-0005	Monalaine Court & River Bend Road	Quality/ Quantity	County/ Private	0 - 10

**Table 5.5  
Project List – Mine Run WMA**

<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9118	Stormwater Pond Retrofit, Culvert Retrofit	PN-MR-0005	Near River Bend Road & Hidden Springs Road	Quality/ Quantity	Private	0 - 10
PN9119	Stormwater Pond Retrofit	PN-MR-0004	Fallswood Subdivision	Quality/ Quantity	Private	0 - 10
PN9120	Stormwater Pond Retrofit	PN-MR-0004	Cornwell Farm Subdivision	Quality/ Quantity	Private	0 - 10
PN9122	Stormwater Pond Retrofit, Stream Restoration	PN-MR-0003	Jackson Hills Subdivision	Quality/ Quantity	Private	0 - 10
PN9124	Stormwater Pond Retrofit	PN-MR-0001	Jackson Hills Subdivision	Quality/ Quantity	Private	0 - 10
PN9200	Stream Restoration	PN-MR-0006	Arnon Lake Subdivision	Quality	Private	0 - 10
PN9121	Stormwater Pond Retrofit	PN-MR-0004	Jackson Hills Subdivision	Quality/ Quantity	Private	11 - 25
PN9404	Culvert Retrofit	PN-MR-0001	Great Falls Park	Quality	Federal	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
PN9904	Conservation, Buffer Restoration	PN-MR-0003/ 04/05/06/07/08	Riparian Areas along Headwaters of Mine Run Branch	Quality/ Quantity	County/ Private	
PN9905	Rain Barrel Program	PN-MR-0001/ 02/03/04/05/ 06/07/08	Jackson Hills, Great Falls Estates, Weant, Riverside Meadow, Potomac Meadows, Laylin Family Trust, John W. Hanes Jr. Gunnell's Run Farm, Arnon Ridge, River Bend Forest Sec. 2, Cornwell Farm, Marmota Farm, Deerfield Farm & Deerfield Pond Subdivisions	Quality	County/ Private	
PN9906	Obstruction Removal	PN-MR-0003/04	Cornwell Farm Subdivision	N/ A	County/ Private	



<p>0 0.125 0.25 Miles</p>	<ul style="list-style-type: none"> <li> Buffer Restoration</li> <li> Stream Restoration</li> <li> BMP/LID</li> <li> Culvert Retrofit</li> <li> Dumpsite/Obstruction Removal</li> </ul>	<ul style="list-style-type: none"> <li> New Stormwater Pond</li> <li> Outfall Improvement</li> <li> Stormwater Pond Retrofit</li> <li> Other</li> </ul> <p>Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.</p>	<ul style="list-style-type: none"> <li> Area-wide Drainage Improvement</li> <li> Community Outreach/Public Education</li> <li> Land Conservation Project</li> <li> Flood Protection/Mitigation</li> <li> Inspection/Enforcement Enhancement</li> <li> Rain Barrel Program</li> <li> Street Sweeping Program</li> <li> Studies, Surveys and Assessments</li> </ul>	<h2 style="text-align: center;">Map 5.5</h2> <p style="text-align: center;">WMA: Pond - Mine Run Proposed Projects</p>
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### 5.2.3 Pond WMA

#### **Description of Key WMA Conditions**

Approximately 12 percent of the Pond WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Pond WMA contains 2 existing stormwater facilities. Approximately 97 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Pond WMA contributes approximately 12 percent of the total suspended solids, 17 percent of the total nitrogen and 16 percent of the total phosphorus annual loads to the Pond Branch Watershed.

#### **Pond 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 Pond WMA.

**PN9116** Flooding is overtopping Beach Mill Road near Springvale Road and causing erosion at two road culverts. Install outlet structure in wet pond (WP0202) to provide storage. Raise the road bed, install larger culverts, and stabilize streambanks above and below the culverts.

**PN9123** This area of Southdown Farm Subdivision does not have existing stormwater treatment. Retrofit an existing pond to a wet retention pond; install outlet structure and lower the water level for additional storage, and plant emergent and riparian vegetation.

**PN9201** High energy stormflows and obstructions have caused severe erosion and washed out a pedestrian bridge near River Park Drive in the Riverbend Knolls Subdivision. Replace bridge; stabilize banks; install step pools and instream structures to dissipate energy and direct energy away from banks.

#### **Pond WMA 25-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 Pond WMA.

**PN9407** Driveway culvert to 198 River Park Drive is undersized; replace culvert with bridge to allow proper conveyance of stormwater flows and reduce likelihood of clogging with debris. Stormwater behind 180 River Park Drive is bypassing blocked/damaged stormwater culvert; replace culvert, re-direct stormwater into culvert and repair damage to gravel road.

**Pond WMA Non-Structural Projects**

The following non-structural projects are 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.

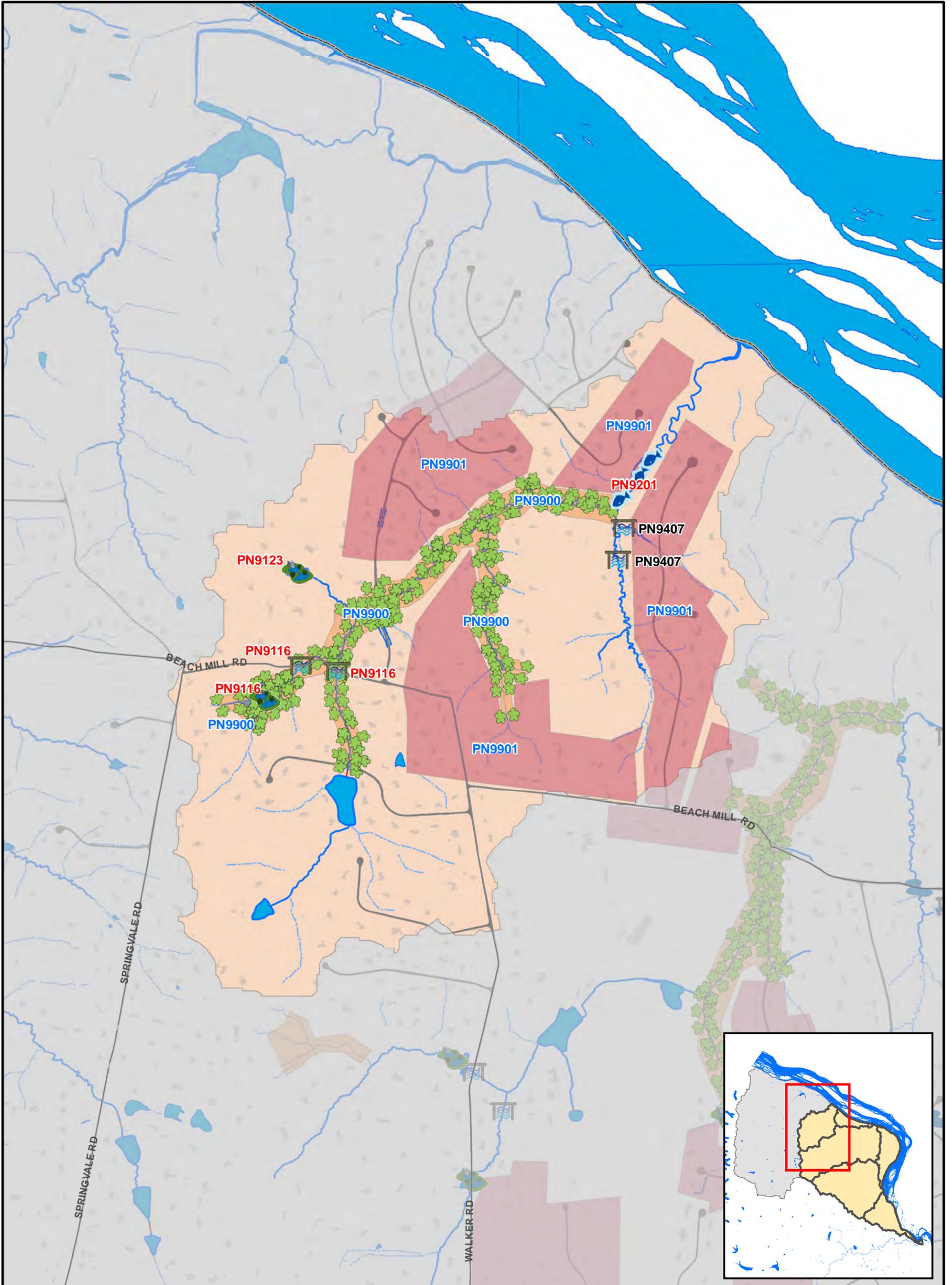
**PN9900** Preserve open space and riparian buffers with conservation easement along headwater reaches of Pond Branch. Restore degraded riparian buffers along Pond Branch.

**PN9901** Targeted Rain Barrel Program at the Deepwoods Hollow Subdivision, Riverbend Knolls Subdivision, Riverbend Farms Subdivision, Merryelle Acres Subdivision, Falcon Ridge Subdivision and adjacent to Beach Mill Road.

**10-Year and 25-Year Project Information Tables for Pond WMA**

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

<b>Table 5.6</b>						
<b>Project List – Pond WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9116	Stormwater Pond Retrofit, Culvert Retrofit	PN-PN-0004	Near Beach Mill Road & Springvale Road	Quality/ Quantity	County/ Private	0 - 10
PN9123	Stormwater Pond Retrofit	PN-PN-0003	Near Bliss Lane & Commonage Drive	Quality/ Quantity	Private	0 - 10
PN9201	Stream Restoration	PN-PN-0001	Riverbend Knolls Subdivision	Quality	County/ Private	0 - 10
PN9407	Culvert Retrofit	PN-PN-0002	Near River Park Drive & River Park Lane	N/ A	County/ Private	11 - 25
<b>Non-Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	
PN9900	Conservation, Buffer Restoration	PN-PN-0004	Riparian Areas along Headwaters of Pond Branch	Quality/ Quantity	Private	
PN9901	Rain Barrel Program	PN-PN-0001	Deepwoods Hollow, Riverbend Knolls, Riverbend Farm, Riverbend Farm Sec. 1, Merryelle Acres, Rector, & Falcon Ridge Subdivisions	Quality	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
- Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years Blue = Non-Structural.

- 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

## Map 5.6

WMA: Pond Branch  
Proposed Projects



## 5.2.4 Potomac (Pond) WMA

### **Description of Key WMA Conditions**

Approximately 78 percent of the Potomac WMA consists of undeveloped open space. The expected changes in land use show a decrease in this open space and an increase in estate residential land uses. The development of green spaces causes greater volumes of stormwater run off and more intense peak flows. Loss of open space also leads to degraded wildlife habitat, increased pollutants in stormwater runoff and worsening stream conditions.

The Potomac WMA contains 2 existing stormwater facilities. Approximately 97 percent of this WMA is not treated by an existing stormwater facility. According to the existing condition STEPL model results, the Potomac WMA contributes approximately 33 percent of the total suspended solids, 15 percent of the total nitrogen and 18 percent of the total phosphorus annual loads to the Pond Branch Watershed.

### **Potomac WMA 10-Year Projects**

There are no 10-year structural projects proposed in the Potomac WMA.

### **Potomac WMA 25-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 Potomac WMA.

**PN9106** Retrofit dry pond 1197DP to naturalized extended detention dry pond with naturalized basin bottom and improved outlet structure to provide additional water quality and water quantity control.

**PN9107** Retrofit Dry Pond DP0245 to extended detention dry pond. Retrofit outlet structure for extended detention, construct berm on south corner for additional capacity, and naturalize basin bottom with aesthetic meadow plants.

**PN9403** Culvert at Riverbend Road is too small to properly convey stormwater flows. Raise road bed above flood level, increase culvert size and install micropool with outlet structure above culvert to provide additional stormwater control.

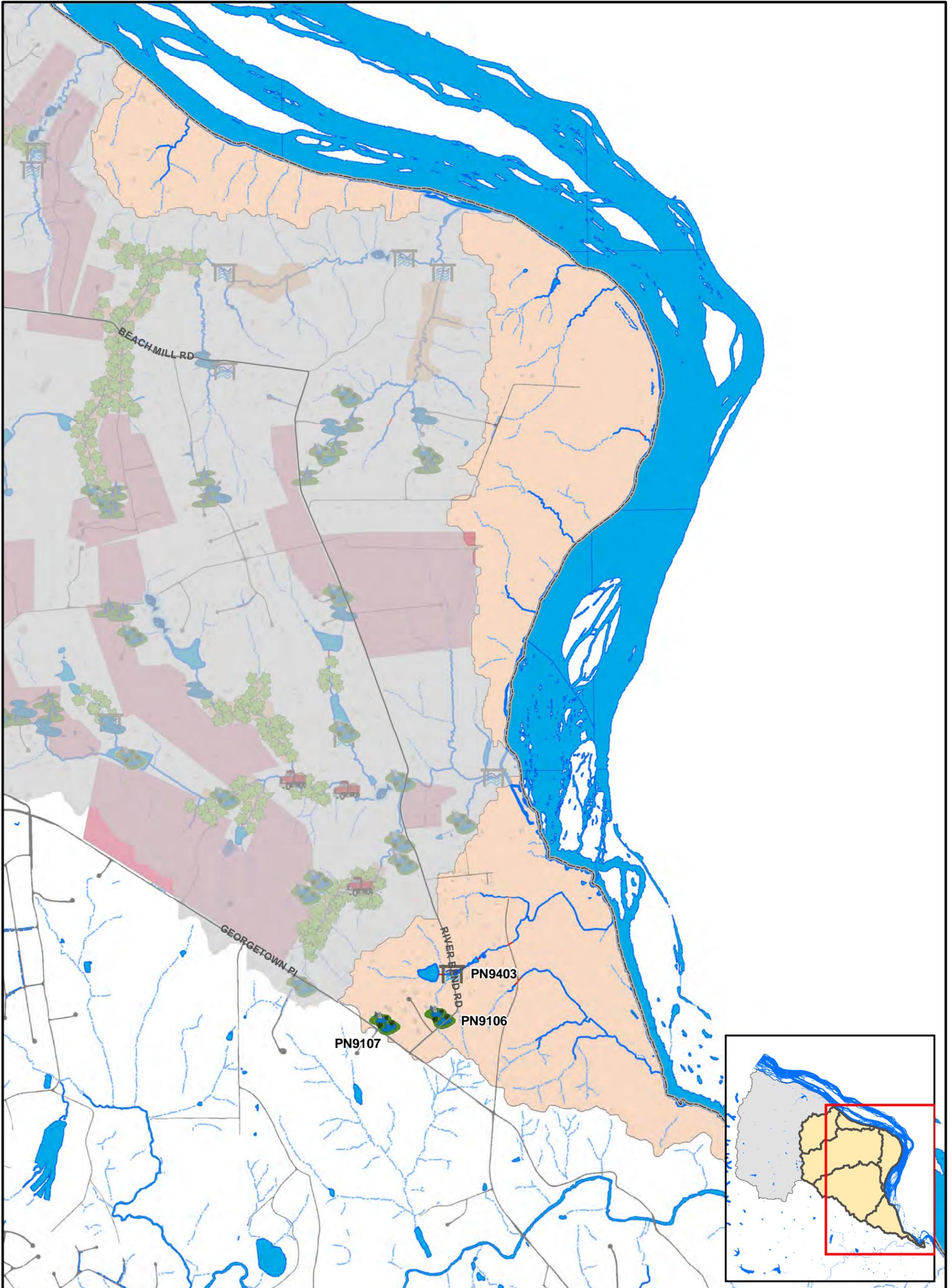
### **Potomac WMA Non-Structural Projects**

There are no non-structural projects proposed in the Potomac WMA.

**10-Year and 25-Year Project Information Tables for Potomac WMA**

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

<b>Table 5.7</b>						
<b>Project List – Potomac WMA</b>						
<b>Structural Projects</b>						
<b>Project #</b>	<b>Project Type</b>	<b>Subwatershed</b>	<b>Location</b>	<b>Watershed Benefit</b>	<b>Land Owner</b>	<b>Phase</b>
PN9106	Stormwater Pond Retrofit	PN-PO-0006	Riverbend Subdivision	Quality/ Quantity	County	11 - 25
PN9107	Stormwater Pond Retrofit	PN-PO-0006	St. Francis Episcopal Church	Quality/ Quantity	County	11 - 25
PN9403	Culvert Retrofit	PN-PO-0005	Great Falls Heights Subdivision	Quality/ Quantity	County/ Private	11 - 25



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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 Blue = Non-Structural.

# Map 5.7

WMA: Pond - Potomac  
Proposed Projects

