

Glossary

A

Acre: A measure of land area equal to 43,560 square feet.

B

Best Management Practice (BMP): A practice designed to lessen the impacts of changes in land use on surface water and *groundwater*. Also called stormwater management (SWM) facilities. Structural BMPs are physical structures which generally involve engineering, design and construction. Non-structural BMPs are more programmatic and usually focus on controlling stormwater at the source.

Bioretention: A water quality practice that uses landscaping and soils to collect and treat urban stormwater runoff. Water is collected in shallow depressions in the ground and allowed to slowly filter through a layer of filter media and soil, while plants take up water and nutrients.

Build-out: The total potential land development area based on current and future land development and zoning plans.

Buffer: An area of plant cover next to shorelines, wetlands, or streams. See also, *Resource Protection Area* and *Riparian Buffer*.

C

Channel: A natural or manmade waterway.

Confluence: The point where two or more streams join to create a combined, larger stream.

D

Deposition: The process in which particles (e.g., silt, sand, gravel) in the water settle to the stream bottom. Too much deposition can create a thick layer of particles on the stream bottom causing a loss of habitat and spawning areas for *aquatic* insects and fish. Stream bank erosion is a common source for the particles.

Detention: The temporary storage of stormwater runoff used to control peak runoff amounts and provide time for the gradual settling of pollutants.

Discharge: The volume of water that passes a given location within a given period of time, usually expressed for stream flow and stormwater in cubic feet per second.

Dissolved Oxygen (DO): The amount of oxygen that is present in a liquid. An adequate supply of oxygen is necessary to support life in a body of water. Measuring the amount of dissolved oxygen in water provides a means of determining the water quality.

Drainage: The removal of excess surface water or *groundwater* from land.

Drainage Area: The area of land draining to a single outlet point.

Dry Pond: See *Detention Basin*.

Detention Basin: A stormwater management pond that temporarily holds runoff and slowly releases it to a downstream stormwater system. Since a detention basin holds runoff only temporarily, it is normally dry during periods of no rainfall. (Also called a *Dry Pond*.)

Dwelling Unit: A residential building or part of a building intended for use as a complete, independent living facility.

E

Ecosystem: All of the organisms in an ecological community and their environment that together function as a unit.

Effluent: Water that flows from a sewage or other type of treatment plant after it has been treated.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents. In streams, erosion is the removal of soil from the stream banks or streambed by rapid flows.

Estuary: A partially enclosed body of water where freshwater from rivers and streams mixes with salty seawater. Although influenced by the tides, estuaries are protected from the full force of ocean waves, winds, and storms by the reefs, barrier islands, or fingers of land, mud, or sand.

Eutrophication: The process of over-enrichment of waterbodies by nutrients, often resulting in excess algae. Excess algae reduces dissolved oxygen in water, required for living organisms.

Evapotranspiration: The loss of water to the atmosphere from the earth's surface by both evaporation and by *transpiration* through plants.

F

Fecal Coliform Bacteria: A group of organisms that live in the intestinal tracts of humans and animals. The presence of fecal coliform bacteria in water is an indicator of pollution from human and/or animal excrement.

Filter Strips: A vegetated area that treats *sheet flow* and/or interflow by removing sediment and other pollutants. The area may be grass-covered, forested or of mixed vegetative cover (e.g., wildflower meadow).

Fish Passage: Unobstructed movement of fish within the stream system. Fish require the ability to move between various habitat types and during migration.

Flood limit: Those land areas in and adjacent to streams subject to continuous or periodic inundation from flood events. A 100-year flood limit is an area with a 1 percent chance of inundation in any given year. Differs from a floodplain, in that a floodplain is an ecosystem adjacent to a stream which undergoes fairly frequent inundation.

Forebay: A small storage area near the inlet of a stormwater pond to trap incoming sediment where it can be removed easily before it can accumulate in the pond.

G

Gabion: A wire basket or cage that is filled with rock, used to stabilize stream banks, change flow patterns, or prevent erosion.

Geographic Information System (GIS): A computer system for mapping and spatial analysis.

Geomorphological: Pertaining to geological structure or landforms.

Groundwater: Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturated zone is called the water table.

H

Headwater: The source of a stream or watercourse.

Hydraulics: The physical science and technology of the stationary and active behavior of fluids.

Hydrology: The science dealing with the distribution and movement of water, including the hydrologic cycle of rainfall, runoff, groundwater flow, surface water flow, and evaporation.

I

Impervious Surface: A surface composed of any material that impedes or prevents *infiltration* of water into the soil. Impervious surfaces include roofs, buildings, streets, and parking areas. Also called impervious cover.

Infiltration: The process by which water drains into the ground. Some of this water will remain in the shallow soil layer, where it will gradually move through the soil and subsurface material. Eventually, it might enter a stream by seepage out of a stream bank or it may penetrate deeper, recharging *groundwater aquifers*.

Infiltration Facility: A stormwater management facility that temporarily stores runoff so it can be absorbed into the surrounding soil. Since an infiltration facility confines runoff only temporarily, it is normally dry during periods of no rainfall. Infiltration ponds, infiltration trenches, infiltration dry wells, and porous pavement are considered infiltration facilities.

L

Land Development: A man-made change to, or construction on, the land surface.

Land Use: Describes the type of activity on the land such as commercial or residential. The County zoning requirements dictates the type of land use allowed for a given area.

Low-Impact Development (LID): A suite of stormwater management techniques that reduces the stormwater impacts from new development or redevelopment, which combines site design and onsite treatment techniques. Site design can include reducing the amount of *impervious surfaces* and designing the site to take advantage of the natural conditions can reduce the amount of runoff produced by a development area. Onsite treatments include techniques such as vegetated swales and *bioretention* filters or basins to reduce runoff rates and promote *infiltration*.

M

Marsh: A wet land area, periodically inundated with water.

Micropool: A small permanent pool in a larger stormwater pond system, usually at the pond outlet to provide additional settling of pollutants.

Mitigation: To make a development scenario less harmful than the original plan; or to provide a habitat in another more conducive, larger, or better-suited area, typically in a different location from the original.

Municipal Separate Storm Sewer System (MS4) Permit: An NPDES (National Pollutant Discharge Elimination System) permit issued to municipalities requiring the reduction in pollutants contributing to the discharges from the municipality's storm sewer system outfalls.

N

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, monitoring, and enforcing permits under Sections 307, 402, 318 and 405 of the Clean Water Act. The NPDES permits regulate wastewater and stormwater discharges to the waters of the United States, and are administered by the Virginia Department of Environmental Quality and Virginia Department of Conservation and Recreation.

Nitrogen: A chemical element that occurs naturally as a gas and makes up 78 percent of the atmosphere. Combined with oxygen as nitrate, it is required by plants for growth and is found in most fertilizers. Too much nitrogen in the water can cause *eutrophication* and result in excess algal blooms, reducing the amount of oxygen available to aquatic life.

Nutrient: A substance that provides food or nourishment. In the aquatic environment, nutrients refer to compounds of phosphorus, nitrogen, and potassium that contribute to *eutrophication*.

O

Open Space: A portion of a development site that is permanently set aside for public or private use and will not be developed. The space may be used for recreation, or may be reserved to protect or buffer natural areas.

Outfall: Defined in the *NPDES* program as the point where discharge from a regulated system flows into waters of the United States.

Outlet: The point at which water flows from one waterbody to another, such as a stream or river to a lake or larger river.

P

Peak Discharge: The maximum flow rate at a given location during a rainfall event. Peak discharge is a primary design factor for the design of stormwater runoff facilities such as pipe systems, storm inlets and culverts, and swales.

Perennial Stream: A body of water that normally flows year-round, supporting a variety of aquatic life.

Pervious: Any material that allows for the passage of liquid through it. Any surface area that allows *infiltration*.

Phosphorus: An element found in fertilizers and soil that can contribute to the *eutrophication* of waterbodies. It is the keystone pollutant in determining pollutant removal efficiencies for various *best management practices* as defined by the Virginia Stormwater Management Regulations.

Pollutant: Any substance introduced to water that degrades its physical, chemical, or biological quality.

Pollutant Loading: The rate at which a pollutant enters a surface water or *groundwater* system. This is typically determined by water quality modeling and expressed in terms such as pounds per acre, per year.

Pollution Prevention: Any activity intended to reduce or eliminate stormwater pollution by reducing the amount of runoff, or by reducing the opportunity for stormwater to wash off and transport pollutants downstream.

Pool: The reach of a stream between two *riffles*; a small and relatively deep body of quiet water in a stream or river. Natural streams often consist of a succession of pools and riffles.

Post-Development: Refers to conditions that exist after completion of a land development activity on a specific site or tract of land.

Pre-Development: Refers to the conditions that exist at the time that plans for land development of a tract of land are approved by the plan approval authority.

Programmatic Indicators –After the plans are adopted, these will assess outcomes of resource protection and restoration activities (“What’s the County doing about the problem, and how is it doing?”).

Q

Quantity Control: *Stormwater management facilities* designed to reduce *post-development peak discharge* to the *peak discharge* that occurred in the *pre-development* conditions, or to reduce the amount of runoff.

Quality Controls: *Stormwater management facilities* designed to remove *pollutants* from *runoff* and improve water quality.

R

Rain Barrel: A storage container connected to a roof downspout, typically including a hose attachment to allow for reuse of rooftop runoff.

Reach: General term used to describe a length of stream.

Recharge: The downward movement of water through the soil into *groundwater*; for example, rainfall that seeps into a groundwater aquifer.

Redevelopment: The substantial alteration, rehabilitation, or rebuilding of a property for residential, commercial, industrial, or other purposes.

Regional Ponds: Larger stormwater management facilities designed to treat the runoff from drainage areas of 100 to 300 acres.

Resource Protection Area (RPA): As established in accordance with Chapter 118 of the Code of County of Fairfax, Virginia, that component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline or water’s edge that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts that may result in significant degradation of the quality of state waters.

Retention: The permanent storage of stormwater.

Retention Basin: A stormwater management pond that permanently stores water for the purpose of improving water quality. It is normally wet, even during periods without rainfall. Stormwater runoff may be temporarily stored above this impoundment for the purpose of reducing flooding or stream channel erosion. Also called a *Wet Pond*.

Retrofit: The modification of stormwater management systems through the modification of wet ponds, wetland plantings, or other *best management practices* designed to improve water quality or to change characteristics of peak discharge control.

Riparian Buffer: Strips of grass, shrubs, and/or trees along the banks of rivers and streams that filter polluted runoff. These buffers provide a transition zone between water and human land use. Buffers are also complex ecosystems that provide habitat and improve the stream communities they shelter.

Riprap: A protective layer of large stones placed on a streambank to prevent erosion.

Riffle: A reach of stream that is characterized by shallow, fast-moving water broken by the presence of rocks and boulders.

Riffle/Run: Streams that are generally characterized by a high slope (gradient), and a mixture of riffle and run habitat.

Runoff: The portion of precipitation, snowmelt, or irrigation water that flows off the land into surface waters instead of *infiltrating*.

Run: A segment of stream length that is characterized by moderate depths, smooth flowing water at a moderate pace. A run is intermediate between a *riffle* and a *pool*.

S

Scour: Removal of sediment from the streambed and banks caused by fast moving water. See also *Erosion*.

Sedimentation (Settling): In a water resources context, sedimentation refers to a pollutant removal method in which pollutants are removed by gravity as sediment settles out of the water column. An example of a *best management practice* using sedimentation is a *detention pond/wet pond*.

Sheet Flow: Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.

Source Indicators – Quantify the presence of a potential stressor or pollutant source (“Is there a problem, and what’s causing it?”)

Stakeholder: Stakeholders include groups of people within the watershed (e.g., residents, industry, local government, agencies, and community groups), as well as those who work in the *watershed*.

Storm Drain: A man-made drainage system that carries only surface runoff, street wash, and snow melt from the land. In a separate storm sewer system, storm sewers are completely separate from sanitary sewers that carry wastewater. In a combined sewer, a single conveyance system carries both stormwater and wastewater..

Stormwater: Surface water flow that results from rainfall.

Stormwater Management (SWM) Facility: A structure, such as a pond, that controls the quantity and quality of stormwater runoff.

Stormwater Outfall: A single location, pipe discharge, or outlet structure that releases stormwater into a stream, river, or pond.

Stormwater Ponds: A depression or dammed area with an outlet device that controls stormwater outflow. Stormwater ponds retain water from upstream areas, thereby reducing peak flows downstream. In Fairfax County, stormwater ponds are either dry (*dry pond*) or contain a permanent pool of water (*wet pond*) and are typically designed to control the peak runoff rate for selected storm events.

Stormwater Wetlands: Areas intentionally designed to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

Stream Restoration: The reestablishment of the structure and function of a stream, as closely as possible to its pre-existing condition.

Substrate: The material forming the bottom of a stream channel. Channel materials are generally broken into categories (listed smallest to largest) such as clay, silt, sand, gravel, cobble and boulder.

Subwatershed: In this plan, a subwatershed is the smallest area used for analysis, typically 100 to 300 acres in size.

Suspended solids: Particles that are suspended in and carried by the water. The term includes sand, mud, and clay particles as well as solids in wastewater.

Swale: A natural depression or wide shallow ditch used to temporarily store, route, or filter runoff.

T

Transpiration: The process by which water vapor escapes from living plants and enters the atmosphere. Studies have shown that about 10 percent of the moisture found in the atmosphere is released by plants through transpiration.

Tree Canopy Cover: The area directly beneath the crown and within the drip line of a tree.

Turbidity: The amount of solid particles that are suspended in water, making it cloudy or even opaque in extreme cases.

W

Watershed: An area of land that drains directly, or through tributary streams, into a particular river or waterbody. A watershed includes its associated groundwater. Elevated landforms, such as ridges or even roads can serve as watershed divides.

Watershed Impact Indicators: Measure the extent that reversal or prevention of a particular watershed impact, sought by the goals and objectives, has been achieved ("What's there now, and how is it doing?")

Watershed Management Area: A subdivision of a watershed, approximately four square miles in size. Used by the County for planning and management.

Wetlands: Areas where the soil or substrate is saturated with water during at least a part of the growing season. These saturated conditions determine the types of plants and animals that live in these areas.

Wet Pond: See *Retention Basin*

This page intentionally left blank.

Acronyms

BMP	Best Management Practice
BPJ	Best Professional Judgment
BST	Bacteria Source Tracking
CBA	Cost Benefit Analysis
DCIA	Directly Connected Impervious Area
DCR	Department of Conservation and Recreation
DO	Dissolved Oxygen
DPWES	Fairfax County Department of Public Works and Environmental Services
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
HEC-RAS	Hydrologic Engineering Center River Analysis System
HOA	Home Owners Association
IBI	Index of Biological Integrity
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetland Inventory
PCB	Polychlorinated Biphenyl
RPA	Resource Protection Area
SPA	Stream Physical Assessment
SPS	Stream Protection Strategy
STEPL	Spreadsheet Tool for Estimating Pollutant Load
SWM	Stormwater Management
SWMM	Stormwater Management Model
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solid
USACE	U.S. Army Corps of Engineers
USGS	United States Geological Services
USLE	Universal Soil Loss Equation
VDOT	Virginia Department of Transportation
VPDES	Virginia Pollutant Discharge Elimination System
WVPP	Virginia Water Protection Permit
WAG	Watershed Advisory Group
WMA	Watershed Management Area
WMP	Watershed Management Practice

