

7.0 Glossary and Acronyms

Acre – A measure of land equating to 43,560 square feet.

Aquatic Habitat – The wetlands, streams, lakes, ponds, estuaries and streamside (riparian) environments where aquatic organisms (e.g., fish, benthic macroinvertebrates) live and reproduce; includes the water, soils, vegetation and other physical substrate (rocks, sediment) upon and within which the organisms occur.

Benthic Macroinvertebrate – An aquatic animal lacking a backbone and generally visible to the unaided eye.

Best Management Practice (BMP) – A structural or nonstructural practice that is designed to minimize the impacts of changes in land use on surface and groundwater systems. Structural best management practices refer to basins or facilities engineered for the purpose of reducing the pollutant load in stormwater runoff, such as bioretention, constructed stormwater wetlands, etc. Nonstructural best management practices refer to land use or development practices that are determined to be effective in minimizing the impact on receiving stream systems such as the preservation of open space and stream buffers, disconnection of impervious surfaces, etc.

Bioengineering – Combines biological (live plants) and engineering (structural) methods to provide a streambank stabilization method that performs natural stream functions without habitat destruction.

Bioretention System (Rain Garden) – A stormwater BMP consisting of a shallow surface depression planted with native vegetation to capture, treat and infiltrate stormwater.

Channel Evolution Model (CEM) – The geomorphologic assessment of the incised stream channels developed by Schumm et. al.

Channel – A natural or manmade waterway.

Check Dam – A structure placed within a swale or other stormwater facility to slow the stormwater flow rate and create small, temporary ponding areas.

Confluence – The joining point where two or more stream create a combined, larger stream.

Constructed Stormwater Wetland – A stormwater management facility consisting of shallow pools constructed to replicate natural wetland ecosystems, designed to enhance the water quality of stormwater runoff.

Department of Public Works and Environmental Services (DPWES) – Fairfax County, VA, department in charge of public works, utilities, building permits, land use and development, stormwater, wastewater, recycling and other environmental services.

Design Storm – A selected rainfall hyetograph of specified amount, intensity, duration and frequency that is used as a basin for design.

Detention – The temporary impoundment or holding of stormwater runoff.

Ecosystem – All the component organisms of a community and their environment that together form an interacting system.

Environmental Protection Agency (EPA) – United States federal agency responsible for safeguarding and managing a region's natural resources and quality of life.

Erosion - is the natural process by which a stream channel adjusts to changes within its watershed. Increased development within a watershed can accelerate the erosion process, resulting in the loss of residential yards, threatened infrastructure, siltation of aquatic habitat and decreased water quality.

Extended Detention (ED) Basin – A stormwater management facility that temporarily stores stormwater runoff and discharges it at a slower rate through a hydraulic outlet structure.

Federal Emergency Management Agency (FEMA) – United States federal agency responsible for disaster mitigation, preparedness, response, recovery and education, including flood maps.

Floodplain - Area of land on each side of a stream channel that is inundated periodically by flood waters; important zone for dissipating the energy of peak storm flow discharges and for storing waters that otherwise might damage in-stream habitat and/or cause downstream flood damage; typically includes high-quality riparian habitat (if undisturbed); waters flowing in incised (down-cut) streams may not be able to access the adjacent floodplain area to dissipate the volume and energy of higher storm flow events.

Geographic Information System (GIS) – A method of overlaying spatial land and land use data of different kinds. The data are referenced to a set of geographical coordinates and encoded in a computer software system. GIS is used by many localities to map utilities and sewer lines and to delineate zoning areas.

Geomorphology – A science that deals with the land and submarine relief features of the earth's surface.

Grassed Swale – see *Vegetated Swale*

Headcut – The geomorphologic incision of the stream due to the hydraulic effect of a channel from head forces. One example is the accelerated cutting of a stream due to a manmade or natural constriction where water velocities are increased substantially. Another example is the outlet of a dam, where extreme velocities can occur due to the high static head forces created by the build-up of water from the dam structure.

Headwater – The source of a stream or watershed.

Hydrologic Engineering Centers River Analysis System (HEC-RAS) – A hydraulic model used to simulate the hydraulics of water flow through natural and/or manmade channels and rivers.

Hot Spot – A problem area that may contain significant stressors or pollutant sources that can affect watershed conditions within the immediate subwatershed and may be having an impact on downstream areas.

Hydraulics – The physical science and technology of the static and dynamic behavior of fluids.

Hydrograph – A plot showing the rate of discharge, depth, or velocity of flow versus time for a given point on a stream or drainage system.

Hydrology – The science of dealing with the distribution and movement of water.

Hyetograph – A graph of time distribution of rainfall over a watershed.

Index of Biotic Integrity (IBI) – A biological index, which includes macroinvertebrate population indices, fish taxa richness and percent impervious calculations, that is designed to provide a general water quality evaluation of a stream or watershed.

Indicator – A physical marker used to assess the condition of the environment, as an early-warning signal of changes in the environment and to diagnose causes of ecological problems.

Impervious Surface – A surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, parking areas, any concrete, asphalt, or compacted gravel surface.

Low-Impact Development (LID) – A comprehensive land planning and engineering design approach with the goal of maximizing the amount of natural features and vegetation at a site, in order to allow stormwater to be infiltrated on site and recharge the groundwater rather than being conveyed to detention facilities or storm sewers.

Metric - An analytical benchmark that responds in a predictable way to increasing human, climatic or other environmental stress, and can be used to help compare watersheds.

Modeling - Use of conceptual and/or computer models to simulate the response (e.g., pollutant loading to streams) of a natural system (e.g., watershed) to various management scenarios; useful in assessing which types of watershed protection techniques will yield the greatest benefit to water quality, habitat, or flooding conditions, and in determining which locations within the watershed are optimal for such practices or project sites.

Municipal Separate Storm Sewer System (MS4) Permit – Fairfax County stormwater permit that requires the creation of watershed management plans to facilitate compliance with the Clean Water Act.

Open Space – The area within the boundaries of a lot that is intended to provide light and air, and is designed for either scenic or recreational purposes. Open space shall, in general, be available for entry and use by residents or occupants of the development. Open space may include, but is

not limited to, lawns, decorative planting, walkways, recreation areas, playgrounds, undisturbed natural areas and wooded areas.

Peak Discharge – The maximum rate of flow at an associated point within a given rainfall event or channel condition.

Perennial Stream – A body of water that normally flows year-round in a defined channel or bed, and is capable, in the absence of pollution or other manmade stream disturbances, of supporting bottom-dwelling aquatic animals.

Pipes - carry water from various sources to a stream. Because of this, the discharge may contain pollutants such as oil from roadway runoff, sewage, nutrients from lawn fertilization, etc. The high volume and flow delivered to the stream, particularly during storm events, can result in erosion of the stream channel and banks.

Rain Barrel – A stormwater BMP consisting of a large container designed to capture and store rainwater from roofs. The rainwater can then be used to water gardens and lawns, and is prevented from becoming surface runoff.

Rain Garden – see *Bioretention System*

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

Regional Ponds – Large ponds that may serve as stormwater facilities for entire regions.

Resource Protection Area (RPA) – Vegetated riparian buffer areas, which include land within a major floodplain and land within 100 feet of a water body. These buffer areas are important in the reduction of sediments, nutrients, as well as the other adverse effects of human activities, which could potentially degrade these systems and those downstream.

Restoration - The re-establishment of wetlands or stream hydrology and wetlands vegetation into an area where wetland conditions (or stable streambank and stream channel conditions) have been lost.

Retention – The permanent storage of stormwater.

Retrofit – The modification of stormwater management systems through the construction and/or enhancement of wet ponds, wetland plantings, or other best management practices designed to improve water quality.

Return Period – The average length of time between events having the same volume and duration. If a storm has a one percent chance of occurring in any given year, then it has a return period of 100 years.

Riparian Buffer - An area adjacent to a stream, wetland, or shoreline where development activities (e.g., buildings, logging) are typically restricted or prohibited; may be managed as streamside

(riparian) zones where undisturbed vegetation and soils act as filters of pollutants in stormwater runoff; buffer zone widths vary depending on state and local rules, but are typically a minimum of 25 to 50 feet on each side of perennial streams.

Road Crossings - Structures that span the width of a stream, usually road or foot bridges. The structures constrict the flow within a stream which can result in detrimental effects including erosion, flooding and decreased water quality. In addition, structures may block fish and wildlife passage preventing migration to feeding/spawning areas.

Runoff – The portion of precipitation, snow melt, or irrigation water that runs off the land into surface waters.

Spreadsheet Tool for Estimating Pollutant Load (STEPL) – A modeling tool used to determine pollutant loads and load reductions for the watershed planning effort.

Stream Protection Strategy (SPS) – Fairfax County program that focused on developing and prioritizing stream protection and restoration strategies.

Stormflow – The portion of stream flow that is due to stormwater runoff.

Stormwater Management – Programs designed to maintain or return the quality and quantity of stormwater runoff to pre-development levels.

Stormwater (or Stormwater Runoff) – Excess precipitation that is not retained by vegetation, surface depressions, or infiltration, and therefore collects on the surface and drains into a surface water body.

Stormwater Management Facility – A device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

Storm Water Management Model (SWMM) – A stormwater modeling technique developed by the US Environmental Protection Agency (EPA) as a design and planning tool for stormwater runoff.

Stormwater Planning Division (SWPD) – Division of the Fairfax County Department of Public Works and Environmental Services.

Stream Restoration – The reestablishment of the general structure, function and dynamic, but self-sustaining, behavior of the ecosystem.

Subwatershed – A subdivision of a watershed used for planning and management purposes, usually ranges in size from 100 to 300 acres.

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

Total Maximum Daily Load (TMDL) – A tool for establishing the allowable loadings of a given pollutant in a surface water resource to meet predetermined water quality standards.

U.S. Army Corps of Engineers (USACE) – The federal agency responsible for investigating, developing and maintaining the nation's water-related environmental resources.

Vegetated or Grassed Swale – A broad and shallow channel vegetated with erosion resistant and flood-tolerant vegetation. The purpose of this BMP is to convey and slow down stormwater in order to enhance water quality through sedimentation and filtration.

Virginia Pollutant Discharge Elimination System (VPDES) – Virginia state permitting regulations that determine the location and amount of pollutant discharges to land and water resources.

Watercourse – A stream with incised channel (bed and banks) over which water are conveyed.

Watershed – A defined land area drained by a river, stream, or drainage way, or system of connecting rivers, streams, or drainage ways such that all surface water within the area flows through a single outlet.

Watershed Advisory Group (WAG) – Group of watershed stakeholders, including watershed community members and professional agency representatives, involved with preparing the watershed management plan.

Watershed Management Area (WMA) – A subdivision of a watershed used for planning and management purposes, usually four square miles in size.

Watershed Planning - The development of basin wide Watershed Restoration Plans; planning typically includes (1) an assessment of watershed conditions and functional impacts at progressively smaller scales of study, and (2) the development of land use management strategies and optimal watershed restoration, enhancement and protection/preservation projects designed to address the identified watershed needs & opportunities.

Wetland - Habitats where the influence of surface water or groundwater has resulted in the development of plant or animal communities adapted to aquatic or intermittently wet conditions. Wetlands include tidal flats, shallow sub-tidal areas, swamps, marshes, wet meadows, bogs and similar areas.