



Tennessee Storm-SMART Glossary of Terms for Communities

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Introduction

Stormwater: Rainfall that does not soak into the surface on which it falls, but rather runs along the surface downslope; generally exacerbated by impervious surfaces (such as rooftops, parking lots, roadways, compacted soils). According to 40 C.F.R. 122.26(b)(13), stormwater means urban runoff, snowmelt runoff, and surface runoff and drainage.

This glossary of stormwater-related terms was created to ensure the use of common terminology amongst stormwater management professionals, elected officials and citizens of Tennessee. The goal is to facilitate effective communication between the many groups of stakeholders in the pursuit of viable solutions for stormwater issues throughout communities across Tennessee and the Southeastern region.

Common Acronyms

BMP — Best Management Practice

CWA — Clean Water Act

CSO — Combine Sewer Overflow

GI — Green Infrastructure

IDD — Illicit Discharge Detection

I/I — Inflow and Infiltration

LID — Low Impact Development

MS4 — Municipal Separate Storm Sewer System

NPDES — National Pollutant Discharge Elimination System

NPS — Nonpoint Source

SCM — Stormwater Control Measure

SWPPP — Stormwater Pollution Prevention Plan

TDEC — Tennessee Department of Environment and Conservation

USEPA — United States Environmental Protection Agency

Section I - Terms

303(d) List	A list maintained by the state as required by Section 303(d) of the Federal Clean Water Act of waterbodies that do not support their designated uses. It is common to refer to this list as the 303(d) list. The Tennessee Department of Environment and Conservation publishes this list at http://tn.gov/environment/wpc/publications .
Absorption	A process by which one substance is taken up by another substance; in other words, a substance is assimilated by another substance.
Adsorption	A process by which dissolved compounds separate from liquid to form a physical or chemical bond to solid materials.
Anthropogenic	Originating from or caused by human activities; often describes land use disturbance in watersheds.
Antidegradation	Legal policies mandated by the Federal Clean Water Act and implemented in Tennessee through the Water Pollution Control Act that protects water quality by limiting deterioration from the current condition (or to not make matters any worse than they were before). In the context of an NPDES permit, usually means conditions and associated progress of previously issued permits must remain.
Baseflow	The portion of flow in a stream that is relatively constant.
Basin	A structural facility that holds stormwater.
Berm	A raised, earthened structure that directs runoff.
Best Management Practice (BMP)*	A method that is recognized as an efficient, effective and practical means of preventing or reducing the movement of pollutants into the waters of the state. A BMP may be a physical facility or a management practice achieved through action.
Biological Integrity	The capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of the natural habitat of the region.
Bioretention*	A strategy incorporated in various stormwater treatment facilities where runoff is captured and pollutants are filtered through physical, chemical and biological processes. Bioretention facilities are sized to retain a target storage volume, designed with specific vegetation and engineered media, and may incorporate an underdrain to route treated water to a receiving drainage system.
Bioswale*	A landscape feature that is designed to convey, retain and treat stormwater.
Bog Garden*	A small-scale constructed or enhanced wetland used as a landscaping feature to retain and filter stormwater.
Buffer*	A vegetated strip of land along a sensitive area (like a stream) that helps protect that area from the land disturbance on the adjacent land. See “riparian buffer.”
Catch Basin	A structure used to collect stormwater (especially from paved surfaces) and direct the flow to a stormwater drainage system.
Channelization	1) Hydrologic modification and straightening of a stream plan form (sinuosity) that may cause destabilization of streambanks and stream bed; 2) the formation of steep channel walls that separate the stream from its primary flood plain.
Cistern*	A tank that stores captured rainwater runoff from impervious surfaces (most often rooftops) for later use.
Clean Water Act (CWA)	A 1972 federal act that provides the basic regulatory framework for the protection of water quality through control of discharge of pollutants into surface waters, including the management of stormwater runoff. Public Law 92-500
Coir Fiber	A natural fiber that is often used in erosion control products (like matting, logs and socks) as an environmentally friendly alternative to plastic netting.
Combined Sewer System (CSS)	A collection system that accepts both municipal wastewater and stormwater. The system directs the combined water to a treatment facility.
Combined Sewer Overflow (CSO)/ Sewer Overflow	Overflow from a sewer system that occurs when the system is overwhelmed with excessive water — typically during a storm event. The overflow results in a discharge of a mixture of partially treated wastewater and runoff to surface water.

Concentrated Flow	A flow regime where water flows in a channel — the moving water is concentrated as opposed to being spread out across the landscape, as in sheet flow.
Confluence	The point where one waterbody flows into another.
Constructed Wetland	A wetland that is designed specifically to capture and remove pollutants and is created on a site that previously was not a wetland.
Contour	A path on the land where the elevation remains constant; describes topography or relief.
Contributing Area	The land area from which surface water drains to a specific point of reference.
Culvert	Pipe or box structure that drains surface water or runoff under a roadway or embankment.
Design Storm	The precipitation depth with a specific return period or frequency that may be used to size and select materials for stormwater treatment.
Designated Use	The use of a water resource as identified by the state. In Tennessee, these include fish and aquatic life, recreation, drinking water supply, irrigation, industrial water supply, livestock and wildlife watering, and navigation.
Detention	Temporary storage of stormwater to decrease peak flow rate into receiving waters. Typically relates to a basin.
Discharge	1) The release of water containing pollutants into surface waters, or 2) the volume of water that passes a certain point in time.
Downspout Disconnection*	Disconnecting the rooftop impervious surface from the stormwater conveyance system so as to reduce total runoff volume by allowing downspouts to drain onto a pervious surface or into another retention practice.
Drainage Area	The area that contributes runoff to a point of reference and is enclosed by a ridgeline or divide. See “basin.”
Dry Pond	An SCM that provides stormwater flow control designed to release stormwater at an acceptable rate (for permanent stormwater control).
Ecoregion	A recurring pattern of ecosystems associated with combinations of soil and landform that characterize that region. — Brunckhorst, D. (2000).
Ecosystem Services	Collectively, the processes that occur in the environment that benefit humans and society. For example, water purification in wetlands, nutrient cycling in streams, and carbon storage in soil.
Effluent	Water that has passed through a treatment process and discharged into the environment.
Energy Dissipater	A structure used to absorb the energy carried by concentrated flow and reduce velocity.
Engineered Media	Engineered mixture of materials (such as sand, soil, clay, granular activated carbon, perlite, zeolite, compost, organic matter, water treatment residuals, etc.) that is designed to infiltrate and filter pollutants from stormwater runoff.
Environmental Site Design	Method of using small-scale stormwater management practices, nonstructural techniques and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources. Similar terms include low impact development, green infrastructure and better site design.
Erosion	The detachment and transport of soil or rock due to the physical movement of water or air or other chemical or biological means.
Erosion Control Matting	A sheetlike material that is placed on the soil surface to reduce erosion. These materials are typically used to protect the soil during the germination and growth of the permanent vegetation and are made of various materials.
Eutrophication	The process of being well nourished; an enrichment of nutrients (mostly nitrogen and phosphorus) in surface waterbodies that may result in excessive aquatic plant growth — frequently associated with algal blooms. Eventually may lead to the filling in and loss of the waterbody.

Evapotranspiration	The sum of evaporation of water from the soil and transpiration of water from plants.
Exceptional Tennessee Waters	1) Surface waters of the state that satisfy a set of characteristics, including being within state or national parks, wildlife refuges, wilderness or national areas; 2) state or federal scenic rivers; federally designated critical habitat; 3) waters within an area designated as Lands Unsuitable for Mining; 4) waters with naturally reproducing trout; 5) waters with exceptional biological diversity; or 6) waters with outstanding ecological or recreational value as determined by TDEC.
Exfiltration	The process by which water moves out of a media or permeable pavement.
Extended Detention	Design for the temporary storage of stormwater in a detention facility that gradually discharges volume, allowing for the increased settling of pollutants and protection of receiving channels. See “wet pond.”
Filter Strip	A vegetated strip with uniform grade used to slow runoff and facilitate the deposition of sediment in runoff before runoff reaches surface water.
First Flush	The stormwater that is first to run off a surface and usually carries the largest load of pollutants. Generally considered to be the first inch of rainfall.
Floatables	Litter and debris that will float and travel with water.
Flood Plain	The flat area along a stream between the streambank and the valley wall that is periodically inundated by floodwaters.
Flow Path	The path water takes as it moves across land surfaces.
Forebay	A separate segment within a stormwater basin used to trap sediment — chosen to facilitate maintenance and removal of the sediment. Use of a forebay is intended to facilitate sedimentation and, thus, protect other unit treatment processes.
Green Infrastructure (GI)	Using natural hydrologic features and open space to manage water and provide environmental and community benefits. Similar terms include “low impact development” and “environmental site design.”
Green Roof*	A rooftop that is covered with beds or a single bed of soil and vegetation and designed to infiltrate precipitation. An extensive application uses media depths between 4-6 inches, while an intensive application is deeper than 6 inches. Also known as a vegetated roof.
Groundwater	Water below the ground surface.
Heavy Metals	Elements such as zinc, mercury, lead and copper. These elements can become dissolved in stormwater and are prone to accumulate in urban areas due to anthropogenic activities (mainly automobile use).
Hot Spots	A term used to describe areas where land use or activities generate highly contaminated runoff with concentrations of pollutants in excess of those typically found in naturally occurring stormwater runoff.
Hydraulic Residence Time (HRT)	The time that a volume of water is held within a defined area. Generally, the longer the HRT, the more effective the treatment of stormwater pollution.
Hydric Soils	A soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of water-loving vegetation.
Hydrocarbons	Organic chemical compounds that are made up solely of carbon and hydrogen. Predominantly used as combustible fuel and, as a solid state, asphalt. A pollutant of concern in urban areas due to their contribution to ground-level ozone and smog.
Hydrograph	A graph that depicts the flowrate past a specific point of reference as a function of time.
Hydrologic Cycle	The continuous movement of water on, above or below the Earth’s surface through processes including precipitation, interception, condensation, evapotranspiration, infiltration/percolation, storage, runoff, surface water, groundwater and interflow.
Hydrologic Unit Code (HUC)	A standardized watershed classification system created by the USGS. See Section IIB for more on Tennessee HUCs.

Illicit Discharge	Any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under an NPDES permit and discharges resulting from firefighting activities.
Impaired Water	A segment of surface water that has been identified as failing to support its designated uses. (see 303(d) List)
Impervious Surface	1) A hard surface that either prevents or limits the movement of water into the soil as would naturally occur in a predevelopment condition; 2) a hard surface that causes water to run off in greater quantities than that occurring under natural or predevelopment conditions, usually associated with building structures or pavement.
Infiltration	The movement of water into the ground surface.
Infiltration Trench*	A runoff reduction facility that captures stormwater in a long and narrow pit that is filled with porous material (usually a sand mixture) and holds water until it has time to soak into surrounding native soils; usually used in areas with poor draining soils.
Inlet	The location where water flows into a structure or facility.
Interflow	The rapid lateral flow of water below the ground surface and above the water table.
Karst	Geological formations shaped by the dissolution of soluble rock, usually carbonate rock like limestone or dolomite.
Load	1) A measurement of total mass of a constituent in water; 2) the product of the concentration and the water volume.
Low Impact Development (LID)	A style of development that incorporates techniques to minimize impacts to natural resources, preserves ecosystem services, and implements best management practices to mimic natural hydrology.
Maximum Extent Practicable (MEP)	Technology-based discharge standard for MS4s to reduce pollutants in stormwater discharges as established by the CWA. MS4 operators shall develop and implement their programs to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions appropriate for the control of pollutants.
Minimum Control Measure	Stated requirements from the USEPA for permitted groups to be in compliance and include the implementation of selected BMPs to minimize stormwater and related pollutants into surface waters.
Municipal Separate Storm Sewer System (MS4)	A stormwater drainage network (including road drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, SCMs or storm drains) that are owned or operated by a local government or designated entity (such as a state, city, town, borough, county, parish, district, association or other public body). See Section IIC for the MS4s in Tennessee.
National Pollutant Discharge Elimination System (NPDES)	A provision of the CWA that prohibits the discharge of pollutants into waters of the United States unless a permit is issued by the USEPA, state or tribal government.
Native Vegetation*	Vegetation that is naturally found in an area and adapted to the climate, which makes them good candidates for many bioengineered BMPs.
Nonpoint Source (NPS)	Diffuse pollution source without a single point of origin. Commonly referenced NPSs are agriculture, forestry, dams, channels and urbanized areas.
Nutrients	Compounds that are needed for the growth of any biological organism and often carried in harmful quantities by runoff from overfertilized areas; high nutrient concentrations lead to eutrophication in surface waters. Major nutrients include nitrogen, phosphorus and potassium.
Outlet	The point of release of water usually through a control, such as a concrete structure.
Overflow Spillway	A control structure that safely delivers stormflows that exceed the capacity of a structural practice to a receiving stormwater conveyance system or waters of the state.
Pathogen	An organism that causes disease.
Percolation (Perc) Test	A test that quantifies the rate of infiltration through soils, which is associated with soil hydraulic conductivity.
Perennial Vegetation	Plants that live for more than two years and re-establish from the same rootstock.
Permeability	The ease at which water flows through soil or rock.

Permeable Pavers*	Interlocking block system typically used in driveways, parking lots and sidewalks, and designed to infiltrate precipitation into a porous subgrade and into native soils or underdrain.
Pervious Concrete*	Permeable concrete that is mixed of coarse aggregates (minimal sand) and installed in a special way so as to leave pathways for water to infiltrate into a porous subgrade.
Physiographic Region	A geographic region with similar geomorphology, rock and soil structure, also known as provinces. Tennessee has a very diverse physiography with 10 distinct regions: the Unaka Mountains, which are part of the Blue Ridge; the Great Valley of East Tennessee, which is part of the Appalachian Ridge and Valley; the Cumberland Plateau; the Sequatchie Valley; the Western and Eastern Highland Rim, which circles the Central Basin; the Western Valley; the Plateau Slope of West Tennessee; and the Mississippi Flood Plain. The latter two are part of the Gulf Coastal Plain.
Point Source	A confined, discernible conveyance that discharges into surface waters. This term refers to, but is not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural runoff.
Pollutant	A contaminant in a concentration or amount that adversely alters the physical, chemical or biological properties of the natural environment.
Porosity	The ratio of void space to total volume of a soil or other media.
Predevelopment Conditions	The condition that existed just prior to the disturbance at hand; often a target for the design of stormwater control facilities.
Rain Barrel*	A small storage container used to capture rooftop runoff from downspouts and store for later use.
Rain Garden*	A shallow depression (usually 6 inches deep when complete) in the landscape created to capture rooftop and/or driveway runoff and infiltrate it into the ground. Rain gardens usually contain perennial vegetation, amended soils and mulch.
Rainwater Harvesting	A system of collecting rainwater in tanks and releasing it for later use as a water supply. If managed appropriately, runoff can be reduced.
Receiving Waters	A river, stream, lake or other waterway into which wastewater, treated water or other material is discharged.
Redevelopment	Alteration of developed land that disturbs 1 acre or more, or less than 1 acre if part of a larger common development plan, and increases the site or building impervious footprint.
Restoration	The management of physical, chemical or biological characteristics of a site with the goal of returning natural or predevelopment functions to sites that formerly supported a healthy aquatic ecosystem.
Retention	The process of collecting and holding a designed volume of stormwater runoff that does not leave the SCM as surface flow.
Return Frequency	An estimate of the probability of the occurrence of a storm event or stream flow of a certain intensity or magnitude. By definition, the inverse of frequency is the return period, or expected time between similarly sized events.
Rip Rap	A layer of protective rock placed in erosion-prone areas or sloughing slopes only to be used when vegetative controls are not adequate.
Riparian Buffer/Zone	Area of land that runs between a waterway and land disturbance and provides ecological services for water quality and wildlife habitat. Critical functions of a riparian buffer include providing shade a source of organic matter, stabilizing banks, attenuating stormwater runoff, filtering eroded sediments, and facilitating the uptake and treatment of nutrients.
Runoff	The rainfall that is shed by the landscape to a receiving waterbody; when rainfall exceeds the infiltration capacity of the land.
Saturated	A moisture condition that occurs when the soil void space is fully occupied with water.

Sediment	Eroded rock and soil material that has been moved and subsequently deposited. Material generated by weathering or erosion that has been transported by wind, water or gravity. In watersheds, sediment is transported in streams.
Sheet Flow	The thin layer of water that accumulates on the soil surface and moves down gradient as a sheet of water.
Siltation	1) The accumulation or deposition of sediment; 2) Pollution of surface water by fine particulate matter with particle sizes in the silt and clay range; usually associated with loss of biological integrity.
Soil Amendment	A soil additive, usually organic matter, used to increase the quality and structure of degraded soils.
Soil Restoration	A technique of adding soil amendments to restore the lost capacity of a soil to grow plants or hold water.
Soil Texture	The ratio of sand, silt and clay that creates the mineral soil matrix.
Sorption	The combination of the adsorption and absorption processes.
Storage Volume	Volume of stormwater that a structural control facility is designed to hold.
Stormwater Control Measure (SCM)	A BMP (physical, structural or managerial) used to prevent stormwater emanating from urban development and reduce the discharge of pollutants to waters of the state from urban runoff.
Stormwater Drainage/Conveyance System	Constructed and/or natural features that function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert stormwater.
Stormwater Facility	A constructed component of a stormwater drainage system designed or constructed to perform a particular function. Some examples are pipes, swales, ditches, culverts, street gutters, detention basins, retention basins, constructed wetlands, infiltration devices, catch basins, oil/water separators, sediment basins and permeable pavements.
Stormwater Management Plan (SWMP)	A written plan that describes a comprehensive program to manage the quality of stormwater discharged from the MS4.
Stormwater Pollution Prevention Plan (SWPPP)	A written plan that includes site maps, identification of construction/contractor activities that could cause pollutants in stormwater, a monitoring and documentation system to evaluate performance and maintenance, and a description of measures or BMPs to control these pollutants as required by state regulations.
Stormwater Retrofit	Updated design of a storm drainage system from a conventional system to a new system that incorporates innovative approaches to minimize impacts to water quality. Because of intensive impervious cover and utility constraints, a compromise of LID goals is usually made.
Stormwater Treatment Facility	A type of structure that is engineered to reduce pollutants and impacts of stormwater.
Stormwater Utility	A municipal governing body that operates a stormwater system that provides for the collection, treatment, storage and disposal of stormwater; provides benefits and services to all property within the incorporated city limits and, in doing so, shall administer and enforce all policy and ordinance pertaining to stormwater runoff and have the authority to assess user fees.
Surface Water	Water collected on the landscape in a stream, river, lake or ocean (there are no estuaries in Tennessee).
Suspended Solids	Sediment that is entrained in the water column and transported downstream in suspension and forms deposits.
Swale	A shallow drainage conveyance with relatively gentle side slopes and longitudinal grade and generally conveys flows of less than 1 foot of water depth.
Treatment Train	A series of structural BMPs that maximize stormwater treatment by maximizing the number of unit treatment processes achieved in facilities.
Turbidity	A measurement of the clarity of water, which is indicative of the light transmissivity and relates to suspended solids in the water column.
Underdrain	A perforated pipe in the bottom or at a design elevation of a treatment facility that conveys treated water downstream.

Vegetated Swale*	A swale lined with vegetation (see swale).
Water Quality Buffer	A setback from the top of a waterbody bank of undisturbed vegetation, including trees, shrubs and herbaceous vegetation; enhanced or restored vegetation; or the re-establishment of native vegetation bordering streams, ponds, wetlands, springs, reservoirs or lakes, which exists or is established to protect those waterbodies.
Water Quality Volume	The runoff volume needed to be captured and treated for pollutants in order to meet water quality regulations/limits in receiving waters.
Water Table	The depth at which soil is saturated with water.
Waters of the State	As defined by the Tennessee Water Quality Control Act as any and all water, public or private, on or beneath the surface of the ground, which is contained within, flows through, or borders upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership, which do not combine to effect a junction with natural surface or underground waters.
Watershed	Land area that drains surface water and groundwater to a point of reference. See Section IIB for information on Tennessee watersheds.
Wet Weather Conveyance	Man-made or natural watercourses 1) that flow only in direct response to precipitation runoff in their immediate locality; 2) whose channels are at all times above the groundwater table (excluding piped systems) that are not suitable for drinking water supplies; and 3) in which hydrological and biological analyses indicate that, under normal weather conditions, due to naturally occurring ephemeral or low flow, there is not sufficient water to support fish or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two months.
Wet Pond	A facility that treats stormwater in a permanent pool of water to remove common pollutants from urban stormwater runoff through sedimentation, biological uptake and plant filtration.
Wetland*	Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

** BMPs for single-lot scale applications and easily adopted by citizens in neighborhoods to reduce runoff, protect water quality and reap economic benefits. Cumulative actions of individual citizens can make a difference in the quality of life within our communities by protecting our water resources.*

Section II — Tennessee Watersheds

A. Tennessee Physiographic Regions

Tennessee has great ecological diversity, largely due to unique and widely varying topography and geology. Stormwater management decisions greatly depend on characteristics of the landscape that are generally the same within a physiographic region. Tennessee has eight distinct regions.

eroded a large area in the center of this region, forming the Central Basin, which bisects the Highland Rim into its eastern and western parts. The Western Highland Rim, the larger of the two, has average elevations between 800 and 1,000 feet, while the Eastern Highland Rim has an average elevation of 900 to 1,100 feet. Both parts are characterized by topography of undulating tableland of low relief and widely scattered hills and knobs.

Central Basin — The Central Basin is a large pear-shaped area in the geographic center of the state, approximately 65 miles

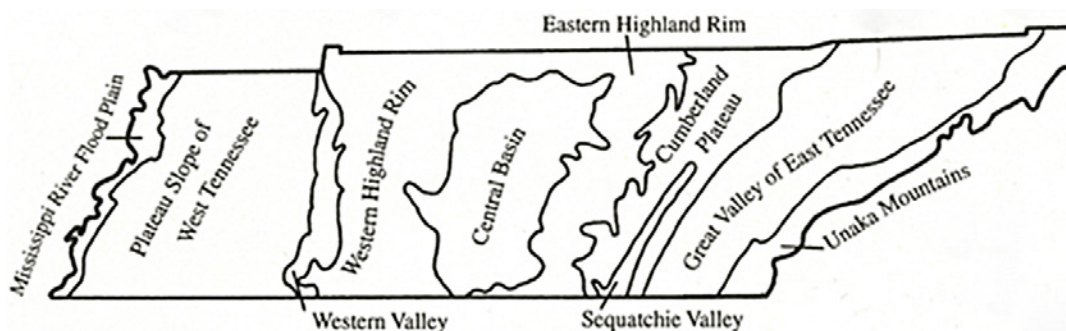


Figure 1. The major physiographic regions as delineated by Luther, 1977.

Unaka Mountains — A subrange of the Appalachian Mountains, the Unaka Mountains are the easternmost region of the state and extend along its eastern border adjacent to North Carolina. Known for the most rugged terrain in Tennessee, the topography is characterized by heavily forested and deeply carved stream valleys, lofty mountainous ridges and 33 peaks of more than 5,000 feet, 13 of which are over 6,000 feet. The valley floors of lowlands in this region are between 1,000 and 2,000 feet in elevation.

Great Valley of East Tennessee — Also known as the Valley and Ridge, this area is located between the Cumberland Plateau to the west and the Appalachian Mountains to the east. The topography consists of long linear ridges and parallel lowland valleys that run in the northeast to southwest direction. Ridges generally have high elevations of 1,100 to 1,500 feet, while valley floors vary from 700 to 1,000 feet.

Cumberland Plateau — The Cumberland Plateau is an elevated tableland between the Eastern Highland Rim to the west and the Valley and Ridge to the east. The Plateau's topography varies between parts. Relief can vary from as little as 100 feet to as much as 400 feet, containing stream valleys and deep gorges (between 200 and 400 feet deep) and highlands at average elevations of 1,800 feet.

Eastern/Western Highland Rim — The largest region in Tennessee, the Highland Rim extends from the Tennessee River in the western plains to the western escarpment of the Cumberland Plateau in the east. The Cumberland River has

wide and 95 miles from north to south. Surrounded by the Highland Rim region, the basin was cut by the Cumberland River and divided into two different parts. The Inner Basin in the center of the area is extremely flat with an average elevation of 650 feet. The Outer Basin is comprised of undulating, hilly topography with an average elevation of 750 feet and relief changes as much as 250 feet.

Western Valley — The Western Valley, also known as the West Tennessee Uplands, is a narrow region running north to south along the drainage divide between the Mississippi River and Tennessee River. The region is characterized by greater relief than the adjacent western plains with undulating plains and uplands varying from 100- to 300-foot relief and up to 700 feet of elevation.

Plateau Slope of West Tennessee — The Plateau Slope of West Tennessee, also known as the West Tennessee Plain, is an expansive region bounded by the Chickasaw Bluffs on the west and the drainage divide between the Mississippi River and the Western Valley of the Tennessee River. The terrain is relatively flat with a gentle slope westward toward the Mississippi River. Elevations are between 280 feet on the west and 450 feet on the east.

Mississippi River Flood Plain — The westernmost region of the state, the Mississippi River Flood Plain, is a narrow strip of land (between 5 and 20 miles wide) between the Mississippi River and the Chickasaw Bluffs on the West Tennessee Plain. The region runs north to south along the river at low elevations (between 185 and 280 feet).

B. The Watershed Approach

The Tennessee Department of Environment and Conservation is the regulatory agency in Tennessee tasked with implementing and enforcing the Clean Water Act. This act is enforced mainly through the Tennessee Water Quality Control Act and associated policies. Everything on the land exists within a watershed, and many regulations and legal designations are delineated by watershed boundaries. Watersheds are nested within one another, so they are often described in terms of their hydrologic unit code (HUC) in order to designate a scale. For example, the Caney Fork River flows into the Cumberland River, and the Caney Fork River is a HUC 8 subwatershed within the Cumberland River, which is a HUC 6. TDEC uses a watershed approach in its strategy to protect our state's water resources (Figure 2).

C. NPDES Stormwater Regulations for Municipal Discharges

The NPDES program of the USEPA is the federal regulatory mechanism for water quality, including point source discharges (like wastewater treatment plants) and nonpoint source pollution (like urban/suburban stormwater). There are four designated Phase I communities (Chattanooga, Knoxville, Nashville and Memphis) and over 90 Phase II communities (http://www.tn.gov/environment/wpc/stormh2o/docs/MS4s_Jan2012.pdf) under municipal stormwater permits in Tennessee. This program has impacts in 36 counties across the state (Figure 3). The UT Stormwater Management Assistance Research and Training Center (or SMART Center) assists these communities through Extension programs in watershed restoration and stormwater management.



Figure 2. Tennessee's large watersheds include the Upper Tennessee River, Cumberland River, Lower Tennessee River and Mississippi River. Courtesy of TDEC



Figure 3. Municipal stormwater regulations affect 36 counties across the state and require that communities with urbanized areas (population >10,000 or density of >1,000 per square mile) obtain permit coverage that regulates municipal stormwater runoff.

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