# *GLOSSARY OF TERMS*

***Adsorb:*** Take up or hold by adhesion.

***Aggregate:*** Clustered mass of individual soil particles varied in shape and size.

***Algal Blooms:*** Rapid excessive growth of algae, generally caused by high nutrient levels and favorable environmental conditions.

***Alum:*** Aluminum sulfate.

***Analytical Hierarchy Process:*** Systematic procedure for representing the elements of a problem that breaks down the problem into its smaller parts and then calls for only simple pairwise comparison judgments to develop priorities at each level.

***Anoxia:*** Absence of oxygen in an aquatic system.

***Antecedent Soil Moisture:*** Amount of moisture present in the soil at the beginning of a storm event.

***Baseflow:*** The portion of channel flow that comes from groundwater and not from stormwater runoff.

***Benefit Transfer:*** A practice used to estimate economic values by transferring information available from studies already completed in one location or context to another location. This can be done as a unit value transfer or a function transfer.

***Benthic:*** Of, relating to, or occurring at the bottom of a body of water.

***Best Management Practices (BMPs):*** Structural or nonstructural stormwater control measures that slow, retain or absorb nonpoint source pollutants associated with runoff. In the United States, the term “BMP” has come to mean any stormwater control measure, and not just the “best” ones.

***Biomagnification:*** Process in which chemical levels in plants or animals increase from transfer through the food web.

***Bioretention:*** Process of biological removal of contaminants or nutrients as fluid passes through media or a biological system.

***Bioswale:*** Landscape element designed to remove silt and pollution from surface runoff water.

***Biota:*** All the plant and animal life in a particular region.

***BOD:*** Biological oxygen demand is the amount of water-dissolved oxygen consumed by microbes in waterbody.

***Catch Basin:*** Reservoir for collecting surface drainage or runoff.

***Check Dams:*** Low, fixed structure, constructed of timber, loose rock, masonry, or concrete, to control water flow in an erodible channel or irrigation canal.

***Cistern:*** Underground tank for storing rainwater.

***Coliform:*** Bacteria that are commonly-used bacterial indictors of the sanitary quality of water.

***Created Wetland:*** A wetland established wetland where one did not previously exist.

***Curve Number:*** A rainfall-runoff parameter commonly used in the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) hydrologic procedures. The larger the runoff curve number, the greater the percentage of rainfall that will appear as runoff. The runoff curve number is a function of soil type, land use, and land management practices.

***Cyanobacteria:*** Blue-green algae.

***Cyanotoxin:*** Poisonous substance produced by some blue-green algae.

***Depression Storage:*** Volume of water contained in natural depressions in the land surface.

***Detention Ponds:*** Low lying areas that are designed to temporarily hold a set amount of water while slowing draining into another location. Generally used for flood control when large amounts of rain could cause flash flooding.

***Direct Costs:*** Expenses related to the labor and materials required for installation of stormwater best management practices (BMPs) or Low Impact Development (LID) strategies.

***Drowned River Mouth:*** The end of a river where it enters into another waterbody that became submerged or flooded during the glacial retreat from the last Ice Age.

***Dry Well:*** Underground chamber containing stones or gravel and used to collect stormwater runoff from the roof of the building as a means of avoiding soil erosion.

***Enteric Virus:*** Class of infectious agents that can pass through bacteria-retaining filters.

***Eutrophic:*** Having waters rich in mineral and organic nutrients that promote excessive plant growth, particularly algae, which reduces the dissolved oxygen content and often causes the elimination of other organisms and fish.

***Event Mean Concentration (EMC):*** Average concentration of pollutants in the runoff from a storm event.

***External Loading:*** Nutrients entering a waterbody from sources on the land and in the air.

***Exurban Growth:*** Population growth that occurs outside the urban center, including its historic suburban periphery. It represents “sprawl beyond sprawl”.

***Filtration BMPs (Filtrative BMPs):*** Stormwater best management practices that utilize vegetation or soil media to remove sediment and nutrients from stormwater as it flows through the structure.

***Function Transfer:*** The use of statistical models from one study conducted at one location to obtain an economic benefit estimate to transfer directly to another location, such as the Spring Lake Watershed.

***Geomorphic Parameters:*** Series of physical properties relating to the processes that affect that form and shape of the surface of the earth.

***Geographic Information System (GIS):*** Computer application used to store, view, and analyze geographical information, particularly maps and map data.

***Geologic:*** Of or relating to the origin, history, and structure of the earth.

***Groundwater:*** Water beneath the earth’s surface, often between saturated soil and rock. Groundwater supplies wells and springs.

***Grow Zone:*** Stormwater management practice utilizing native planting areas.

***Herbaceous Wetlands:*** Wetlands consisting of plants with little or no woody plants that persist for a single growing season.

***Hydrologic Modeling:*** The use of physical or mathematical techniques to simulate the hydrologic cycle and its effects on a watershed.

***Hydrologic Soil Groups:*** Soil properties that characterize the stormwater runoff tendency of the soil.

***Hydrology:*** The origin, circulation, distribution, and properties of water and waterways.

***Illicit Connections:*** Illegal connections to a storm drain system from commercial establishments that result in contaminated wastewater entering into storm drains or directly into local waterways without receiving treatment from a wastewater treatment plant.

***Illicit Discharges:*** Discharges to a municipal separate storm sewer system that are not composed entirely of stormwater, except for discharges allowed under a National Pollutant Discharge Elimination System Permit or waters used for firefighting operations.

***Impervious Surfaces:*** Hard surfaces that prevent stormwater from soaking into the ground. Where there are more impervious surfaces in a watershed, stormwater runoff enters local waterbodies in greater volumes and at faster speeds. Examples of impervious surfaces include paved streets, sidewalks, parking lots, driveways, and building rooftops.

***Infiltration:*** The movement of water into the soil.

***Infiltration BMPs (Infiltrative BMPs):*** Stormwater best management practices that reduce runoff volume and improve water quality by promoting the movement of water into the soil.

***Integrated Assessment:*** The use of existing social and physical scientific data analysis, synthesis, modeling, and stakeholder engagement activities to evaluate policy or management options on particularly difficult environmental problems.

***Interception:*** The capture of rainwater by vegetation from which the water evaporates and is thus prevented from reaching the water table or contributing to stormwater runoff.

***Internal Loading:*** Nutrients entering a waterbody from sources within the waterbody, such as release from sediments.

***Invertebrates (Inverts.):*** Animals without a backbone. Aquatic invertebrates include insects, crustaceans, mollusks, and worms.

***Littoral Buffers:*** A band of trees, shrubs, or grasses that border a lake. Such “buffer strips”, particularly when consisting of native vegetation, help capture or intercept stormwater runoff before it enters the waterbody.

***Loam:*** Soil consisting of a coarse mixture of varying proportions of clay, silt, and sand.

***Low Impact Development (LID):*** Stormwater design techniques that mimic presettlement hyrdrology and incorporate the basic principle of managing stormwater where it lands through infiltration, filtration, storage, evaporation, or detention.

***Nonpoint Source Pollution:*** Another term for polluted stormwater runoff and other sources of water pollution whose sources do not come from a discrete conveyance (e.g., pipes). The term comes from the federal Clean Water Act of 1987.

***Oil-Water Separator:*** Mechanical stormwater management system designed to separate oil and water from oil-contaminated drainage water.

***Opportunity Cost:*** Value of the next best alternative foregone as the result of making a decision. Also called economic opportunity lost.

***Orthophotograph:*** Aerial photograph geometrically corrected – "orthorectified" – such that the scale is uniform, so that the photo has the same lack of distortion as a map.

***Pairwise:*** Two corresponding persons or items, similar in form or function and matched or associated.

***Pathogen:*** Specific causative agent (as a bacterium or virus) of disease.

***Percolate:*** When water passes through permeable surfaces to the soil and groundwater below.

***Permeability:*** Quality or state of having pores or openings that permit stormwater and stormwater runoff to pass through to the soil or groundwater.

***Porous Pavement:*** Paving system that allows water to infiltrate through the pavement to more accurately reflect pre-development hydrology.

***Presettlement:*** Condition prior to widespread settlement by European Americans and industrial civilization.

***Principal Component Analysis:*** Mathematical method that breaks down a number of possibly correlated variables into a smaller number of uncorrelated variables called principal components.

***Proximity Analysis:*** Analytical technique used to determine the relationship between a selected point and its neighbors.

***Rain Barrel:*** A barrel used as an above-ground cistern to hold rainwater. Many are retrofitted to include a hose and spigot to re-use the rainwater for watering plants, gardens, and flowers.

***Rain Garden:*** Planted depression that is designed to take all, or as much as possible, of the excess stormwater runoff from impervious surfaces.
***Raster or Raster Grid Cells:*** Form of graphics in which closely spaced row of dots form an image on a computer screen.

***Recharge:*** The replenishment of water in the ground.

***Retrofits:*** Additions of new (stormwater) technology to older (traditional) systems.

***Riparian Buffer:*** A band of trees, shrubs, or grasses that border a river or stream. Such "buffer strips", particularly when consisting of native vegetation, help capture or intercept stormwater runoff before it enters the waterbody.

***Source-Controls:*** Stormwater best management practices that remove stormwater source materials or isolate them from contact with groundwater.

***Stakeholder:*** Person, group, municipality, or organization that has a direct or indirect interest in a defined environmental or other natural resource.

***Stewardship:*** Individual or community responsibility to manage property with regard to others.

***Stormwater:*** Rain, snow or sleet that is a direct result of precipitation, which flows in both concentrated forms (pipes, gutters, ditches, streams, etc.) and diffuse forms (sheet flow) over or within all land forms. Stormwater soaks into the soil and becomes groundwater, is used by vegetation, evaporates, or flows into lakes or streams as surface or subsurface flow. Stormwater collects pollutants and debris as it travels to our local waterways.

***Stormwater Runoff:*** Rain or melting snow that cannot soak into the ground, and instead flows from the land into nearby waterbodies. Stormwater runoff is not treated in any way.

***Stormwater Utility:*** System of assigning user fees to landowners based on the amount of impervious surface per parcel. Stormwater utilities create monetary incentives for developers and property owners to use Low Impact Development stormwater best management practices.

***Stormwater Vault:*** Stormwater detention basin.

***Streamflow:*** Movement of water in streams, rivers, and other channels.

***Swale:*** Shallow depression of land used to convey and absorb stormwater runoff.

***Transpiration:*** Absorption of water by plants, usually through the roots, and the loss of the water to the atmosphere through evaporation from the leaves.

***Tributary:*** Stream or small creek flowing into a river or larger body of water.

***Underdrain:*** Small diameter perforated pipe that allows the bottom of a detention basin, channel, or swale to drain.

***Unit Value Transfer:*** The use of one study conducted at one location to obtain an economic benefit estimate to transfer directly to another location such as the Spring Lake Watershed.

***Vector or Vector Polygon:*** Data based on the representation of geographical objects by Cartesian coordinates commonly used to represent linear or shape features.

***Waterborne Pathogens:*** Bacteria or virus that infects people or animals via contaminated water.

***Watershed:*** The area of land that drains into a body of water. Watersheds come in all shapes and sizes, and cross county, state, and national boundaries. Smaller watersheds (e.g., Spring Lake watershed), may be part of a larger watersheds (e.g., Lower Grand River watershed), which may be part of an even larger watershed (e.g., Lake Michigan watershed). No matter where you are, you're in a watershed. A watershed is also called a drainage basin or a catchment.

***Woody Wetlands:*** Areas where forest or shrubland vegetation accounts for 25% - 100% of the cover and the soil or substrate is periodically saturated with or covered with water.