Stormwater Glossary

303(d) list	Section 303(d) of the Clean Water Act (CWA) requires states to identify waterways that do not meet water quality standards, including waterways for which a Total Maximum Daily Load (TMDL) needs to be developed. Every two years, the Oregon Department of Environmental Quality (DEQ) conducts an assessment of Oregon waterways to identify water quality limited waters (impaired waters) and waters that need a TMDL. Following public review and comment, the information is submitted to the Environmental Protection Agency (EPA) in an Integrated Report. The EPA must approve the proposal before the waterways are added to the list and actions are taken.
ACWA (Association of Clean Water Agencies)	In Oregon, ACWA is made up of over 70 stormwater and wastewater management agencies who work cooperatively to achieve goals related to the protection of water quality. The City of Keizer is a member of ACWA.
Adaptive management	A structured process designed to improve stormwater programs over time by assessing results and adjusting or fine-tuning best management practices (BMP's) to achieve the best possible results.
Anadromous	Pronounced *a-nad-ruh-mus*. Related to fish such as salmon that migrate up rivers from the ocean to breed in freshwater. Included in this group are Chum, Chinook, Pink, Sockeye, Coho, Steelhead, and Sea-run Cutthroat.
Aquifer	An underground layer of permeable rock and soil that stores and conveys groundwater. Deep, confined aquifers, which are protected by an impermeable layer, provide the City of Keizer's drinking water.
Bacteria	Microscopic living organisms which are present in the air, water, soil, the human body, and nearly every other habitat on Earth. Most are harmless or even beneficial, but some can cause mild to severe illness. Elevated levels of certain bacteria, such as E. coli, can make waterways unsafe for recreational activities such as swimming or water skiing. The Department of Environmental Quality (DEQ) has established a TMDL for bacteria in the Willamette Basin.
Drainage Basin	See Watershed
Best Management Practice (BMP)	A stormwater BMP is a structural or non-structural object or practice that is intended to protect water quality. A structural BMP refers to a physical object such as a sediment fence, catchbasin insert, or rain garden. A non-structural BMP refers to an action or behavior, such as recycling, cleaning up pet waste, or properly storing chemicals.
Bio-bag	"Bio-bag" is a term commonly used to describe a tube-shaped mesh bag filled with wood chips or other natural material that intercepts the flow of potentially polluted runoff, such as runoff from a construction site. They are often placed directly around catchbasin grates. A bio-bag should be used as a secondary or back-up BMP and not as a replacement for preventative measures that keep sediment and other contaminants on site.
Buffer	In stormwater management, a buffer usually refers to an area that is expressed in a set distance from a feature to be protected, such as surface water, groundwater, or the stormwater system (e.g. 25' buffer). Development and other disturbance activities are prohibited or limited inside the buffer.
Catchbasin	A structure, identifiable by a grate in the street or parking lot, which receives stormwater runoff and conveys it to the MS4 or a UIC through a connection to a pipe. Often used interchangeably with storm drain.
Catchbasin cleaning	Catchbasin cleaning is a Best Management Practice (BMP) included in the City of Keizer's Stormwater Management Plan (SWMP). Stormwater field personnel use a large truck called the "Vac Con" which has a high pressure water hose and a suction tube to clean debris and contaminants from catchbasins. Routine catchbasin cleaning prevents pollutants from entering waterways and minimizes localized flooding caused by clogged stormwater pipes.
Catchbasin insert	A device made of dense filter fabric that is inserted into a catchbasin to filter potentially polluted runoff that enters the catchbasin, such as runoff from a construction site. A catchbasin insert should only be used as a secondary or back-up BMP; it is not a replacement for good preventative measures that keep soil or contaminants on site.
Culvert	A pipe or a tunnel-like structure that is open at both ends to allow water from a ditch, swale, or waterway to flow underneath a road, driveway, etc.
Clean Water Act (CWA)	A federal law that was first passed in 1972 to regulate the discharge of pollutants into surface waters. It was amended in 1977 and 1987 and now includes regulations pertaining to stormwater discharge. The CWA is administered by the Environmental Protection Agency (EPA).
Department of Environmental Quality (DEQ)	The regulatory agency whose job it is to protect Oregon's environment. The DEQ has delegated authority from the Environmental Protection Agency (EPA) to administer federal environmental programs at the state level.

Designated Management Agency (DMA)	A federal, state, or local agency or special district identified by the Department of Environmental Quality (DEQ) as having legal authority over the source of pollutants being discharged to a waterway for which a TMDL has been established. The City of Keizer is named as a DMA in the Willamette Basin TMDL Water Quality Management Plan and has a TMDL Implementation Plan.
Detention facility	A structure such as a pond, manhole, pipe, or other facility that detains (delays; holds back) runoff and releases it slowly. Detention facilities are designed to release stormwater at a measured rate during heavy rainfall events to prevent flooding in local waterways. Compare to Retention facility.
Dissolved oxygen	Oxygen gas (O2) that is dissolved in water. Fish rely on dissolved oxygen to survive. One way that oxygen becomes dissolved in the water is through plants: live aquatic plants release oxygen into the water (dead plants actually deplete the oxygen supply through the decay process). Contact between air and water is another way oxygen can enter the water; water that flows and splashes over rocks will have more oxygen than water that is still. Cold water can hold more dissolved oxygen than warm water, which is one reason why aquatic wildlife in the Pacific Northwest need cool, clean water.
Ditch	A non-natural channel created for the purpose of draining or conveying water.
Drainage basin	See Watershed
E. coli (*Escherichia coli*)	A type of bacteria normally found in the digestive system of humans and most animals and is excreted in fecal waste. Ingestion of E. coli can cause mild to severe illness in humans. High levels of E. coli contamination can make waterways unsafe for recreational activities such as swimming or water skiing.
Environmental Protection Agency (EPA)	United States federal agency that enforces regulations which protect the environment and human health (See Clean Water Act, Safe Drinking Water Act)
Equivalent Service Unit (ESU)	An ESU represents an area which is estimated to place approximately equal demand on the stormwater system, as defined by the City of Keizer Development Code as 1 single family dwelling. One ESU is equal to 3000 square feet of impervious surface. All residential properties are considered equal to 1 ESU. Multi-family and commercial properties are measured independently to determine ESU's. (Not to be confused with Evolutionary Significant Unit)
Erosion	The wearing-away of soil or rock particles by a force, such as wind, water, animals, or human activities
Evapotranspiration	The transfer of surface water or soil moisture into the atmosphere through the processes of evaporation (the direct conversion of water to water vapor) and transpiration (the release of water vapor from plant leaves).
Evolutionary Significant Unit (ESU)	According to the National Marine Fisheries Service (NMFS), an Evolutionary Significant Unit (ESU) is a population that is reproductively isolated from other population units of the same species and which represents an important component in the evolutionary legacy of a species.
Geographic Information Systems (GIS)	A database for storing, organizing, analyzing, and displaying geographic data. The Stormwater Division uses ArcMap GIS software to manage assets, track maintenance activities, predict problems, plan projects, create maps, and much more.
Groundwater	Water that is located under the ground in the open space between rocks and soil particles (See Aquifer). Groundwater is a valuable resource for drinking, irrigation, and other uses. It is replenished very slowly (See Recharge, Groundwater) by infiltration of water from rain events, snow melt, and surface water bodies. Groundwater is the City of Keizer's drinking water source.
Habitat	The specific resources and environmental conditions required by a plant or animal in order to survive and successfully reproduce.
Illicit discharges	Non-stormwater discharges to the stormwater system or waterways. Examples: oil poured into a catchbasin, pet waste thrown into a creek, or fertilizer hosed onto the street (where it will end up in the stormwater system). Exceptions include flows from firefighting activities, potable water line flushing, and lawn watering, provided that proper steps are taken to prevent pollution. If you have questions about illicit discharges, please contact the Keizer Stormwater Division.
Impervious surface	A surface that does not allow water to pass through (thereby contributing to runoff volume). Examples include rooftops, asphalt, concrete, and highly compacted gravel or soil (such as a gravel parking lot or dirt road).
Inflow /Infiltration (I/I)	Stormwater and groundwater that enters the wastewater system (See Sanitary Sewer), often filling the system to capacity and contributing to overflows. Inflow refers to stormwater that enters the wastewater system through unauthorized connections (such as a roof drain accidentally connected to a wastewater pipe instead of a stormwater pipe) or through the holes in wastewater manhole covers. Infiltration refers to groundwater that enters the wastewater system through cracks in the pipes and manholes (See alternate definition for infiltration below). Infiltration and Inflow are of greatest concern during wet weather when they are likely to cause overflows. (See North River Road Wet Weather Treatment Facility)

Infiltration	When the term infiltration is not used in conjunction with inflow/infiltration (I/I), it frequently refers to the downward percolation of surface water through layers of soil. Infiltration occurs in rain gardens, bio-swales, natural areas, and other pervious surfaces.
Infrastructure	The physical structures that provide the basis for community-wide services such as drinking water distribution, wastewater collection, stormwater management, etc. Stormwater infrastructure refers to the catchbasins, pipes, manholes, and other components of the stormwater system.
Invasive plant	A non-native plant which has become damaging to its new environment due to its ability to outcompete other vegetation.
Junction Box	A stormwater system structure that is often located at the intersection of two stormwater pipes. It is an underground box with a lid that opens to the surface to allow access to the stormwater pipes for cleaning and maintenance.
LID (Low Impact Development)	An approach to managing stormwater runoff in urban areas so the impacts on stormwater quality and volume are minimized. Components of LID include preserving natural features like soil and vegetation, directing runoff through preserved natural areas, and installing features such as rain gardens and pervious pavement. The objective in designing LID is to mimic natural processes that took place prior to development. (Not to be confused with Local Improvement District)
Macro invertebrate	An animal or insect that is large enough to see without a microscope and which does not have a backbone, such as a snail, grasshopper, or worm. In the field of stormwater, certain *aquatic* macro invertebrates, such as larval dragonflies, midges, and clams, are important indicators of water quality due to their sensitivity to water pollution.
Manhole	A cylinder-shaped structure installed underground to allow maintenance personnel to access underground utilities such as stormwater pipes or wastewater pipes. Stormwater manholes are often installed at the intersection of two or more pipes and frequently have a sump (space below where the pipes enter and exit) in the bottom which collects debris and can later be cleaned out. It is similar to a junction box except that it is large enough for a person to enter.
Measurable Goal	The standards by which implementation of each BMP in the SWMP is evaluated.
MEP (Maximum Extent Practicable)	MEP is the standard to which stormwater management activities in the NPDES Stormwater Permit must be implemented.
Mercury	A toxic heavy metal that is of great concern in the field of stormwater management. Sources of mercury include emissions from refineries and waste incinerators, runoff from landfills and croplands, and erosion of soils that naturally contain it. Mercury bio accumulates (builds up) in the tissues of animals that are exposed to it, meaning that fish may contain high levels of mercury even if the concentration entering the waterway is low. High levels of consumption can lead to neurological problems in humans, especially if the consumption occurs before birth or during childhood. The Department of Environmental Quality (DEQ) has established a TMDL for mercury in the Willamette Basin.
Minimum Control Measure	One of six measures which make up the framework of the Stormwater Management Plan (SWMP) for Phase 2 NPDES permit holders. The six Minimum Control Measures that Phase 2 Permit holders must address to protect water quality are: 1. Public Education and Outreach on Stormwater Impacts 2. Public Involvement/Participation 3. Illicit Discharge Detection and Elimination 4. Construction Site Stormwater Runoff Control 5. Post-Construction Stormwater Management in New and Redevelopment 6. Pollution Prevention in Municipal Operations
MS4	The municipal separate storm sewer system (MS4) is the public system of catchbasins, pipes, ditches, culverts, etc. that is designed to collect stormwater and convey it to an outfall into a waterway (as opposed to a UIC, which discharges stormwater under the ground). By definition, the MS4 is *separate* from the wastewater (sanitary sewer) collection, conveyance, and treatment system. Runoff that enters the MS4 is piped directly to waterways. It does NOT go to a treatment facility.
Native plant	Plants that have historically thrived in their current habitat. They are well-adapted to the soil, temperature, rainfall, and general conditions of the area in which they are found. Compare to Non-native plant and Invasive plant.
Non-native plant	A plant which has been introduced to a new location, either intentionally or accidentally. (A non-native plant may become an Invasive plant)
Nonpoint source pollutant	A pollutant for which a specific source cannot be identified. Compare to Point source pollutant.
Nonstructural BMP	See Best Management Practice (BMP)

NPDES Permit (National Pollutant Discharge Elimination System Permit)	The NPDES permit allows the permittee to operate stormwater facilities that discharge stormwater to Waters of the State as long as all of the requirements in the permit are address.
North River Road Wet Weather Treatment Facility	The back-up facility to the Willow Lake Water Pollution Control Facility ("wastewater treatment plant"). It is located just south of Keizer and was designed to treat excess wastewater when the Willow Lake facility is at capacity due to wet weather (See Infiltration/Inflow). It does NOT treat stormwater runoff.
Outfall	The point at which a stormwater system discharges runoff into a waterway. (An outfall is a point source for pollution. See Point source pollutant)
Perf Manhole (Perforated Manhole)	A manhole that has *perforations* (holes) in the walls to allow some or all of the stormwater runoff that enters it to seep out into the ground. Perf manholes are components of Underground Injection Control systems (UICs)
Perf Pipe (Perforated Pipe)	A pipe that has *perforations* (holes) in the walls to allow some or all of the stormwater runoff that enters it to seep out into the ground. Perf pipes are components of Underground Injection Control systems (UICs)
Pervious surface	The opposite of impervious surface. A surface that allows infiltration of water.
Pervious pavement	Paving material that is engineered to have pore spaces that allow water to flow through and infiltrate into the soil below.
Point source pollutant	A pollutant which can be traced to a specific source. Compare to Nonpoint source pollutant.
Quality (Stormwater)	Stormwater quality refers to the biological, chemical, and physical properties of stormwater that is discharged to waterways.
Rain garden	A shallow vegetated depression that captures runoff from impervious surfaces like rooftops, driveways, and parking lots and allows it to soak into the ground. They are often planted with a variety of native plants and are designed to be aesthetically pleasing in addition to being functional. Rain gardens differ from swales in that swales are typically linear channels that convey water, whereas rain gardens receive water and allow it all to soak in on site.
Receiving waters	In the field of stormwater management, receiving waters refers to waterways that receive runoff or discharges.
Recharge, Groundwater	Groundwater recharge occurs when water slowly percolates through layers of soil until it reaches the saturated zone, or aquifer.
Retention facility	A structure designed to keep runoff onsite. Compare to Detention facility.
Retrofit	Installing new stormwater infrastructure or updating existing infrastructure to treat the runoff from an existing impervious surface. An example would be re-directing existing downspouts away from the street and into a new rain garden.
Riparian zone	The riparian zone is the area adjacent to a stream bank. A healthy riparian zone plays a crucial role in the health of the stream. Riparian vegetation provides bank stabilization, floodwater absorption, runoff filtration, erosion control, shade, and habitat. (The word *riparian* is derived from the Latin word *ripa* which means riverbank)
Runoff	Water that runs off of surfaces rather than infiltrating (See Stormwater).
Salmonid	Pronounced *sal-mon-id.* Refers to a member of the fish family Salmonidae, which includes various species of salmon and trout.
Sanitary Sewer	The public system of pipes that collects wastewater and transports it to a treatment facility
Safe Drinking Water Act (SDWA)	A federal law passed by Congress in 1974 to ensure safe drinking water for Americans. The SDWA gives the Environmental Protection Agency (EPA) authority to set standards and regulate activities that impact the quality of drinking water at the federal, state, and local level. Regulation of UIC's (Underground Injection Control devices) is required by the SDWA due to the potential for contamination of groundwater which is a source of drinking water for many individuals and communities, including Keizer.
Sediment	The product of erosion. Any material that is carried by wind, water, or gravity as a result of erosion.
Sedimentation	This occurs when particles suspended in a fluid settle out and come to rest against a barrier. Most often for stormwater, sedimentation occurs in waterways and treatment facilities.

Sediment fence	A temporary sediment control BMP that is used on construction sites to prevent sediment from leaving the site and potentially contaminating waterways. It consists of filter fabric stretched between wooden stakes in the ground. The bottom of the fabric is buried in a trench along the length of the fence to secure it. Runoff slowly passes through the fabric while any sediment accumulates behind the fence. It is not appropriate for areas with concentrated flows. Also referred to as a silt fence.
Silt fence	See Sediment fence
Storm drain	See Catchbasin
Stormwater	Runoff from impervious surfaces like rooftops, driveways, streets, parking lots, compacted soil, or any other surface that does not allow infiltration of all of the water.
Stormwater Advisory Committee (SWAC)	A nine-member committee which was organized in 2008 to assist Keizer staff with the development of ordinances related to stormwater management. The committee is made up of regulatory staff from the City of Salem and Marion County, members of the Keizer City Council, and Keizer citizens.
Stormwater Management Plan (SWMP)	A comprehensive plan that must be developed and implemented by NPDES permit holders to guide the management of stormwater. The SWMP specifies Best Management Practices BMP's to address the six Minimum Control Measures (MCM's).
Street Sweeping	A street maintenance and stormwater management BMP that involves washing, scrubbing, and vacuuming the surface of the street using a specialized street sweeping vehicle.
Structural BMP	See Best Management Practice (BMP)
Swale	A shallow channel lined with vegetation to filter and remove pollutants from stormwater that flows through it. Swales differ from rain gardens in that swales are typically linear channels that convey water (in a slower, more controlled way than a ditch), whereas rain gardens receive water and allow it all to soak in on site.
Total Maximum Daily Load (TMDL)	The amount of a particular pollutant that a waterway can receive daily and still meet established water quality standards. TMDL's are calculated for certain waterways on the 303(d) list. (Waterways are removed from the 303(d) list once they have received TMDL's. Removal from the list does not indicate that the waterway is no longer impaired). The City of Keizer has a TMDL Implementation Plan that addresses temperature, mercury, and bacteria in response to TMDL's for the Willamette Basin.
TMDL Implementation Plan	A written plan that is required for some TMDL Designated Management Agencies (DMA's) that describes the strategies and best management practices (BMP's) that will be implemented to control the discharge of pollutants. The City of Keizer has a TMDL Implementation Plan for the Willamette Basin. It requires annual reporting to the Department of Environmental Quality (DEQ) and runs concurrently with the Phase 2 NPDES Stormwater permit.
Temperature	The temperature of a waterway is of great importance to the aquatic wildlife that inhabit it. Salmon are particularly sensitive to water temperature. Water that is too warm can disrupt growth, feeding, reproduction, and migration, as well as make salmon more vulnerable to disease. According to the Washington Department of Ecology, streams should not be warmer than 64˚F to support salmon. Tall, healthy riparian vegetation and sediment control can help regulate water temperature by providing shade. The Department of Environmental Quality (DEQ) has established a TMDL for temperature in the Willamette Basin.
Turbidity	Turbidity refers to how clear the water is. The more turbid the water, the cloudier or hazy it is. An increase in turbidity is due to suspended particles such as sediment in the water.
Tributary	A waterway that contributes flow to a larger, downstream waterway. (Example: Claggett Creek is a tributary of the Willamette River).
UIC (Underground Injection Control device)	A device for managing stormwater which typically consists of one or more catchbasins which lead to a perforated or bottomless structure, such as a perf manhole, or perf pipe, which allows some or all of the water to seep out and infiltrate into the soil.
UGB (Urban Growth Boundary)	A land use boundary that designates an area in which high density urban development may occur.
Volume (Stormwater)	Stormwater volume refers to the amount of stormwater leaving a site and entering the stormwater system or receiving waters. Excessive stormwater volume is a concern due to the potential for localized flooding as well as non-natural erosion caused by fast-moving water.
Watershed	The area of land that contributes snowmelt and rainwater runoff to a particular waterway. Also called a basin or drainage basin.

Watershed Council	A voluntary, non-regulatory group of citizens who work to protect and enhance the watershed in which they live. In Keizer, the local watershed council is the Claggett Creek Watershed Council (CCWC).
Waterway	The term waterway can have a variety of definitions depending on the context in which it is used, but in this document, it may be used in a general way to mean any type of surface water body such as a stream, lake, or river.
Wetland	“For regulatory purposes under the Clean Water Act, the term wetlands means "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." –Environmental Protection Agency (EPA)
Willamette Basin	The area that contributes water to the Willamette River via 16,000 miles of smaller rivers and streams. (See Watershed).
Willow Lake Water Pollution Control Facility	Often referred to as “the wastewater treatment plant”, the Willow Lake Water Pollution Control Facility treats the wastewater (sewage) produced by Salem, Keizer, Turner, and portions of unincorporated Marion County. It serves a total of approximately 229,000 residents. It does NOT treat stormwater runoff.
Waste Load Allocation	The pollutant load allocated to a discharge source, such as an NPDES permitted municipality.
Wastewater	Water that contains waste products from washing, flushing, or manufacturing processes. See Sanitary Sewer
Water Pollution Control Facilities (WPCF) permit	The WPCF permit program, administered by the DEQ, regulates subsurface discharges of wastewater or stormwater which could negatively impact groundwater. Certain operators of stormwater UIC’s are required to obtain a WPCF permit and implement a variety of programs to protect groundwater. The City of Keizer has applied for and is awaiting issuance of its WPCF permit to continuing operating stormwater UIC’s.
Water Quality Management Plan (WQMP)	A document prepared by DEQ which creates an agenda for implementation of management strategies to achieve water quality standards related to TMDL’s for a waterway. The WQMP identifies the Designated Management Agencies (DMA’s) responsible for managing the discharge of pollutants to the waterway(s).
Waters of the State	Waters of the State are lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters) that are located wholly or partially within or bordering the state or within its jurisdiction.