Chapter 1.0

GENERAL POLICIES

Summary of Chapter 1.0

This chapter outlines the City of Eugene's stormwater management requirements and identifies who is required to conform to these requirements. It includes:

1.1 PURPOSE OF MANUAL

Stormwater management is a key element in maintaining and enhancing the City's livability. There is a direct link between stormwater and the City's surface and ground waters. As the City is developed, the impervious surfaces that are created increase the amount of runoff during rainfall events, disrupting the natural hydrologic cycle. Without control, these conditions erode stream channels and prevent groundwater recharge. Parking lots, roadways, and rooftops increase the pollution levels and temperature of stormwater runoff that is transported to streams, rivers, and groundwater resources. Protecting these waters is vital for a great number of uses, including fish and wildlife habitat, recreation, and drinking water.

The purpose of this manual is to provide stormwater management principles and techniques that help preserve or mimic the natural hydrologic cycle and achieve water quality goals. This *Stormwater Management Manual* provides developers and design professionals with specific requirements for reducing the impacts of stormwater runoff quantity and pollution resulting from new development.

This manual is for development subject to the stormwater development standards adopted by City ordinance (See **Appendix A**). This manual also provides standards for determining qualification for stormwater SDC and user fee credits.

1.2 SUMMARY OF MANUAL CONTENTS

Chapter 1.0: General Policies, outlines the purpose and use of this manual and defines terms. It outlines pollution reduction, flow control, and destination design standards, explains the rules for connecting to existing systems, and differentiates public and private stormwater management systems. This chapter also identifies special circumstances on a proposed development site that may make it impractical to implement on-site pollution reduction or flow control to the standards specified in this manual.

Chapter 2.0: Stormwater Management Facility Design, provides methods for selecting and designing stormwater management facilities that accomplish pollution reduction, flow control, and/or destination goals. The "simplified," "presumptive," and "performance" approaches are presented.

Chapter 3.0: Operations & Maintenance, presents operations and maintenance (O&M) submittal requirements and provides templates for stormwater management facility O&M plans.

Chapter 4.0: Source Controls, addresses site activities and characteristics with the potential to generate pollutants that may not be addressed solely through the pollution reduction facilities presented in **Chapter 2.0**.

Appendix A: Eugene City Code Section 9.6790-9.6796, includes the section of City Code that addresses stormwater management policies and standards and that officially recognizes the City's *Stormwater Management Manual*.

Appendix B: Approved Proprietary Stormwater Treatment Technologies, lists all proprietary stormwater treatment technologies approved for use to meet Eugene's pollution reduction requirements.

Appendix C: Santa Barbara Urban Hydrograph Method describes the Santa Barbara Urban Hydrograph method of computing stormwater runoff hydrographs. It includes the City's 24-hour rainfall depths, formulas for computing time of concentration, and runoff curve numbers.

Appendix D: Green Street Design, includes stormwater management facilities for designing Green Streets. It also includes example planting plans and supplemental plan-view and cross-sectional drawings.

Appendix E: Water Quality Design Storm Development, outlines the rational behind the development of Eugene's pollution reduction storm rate and volume, and associated goal of treating 80% of the average annual rainfall.

Appendix F: Flood Control Design Storm Tables, outlines the rainfall intensity, duration and frequency curves, storm recurrence intervals, and storm events for planning and designing stormwater flood control facilities.

Appendix G: Facility Planting Design Concepts and Materials, presents plant species recommendations for each vegetated stormwater management facility type, as well as recommended soil specifications.

Appendix H: Headwater Streams Map, presents headwater streams identified for flow controls.

Appendix I: Infiltration Limited Areas Map, presents areas which may be infiltration limited due to generalized site conditions such as soil type and groundwater depth.

1.3 DEFINITIONS

Note: Definitions are intended to be consistent with Eugene Code Chapter 9, Land Use; Chapter 6, Environment and Health; and Chapter 7, Public Improvements.

Above-Ground Storage of Liquid Materials (**Section 4.3**): Places where exterior storage (either permanent or temporary) of liquid chemicals, food products, waste oils, solvents, or petroleum products in above-ground containers, in quantities of 50 gallons or more exist.

***Aboveground Storage Tank (AST)*:** A stationary container, vessel, or other permanent holding device designated for the storage and/or distribution of a liquid product.

Applicant: Any person, company, or agency that applies for a permit through the City of Eugene.

***Batch Discharge*:** The controlled discharge of a discrete, contained volume of water or wastewater. Batch discharges into the public wastewater system must conform to the requirements of Eugene Code sections 6.501-6.596: Industrial Pretreatment Program.

***Bulk Fuel Terminal*:** Any area with its primary function dedicated to the storage and distribution of fuel to distributors (such as gas stations).

***Bulk Materials*:** Non-containerized materials.

Capacity: The capacity of a stormwater drainage system is the flow volume or rate that a facility (e.g., pipe, pond, vault, swale, ditch, drywell, etc.) is designed to safely contain, receive, convey, reduce pollutants from or infiltrate stormwater that meets a specific performance standard. There are different performance standards for pollution reduction, detention, conveyance, and destination, depending on location.

Constructed Treatment Wetlands: A facility that exhibits wetland characteristics but was constructed for the express purpose to perform a utility need, such as a sedimentation pond, and is not eligible for mitigation credit or subject to the jurisdictional requirements of federal and state wetland law. See **Chapter 2.0** for information regarding the design of constructed treatment wetlands.

Contained Planter: A structural facility filled with topsoil and planted with vegetation. When placed over impervious surfaces such as sidewalks or rooftops, contained planter boxes intercept rainfall that would otherwise contribute to stormwater runoff. See **Chapter 2.0** for information regarding the design of contained planter boxes.

***Containerized*:** The storage of any product, by-product, or waste that is completely held or included on all sides, within a discrete volume or area.

***Containment*:** The temporary storage of potentially contaminated stormwater or process wastewater when a hard-plumbed connection to the City wastewater system is not available for disposal.

Control Structure: A device used to hold back or direct a calculated amount of stormwater to or from a stormwater management facility. Typical control structures include vaults or manholes fitted with baffles, weirs, or orifices. See **Chapter 2.0** for information regarding the design of control structures.

Conveyance: The transport of stormwater from one point to another.

Covered Vehicle Parking Structures (**Section 4.9**): Enclosed buildings, not including single-level covers such as canopies, overhangs, and carports, used to cover parked vehicles.

Destination: The ultimate discharge point for the stormwater runoff from a particular site, also known as stormwater disposal. Destination can include on-site infiltration such as surface infiltration facilities, drywells and sumps, and soakage trenches, and off-site flow to ditches, drainage ways, rivers and streams, and off-site storm pipes.

Detention Facility: A facility designed to receive and hold stormwater and release it at a slower rate, usually over a number of hours. The full volume of stormwater that enters the facility is eventually released.

Detention Tank, Vault, or Oversized Pipe: A structural subsurface facility used to provide flow control for a particular drainage basin. See **Chapter 2.0** for information regarding the design of detention tanks, vaults, and oversized pipes.

Development Footprint: The new or redeveloped area covered by buildings or other roof structures and other impervious surface areas, such as roads, parking lots, and sidewalks.

Disposal: See definition of *Destination*.

Drainage Basin: A specific area that contributes stormwater runoff to a particular point of interest, such as a stormwater management facility, stream, wetland, or pipe.

Drainage Way: An open linear depression, whether constructed or natural, which functions for the collection and drainage of surface water. It may be permanently or temporarily inundated.

Drawdown Time: The amount of time it takes for a facility to percolate runoff from the design storm.

Dry Detention Pond: A surface vegetated basin used to provide flow control for a particular drainage basin. Stormwater temporarily fills the dry detention pond during large storm events and is slowly released over a number of hours, reducing peak flow rates. See **Chapter 2.0** for information regarding the design of dry detention ponds.

Drywell: A structural subsurface facility with perforated sides or bottom, used to infiltrate stormwater into the ground. See **Chapter 2.0** for information regarding the design and use of drywells.

Eco-Roof: A lightweight low-maintenance vegetated roof system used in place of a conventional roof. Eco-roofs provide stormwater management by capturing, filtering, and evaporating rainfall. See **Chapter 2.0** for information regarding the design of eco-roofs.

Equipment and/or Vehicle Washing Facilities (**Section 4.7**): Designated equipment and/or vehicle washing or steam cleaning areas, including smaller activity areas such as wheel washing stations.

Extended Wet Detention Pond: A surface vegetated basin with a permanent pool of water and additional storage volume, used to provide pollution reduction and flow control for a particular drainage basin. The permanent pool of water provides a storage volume for pollutants to settle out. During large storm events, stormwater temporarily fills the additional storage volume and is slowly released over a number of hours, reducing peak flow rates. See **Chapter 2.0** for information regarding the design of extended wet detention ponds.

Exterior Materials Storage Area**:** Any outdoor materials storage location that is not completely enclosed by a roof and sidewalls.

Flood Control: The practice of managing stormwater drainage and flood protection. Drainage and flood protection strategies are outlined in the adopted City of Eugene Stormwater Basin Master Plans.

Flood Control Design Storm: A theoretical storm for evaluating the capacity of the storm drainage system and designing improvements for the required level of protection, in accordance with **Section 1.4**.

Flow Control: The practice of limiting the peak flow rates and volumes. Flow control is intended to protect downstream properties, infrastructure, and resources from the increased stormwater runoff peak flow rates and volumes resulting from development.

Flow Control Facility: Any structure or drainage device that is designed, constructed, and maintained to collect, retain, infiltrate, or detain surface water runoff during and after a storm event for the purpose of controlling post-development water quantity leaving the development site.

Flow rate-based facility: Facilities such as swales and vegetated filters, oil/water separators, and some proprietary treatment systems which are sized to treat a rate of flow to be conveyed through them.

Fuel Dispensing Facilities (**Section 4.2**): Areas where fuel is transferred from bulk storage tanks to vehicles, equipment, and/or mobile containers (including fuel islands, above ground fuel tanks, fuel pumps, and the surrounding pad). This definition applies to large-sized gas stations as well as single-pump fueling operations.

Groundcover Plant: As required in the individual facility landscaping requirements, a groundcover plant shall reach a maximum of 1' in height at maturity and shall grow in a manner to densely cover the ground.

Hazardous Material**:** Any material or combination of materials that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or that may pose a present or potential hazard to either human health, safety, or welfare, or animal or aquatic life or the environment when improperly used, stored, transported or disposed of, or otherwise managed. For purposes of chemical regulation by this manual, moderate to high toxicity and confirmed human carcinogenicity are the criteria used to identify hazardous substances. (Note: This manual does not use the Resource Conservation and Recovery Act (RCRA) definition of hazardous. For the purpose of this manual, hazardous material is intended to include hazardous, toxic, and other harmful substances.)

Hazardous Material Containment Zone (HMC Zone)**:** An area where a specific individual activity involving use of a hazardous material takes place, and where chemical quantities at that location are expected to exceed defined thresholds. HMCs may include (but are not limited to) storage and/or process areas, transportation routes, work areas, and loading/unloading facilities.

Headwaters Area: The area within Eugene city limits that is above 500 feet.

Headwater Streams: Streams that: (1) are identified on the Headwater Streams Map (**Appendix H** of the Stormwater Management Manual) as having all or a portion of their length located on slopes greater than 10%; (2) are identified on the Sensitive Areas Map as having all or a portion of their length located in areas with highly erodible soils; (3) are at least 500 feet or longer; and, (4) drain at least 10 acres.

High-flow Bypass and/or Diversion Device: A mechanism used to route stormwater runoffs which are greater than the pollution reduction design storm around a stormwater management facility which is only designed to treat the pollution reduction design storm. Flows routed around the pollution reduction facility must be taken to an approved destination.

High-flow Overflow: An inlet located at an approved elevation and location within a stormwater management facility, meant to collect overflow waters and route those waters to an approved destination.

High-Risk Site: A site with characteristics and/or activities that have the potential to generate pollutants that may not be addressed solely through the pollution reduction facilities presented in Chapter 2.0. High-risk site characteristics and activities are listed in **Section 4.1.1**.

Impervious Surface/Area: Any surface area that causes water to run off the surface in greater quantities or at an increased rate of flow from conditions pre-existing to development. Types of impervious surface include, but are not limited to, rooftops, asphalt and concrete parking lots, driveways, roads, sidewalks, and pedestrian plazas. *Note:* Slatted decks are considered pervious. Gravel surfaces are considered pervious unless they cover impervious surfaces or are compacted to a degree that causes their runoff coefficient to exceed 0.8.

Impervious Area Reduction Technique: Implementation of a facility used to reduce the impermeability of a firm surface which would otherwise be impervious, such as a roof or sidewalk. Such facilities include pervious pavement, eco-roofs, contained planters, and tree credit trees.

Infiltration: The percolation of water into the ground.

Inlet: A structural facility located just below the ground surface, used to collect stormwater runoff for conveyance purposes. Generally located in streets and parking lots, inlets have grated lids, allowing stormwater from the surface to pass through for collection. The term "inlet" can also be used in reference to the point at which stormwater from impervious surfaces or conveyance piping enters a stormwater management facility.

***LD-50*:** The lethal dose of a substance that is expected to kill approximately 50 percent of experimental animals through oral ingestion. (Refer to product Material Safety Data Sheet.)

***Local Dispensing Location*:** An area within 15 feet of an aboveground storage tank (AST) and used to dispense fuel directly from the AST, typically through a flexible hose.

Manufactured Stormwater Treatment Technology: A proprietary structural facility or device used to remove pollutants from stormwater. Refer to **Chapter 2.0** and **Appendix B** for the list of approved proprietary stormwater treatment technologies.

Material Transfer Areas/Loading Docks (**Section 4.6**): Areas that are either interior or exterior to a building, designed to accommodate a truck/trailer being backed up to or into them, and used specifically to receive or distribute materials to and/or from

trucks/trailers. Includes loading/unloading facilities with docks, and large bay doors without docks.

Maximum Extent Practicable (MEP): See definition of *Practicable*.

Off-site stormwater facility: Any stormwater management facility located outside the property boundaries of a specific development, but designed to reduce pollutants from and/or control stormwater flows from that development.

On-site stormwater facility: Any stormwater management facility necessary to control stormwater within an individual development project and located within the project property boundaries.

Operations and Maintenance (O&M): The continuing activities required to keep stormwater management facilities and their components functioning in accordance with design objectives. See **Chapter 3.0** regarding operations and maintenance requirements for stormwater management facilities.

Outfall: A location where collected and concentrated water is discharged. Outfalls include discharge from stormwater management facilities, drainage pipe systems, and constructed open channels. See **Chapter 2.0** for information regarding the design of outfalls.

Parking Area**:** Any area which can be used by motor vehicles, recreational vehicles, trailers, and boats for parking, including driveways and access aisles providing access to the parking stalls.

Permeable Pavement: See definition of *Pervious Pavement*.

Pervious Pavement: Pavement systems that allow precipitation to percolate through them and into the ground or subsurface drainage systems below. See **Chapter 2.0** for design requirements related to pervious pavement. Also referred to as pavers, porous pavement, or permeable pavement.

Pollutant: An elemental or physical product that can be mobilized by water or air and creates a negative impact on the environment. Pollutants include suspended solids (sediment), heavy metals (such as lead, copper, zinc, and cadmium), nutrients (such as nitrogen and phosphorus), bacteria and viruses, organics (such as oil, grease, hydrocarbons, pesticides, and fertilizers), floatable debris, and increased temperature.

Pollution Reduction Design Storm: See *Water Quality Design Storm*.

Pollution Reduction Facility: Any structure or drainage device that is designed, constructed, and maintained to collect and filter, retain, or detain surface water runoff

during and after a storm event for the purpose of maintaining or improving surface and/or groundwater quality.

Porous Pavement: See definition of *Pervious Pavement*.

Post-Developed Condition: As related to new development: A site's ground cover after development.

Practicable: Available and capable of being done as determined by the City, after taking into consideration cost, existing technology, and logistics in light of overall project purpose.

Pre-Developed Condition: As related to new development: A site's ground cover prior to the proposed development.

Privately Engineered Public Improvement (PEPI): A public facility that is designed, constructed, and financed by a private developer, entity, or its agent.

Public Facility: A street, right-of-way, sewer, drainage, stormwater management, or other facility that is either currently owned by the City or will be conveyed to the City for maintenance responsibility after construction. A stormwater management facility that receives direct stormwater runoff from a public right-of-way shall become a public (City-maintained) facility unless the right-of-way is not part of the City's road maintenance system.

Public Works Project: Any development conducted or financed by a local, state, or federal governmental body and includes local improvements and public improvements.

Rain Garden (Infiltration and Filtration): A vegetated surface facility that retains the runoff from impervious surfaces allowing the uptake of pollutants through contact with vegetation and filtration through a sand medium. Infiltration rain gardens (formerly referred to as vegetated infiltration basins) have open bottoms that allow the runoff to infiltrate into the ground below. Filtration rain gardens are completely sealed, a perforated collection pipe is placed in the sand medium to collect treated runoff and an overflow provision is installed to direct flood control runoff to an acceptable destination point. See **Chapter 2.0** for information regarding the design of rain gardens.

Recycled Land (**Section 4.8**): Land that currently has or previously has had pollutants detected in the soil or groundwater at concentrations that exceed risk-based cleanup levels or state/federal cleanup standards for the particular pollutant(s) of concern.

Retention Facility: A facility designed to receive and hold stormwater runoff. Rather than storing and releasing the entire runoff volume, retention facilities permanently retain a portion of the water on-site, where it infiltrates, evaporates, or is absorbed by

surrounding vegetation. In this way, the full volume of stormwater that enters the facility is not released off-site.

***Roadway*:** Any paved surface used to carry vehicular traffic (cars/trucks, forklifts, farm machinery, or any other large machinery).
Roof Garden: A heavyweight roof system of waterproofing material with a thick soil and vegetation cover. Roof gardens provide stormwater management by capturing, filtering, and evaporating rainfall. See **Chapter 2.0** for information regarding the design of roof gardens.

Runoff: Stormwater flows across the ground surface during and after a rainfall event.

Sand Filter: A structural facility with a layer of sand, used to filter pollutants from stormwater. See **Chapter 2.0** for information regarding the design of sand filters.

Santa Barbara Urban Hydrograph (SBUH): A hydrologic method used to calculate runoff hydrographs. See **Appendix C** for information regarding the use of the Santa Barbara Urban Hydrograph method.

Soakage Trench: A linear excavation backfilled with sand and gravel, used to filter pollutants from runoff and infiltrate the runoff into the ground. See **Chapter 2.0** for information regarding the design of soakage trenches.

Solid Waste Storage Areas, Containers, and Trash Compactors (**Section 4.4**): Outdoor areas with one or more facilities that store solid waste (both food and non-food waste). Single- and two-family residential solid waste storage areas, containers, and trash compactors are exempt.

Stormwater: Water runoff that originates as precipitation on a particular site, basin, or watershed.

Stormwater Facility Landscaping: The vegetation (plantings), topsoil, drain rock, and other surface elements associated with stormwater management facility design.

Stormwater Management: The overall culmination of techniques used to reduce pollutants from, detain and/or retain, and provide a destination for stormwater to best preserve or mimic the natural hydrologic cycle on a development site. Public health and safety, aesthetics, maintainability, capacity of existing infrastructure, and sustainability are important characteristics of a site's stormwater management plan.

Stormwater Management Facility: Any structure or configuration of the ground that is used as, or by its location becomes, a place where stormwater flows or is accumulated, including but not limited to, pipes, sewers, curbs, gutters, manholes, catch basins, ponds, open drainage ways, runoff control facilities, wetlands, and their accessories.

Stormwater Planter (Infiltration and Filtration): A structural facility filled with topsoil and gravel then planted with vegetation. The stormwater planter receives runoff from impervious surfaces, where it is filtered and retained for a period of time. Infiltration stormwater planters have open bottoms, allowing runoff to infiltrate into the ground. Filtration stormwater planters (formerly called flow-through planters) are completely sealed, a perforated collection pipe is placed under the soil and gravel to collect treated runoff and an overflow provision is installed to direct flood control runoff to an acceptable destination point. See **Chapter 2.0** for information regarding the design of stormwater planter boxes.

Stormwater Re-use: See definition of *Rainwater Harvesting*.

Sump: As used in this manual: A large public drywell (see definition) used to infiltrate stormwater from public streets. The term "sump" can also be used to reference to any volume of a facility below the point of outlet, in which water can accumulate. See **Chapter 2.0** for information regarding the use and design of sumps.

Surface Conveyance: The transport of stormwater on the ground surface from one point to another.

Surface Infiltration Facility: A facility designed to receive and infiltrate stormwater runoff at the ground surface to meet stormwater destination requirements.

Surface Retention Facility: A facility designed to receive and hold stormwater runoff at the ground surface. Rather than storing and releasing the entire runoff volume, surface retention facilities permanently retain a portion of the water on-site, where it infiltrates, evaporates, or is absorbed by surrounding vegetation.

Swale (Grassy, Vegetated, and Street): A long, narrow, trapezoidal or parabolic-shaped channel, planted with a dense grass mix or suitable vegetation. Stormwater runoff from impervious surfaces is conveyed through the swale, where it is slowed and in some cases infiltrated, allowing pollutants to settle out before being released into an approved destination. Check dams may be used to create small ponded areas to slow conveyance and facilitate infiltration. See **Chapter 2.0** for information regarding the design of grassy swales.

Tenant Improvements: Upgrades made to the interior or exterior of buildings. Tenant improvements may trigger **Chapter 4.0** Source Controls if they take place on sites with specified high-risk activities.

Time of Concentration (T_c): The amount of time it takes stormwater runoff to travel from the most distant point (measured by travel time) on a particular site or drainage basin to a particular point of interest, such as to an on-site retention system. See **Appendix C** for calculations related to time of concentration.

Total Suspended Solids (TSS): Matter suspended in stormwater excluding litter, debris, and other gross solids exceeding 1 millimeter in diameter.

Underground Injection Control (UIC): A federal program under the Safe Drinking Water Act, delegated to the Oregon Department of Environmental Quality (DEQ), which regulates the injection of water below ground. The intent of the program is to protect groundwater aquifers, primarily those used as a source of drinking water, from contamination. See **Section 1.4.4** for information regarding the UIC program.

Vegetated Facilities: As used in this manual, stormwater management facilities that rely on plantings to enhance their performance. Plantings can enhance many facility functions, including infiltration, pollutant removal, water cooling, flow calming, and prevention of erosion.

Vegetated Filter Strip: A gently sloping, densely vegetated area used to filter, slow, and infiltrate stormwater. See **Chapter 2.0** for information regarding the design of vegetated filter strips.

Volume-based Facility: A pollution reduction facility, such as a wet pond, which is sized to store a particular volume of runoff. Volume-based facilities are designed to treat runoff generated by 1.4 inches of rainfall over a 24 hour period (with NRCS Type 1A rainfall distribution).

Water Body: Water bodies include rivers, streams, sloughs, drainages including intermittent streams and seeps, ponds, lakes, aquifers, wetlands, and coastal waters.

Water Quality: The chemical, physical, and biological characteristics of stormwater. Pollution reduction and flow control are two components of water quality management in stormwater runoff.

Water Quality Design Storm: A theoretical storm for estimating the amount of stormwater runoff to be treated. Facilities designed to store and treat a volume of stormwater shall be sized in accordance with Section 1.5.2 of this *Stormwater Management Manual*.

Wet Pond: A surface vegetated basin with a permanent pool of water, used to provide pollution reduction for a particular drainage basin. The permanent pool of water provides a storage volume for pollutants to settle out. See **Chapter 2.0** for information regarding the design of wet ponds.

Wetland: An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, and similar areas except those constructed as water quality or quantity control facilities. Specific wetland designations shall be made by the Corps of Engineers and the Division of State Lands.

1.4 STORMWATER DESTINATION

1.4.1 The Purpose of Stormwater Destination

Stormwater destination refers to the ultimate discharge point for stormwater generated by large, intense rainfall events from a particular development site. While many of the stormwater management facilities from Chapter 2.0 are designed to provide pollution reduction, flow control, or both, most of them do not infiltrate stormwater from large, intense rainfall events sufficiently enough to be considered the only stormwater destination for the site. In addition to water quality measures, destination measures from Chapter 2.0 are required and must be approved by Public Works (for off-site flow or infiltration within the public right-of-way and for infiltration on private property). It should be noted that the destination method might have an impact on the pollution reduction and flow control requirements for a site. Therefore, it is advantageous to determine the method of destination first.

Destinations can be grouped into two general categories: on-site infiltration and off-site flow. On-site infiltration methods include surface infiltration techniques, soakage trenches, drywells, and infiltration sumps. Off-site flow methods include discharge to drainage ways (including roadside ditches and natural drainages and streams), rivers, and off-site stormwater facilities. The appropriate destination point is site-specific and depends on a number of factors, including soil type, slopes, and availability of public and private infrastructure.

1.4.2 Destination Design Methodology

The City of Eugene has developed a flood control strategy for each of the drainage basins within the Urban Growth Boundary and published its findings in the adopted Stormwater Basin Master Plans. To evaluate the capacity of storm drainage facilities for the desired level of protection, the Flood Control Design Storm information is provided in **Appendix F**.

1.4.3 Destination Standards

ON-SITE INFILTRATION

Where complete on-site infiltration is used for the destination of stormwater, the following standards shall apply:

> **Surface Infiltration Facilities:** Surface infiltration facilities must demonstrate the ability to store and infiltrate the Flood Control Design Storm presented in **Appendix F**.
> **Subsurface Infiltration Facilities:** Subsurface infiltration systems must demonstrate that they can store and infiltrate the Flood Control Design Storm presented in **Appendix F** and must either be located outside infiltration limited areas as identified on the City's Infiltration Limited Areas Map (See **Appendix I)**

or the design professional must prove the viability of on-site infiltration using the Infiltration Testing procedure outlined in **Chapter 2.0**.

OFF-SITE DISCHARGE TO OPEN FLOW

Where stormwater is discharged to an off-site surface flow conveyance facility, such as a ditch, drainage way, stream, or river, the following standards shall apply:

Beginning at the point of discharge from the site, the off-site open drainage way must have the capacity to convey flows from all contributing upstream drainage areas using the Flood Control Design Storm. The capacity and performance of open drainage ways is provided in Appendix E Hydrologic/Hydraulic Model Input and Output Tables of the URS Stormwater Basin Master Plans. The capacity of other open drainage ways shall be calculated using the Rational Method (Q=CIA), with intensity corresponding to the calculated time of concentration (5-minute minimum), or other approved hydrologic modeling method for conveyance. See **Appendix F** for rainfall intensity charts and **Chapter 2** for the list of approved hydrologic modeling methods.

OFF-SITE DISCHARGE TO PIPED FLOW

Where stormwater is discharged to an off-site piped conveyance facility, the following standards shall apply:

Beginning at the point of discharge from the site, the off-site piped conveyance facility must have the capacity to convey flows from the Flood Control Design Storm from all contributing upstream drainage areas without surcharge. If no other stormwater options are available, the existing piped conveyance facility may surcharge, but the hydraulic grade line must remain 6" below gutter elevation where water could surcharge into the street, catch basins, manholes, curb inlets. The capacity and performance of major open drainage ways is provided in Appendix E Hydrologic/Hydraulic Model Input and Output Tables of the URS Stormwater Basin Master Plans. The capacity of other piped conveyance systems shall be calculated using the Rational Method (Q=CIA), with intensity corresponding to the calculated time of concentration (5-minute minimum), or other approved hydrologic modeling method for conveyance. See **Appendix F** for rainfall intensity charts and **Chapter 2** for the list of approved hydrologic modeling methods.

1.4.4 Underground Injection Control Structures (UICs)

This section provides general information only. Complete regulations and requirements are available on the Oregon Department of Environmental Quality (DEQ) website: **http://www.deq.state.or.us/wq/groundwa/uichome.htm**

The federal Underground Injection Control (UIC) Program (under the Safe Drinking Water Act) regulates the injection of water below the ground. The intent of the program is to protect groundwater aquifers, primarily those used as a source of drinking water, from contamination. DEQ administers the UIC Program in Oregon.

DEQ defines a UIC as any system, structure, or activity that discharges fluid below the ground or subsurface. UICs can pollute groundwater and surface water if not properly designed, sited, and operated. Stormwater systems such as sumps, drywells, and soakage trenches are examples of UICs subject to DEQ regulation.

Owners or operators of new and existing UICs are required to register and provide inventory data to DEQ. This information helps DEQ determine if the UIC is eligible for "rule authorization." Rule authorization allows the owner or operator to operate the UIC without a permit from DEQ. UICs that do not qualify for rule authorization must either be closed, modified to meet requirements for rule authorization, or the owner must submit a water pollution control facility permit application to DEQ and obtain a permit.

CRITERIA FOR RULE AUTHORIZATION

UICs must be registered and approved by DEQ before construction. DEQ has set minimum criteria for rule authorization (OAR 340-044-0018), identified below:

- No other waste is mixed with stormwater.
- Site development, design, construction, and management practices have minimized stormwater runoff.
- No other method of stormwater disposal, including construction or use of surface discharging storm drains or surface infiltration designs, is appropriate.
- No domestic drinking water wells are present within 500 feet of the proposed facility.
- No public drinking water supply wells are present within 500 feet or a two-year time of travel.
- No soil or groundwater contamination is present.
- The UIC is not deeper than 100 feet and does not discharge within 10 feet of the highest seasonal groundwater level.
- A confinement barrier or filtration medium is present, or best management practices (BMPs) are used to prevent or treat stormwater contamination. Stormwater management efforts should focus on maximizing source controls, use of vegetated

pollution controls, and infiltration through surface infiltration or shallow subsurface facilities.
- Design and operation prevents accidental or illicit spills and allows for temporary blocking.

Compliance with these criteria must be demonstrated during the registration process. Compliance can generally be more readily accomplished if stormwater management efforts focus on maximizing source controls, using surface vegetated pollution control options such as swales and planters, and disposing of stormwater through surface infiltration or shallow subsurface facilities.

RULE AUTHORIZATION PROCESS

The City of Eugene is managing the rule authorization process for public facilities (UICs that drain public right-of-ways). To allow adequate time to complete the UIC process, registration and inventory information for proposed public UICs should be submitted to the City of Eugene as soon as possible after it has been determined that new or existing public right-of-way will be constructed or improved. Contact PW at (541) 682-5291 to get the public UIC process started.

Registration and inventory information for UICs proposed to serve private property should be submitted directly to Ms. Barbara Priest, Oregon DEQ, (503) 229-5945.

Registration and inventory data should be submitted at least 60 days in advance of potential start of work. In some cases, DEQ and the City will need additional information from the applicant in order to make a determination on the potential for use of a UIC.

The registration, rule authorization and permit process is explained in more detail on DEQ's permit webpage: **http://www.deq.state.or.us/pubs/permithandbook/wquic.htm** For technical questions, call the DEQ UIC Program at 503-229-5945. For copies of UIC registration applications or forms, call 1-800-452-4011.

1.5 POLLUTION REDUCTION

1.5.1 The Purpose of Pollution Reduction

Urbanization is recognized as having a serious impact on Eugene's waters. As land is developed, impervious area and surface runoff increase. This runoff collects and transports pollutants to downstream receiving waters. Pollutants of concern include:

- Suspended solids (sediment)
- Heavy metals (dissolved and particulate, such as lead, copper, zinc, and cadmium)
- Nutrients (such as nitrogen and phosphorus)
- Bacteria and viruses
- Organics (such as oil, grease, hydrocarbons, pesticides, and fertilizers)
- Floatable debris
- Increased thermal load (temperature)

In response to the water quality impacts of urbanization, Congress passed the Clean Water Act amendments of 1987, mandating the U.S. Environmental Protection Agency (EPA) to issue regulations to control urban stormwater pollution. The regulations, published in 1990, require larger cities such as Eugene to obtain a National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit for their municipal separate storm sewer discharges. Compliance with the NPDES permit requires the City to establish a comprehensive stormwater management program. Eugene's citywide management program includes design standards for source control devices as well as best management practices designed to improve stormwater quality. This *Stormwater Management Manual* is part of Eugene's NPDES stormwater management program to improve the quality of Eugene's waters.

1.5.2 Pollution Reduction Design Methodologies

Pollution reduction facilities shall be designed, at a minimum, to treat the Water Quality Design Storm. Pollution reduction facilities which are designed using an approach other than the Simplified Approach must be sized using the following design values:

Flow-rate based design: Swales, oil/water separators, and proprietary treatment systems shall be sized to treat a rate of flow draining through them.

- A rainfall intensity of 0.13 inches per hour shall be used to design the off-line conveyance type facilities.
- A rainfall intensity of 0.22 inches per hour shall be used to design the on-line conveyance type facilities.

Combination rate/volume based design: Other pollution reduction facilities, such as stormwater planters, rain gardens, sand filters and soakage trenches shall be sized to treat a volume of runoff.

- When using the SBUH, facilities shall be designed to treat runoff generated by 1.4 inches of rainfall over 24 hours (with NRCS Type 1A rainfall distribution)

See **Appendix E** for more detailed information regarding the formulation of Eugene's pollution reduction standards and Water Quality Design Storm.

Exhibit 1-1: Pollution Reduction Facility Removal Capabilities

	The facility can likely remove the parameter
	The facility can potentially remove the parameter, depending on design
	The facility cannot likely remove the parameter

Pollution Control Facility Type	Bacteria	Temperature	Nutrients	Pesticides (DDT, Dieldrin, Aldrin)	PCB	2,3,7,8 TCDD (Dioxin)	PAH	Trace Metals (Pb, As, Fe, Mn)
Eco-roof	■	■			▒	■	■	
Roof garden	▒	■			▒	■	■	
Pervious pavement	■	■	▒	▒	▒	▒	▒	▒
Tree credit		■						
Contained planter		■				■	■	
Stormwater planter	■	■	■	▒	■	■	■	■
Swale (grassy, vegetated & street)	▒	▒	▒	▒	▒	▒	▒	▒
Vegetated filter strip	▒	▒	▒	▒	▒	▒	▒	▒
Rain garden	■	■	■	▒	■	■	■	■
Wet pond	▒	▒	▒	▒	■	■	■	■
Extended wet detention pond	▒	▒	▒	▒	■	■	■	■
Constructed treatment wetland	▒	■	■	▒	■	■	■	■
Sand filter	■	■	■	▒	■	■	■	■
Manufactured filtration device	■	▒	■	▒	■	■	■	■

Note: This table is for guidance only. Actual pollutant removal capabilities are based on specific facility design and site parameters.

1.6 OIL CONTROL FOR HIGH-RISK VEHICLE AND EQUIPMENT TRAFFIC AREAS

Oil controls can include either (1) spill control manholes presented in **Section 2.9** or (2) the incorporation of Lynch-type catch basins within the parking lot or at the outlet to swales or other pollution reduction facilities. The discharge of stormwater with a visible sheen off-site or into on-site UIC's is prohibited.

1.7 FLOW CONTROL

1.7.1 The Purpose of Flow Control

Prior to development, rainfall appears as stream flow, evaporates into the atmosphere, or infiltrates into the ground where it recharges groundwater aquifers or surface water bodies. Urbanization results in the loss of forest, agricultural land, and open space and increases the amount of impervious area. As a result, development can have the following hydrologic impacts:

- Increased stormwater flow rates
- Increased stormwater runoff volumes
- Decreased groundwater recharge and base flows into streams
- Seasonal flow volume shifts

Flow control is intended to protect downstream properties, infrastructure, and natural resources from the increases in stormwater runoff peak flow rates and volumes resulting from development.

The City's policy is to ensure that runoff leaving the post-development site:
- does not exceed the capacity of the receiving conveyance facility or water body.
- does not increase the potential for stream bank and stream channel erosion.
- does not create or increase any upstream or downstream flooding problems.

The basic design concept for flow control (detention and retention) is simple: water from developed areas is managed with a variety of flow control techniques and released to downstream conveyance systems at a slower rate (detention) and lower volume (retention). Managing flows in this way attempts to mimic the site's natural rainfall runoff response prior to development (See **Exhibit 1-2**).

Detention facilities temporarily store stormwater runoff in a pond, tank, vault, or pipe. The water is slowly released from the facility, typically over a number of hours.

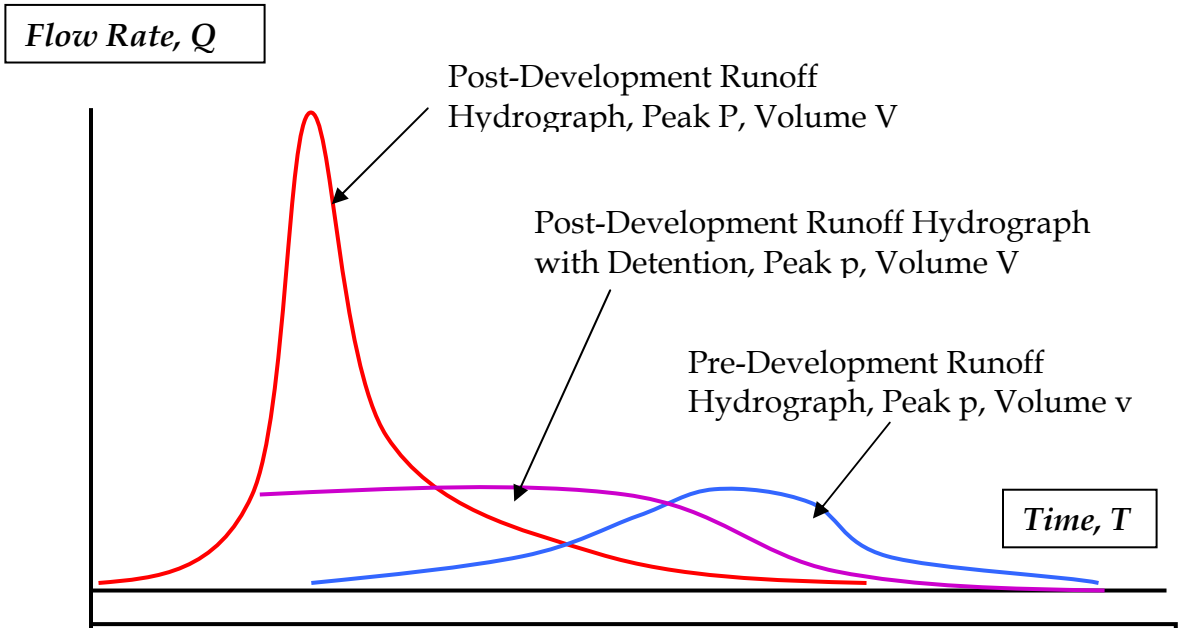
Retention facilities also store stormwater runoff. Rather than storing and releasing the entire runoff volume, however, the facility permanently retains a portion of the water on-site, where it infiltrates and recharges the groundwater aquifer, and in the case of surface retention facilities, evaporates or is absorbed and used by surrounding vegetation. In this way, retention facilities reduce the total volume of water released downstream. Surface treatments (such as eco-roofs or pervious pavements) that cover or replace traditional impervious surfaces and vegetated facilities such as swales, filters, ponds, and planter boxes are all examples of retention facilities.

In the past, flow control plans often relied solely on detention facilities. Facilities that control only peak flow rates, however, allow the duration of high flows to increase, causing the potential for increased erosion downstream. For example, after

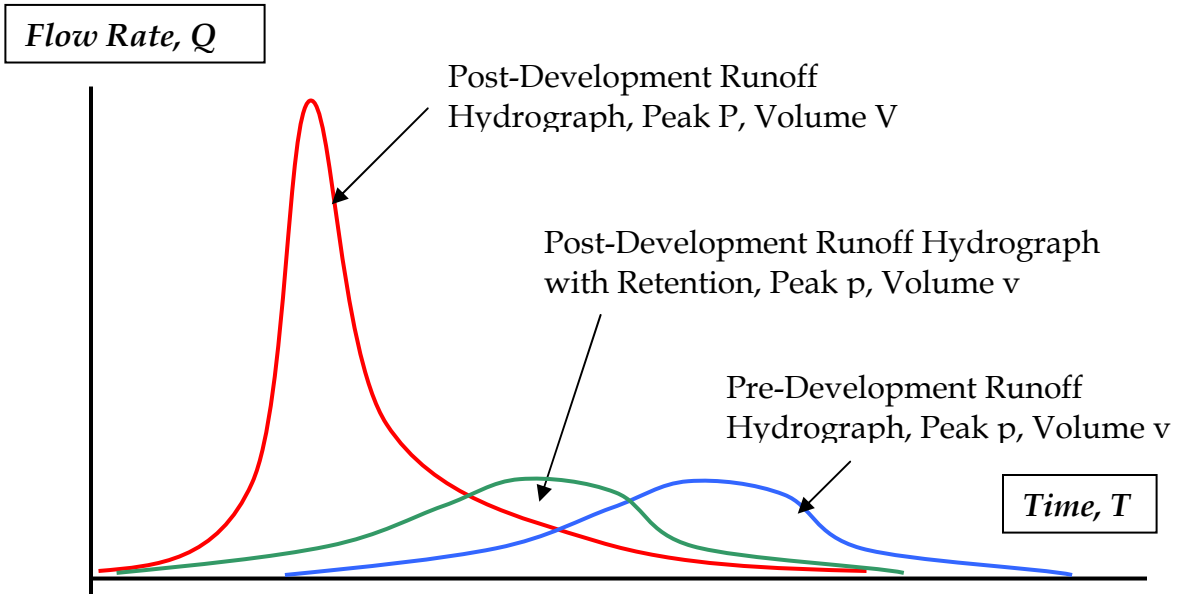
development with detention, the magnitude of the 2-year peak flow rate may not increase, but the amount of time that the flow rate occurs will increase. Retention systems, on the other hand, are particularly effective at lowering the overall runoff volume, reducing the amount of time that the peak flow rate occurs. In addition, by infiltrating stormwater, retention systems recharge groundwater that serves as the base flow for streams during the dry season. Therefore, stream systems that require erosion protection, including salmonid habitat streams, warrant the use of retention systems. Where retention systems cannot be used, detention systems that control the duration of the geomorphically significant flow (i.e., flow capable of moving sediment) shall be used. Such detention systems employ lower release rates and are therefore larger in volume.

Time of concentration, or the time it takes rainfall to accumulate and run off a site, is another important factor in determining downstream hydrologic impacts created by development. Flow rates from individual sites may be controlled, but when they are combined quickly in fast-flowing conveyance pipes, the downstream effect will still be increased in-stream flow rates and volumes. Breaking flow patterns up into surface retention systems helps increase a site's time of concentration and lessons downstream impacts.

Exhibit 1-2: Illustration of the effect of detention and retention facilities on post-developed hydrographs (large storm events)



General Relationship Between Pre-Development Hydrograph, Post-Development Hydrograph, and Post-Development Hydrograph with Detention Facility in Place.



General Relationship Between Pre-Development Hydrograph, Post-Development Hydrograph, and Post-Development Hydrograph with Retention Facilities in Place.

1.7.2 Flow Control Strategies

Background:
Many tributary streams in Eugene show evidence of excessive stream bank and channel erosion. Any development that discharges stormwater runoff off-site that eventually flows into a headwater stream or drains into a pipe that discharges into a headwater stream shall be designed to control and minimize increases in flows to reduce the potential for further aggravation of in-stream erosion problems.

The added controls are based on the geomorphically significant flow, which is the flow that initiates sediment movement in the channels. The erosion-causing flow varies from channel to channel. Unless more specific data are available, the City assumes that the erosion-causing flow is equivalent to the Water Quality Design Storm, and the requirements of this manual are based on that assumption. **Specifically, the more restrictive control requirement is to limit the post-development peak flow rate from the Water Quality Design Storm to the pre-development peak flow rate from the Water Quality Design Storm. The facilities shall also control the post-development flows from the Flood Control Design Storm peak flows to the pre-development levels**.

General Requirement:
Flow controls are required in the Headwaters Area of Eugene (see the Headwaters Streams Map in **Appendix H**). For construction of new impervious surface in this area, on-site infiltration or on-site retention (such as pervious pavement, planters, swales, and other surface vegetated facilities) is preferred to control stormwater volumes and flow rates. Regardless of the method used, flow control shall be sufficient to maintain peak flow rates at their pre-development levels for storms larger than the Water Quality Design Storm and smaller than the Flood Control Design Storm. (See definition of pre-developed condition in **Section 1.3**)

Circumstances when flow control is required:
Development in the headwaters area that drains directly to a headwaters stream at an elevation above 500 feet or drains into a system of pipes and/or ditches that discharges into a headwaters stream at an elevation above 500 feet. (See **Appendix H Headwaters Streams Map**)

Circumstances when more restrictive flow control is required:
Development projects proposing to discharge stormwater off-site must evaluate the capacity of the off-site receiving system (i.e. storm sewer, ditch, drainageway, etc.) against the standards presented in **Section 1.4**. Additional flow control may be required on-site if off-site receiving systems do not have sufficient capacity to accept the additional flows.

IMPORTANT NOTES:

- Pollution reduction requirements still apply if a development site is exempt from flow control requirements.
- Development must still properly dispose of stormwater using approved methods in accordance with **Section 1.4** of this manual.

SUMMARY OF THE CITY'S FLOW CONTROL REQUIREMENTS:

1) **Flow Control requirements apply to a development in the headwaters area that drains directly to a headwaters stream at an elevation above 500 feet or drains into a system of pipes and/or ditches that discharges into a headwaters stream at an elevation above 500 feet. (See Appendix H; Headwaters Streams Map)**.
2) On-site infiltration is required to the maximum extent practicable.
3) Where complete on-site infiltration is not practicable, on-site retention (flow volume control) facilities should be used.
4) Piping systems that provide conveyance from a site to an ultimate discharge point must have adequate capacity per City's standard, or additional flow control on-site may be required.

1.8 OPEN DRAINAGE

Open flow drainage provides many important functions to both our stormwater conveyance system and the environment. Open drainage ways provide both flow management (regulation of stream flow, retention and detention of water, flood control, contribution to seasonal base flows, and groundwater recharge) and water quality protection. Open drainage ways may either be privately or publicly maintained, but maintenance operations should not hinder the conveyance capacity of the facility.

1.8.1 Interlot Drainage

Interlot drainage refers to unchannelized surface or sheet flow and some French drain systems. This may include minor open channels and enclosed storm drain pipe systems, upon private properties that serves only to collect and remove stormwater runoff generated within the boundaries of private properties. All maintenance of interlot drainage systems is the responsibility of the property owner or abutting property owners.

If water from an interlot system exits a private property onto an adjacent private property, the maintenance system is the joint responsibility of the private property owners involved.

1.8.2 Disturbances or Development within Drainage Ways

No disturbances or development is allowed within any /WB Wetland Buffer; /WQ Water Quality; or /WR Water Resource Conservation Overlay Zones unless authorized by Chapter 9. Disturbances or development within other drainage ways may be allowed when all of the following conditions exist:

1) The disturbance or development will not impede or reduce flows within the drainage way.
2) The disturbance or development will not increase erosion downstream.
3) The constructed pipe system is sized to convey all of the runoff from upstream watershed when the upstream watershed is completely developed.

Alterations to natural drainage ways require either a grading/fill permit from the Building Permit Services or privately engineered public improvement construction permit from Public Works Engineering.

1.8.3 Maintenance Guidelines

Cleaning operations may be done only as needed to maintain the conveyance capacity of the drainage way.

Cleaning operations should be done during the drier months when equipment can gain access to the channel banks without damage. Upon completion of the work, the banks shall not be left rutted or torn up or in a condition which would encourage rain water erosion. After cleaning operations, the banks along the channel shall be repaired of all damage caused by the maintenance activities in order to prevent accelerated erosion of the banks.

When and where necessary, City Maintenance staff will perform cleaning operations to maintain the conveyance capacity of major channels that are located within public drainage easements that have sufficient access available for equipment to perform the necessary cleaning. City Maintenance staff may perform emergency cleaning on any blockage which is causing water to back up into the City stormwater system or is creating a hazard to the public.

Unless the drainage way is publicly owned or covered by a recorded maintenance agreement that states otherwise; private property owners are responsible for vegetation management and debris removal. Refrain from mowing the banks of channels.

1.8.4 Easement Guidelines

Public drainage easements are to assure that the current flow rate and pattern of the drainage way continues to be adequately conveyed and maintained through the development site. Current flow volumes and/or drainage way capacities will be determined by reviewing existing data, which may include available hydrologic records, drainage basin hydrology, historical data, high water marks, soil inundation records, photographs of past flooding, and other similar information. The City of Eugene developed the 2002 Eugene Stormwater Basin Master Plans as a resource for designing stormwater management.

Public drainage easements may be accepted by the City when all of the following criteria are met:

1) The storm drainage conveys water from public rights of way or is part of an identified public drainage system.
2) Capacity of the drainage facility is approved by the City as to meeting expected future development needs.
3) Existing systems are inspected by City staff prior to acceptance and all deficiencies discovered during the inspection are removed.
4) Maintenance access is provided.

1.9 OTHER REGULATORY STORMWATER PROGRAMS

Conformance with this manual's requirements does not relieve the applicant of other applicable local, state, or federal regulatory or permit requirements. This chapter is intended to complement any additional regulation, and is not expected to conflict with, exclude, or replace those regulations. In case of a conflict, the most stringent local, state, or federal regulations apply. Some of the more common additional regulations that may apply are summarized below.

1.9.1 Illicit Discharge Program

The City expects spill response supplies, such as absorbent material and protective clothing, to be available at all potential spill areas. Employees should be familiar with the site's operations and maintenance plan and/or proper spill cleanup procedures.

1.9.2 Industrial Pretreatment Program

Some facilities may be required to obtain a State of Oregon NPDES stormwater permit before discharging to the City's storm sewer system or to waters of the state. Applicants may also be required to obtain an industrial wastewater permit for discharges to the wastewater system. Facilities subject to these requirements are generally commercial or industrial facilities. Typical discharges include process wastewater, cooling water, or other discharges generated by facilities identified in this manual that drain to the City stormwater or wastewater systems. Contact Public Works staff at 541-682-5291 for a list of current wastewater discharge limits.

An evaluation will be done during the building permit review process to determine if an industrial discharge permit is required. If a permit is required, the industrial permit application process will be independent of the building permit review/issuance process. However, building permit applications may have to be revised to accommodate industrial permitting compliance requirements (*i.e.* sampling points, pretreatment facilities, *etc.*).

1.9.3 Oregon DEQ Underground Injection Control (UIC) Program

The Oregon Department of Environmental Quality (DEQ) identifies drywells, sumps, and piped soakage trenches as "Class V Injection Wells" under the federal Underground Injection Control (UIC) Program. Because the UIC Program states that these types of wells may have a direct impact on groundwater, registration or permitting with DEQ is required. See **Section 1.4.4** for additional information.

1.9.4 Other Local, State, and Federal Programs

The requirements presented in this chapter do not exclude or replace the requirements of other applicable codes or regulations, such as the hazardous substances storage requirements of articles 79 and 80 of the Oregon State Fire Code; the spill prevention control and containment (SPCC) regulations of 40 CFR 112 (EPA); the Resource Conservation and Recovery Act (RCRA); or any other applicable local, state, or federal regulations or permit requirements.

Additional City of Eugene and Oregon Department of Environmental Quality (DEQ) permit requirements may apply. Contact PW staff at 541-682-5291 for additional information about stormwater or wastewater discharges to City-owned wastewater or stormwater systems.

1.10 CREDITS AND INCENTIVES FOR PRIVATE STORMWATER FACILITIES

Stormwater quantity credits for Systems Development Charges (SDC's) and Utility Billing monthly user fees are based on a public system benefit from development reducing the quantity of stormwater entering the public system through on-site retention methods. Developments utilizing private means for reducing the quantity of water discharged from a development site to the public system can reduce the demand for additional capacity in downstream public water conveyance facilities. Establishing stormwater quantity SDC and user fee credits provides a general recognition of reduced demand.

Stormwater quality credits for SDC's and user fees are based on a public system benefit from development treating stormwater quality through privately constructed and maintained facilities and effective impervious area reduction techniques. Developments utilizing private means for water quality treatment can reduce the demand for downstream public facilities for water quality treatment. Establishing stormwater quality SDC and user fee credits provides a general recognition of reduced demand and provides a modest incentive for meeting and exceeding minimum water quality treatment requirements.

Implementation of stormwater quality SDC and user fee credits is related to adoption of stormwater development standards which require water quality treatment at sites of new development. Adopted standards provide a basis for evaluation of the degree of impact reduction of a development. These credits recognize impact reduction and provide incentives for pollution reduction across three types of development sites:

1) those not subject to the standards for stormwater pollution reduction but which treat all or a portion (minimum 20%) of the total impervious area of the development site;
2) sites where a portion of the site impervious area is subject to the standards for stormwater pollution reduction but which treat runoff from 20% or more impervious area than the minimum required, or which reduce a minimum of 20% of the total impervious area of the development site through use of impervious area reduction techniques; and,
3) sites where all of the site impervious area is subject to the standards for stormwater pollution reduction but which reduce a minimum of 20% of the total impervious area of the development through the use of impervious area reduction techniques.

See the adopted City of Eugene Systems Development Charges Methodologies document, Appendix D, Section 6.0 for additional criteria for SDC credits and City of Eugene Stormwater Service Charges methodology document, Section 6.0 for additional criteria for user fee credits.

1.11 EQUIVALENT ON-SITE AREA GUIDELINES

Equivalent on-site areas are existing impervious surface areas, which would otherwise not require pollution reduction treatment, being an equal or greater surface area of the new or replaced impervious surface area which requires pollution reduction treatment of its stormwater runoff.

When designing a pollution reduction system using equivalent on-site areas, plans shall show and identify the following information:

- the new or replaced impervious surface areas which, by code, require pollution reduction treatment of its stormwater runoff.
- the new or replaced impervious surface areas which, by code, require pollution reduction treatment of its stormwater runoff, but will not receive pollution reduction treatment.
- the equivalent on-site (i.e. existing) impervious surface areas which will receive pollution reduction treatment of its stormwater runoff.

Using the square footages from the bulleted items above, the pollution reduction treatment facilities shall be sized using either the SIM Form or the Presumptive Approach.

The use of equivalent on-site areas to meet pollution reduction standards does not exempt new or replaced impervious surfaces from having to meet destination, flow control, oil control, or source control standards. The redesign of existing surfaces must meet current codes, including stormwater management.