APPENDIX A

GLOSSARY OF TERMS

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Glossary of Terms

Aquifer	An underground bed or stratum of earth, gravel or porous stone that contains water in enough quantity to yield usable amounts of water to wells and springs.
Aeration	Adding AIR in order to provide oxygen. The oxygen helps prevents wastewater from becoming septic and odorous, and it is necessary to support life of aerobic microorganisms that are used for wastewater treatment.
Aerobic	Refers to life or process which can occur only in the presence of oxygen.
Alluvium	Sand, clay, etc which is gradually deposited by moving water, as along a river bend or the shore of a lake.
Anadramous	Fish which go up river to spawn.
Anaerobic digestion	The decomposition of sludge materials in the absence of oxygen.
Attainment area	An area in which the federal and state standards for ambient air quality are being met.
Average dry weather flow(ADWF)	ADWF is composed of average sewage flow and average dry weather Inflow/Infiltration. ADWF is the average non-storm flow during the dry summer months, May through October
Average wet weather flow	AWWF is composed of average sewage flow and average wet weather inflow/infiltration. AWWF is the average flow during the wet winter months, November through April.
Base sanitary flow (Base Flow)	Wastewater flow (not including inflow and infiltration (I/I)) originating from residential, commercial and industrial sources.
Bathymetry	The science of measuring ocean depths in order to determine the seafloor topography.
Benthic, Benthos	Organisms attached to or resting on the bottom, or living in the bottom sediment of a water body.
Biochemical oxygen demand (BOD)	A measure of the amount of oxygen consumed in the biological and chemical processes that break down organic matter in water

Bioconcentrate	Concentration of living organisms in one area, particularly bacterial organisms.
Biological treatment	A treatment technology that uses living organisms, such as bacteria to consume waste. This treatment breaks down organic materials
Biosolids (sludge)	Municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process, that can be beneficially recycled and meets all applicable requirements under this chapter. Biosolids includes a material derived from biosolids, and septic tank sludge, also known as septage, that can be beneficially recycled and meets all applicable requirements. (WAC 173-308-080)
Biosolids land application site	The application of biosolids to the land for the purposes of improving soil characteristics including tilth, fertility, and stability and enhancing the growth of vegetation consistent with protecting human health and the environment. Sites chosen for land application have been permitted as a treatment works treating domestic sewage in accordance with the provisions of WAC 173-308-310, and designated as a beneficial use facility through the permitting process. (WAC 173-308-080)
Building sewer	A sewer pipe that extends from a building to the property line and connects to a side sewer stub.
Bypass	A means of diverting flow around all or part of the treatment plant under emergency situations.
Chemical treatment	Any one of a variety of technologies that use chemicals, or a variety of chemical processes to treat waste
Chlorination	The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.
Clarification	Clearing action that occurs during wastewater treatment when solids settle out. This is occasionally aided by chemically induced coagulation and floculation in wastewater.
Clarifier	1) A tank in which solids are settled to the bottom and are subsequently removed as sludge. 2) A settling tank where wastewater is held to allow solids to sink and be removed from the wastewater. Primary clarifiers are used in primary treatment; secondary clarifiers are used as the final step in secondary treatment prior to disinfection and discharge. Also referred to as sedimentation tanks.

Clean Water Act (CWA)	Also known as the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).
Coliform bacteria (or fecal coliform bacteria)	A type of bacteria that is coil- or helix- shaped. Fecal coliform bacteria are those coliform bacteria that are found in the intestinal tracts of mammals. The presence of high numbers of fecal coliform bacteria is an indicator of pollution and of potentially dangerous bacterial contamination.. High numbers of fecal coliform bacteria therefore limit beneficial uses such as swimming and shellfish harvesting.
Collection System	The entire system of sewer lines, regardless of size or function.
Collector main	A large pipe that connects side sewer stubs to an interceptor.
Combined sewers	A sewer system that carries both sewage and storm water runoff.
Community on-site sewage systems	A sewage system used to serve multi-family residential complexes or groups of individual residences. Treatment and disposal occur on-site.
Compliance inspection	Includes all activities conducted by a regulatory agency to verify a permittee's adherence to a NPDES permit. Includes review of written materials and field inspections. If the compliance monitoring results differ significantly from those the permittee has been reporting, the reasons for the discrepancy should be discovered and corrected.
Compliance schedule	A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to a deadline for compliance with regulations.
Conservation	Avoiding waste of and renewing when possible, human and natural resources. The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits.
Degradation	The process by which a chemical is reduced to a less complex form.
Density	The number of families, individuals, dwelling units, or housing structures per unit of land
Development density	The total number of dwelling units of a residential development divided by the total number of acres of the parcel(s) involved.
Diffuser	Induces oxygen into the wastewater treatment process.

Digester	Where sludge is treated by bacterial action. Sludge is normally heated to 95ºF and held in the digesters for 15-20 days. (See: Anaerobic digestion
Digestion	The biochemical decomposition of organic matter, resulting in partial gasification, liquification, and mineralization of pollutants.
Dilution ratio	The relationship between the volume of water in a receiving water and the volume of incoming effluent. It can affect the ability of the stream to assimilate waste.
Discharge, direct or indirect	This release of wastewater or contaminants to the environment. A direct discharge of wastewater flows directly into surface waters while an indirect discharge of wastewater enters a sewer system.
Disinfection	A chemical or physical process (e.g. ultra-violet light, heat) that kills micro-organisms in water.
Dissolved Oxygen (DO)	Adequate levels of DO are needed to support aquatic life. Wastewater and naturally occurring organic matter contain oxygen-demanding substances that consume dissolved oxygen. Secondary and advanced treatment are generally designed to protect DO in waste-receiving waters.
Dissolved solids	Organic and inorganic material contained in water that can not be filtered out and are in solution, such as salt would be in water. Excessive amounts make water unfit to drink or use in industrial processes.
Diurnal dry weather flow	The daily fluctuating of domestic wastewater flow, exhibiting two peaks during the day.
Dry sewer lines	Permanent public and/or private sewerage facilities designed and constructed in accordance with the appropriate jurisdiction's standards and specifications for future connection into the County or other jurisdiction's sanitary sewerage system. They are constructed from the future connection point in the existing public right-of-way or easement to every structure that it serves
Effluent	Wastewater—treated or untreated--that flows out of a treatment plant, or sewer, or industrial outfall. Generally refers to wastes discharged into surface waters
Filtration	A treatment process for removing solid (particulate) matter from water by passing the water through porous media such as sand or a man-made filter. The process is often used to remove particles that contain pathogenic organisms.

Finfish	Common name for the cold blooded aquatic vertebrates belonging to the group Pices (“fish” as opposed to jelly-fish or other marine animals)
Flow (Q)	The quantity of wastewater per unit time.
Flow capacity	The maximum volume of wastewater per unit time that can be carried by the conveyance system.
Flow load capacity	The maximum amount of wastewater that can be handled by the wastewater treatment plant, equipment or treatment units.
Flow meter	A gauge that shows the volume of wastewater moving through a treatment plant, pipeline or pump station, usually measured in million gallons per day
Force main	A pipeline connected to a pumping system that transports wastewater under pressure and against the force of gravity, which allows transfer of wastewater between natural drainage basins or for conveyance of wastewater at minimal slopes over relatively long distances.
Ground Water Infiltration (GWI)	Infiltration that enters the sewerage systems through defects located below the normal groundwater table.
Groundwater	1) That part of the subsurface water that is in the zone of saturation. 2) Underground water supplies stored in aquifers. Groundwater is created by rain which soaks into the ground and flows down until it is collected at a point where the ground is not permeable. Groundwater then usually flows laterally toward a river, lake, or the ocean. Wells tap the groundwater for use. 3) The supply of fresh water found beneath the earth's surface (usually in aquifers) which is often used for supplying wells and springs. Because groundwater is a major source of drinking water there is growing concern over areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating groundwater.
Heavy metals	The metals or metallic ions such as lead, mercury, copper, iron, zinc, cadmium, manganese, chromium, cobalt and others with densities at least five times greater than water. They are found in the natural environment in low concentrations and many are necessary for life processes in low concentrations but are toxic in high concentrations or some chemical forms.
Hydrograph	A series of flows and their associated times coming from one or more sub-basins. These hydrographs are used as input to the County's hydraulic routing model to simulate the flows through the trunk and interceptor

	system.
Hydrologic	The study of the intensity and frequency of rainfall and the subsequent distribution and magnitude of flow into the collection system. A hydrologic analysis answers the question. "How much water can be expected to enter the sewers at any given point?"
Hydrologic cycle	The continual cycling of water between the land, the sea, and the atmosphere through evaporation, condensation, precipitation, absorption into the soil, and stream runoff.
I & I	A short form for infiltration and inflow. The total quantity of extraneous water entering a sewer system. Infiltration occurs through such sources as defective pipes, pipe joints, connections, or manhole walls. Inflow signifies intentional discharge of surface water through service connections from such sources as area or foundation drainage, springs and swamps, storm water, street wash water.
Infiltration	The water entering a sewerage system and its individual connections from the ground through such means as, but not limited to, defective pipes, pipe joints, pipe connections from storm or combined sewers, catch basins, surface runoff, street wash water, and other surface drainage, It does not include, and is distinguished from infiltration.
Infiltration Ponds	A disposal method for treated wastewater. Typically involves man-made ponds designed to mimic the function of a natural wetland by filtering treated wastewater before it soaks into the ground.
Influent	The wastewater as it enters a treatment plant or sewerage facility.
Influent pump station	A pump station that pumps flow from the interceptor into the treatment plant.
Interceptor sewers	A sewer that transmits larger volumes of wastewater from collector sewers to treatment facilities.
Lateral sewer	A lateral is the pipe to which individual houses and businesses connect. In the analogy of a tree, the laterals are the twigs.
Liquefaction	The process of soil or sand behaving like a dense fluid rather than a solid medium during an earthquake. Saturated soils, sands and fills are especially susceptible to liquefaction.
Loading	The total amount of material entering a system from all sources.

Management Team	The group of key Pierce County Operations Division officials who served as steering committee for the Unified Sewer Plan.
Maximum Wet-Weather Flow (MWWF)	MWWF is the maximum daily flow during the wet winter months on rainy days. It is composed of maximum daily sewage flows plus the maximum wet weather I/I during an approximately annual rainfall event
MGD	Million gallons per day. Commonly used to express rate of wastewater flow.
Millions of gallons per day (Mgd)	A measure of water flow
Nitrogenous Oxygen Demand (NOD)	The demand for oxygen that is associated with nitrogen input into an aquatic system. This would include the oxygen necessary for oxidation of ammonia, and is associated with an increase in oxygen use by increased algae density. NOD is generally caused when bacteria convert ammonia (NH3) to nitrites (NO2) and nitrates (NO3). NO3 is an available form of nitrogen for algae
Nonpoint source pollution	Pollution that enters a water body from diffuse origins on the watershed and does not result from discernible, confined, or discrete conveyances.
NPDES Permit	Permit issued under the National Pollution Discharge Elimination System, which sets effluent discharge limits, reporting requirements and other enforceable conditions placed on use of the water.
Outfall	1) The exit point from the wastewater collection system where effluent is discharged into receiving waters. 2) A pipe or pipes leading to the effluent discharge site, which is engineered to ensure dispersion and dilution in the receiving waters.
Pathogens	Microorganisms that can cause disease in other organisms or humans, animals, and plants. They may be bacteria, viruses, fungus, or parasites and are found in sewage, in runoff from animal farms or rural areas populated with domestic and/or wild animals, and in water used for swimming. Pathogens can be present in municipal, industrial, and nonpoint source discharges to the Sound. Fish and shellfish contaminated by pathogens, or the contaminated water itself, can cause serious illnesses
Peak flow	The volume of wastewater including base flow, inflow and infiltration, that has an occurrence frequency associated with the stated return interval.

Policy plan	A plan that consists mainly of expressions of government or agency policy either as statements or graphic illustrations expressing general community goals and policies and desirable relationships among human activities
Pollutant	Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.
Pollution	Organic substances, inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in either organisms or offspring of the organisms. (WAC 173-308-070)
Pretreatment	Removal of products toxic to the treatment process or other toxic products or materials damaging to the sewage collection system mandated by federal and State law.
Primary treatment	The first stage of wastewater treatment consisting of the removal of material that will float or settle to the bottom of a sedimentation tank. Suspended solids and BOD are reduced by 25 to 40 percent.
Project team	Pierce County Public Works & Utilities Department staff and consultants assigned to work on the Unified Sewer Plan.
Pumping station	A mechanical device installed in sewer that move the liquids to a higher elevation or through a long pipeline of limited slope.
Raw sewage	Untreated wastewater.
Receiving water	The water body that receives a wastewater discharge, either surface water or groundwater.
Residential Equivalents (RE)	The average quantity of wastewater generated by a single family residence. The water quantity of 220 gallons per day at average waste strength, biochemical oxygen demand, and suspended solids.
Riparian	Relating to or living or located on the bank of a natural watercourse.
Sanitary sewers	Underground pipes that carry only domestic, commercial, or industrial waste, not stormwater.

Secondary treatment	The second step in most publicly owned waste treatment systems, which removes or reduces the biochemical oxygen demand and suspended solids by biological processes, usually by the addition of air or oxygen to encourage microbial growth and encourage further settling of suspended solids. (See Primary treatment and Tertiary treatment.)
Sedimentation	The settling of matter to the bottom of a liquid
Sensitivity analysis	An analysis with a method or model in which the important variables are systematically changed in order to see the resulting changes in the outputs. For sewers it is a test for how well a sewer system provides flexibility for changes in service area or development intensity.
Separated sewer system	A wastewater collection and treatment system where domestic and industrial wastewater is separated from storm runoff as required by law. A separated system consists of independent sanitary wastewater and stormwater collection and treatment systems
Septage	The liquid or solid material removed from a septic tank, cesspool, portable toilet, or Type III marine sanitation device.
Septic tank	An underground storage tank for wastes from homes having no sewer line to a treatment plant. The waste goes directly from the home to the tank, where organic waste is decomposed by bacteria and the sludge settles to the bottom. The effluent flows out of the tank into the ground through drains: the sludge is pumped out periodically.
Sewage	The total of organic waste and wastewater generated by residential, industrial and commercial establishments.
Sewer	A pipe that collects and carries wastewater away from the source to a treatment plant.
Sewerage	The entire system of sewage collection, treatment and disposal
Sewerage subbasin	A sewerage subbasin means the geographic area, separated from adjacent basins by a divide or ridge, that can be traced on topographic maps, within which wastewater in sewer collector mains flow, or would flow, to the point of entry of an interceptor.
Side sewer stub	A sewer pipe that connects the building sewer at the property line to a collector sewer.

Sludge (Biosolids)	A semisolid substance consisting of settled solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or system or other sources, including septage biosolids, sewage biosolids, and industrial biosolids. (WAC 173-304-100)
Stormwater	Water that is generated by rainfall and is often routed into drain systems in order to prevent flooding.
Surface water	All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc...): also refers to springs, wells, or other collectors which are directly influenced by surface water.
Suspended Solids (SS)	A measure of the particulate matter contained in the wastewater.
Technical Advisory Committee (TAC)	An ad hoc committee consisting of representatives of cities and towns, other sewerage agencies, State agencies, water purveyors, environmental groups, Indian Tribes and the development industry who identified issues, provided technical information, assisted in development of alternatives, and evaluated alternatives in an advisory capacity to the Management Team.
Tertiary treatment	Advanced treatment of wastewater that goes beyond the secondary or biological stage. It removes nutrients such as phosphorous and nitrogen and most BOD, suspended solids, and provides additional disinfection.
Transmission Lines	See definition for “Interceptor sewer”.
Treated effluent	Wastewater which has undergone any combination of treatment processes to reduce biological oxygen demand, suspended solids, pathogens, inorganic substances and toxic materials.
Treatment	Chemical, biological, or mechanical procedures applied to an industrial or municipal discharge or to other sources of contamination to remove, reduce, or neutralize contaminants.
Treatment plant capacity	The quantity of wastewater that the treatment plant can handle It is normally measured by average dry weather flows that can pass through the plant and meet required levels of treatment.
Trunk sewer	One of a set of large pipes which form the branches of a sewer system. It is the pipe which collects sewage from a large portion of a community and then discharges it into an interceptor.

Urban Service Areas — Those areas within the Comprehensive Urban Growth Area of Pierce County that are currently receiving or may receive urban services from an individual city or town located within the Comprehensive Urban Growth Area. The individual cities and towns within the CUGA, in collaboration with the County, have established Urban Service Areas (USAs). Each USA mapped within the CUGA is based upon the information provided by the individual city or town. These individual city and town USAs, within the CUGA, are incorporated as part of the County's Comprehensive Plan. Although the County and the cities and towns within the CUGA concur that individual USAs may change as growth management planning and implementation proceed, the affected municipalities and the County agree that USA designations are provided under the terms of the June 30, 1992, County-Wide Planning Policies and RCW 36.70A.110. (Pierce County Comprehensive Plan)

Wastewater — Total flow within a sewerage system. In separated systems, it includes sewage and infiltration/inflow. In combined systems, it includes sewage and stormwater, surface runoff, street wash water and drainage.

Watershed — The region drained by or contributing water to a stream, lake, or other body of water.