3.0 Existing Wastewater Facilities

3.1 Wastewater Conveyance System

The collection system that conveys wastewater to the WPCF includes the sewerage facilities that serve Eugene and Springfield. The two cities formerly maintained sewerage facilities independently, including collection and treatment. Beginning in 1984, all wastewater flows were treated at the newly upgraded regional treatment facility at the former Eugene treatment plant site. Springfield flows were conveyed to the regional treatment facility through the then newly constructed East Bank Interceptor (EBI) that follows the east bank of the Willamette River to the Willakenzie Pump Station just across the river from the WPCF.

3.1.1 Springfield Wastewater Collection System

The Springfield collection system includes approximately 240 miles of pipeline. The major trunk systems in Springfield are Gateway, Thurston, Main Street, East Springfield Interceptor, South Springfield Interceptor, Central, and Downtown.

The original downtown basin is the oldest portion of the Springfield collection system. Constructed before World War I, it was designed to carry and discharge both stormwater and sanitary flows to the Willamette River. In the 1950s, the City constructed a wastewater treatment plant. Wastewater flows remained in the existing conduits, but new conveyance facilities were built to transport stormwater to the Willamette River.

The remainder of the system was developed around the downtown core as the city expanded. The original East Springfield interceptor was constructed in 1962 and the South Springfield Interceptor in 1997. The *City of Springfield Sanitary Sewer Master Plan* dated July 1980 contains additional information describing the Springfield portion of the collection system.

3.1.2 Eugene Wastewater Collection System

The Eugene collection system includes approximately 770 miles of pipeline. Construction of Eugene's system began between 1900 and 1910. The original system was constructed to carry both stormwater and sanitary flows to the Willamette River. Around 1950, the first Eugene wastewater treatment plant was constructed; the plant provided primary treatment. After World War II, the Eugene system expanded rapidly to provide service to development in newly annexed areas. Expansion was also rapid in areas outside the City that were formerly served by septic systems. Additional major expansion occurred between 1960 and 1970, at which time the combined sewers in the older portion of the Eugene system were separated. The 1992 *City of Eugene Public Works/Engineering Urban Sanitary Sewer Master Plan* describes the City of Eugene portion of the collection system in more detail.

3.1.3 Conveyance Pump Station History

For the regional facility to begin operation in 1984, wastewater flows from the Eugene-Springfield metropolitan area needed to be consolidated. New sewers were also constructed throughout the unincorporated River Road/Santa Clara area. This resulted in a number of newly constructed regional and local conveyance pump stations. In addition, upgrades to selected existing pump stations that once served the separate Eugene and Springfield treatment facilities were required so they could continue to operate and serve the new regional facility. Most of the original planning and design for these conveyance pump stations took place from 1979 to 1983. The majority of the construction for the major conveyance pump station facilities took place between 1983 and 1987. Table 3.1.3-1 summarizes the construction of new conveyance pump stations and the modifications to existing pump stations required as part of the original construction that would serve the new regional facility.

TABLE 3.1.3-1
Original Major Conveyance Pump Stations
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description of Construction or Modification
West Irwin Pump Station	1983	Regionally owned station serving the Bethel section of Eugene. West Irwin pump station ownership should change to the City of Eugene in 2005. Original pump station constructed in 1965. Expanded in 1983 as part of the regional facility. Added force main to pump raw sewage from 2525 West Irwin Street to the WPCF
Willakenzie Pump Station	1984	Regionally owned station serving the area east of the Willamette River. Expanded in 1984 as part of the regional facility. Pumps raw sewage from 3050 Goodpasture Lakes Loop, east of the Willamette River, via force main directly to the WPCF
Terry Street Pump Station	1985	Regionally owned station serving the southwestern area of Eugene. Terry Street pump station ownership should change to the City of Eugene in 2005. Pumps raw sewage from 5190 Barger Drive via force main to West Irwin Pump Station
Division Pump Station	1985	Locally owned station serving the Santa Clara Square and area north of the Beltline Highway. Pumps raw sewage from 203 Division Avenue and discharges into either the Terry Street or West Irwin force mains
Skipper Pump Station	1986	Locally owned station serving the area south of the Beltline Highway. Pumps raw sewage from 1195 Skipper Avenue and discharges into the Terry/West/Irwin/Irvington Valve Array Vault
Greenwich Pump Station	1987	Locally owned station serving the area west of River Road to Northwest Expressway. Pumps raw sewage from 811 Greenwich Avenue and discharges into the Irvington force main
Irvington Pump Station	1987	Regionally owned station serving the Santa Clara area and the Biosolids Management Facility. Pumps raw sewage from 1248 Irvington Drive to the Terry/West/Irwin/Irvington Valve Array Vault via force main.

Subsequent upgrades to the original facilities and the addition of new facilities have been completed since the initial facilities were put into operation. Table 3.1.3-2 summarizes the major construction contracts associated with facility upgrades and additions. The end result of these construction projects is the facility as it stands today.

TABLE 3.1.3-2
Conveyance Pump Station Upgrades
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description
Fillmore Pump Station Improvements	1996	Serves area west of central downtown Eugene. Updated station with five submersible pumps and variable speed controls
West Irwin Pump Station Improvements	1998	Updated pump station with new pumps and drives
Barger-Greenhill Pump Station	1999	Serves southwestern Eugene, along with the Terry Street pump station. Pumps raw sewage from 1725 Legacy Street to the Terry Street force main.
Division Street Pump Station	2001	Upgraded and replaced control panel
Oakway Pump Station	2002	Constructed new pump station with three pumps and variable speed controls
Division Street Pump Station	2001	Upgraded and replaced control panel

3.1.4 Conveyance System Pump Stations

In all there are 47 pump stations throughout Eugene and Springfield that contribute flow to the WPCF. Attachment A summarizes general, technical, and alarm information regarding all regional, Eugene, and Springfield pump stations. Attachment A also includes summary descriptions of the regional pump stations. Figure 3.1.4-1 shows the locations of the major wastewater collection system pipelines and pump stations. Inflows to the WPCF consist of three components. The first is the West Bank Interceptor (WBI), a 72-inch-diameter gravity pipeline (herein called the Gravity System). This component is capable of delivering a flow of 100 mgd to the screw pumps at the WPCF. The second component is a pump station/force main system from the east side of the Willamette River (East Side Pump Station System). This system consists of the Willakenzie pump station and force mains. The final inflow component is a system of pump stations and force mains conveying flows to the WPCF from the west (West Eugene Pump Stations System).

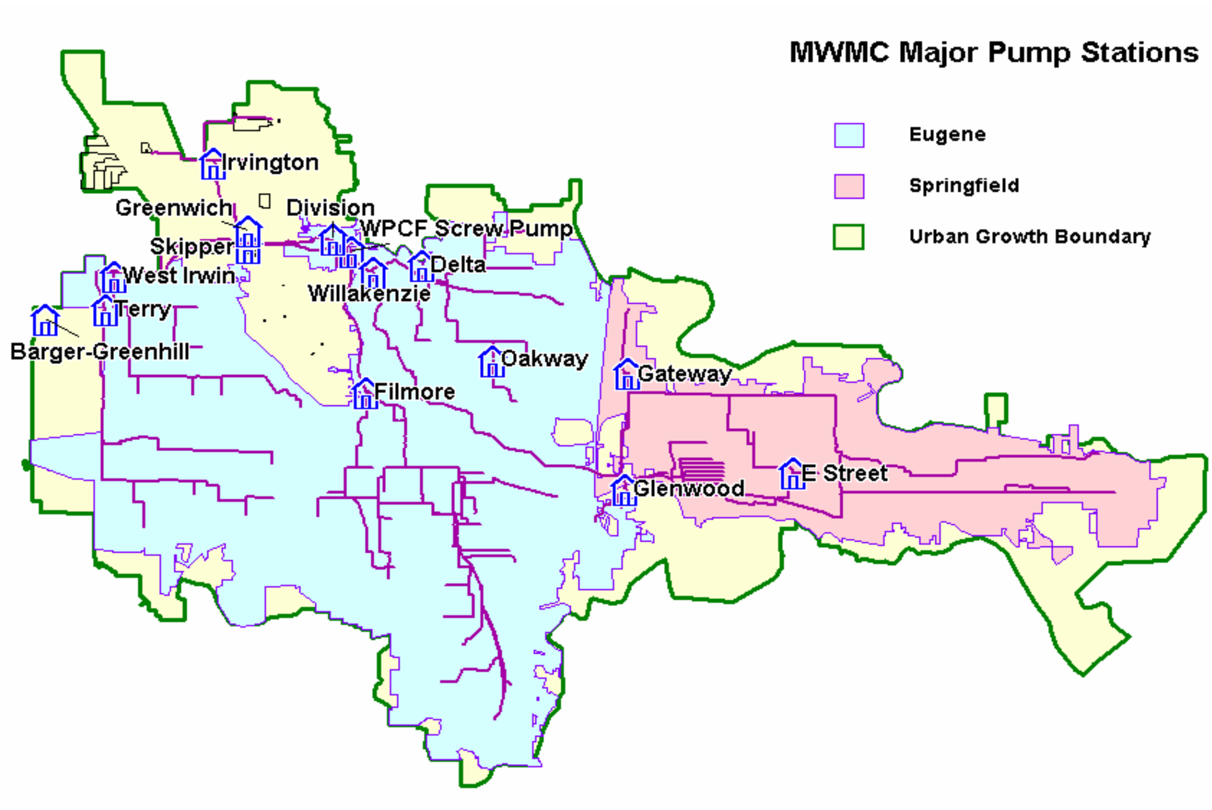


FIGURE 3.1.4-1
MWMC Major Pump Stations
MWMC Facility Plan, Eugene-Springfield

West Bank Gravity System and WPCF Screw Pumps

The existing 72-inch WBI gravity sewer conveys up to 100 mgd to the WPCF directly to the existing screw pumps. Flows are controlled by the upstream gravity conveyance system and the Fillmore pump station. At the WPCF, four existing screw pumps lift the flow into a common channel that flows into the influent screens and aerated grit removal process. These existing screw pumps have a capacity of 21 mgd per pump, or 63 mgd with one pump out of service. The capacity is 84 mgd with all of the screw pumps running.

East Side Pump Station and Force Main System

The East Side pump station and force main system consists of the Willakenzie pump station and force main under the Willamette River. The existing Willakenzie pump station consists of two pump stations linked together to convey wastewater flows from the 78-inch East Bank Interceptor (the influent gravity sewer). The existing variable speed pumps have a capacity of 17.5 mgd per pump, or 70 mgd with one pump out of service. The capacity is 80 mgd with all of the pumps running.

West Eugene Pump Station and Force Main System

The West Eugene Pump Station System consists of seven pump stations connected by a series of parallel force mains. Force main sizes range from 14 inches to 48 inches in diameter, running generally west to east from the Barger-Greenhill pump station to the WPCF. All of the pump stations connecting to the force mains have been included in this evaluation without respect to ownership, because all stations will need to be upgraded prior to 2025. Table 3.1.4-1 lists the major pump stations and their existing capacities.

TABLE 3.1.4-1
West Eugene Pump Stations
MWMC Facility Plan, Eugene-Springfield

Pump Station	Number of Pumps	Capacity With One Pump Out (mgd)	Capacity With All Pumps Operating (mgd)
Division Street	2	0.7	1.4
Skipper	2	3.0	6.0
Greenwich	2	1.0	1.5
Irvington (updated in 2003)	3	13.5	18.0
West Irwin	3	18.0	21.0
Terry Street	3	10.0	14.0
Barger-Greenhill	2	3.7	7.5

DEQ Pump Station Requirements

DEQ requires that all pump stations must be able to pump the peak hour flow through the system with redundancy (largest pump out of service). Table 3.1.4-2 summarizes the current peak hour flows at selected pump stations and the current pump station capacities. Not all pump stations within Eugene and Springfield are included in Table 3.1.4-2 because flows were not generated for each conveyance system as part of the Facilities Plan update. Only pump stations that were part of modeled conveyance systems are included in the table.

TABLE 3.1.4-2
Comparison of Eugene-Springfield Pump Stations to DEQ Requirements – Existing Conditions
MWMC Facility Plan, Eugene-Springfield

Pump Station	Peak Hour Flow (cfs/mgd)	Capacity With Largest Pump Out (mgd)	Capacity With All Pumps Operating (mgd)	Meets DEQ Requirement (Yes or No)
Fillmore	57.7 / 37.3	34.0	44.0	**No**
Skipper	2.8 / 1.8	3.0	8.0	Yes
Glenwood	11.0 / 7.1	9.0	18.0	Yes
Irvington (updated in 2003)	2.4 / 1.6	7.2	13.5	Yes
West Irwin	18.4 / 11.9	18.0	21.0	Yes
Terry Street	29.9 / 19.3	10.0	14.0	**No**
Willakenzie	203.6 / 131.5	70.0	80.0	**No**
Screw Pumps	140.9 / 91.0	63.0	84.0	**No**

As seen in Table 3.1.4-2 there are three pump stations, for which peak flow data is available, that currently do not meet DEQ requirements: Fillmore, Willakenzie, and Screw Pumps. Improvements have been recommended as part of this Facilities Plan update for those pump stations that are considered to be regional facilities. Fillmore is currently a regional pump station but will be reclassified as a Eugene facility in the future. As a result, improvements to Fillmore have not been made as part of this Facilities Plan update. Improvements to Willakenzie and the Screw Pumps at the WPCF are discussed in subsequent chapters.

3.1.5 Status of Conveyance System

The conveyance system was evaluated during development of the MWMC Wet Weather Flow Management Plan (WWFMP) (CH2M HILL, 2000). This included:

- Performing flow monitoring to characterize wet weather flows in basins
- Estimating peak flows for the 5-year, 24-hour storm
- Identifying pipeline and pump station deficiencies for existing and buildout land use conditions
- Identifying pipe and pump station upgrades necessary to convey peak flows to the WPCF
- Developing and analyzing wet weather flow management options for producing the most cost-effective flow management in all basins
- Analyzing the potential effectiveness of reducing peak flows through reduction of rainfall-dependent infiltration and inflow (RDII) in basins with high RDII.

Since the adoption of the WWFMP, both Eugene and Springfield have initiated positive management practices for the wastewater collection system as outlined in Section 7.15 of the WWFMP. Both cities have aggressively pursued RDII source detection and reduction projects, executing RDII projects recommended in the WWFMP 10-year implementation plan on schedule.

The results of the conveyance system evaluation described in the WWFMP were updated as part of this facilities planning effort.

3.1.6 Summary of Previous Collection System Modeling

The WWFMP provided the MWMC, Eugene, and Springfield with a plan to identify the immediate rehabilitative needs of the wastewater conveyance system, and recommended a proactive approach to future wastewater management. The basis of these recommendations is the DHI MOUSE hydraulic model, which simulates unsteady flows in pipe networks. To meet the objectives of the WWFMP, it was not necessary to include every pipe of the service area in the model. Because flows were analyzed at a subbasin level, the model network needed only to be similarly detailed. In general, pipes 12 inches in diameter and larger were included in the model, as well as major pump stations and force mains. However, where necessary to maintain continuity in a series of pipes within a conveyance reach, pipes with smaller diameters were included. Figure 3.1.4-1 shows the modeled portions of the wastewater collection system. As part of the WWFMP, the hydraulic model was calibrated to flow data from extensive flow monitoring conducted between 1997 and 1999 throughout the wastewater collection system and from the WPCF.

In accordance with DEQ guidelines, the 10-year summer and the 5-year winter rainfall events were compared to determine which storm produced the defining (i.e., worst-case) flow condition in the wastewater collection system. The 10-year summer rainfall event is typically of shorter sustained duration and higher intensity compared to the 5-year winter event. The 2000 WWFMP modeling effort concluded that the 5-year winter event was more critical and the buildout flow rate for the WPCF was estimated at 290 mgd. The collection system model would be subsequently updated for this Facilities Plan to define the 2025 peak flow rate. That analysis is presented in section 5.4.1 in Chapter 5.

3.2 Wastewater Treatment Facilities

3.2.1 Facility History

The WPCF officially began operation in April 1984. Most of the planning and design of the original facility took place in 1979. The majority of the construction for the major treatment facilities took place between 1983 and 1985. Table 3.2.1-1 summarizes the construction of the original major treatment facilities, notes the year that construction took place, and briefly describes the facilities constructed.

TABLE 3.2.1-1
Original Plant Construction and Facilities
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description
Liquids Processes		
Pretreatment	1984	Influent pump station, five screening channels with comminutors, four aerated grit chambers, four preaeration chambers, and two carbon odor control scrubbers
Primary Treatment	1984	Four primary clarifiers and primary sludge pump station
Aeration Basins	1984	Eight aeration basins with course bubble diffuser aeration
Secondary Clarifiers	1984	Eight secondary clarifiers
Final Treatment	1984	Four effluent Parshall flumes, four chlorine contact basins, sulfonation chamber, chemical building, plant water pump station, outfall structure, diffuser outfall, and bankside outfall
Secondary Control Complex	1984	Blower building, return activated sludge pump station
Solids Processes		
Solids Processing	1984	Add one new gas mixed primary digester, add gas mixing building for existing two primary digesters, new boiler building, modify floating covers on existing two biosolids storage tanks, add polymer feed for flotation thickener

TABLE 3.2.1-1
Original Plant Construction and Facilities
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description
Seasonal Industrial Waste Site, Pump Station, and Site Work	1984	Industrial pump station, irrigation control building, aeration basin, lagoon, and center pivot irrigation system
Phase 1 Biosolids Facilities	1985	Onsite dewatering facility using centrifuges, biosolids storage tank, polymer
Facilities		
Operations Building	1984	Operations building and laboratory
Maintenance Building	1984	Maintenance building, covered storage building, storage buildings and steam cleaning building

Subsequent upgrades to the original facilities and the addition of new facilities have been completed since the initial plant came on line. Table 3.2.1-2 summarizes the major construction contracts associated with facility upgrades and additions. The end result of these construction projects is the facility as it stands today (Figure 3.2.1-1).

TABLE 3.2.1-2
Plant Upgrades and Additional Facilities
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description
Liquids Processes		
North Aeration Basin Upgrades	1996	Converted three of four north aeration basins from coarse bubble air diffusers to fine bubble membrane diffusers
North Aeration Basin Upgrades	2002	Replaced membrane diffusers in aeration basin No. 3
North Aeration Basin Upgrades	2003	Replaced membrane diffusers in aeration basin Nos. 1 and 2
Pretreatment Upgrades	1995	Replaced comminutors with five vertical coarse screens and screening sluice system, new grit and solids dewatering equipment, and biofilter
Biosolids/Biocycle Farm Reclaim water line	2004	Constructed 3.2-mgd plant effluent water line to BMF for non-potable water use and tree farm irrigation
Solids Processes		
Solids Handling	1988	Constructed 4 facultative sludge lagoons and 13 drying beds at the offsite Biosolids Management Facility. Constructed new biosolids pump station (operational in 1989)
SIWF Modification	1995	Installed new center pivot irrigation system
Gravity Belt Thickener Building	1993	Added new gravity belt thickener building and two 3-meter gravity belt thickeners with polymer system

TABLE 3.2.1-2
Plant Upgrades and Additional Facilities
MWMC Facility Plan, Eugene-Springfield

Construction Project	Year	Description
BMF Dewatering Facility	2001	Dewatering building with three 2-meter belt presses, added two belt filter press mix tanks, polymer system, three biosolids presses, solids loadout system
Biocycle Farm	2004	Anticipate planting 157 acres in poplar trees, constructed biosolids irrigation pipeline, and biosolids pump station at the BMF
Facilities Support		
Maintenance Facility Modifications	1990	Expansion of existing maintenance facility to include men's room, locker rooms, storage room, and miscellaneous locker rooms
Laboratory Building Addition	2003	New laboratory building replaces the existing laboratory

3.2.2 Facility Design

The existing liquid treatment processes at the WPCF consist of pretreatment, primary treatment, secondary treatment, disinfection, and effluent disposal. The existing solids treatment processes at the WPCF and the Biosolids Management Facility include thickening, anaerobic digestion, facultative sludge lagoons, drying beds, and solids dewatering. Process flow diagrams for the existing liquids and solids processes are shown in Figures 3.2.2-1 and 3.2.2-2, respectively.

Pretreatment

The pretreatment facility at the WPCF is comprised of influent screw pumps, coarse bar screens, aerated grit removal and preaeration. Screenings and grit are processed in a separate building through screenings washer/compactors and grit separation. Table 3.2.2-1 summarizes the pretreatment facility unit processes and equipment.

TABLE 3.2.2-1
WPCF Pretreatment Facility Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Raw Sewage Pumps	Helical Screw (capacity at peak flow)	4	21/63/84 mgd
Bar Screens	Mechanically raked, 1/2-inch opening bar screen	6	35/175/210 mgd
Screenings Grinder	Inline (rated at 150 cubic feet of screenings per hour)	2	1,000/1,000/2,000 gpm
Grit Removal	Aerated Grit Chambers (101,000 gallons each; design criteria of 2.5 minutes detention time at peak flow)	4	58.3/175/233 mgd

TABLE 3.2.2-1
WPCF Pretreatment Facility Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Grit Slurry Pumps	Recessed Impeller	4	300/900/1,200 gpm
Preaeration	Chambers (152,000 gallons each; design criteria of 15 minutes detention time at average flow)	4	14.6/43.8/58.4 mgd
Screenings Washer/Compactor	Impeller Washer Shafted Screw Conveyor and Compactor	2	2,000/2,000/4,000 gpm
Compacted Screenings/Grit Conveyor	Shaftless, Dual-Drive, Reversing Grit Screenings	 2 2	 900/900/1,800 lb/hr 1,400/1,400/2,800 lb/hr
Solids Loadout Conveyor	Shaftless Screw Grit Screenings	 2 2	 900/900/1,800 lb/hr 1,400/1,400/2,800 lb/hr
Grit Separation	Cyclones Classifiers	4 2	300/900/1,200 gpm 600/600/1,200 gpm

Notes:
[a] Total firm capacity is with largest unit out-of-service.
[b] Total capacity is with all units in service.

Primary Treatment

The MWMC WPCF currently uses a total of four primary clarifiers to treat screened and degritted raw sewage. The existing primary clarifiers are circular, have outboard launders, and are 135 feet in diameter. Each clarifier receives effluent from the plant's existing headworks through a dedicated 60-inch-diameter pipe. Primary sludge is accumulated at the bottom of the clarifier and thickened through compaction. Primary sludge solids are drawn off with intermittent sludge pumping and a thin sludge blanket is maintained within the clarifier. Table 3.2.2-2 summarizes the primary treatment processes and equipment.

TABLE 3.2.2-2
WPCF Primary Clarification Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Primary Clarifier	135-foot-diameter, 12-foot side water depth, with standard scraper mechanism, 44-inch influent column	4	21/64/86 mgd
Primary Sludge Pumps	4-inch air-operated diaphragm pumps	4	110/330/440 gpm
Primary Scum Pumps	4-inch air-operated diaphragm pumps	2	110/110/220 gpm

Notes:
[a] Total firm capacity is with largest unit out –of service.
[b] Total capacity is with all units in service.

Secondary Treatment

The MWMC WPCF currently has a total of eight activated sludge basins to provide biological secondary treatment. The original aeration basins were designed to operate in four modes with the following sludge retention times (SRT):

1. Complete mix activated sludge– SRT = 5 days
2. Plug flow activated sludge– SRT = 5 days
3. Step feed activated sludge – SRT = 5 days
4. Contact stabilization activated sludge– SRT = 5 days

The original aeration system consisted of six centrifugal blowers and coarse bubble aeration. In 1996 three of the eight aeration basins were modified and the coarse bubble aeration systems were replaced with fine bubble membrane diffusers.

The secondary treatment average dry weather capacity was estimated at 49 mgd operating in contact stabilization mode prior to the issuance of the new 2002 NPDES permit. This capacity was based on an adequate solids retention time (SRT) to remove 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) only and does not account for any nitrification. The introduction of an ammonia limit in the 2002 NPDES permit resulted in dry weather operational changes to the system. Operations staff now operate the basins in a modified plug flow configuration with sludge retention times between 7 and 9 days and mixed liquor suspended solids concentrations at approximately 1800 mg/L. These sludge retention times and mixed liquor concentrations are necessary to maintain the required level of nitrification in the system. As a result the secondary treatment process is stressed during dry weather operations. These operating conditions have only been able to be achieved because dry weather flows over the past 3 years have been relatively low. At higher dry weather flows a higher mixed liquor solids concentration would be required to maintain the same sludge retention time in the system for nitrification. At these higher mixed liquor concentrations and an average dry weather sludge volume index (SVI) of 200 ml/g the secondary clarifier's could not handle the additional solids loading.

The average and peak hour wet weather treatment capacity was estimated at 75 mgd and 103 mgd respectively, limited by secondary clarification. Because there is no selectors in the system the typical SVI's during wet weather operations average approximately 175 ml/g. A state point analysis of the secondary clarifiers confirm that at the operational SVI's noted, the secondary clarifiers become thickening limited at just over 100 mgd. Historically for wet weather peak flows, primary effluents in excess of 103 mgd are diverted around secondary treatment and blended with secondary effluent and disinfected prior to disposal.

Secondary clarification takes place using the original eight secondary clarifiers constructed in 1984. Mixed liquor is split to each secondary clarifier using sluice gates. Each secondary clarifier is 130 feet in diameter, uses inboard launders, and contains a rapid sludge removal (RSR) mechanism that draws return sludge from the clarifier floor with the use of PVC suction tubes. Secondary scum is removed from the surface of the clarifier and flows by gravity to the secondary scum pump station located in the secondary control complex. Recent data indicate the wet weather peak hour capacity of the secondary clarifers to be 111 mgd, somewhat more than the 103 mgd estimated originally. Operations staff have been able to pass these higher peak flows; however, flow management techniques are required for the facility to stay within permit limits.

Return sludge is removed from each clarifier through the RSR mechanism. The return sludge flow can be adjusted from each clarifier using electrically operated and controlled weir gates. Return sludge flows by gravity to the return activated sludge (RAS) pump station. Four vertical turbine pumps lift the activated sludge to a control structure where the RAS is distributed back to the aeration basins through four parallel pipes. Activated sludge is then subsequently distributed to each aeration basin through a submerged diffuser header. The waste activated sludge (WAS) flow rate is controlled using flow meters and control valves. The WAS flows by gravity to the gravity belt thickener (GBT) and receives subsequent digestion.

Table 3.2.2-3 summarizes the secondary treatment unit processes and equipment at the WPCF.

TABLE 3.2.2-3
WPCF Secondary Treatment Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Aeration Basins	Complete mix or plug flow activated sludge cells, 135 ft x 135' x 16 ft sidewater depth, Volume = 2.2 MG each, Total Volume = 17.6 MG	2 (8 cells)	MMDW 24.5/43/49 MGD[c] MMWW 21/63/75 mgd PWWF 111 mgd
Fine Bubble Aeration	7-inch membrane disc diffusers, 0.28 sq in each, diffusers, Basin 1 = 4017, Basin 2 = 4014, Basin 3 = 4490.	3	10,353/20,706/32,538 scfm
Coarse Bubble Aeration	Coarse bubble stainless steel air diffusers, 24-inch	5	15,000/60,000/75,000 scfm
Aeration Blowers	Centrifugal multi-stage blowers, 1000 hp	6	17,000/85,000/102,000 scfm
Secondary Clarifiers	130-foot-diameter, 14-foot side water depth, inboard launder, rapid sludge withdrawal mechanism, 44-inch influent column	8	WWMM 9/66/75 mgd DWMM 6/43/49 mgd PWWF 111 mgd
RAS Pump Station	Vertical Turbine Pumps - 30-inch Vertical Turbine Pumps - 24-inch	2 2	23(12)/58/70 mgd
Waste Activated Sludge	One 8-inch gravity wasting, with 6-inch magnetic flow meter and 6-inch flow control valve	2	MMDW = 0.41 mgd MMWW = 0.44 mgd PWWF = 0.78 mgd
Secondary Scum Pumps	Vertical centrifugal	2	1,200/1,200/2,700 gpm

Notes:
[a] Total firm capacity is with largest unit out –of service.
[b] Total capacity is with all units in service.
[c] Capacity noted is current rated capacity in NPDES permit.

Disinfection

Chlorine is delivered to the plant in 1-ton cylinders. Chlorinators dispense chlorine in the desired quantities to each application point. The primary use of chlorine at the WPCF is effluent disinfection. Chlorine is occasionally used to control filamentous bulking organisms through addition to the RAS line.

The existing WPCF disinfection system uses liquid chlorine for disinfection and sulfur dioxide for dechlorination of the disinfected effluent. Chlorine solution is delivered to secondary effluent or blended primary and secondary effluent flow streams through a diffuser at the influent box to each chlorine contact basin. Following chlorine addition, flow passes through a chlorine contact basin to gain the desired detention time. The current disinfection capacity is estimated at 175 mgd, although higher peak wet weather flows in excess of 200 mgd have been disinfected effectively because of their dilute nature.

The addition of sulfur dioxide for dechlorination takes place before the final effluent flows to the outfall box. Sulfur dioxide is delivered to the plant in 1-ton cylinders. Sulfonators dispense the sulfur dioxide in the desired quantities. Sulfur dioxide injectors operate in a manner similar to the chlorine injectors. The sulfur dioxide solution is added to the effluent downstream of the chlorine contact basins as the effluent flows through a mixing orifice. Table 3.2.2-4 presents a summary of the existing equipment associated with the disinfection system.

The existing chlorine and sulfur dioxide systems have a sodium hydroxide wet scrubber system that is automatically started if a chemical leak is detected in the chlorine building. The wet scrubber has a 2-ton capacity, contains a 4,100-gallon tank of 12 percent NaOH, and is rated at 10,000 cfm. Chlorine/ SO2 injectors are Pennwalt Wallace and Tiernan series A-452 3" injectors with a 2000 lb - 8000 lb capacity.

TABLE 3.2.2-4
WPCF Disinfection Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Chlorine Contact Basins	Four contact basins each 585 ft x 15 ft x 13 ft, volume = 0.85 MG, 6.8 MG total volume, capacity at 20 minutes for instantaneous peak	4	58/185/230 MGD
Evaporators (chlorine)	Wallace and Tiernan, Series 50-202	2	8,000/8,000/16,000 lb/day
Chlorinators	Portacel, AVP2, 2000 lb/day units running with 1000 lb/day rotometers	5	1,000/4,000/5,000 lb/day
Chlorine Injectors	Wallace and Tiernan, Series A-452, 3-inch injectors	5	8,000/32,000/40,000 lb/day
Evaporators (sulfur dioxide)	Wallace and Tiernan, Series 50-202	2	8,000/8,000/16,000 lb/day
Sulfonator	Wallace and Tiernan, V2020	1	450/450/450 lb/day
Sulfonator	Portacel, AVP2, 2000 lb/day units running with a 1000 lb/day rotometer	1	1,000/1,000/1,000 lb/day
Sulfur Dioxide Injectors	Wallace and Tiernan, Series A-452, 3-inch injectors	2	8,000/8,000/16,000 lb/day

TABLE 3.2.2-4
WPCF Disinfection Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Chlorine Scrubber		1	10,000 cfm – airflow 12% NaOH solution
Chlorine Scrubber	Currently under construction	1	5,000 cfm – airflow 20% NaOH solution

Notes:
[a] Total firm capacity is with largest unit out of service.
[b] Total capacity is with all units in service.

Effluent Disposal

Current effluent disposal practices consist of discharging plant effluent into the Willamette River at rivermile 178. The WPCF has historically met all regulatory requirements for secondary effluent disposal with one exception. On May 17, 1991 the daily mass limit was exceeded for TSS and BOD. Effluent is preferentially disposed of through a submerged diffuser in the Willamette River. The NPDES permit requires the use of the submerged diffuser from May 22 through October 31. Peak wet weather flows over 103 mgd consist of blended primary and secondary disinfected effluent. The wet weather hydraulic capacity of the WPCF is estimated at 175 mgd, although higher flow rates approaching 215 mgd have been achieved. The current practice for discharging peak wet weather flows in excess of the submerged diffuser outfall capacity is to overflow into a bankside outfall. These overflows occur at a weir located at the outfall control structure. The current NPDES permit allows the bankside outfall to be used from November 1 through May 21 to accommodate peak wet weather flows.

Thickening

WAS is currently thickened at the WPCF with the use of GBTs. The GBT facility houses two 3-meter gravity belts, a polymer distribution system, and the thickened WAS pumps. WAS flows either by gravity or pumped flow from the RAS control structure to the GBT facility. The WAS flow rate is metered and controlled with flow control valves at the RAS and/or GBT control structure. Prior to thickening, the WAS is conditioned with a cationic polymer. Thickened WAS is typically around 5 percent solids and is pumped directly to the digester for anaerobic digestion. Table 3.2.2-5 summarizes the waste activated sludge unit process and associated equipment.

TABLE 3.2.2-5
WPCF Waste Activated Sludge Thickening Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Gravity Belt Thickeners	3-meter, 95% solids capture, 5% solids, MWWW SLR= 2010 lb/hr, MWWW HLR = 120 gpm/m	2	48,250/48,250/96,500 lb/day

TABLE 3.2.2-5
WPCF Waste Activated Sludge Thickening Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
WAS feed pumps	Screw centrifugal with adjustable frequency drive (AFD), 15 hp	2	800/800/1,600 gpm
Thickened Waste Activated Sludge Pumps	Progressive cavity with AFD, 20 hp.	2	120/120/240 gpm
Polymer System	Liquid tote polymer system, 17 lb/ton capacity	2	17/17/34 lb/ton

Notes:
[a] Total firm capacity is with largest unit out of service.
[b] Total capacity is with all units in service.

Anaerobic Digestion

Three primary anaerobic digesters located at the WPCF stabilize primary sludge and secondary WAS. Each digester is 85 feet in diameter and contains a fixed cover. Table 3.2.2-6 summarizes the anaerobic digestion unit processes and associated equipment.

TABLE 3.2.2-6
WPCF Anaerobic Digestion Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Digesters	Anaerobic, fixed cover, 85-foot-diameter, 27.6 foot SWD, active volume = 1.14 MG each, DWMM SLR = 0.15, DWMM SRT =15 days	3	19,432/38,864/58,295 lb VSS/day
Biosolids Storage Tanks	Fixed cover, 60-foot-diameter	2	360,000/360,000/720,000 gal
Digested Sludge Pumps	Progressive cavity with AFD, 75 hp	2	430/430/860 gpm

Notes:
[a] Total firm capacity is with largest unit out –of service.
[b] Total capacity is with all units in service.

Facultative Sludge Lagoons and Drying Beds

The FSLs are located at the BMF facility offsite of the WPCF. The lagoons were constructed to provide storage and further stabilization of digested biosolids received from the WPCF. Anaerobically digested biosolids are pumped from the sludge holding tanks at the WPCF through a 5.5-mile-long pipeline, to the four facultative lagoons at the BMF Facility. The lagoons provide the additional detention time for natural processes to further stabilize the biosolids and reduce pathogens.

Sealed asphalt drying beds provide for the stabilized biosolids to be dewatered for 6 to 10 weeks in the dry season. Dewatered biosolids are recycled through land application on cooperative farms. Supernatant from the lagoon is returned to the WPCF. Table 3.2.2-7 summarizes the biosolids stabilization unit processes and associated equipment.

TABLE 3.2.2-7
WPCF Biosolids Stabilization Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
Biosolids Stabilization Lagoons	Facultative lagoons, 6.25 acres each, 13.5 ft depth	4	6,806/20,419/27,225 lb VSS/day
Drying Beds	Asphalt lined, 1.85 acres each, 0.48 ft depth, 67 lb/cf density	13	1,393 CY

Notes:
[a] Total firm capacity is with largest unit out –of service.
[b] Total capacity is with all units in service.

Biosolids Dewatering

The original design provided for the stabilized biosolids to be dewatered for 6 to 10 weeks in thirteen sealed asphalt drying beds. However, lower than anticipated solids processing efficiency (primarily because of variable summer weather conditions) required the addition of belt filter presses at the BMF facility. In 2002 the addition of three 2-meter belt filter presses added solids processing capacity that closely matched the design capacity of the treatment plant. Stabilized biosolids from the lagoons may be either mechanically dewatered using the belt filter presses, applied to drying beds for seasonal dewatering, or pumped directly to the Biocycle Farm for land application. Dewatered biosolids are recycled through land application on cooperative farms. Filtrate from the belt filter presses and FSLs is returned to the WPCF. Table 3.2.2-8 summarizes the biosolids dewatering unit processes and associated equipment.

TABLE 3.2.2-8
WPCF Biosolids Dewatering Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])
BFP Feed Tank Mixing Pump	Screw centrifugal, 25 hp	2	1,800/1,800/3,600 gpm
BFP Feed Tank	Open top concrete, 48 ft diameter, 26 ft SWD, volume each = 360,000 gal	2	360,000/360,000/720,000 gal
Belt Filter Presses	2-meter belt filter presses, 98% capture	3	29,770/59,530/89,304 lb/day
BFP Feed Pumps	Progressing cavity with AFD, 15 hp	3	200/400/600 gpm
BFP Filtrate Pumps	Submersible with AFD, 15 hp	3	575/115/1,725 gpm
Cake Conveyance	Auger screw	1	30/0/30 wet tons/hr
Biosolids Strainers	Biosolids Strainers	3	200/400/600 gpm

TABLE 3.2.2-8
WPCF Biosolids Dewatering Unit Processes and Equipment
MWMC Facility Plan, Eugene-Springfield

Equipment	Type	Quantity	Capacity (each/total firm[a]/total[b])

Notes:
[a] Total firm capacity is with largest unit out –of service.
[b] Total capacity is with all units in service.

3.2.3 Plant Operation and Facilities

MWMC WPCF operations full-time staff consists of an operations supervisor, a chief operator, and 14 operators. Plant operations staff respond to all alarms on a 24/7 basis for the WPCF, 47 pump stations, the BMF and the SIWF. Safety of personnel and the public is the staff's highest priority. The second highest priority is maintaining WPCF operations within NPDES permit parameters. Decisions regarding cost-saving measures are a balance between environmental performance and environmental impact, with selected decisions being positive for both criteria. The computerized system documents and summarizes plant operations.

Administration and operational facilities (non-process) include administration offices; the plant laboratory; operations rooms; records management offices; personnel support areas such as locker rooms, conference areas, and lunch rooms; and the operations console. All are located in the existing administrative building, of which 8,749 square feet is dedicated to administration, 944 square feet is dedicated to operations personnel, and 4,515 square feet is dedicated to laboratory operations.

The WPCF maintenance facilities consist of the maintenance shop, welding shop, steam cleaning bay, stores area, and field maintenance shop. The maintenance shop, welding shop, and steam room comprise approximately 11,770 square feet, stores occupies 2,290 square feet, and the facility maintenance shop comprises approximately 2,000 square feet.

3.2.4 Unit Performance and Deficiencies

Unit processes at both the WPCF and the BMF have been evaluated for capacity and performance so that current and future needs can be addressed without a lapse in treatment capability. Table 3.2.4-1 summarize the liquids unit processes, process limitations, and process deficiencies identified through the analysis. Table 3.2.4-2 summarize the solids unit processes, process limitations, and process deficiencies.

TABLE 3.2.4-1
Existing Liquids Unit Process Performance, Limiting Factors, and Deficiencies
MWMC Facility Plan, Eugene-Springfield

Unit Process	Process Description	Number of Units	Design Basis	Firm Capacity	Total Capacity	Current Unit Process Performance	Unit Process Limiting Factors	Unit Process Deficiencies
Influent Pumping	Open screw pumps	4	PWWF	63	84	up to 215 mgd	PWWF	Peak wet weather flows exceed hydraulic capacity No adequate redundancy
Influent Screening	Coarse bar screens with mechanical cleaning	6	PWWF	175	210	up to 215 mgd	PWWF	Peak wet weather flows exceed hydraulic capacity Mechanical rake arm motors submerge over 175 mgd Peak flow events exceed the screenings trough capacity Grease removal is not adequate in screening conveyance
Grit Removal	Aerated grit chambers with coarse bubble aeration	4	PWWF	175	233	up to 215 mgd	PWWF	Grit removal has high carry over during peak flow events Inadequate detention time at PWWF
Preaeration	Preaeration basins with coarse bubble aeration	4	AWWF	43.8	58.4	up to 215 mgd	PWWF	Inadequate detention time at flows over 58 mgd
Primary Clarification	Circular primary clarifiers with standard rake mechanism	4	PWWF	64.5	86	up to 215 mgd, SOR up to 3650 gpd/sf	SOR limited at 1,250 gpd/sf	Peak wet weather flow excess treatment capacity Poor TSS removal above 72 mgd Sludge blanket washout occurs over 86 mgd Blended effluent quality is not sufficient to meet NPDES TSS requirements
Aeration Basins	Completely mixed, or plug flow aerated basins	2 basins (8 cells)	ADWF AWWF	43 63	49* 75	up to 49.1 mgd up to 105.4 mgd	MLSS limited in contact stabilization mode at 3,823 mg/L Peak diurnal flows limited in system to 111 mgd	MMWW flows exceed aeration basin capacity MMDW flows are at capacity NPDES permit for nitrification is difficult to meet in the dry season Modes of operation in aeration basin are limited Influent alkalinity is low for nitrification
Secondary Clarification	Circular secondary clarifiers with RSR mechanisms	8	ADWF AWWF PWWF	43 66 97	49 75 111	up to 49.1 mgd up to 105.4 mgd up to 111 mgd	Solids loading rate limited at 43 lb/d/sf SOR limited at 750 gpd/sf SOR limited at 1,050 gpd/sf	Inadequate settling of solids due to hydraulic and density currents Inboard weir and launder result in solids going over weirs Rotating mechanism stirs up the settled solids Suction tubes drag on the clarifier floor No ability to adjust sludge withdrawal rates when in operation Ferrous metal components are rusting and need replacement Aging equipment results in high maintenance
Disinfection	Plug flow chlorine contact basins	4	PWWF ADWF	131 60	175 80	up to 215 mgd up to 105 mgd	Chlorinator and Sulfonator Capacity Detention time drops below 60 minutes	Chlorinator capacity at peak flow is limited Chlorine flow metering also limits delivery capacity Chlorine gas poses safety issues for operators and community Sulfur dioxide dosing is limited at peak flows
Plant Hydraulics	Peak Hydraulic Capacity		PWWF	n/a	175	up to 215 mgd	PWWF	Outfall diffuser is hydraulically limited to 215 mgd, less at high river levels Primary clarifiers are hydraulically limitec Mixed liquor channel between aeration basins and clarifiers is limited Overall secondary capacity is hydraulically limited to 111 mgc

* Capacity indicated is current rated capacity in NPDES permit. Nitrification capacity for MMDW is less.

TABLE 3.2.4-2
Existing Solids Unit Process Performance, Limiting Factors, and Deficiencies
MWMC Facility Plan, Eugene-Springfield

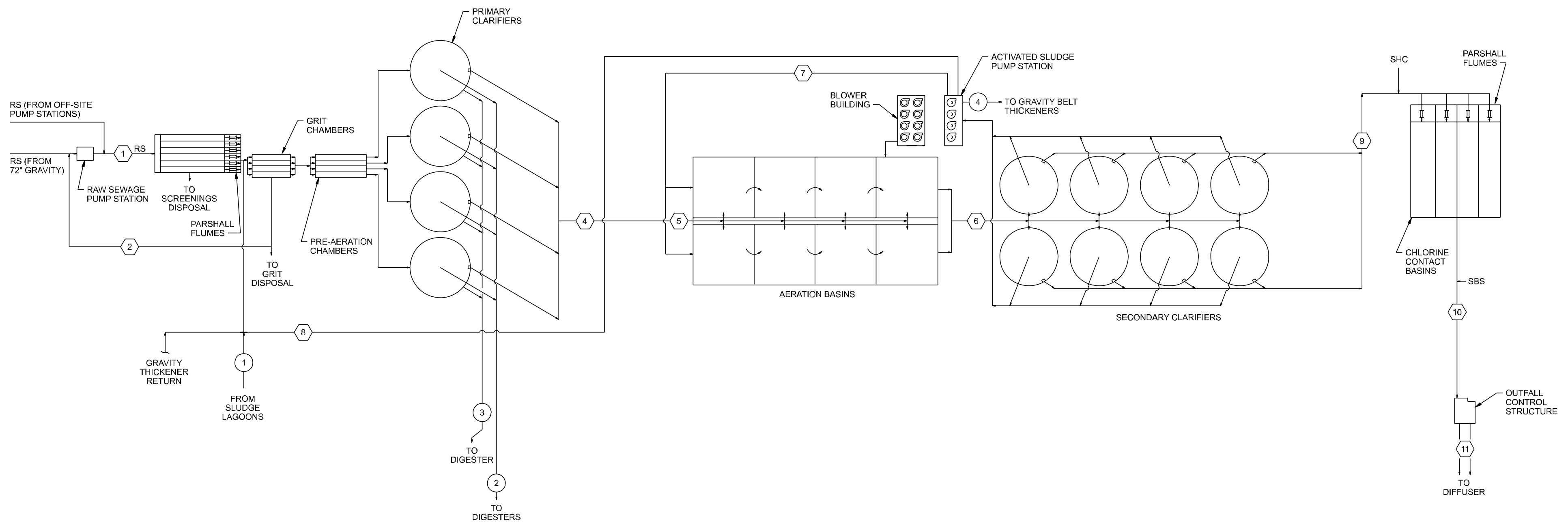
Unit Process	Process Description	Number of Units	Design Basis	Firm Capacity	Total Capacity	Current Unit Process Performance	Unit Process Limiting Factor	Unit Process Limiting Factor
Waste Activated Sludge Thickening	3-meter Gravity Belt Thickeners	2	WWMW	48,250 lb/day	96,500 lb/day	up to 96,500 lb/day	SLR = 2010 lbs/hr HLR = 720 gpm	WWMM solids loading rate exceeds current capacity
Solids Stabilization	Anaerobic Digestion	3	AA MM	96,900 gpd	145,350 gpd	up to 145,350 gpd	SRT = 20 day SRT = 15 day SLR = 0.15 lbs VSS/cf-day	SRT at annual average flow conditions drops below 20 days
Solids Stabilization	Facultative Sludge Lagoons	4	SLR	20,420 lbs VSS/day	27,225 lbs VSS/day	up to 27,225 lb/day	SLR = 25 lbs VSS/1000 sf-day	VSS loading rate at annual average flows exceeds design criteria
Biosolids Dewatering	Belt Filter Presses	3	WWMW	205,000 gpd	307,440 gpd	up to 307,440 gpd	SLR = 2440 lbs/hr HRT = 140 gpm	WWMW solids loading rate exceeds design capacity
Biosolids Storage	Facultative Sludge Lagoons	4	na	31 MG	41 MG		Optimal sludge depth = 6'	Annual solids processing operation
Biosolids Storage	Air-Drying Beds	13	na	2650 dry tons	3130 dry tons		Density of biosolids = 67 lbs/cf	

Figure 3.2.1-1

Existing Facilities

Eugene & Springfield

CVO\043380059



PROCESS FLOW STREAMS

1. RAW SEWAGE
2. GRIT HANDLING RECYCLE
3. PRIMARY SCUM
4. PRIMARY EFFLUENT
5. SECONDARY INFLUENT
6. MIXED LIQUOR
7. RETURN ACTIVATED SLUDGE
8. SECONDARY SCUM
9. SECONDARY EFFLUENT
10. DISINFECTED SECONDARY EFFLUENT
11. PLANT EFFLUENT

IN/OUT FLOWS FOR SOLIDS PFD

1. SLUDGE DEWATERING RECYCLE
2. PRIMARY SLUDGE
3. PRIMARY SCUM
4. WASTED ACTIVATED SLUDGE

PRELIMINARY
NOT FOR CONSTRUCTION

DSGN	J CHANG
DR	J BAUM
CHK	S CLARK
APVD	

NO.	DATE	REVISION	BY	APVD

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CH2MHILL

FIGURE 3.2.2-1
EXISTING LIQUIDS PROCESS FLOW DIAGRAM

SHEET	
DWG	
DATE	NOVEMBER 2004
PROJ	

FILENAME: $FILENAME PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

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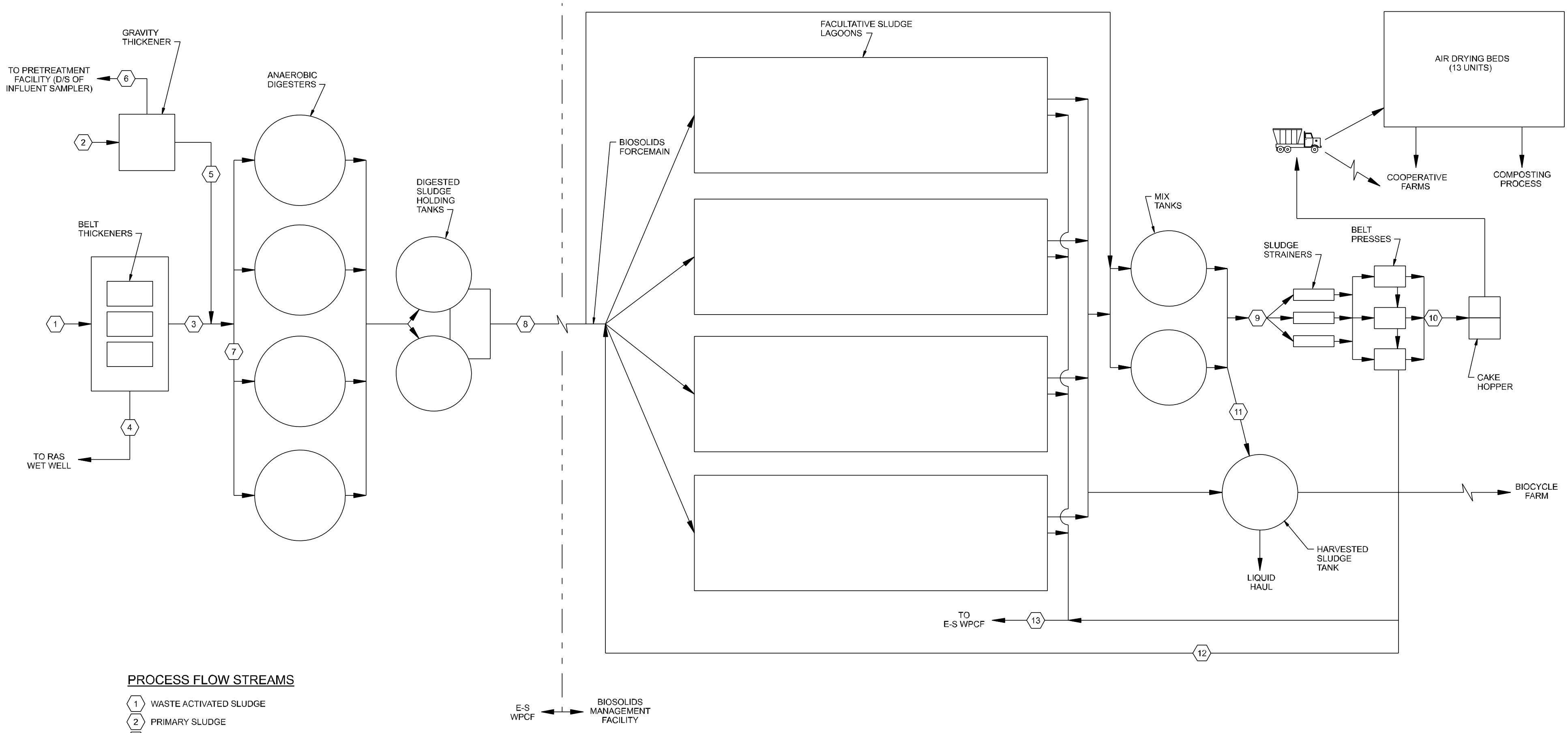

PROCESS FLOW STREAMS

1. WASTE ACTIVATED SLUDGE
2. PRIMARY SLUDGE
3. THICKENED WASTE ACTIVATED SLUDGE
4. BELT THICKENER RECYCLE
5. THICKENED PRIMARY SLUDGE
6. GRAVITY THICKENER RECYCLE
7. DIGESTER FEED SLUDGE
8. DIGESTED SLUDGE
9. MECHANICAL DEWATERING FEED
10. DEWATERED SLUDGE CAKE
11. BIOCYCLE FARM FEED SLUDGE
12. MECHANICAL DEWATERING FILTRATE
13. LAGOON SUPERNATANT

PRELIMINARY

NOT FOR CONSTRUCTION

DSGN C ALLEN
DR J BAUM
CHK S CLARK
APVD

NO.	DATE	REVISION	BY	APVD

VERIFY SCALE
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CH2MHILL

FIGURE 3.2.2-2

EXISTING SOLIDS PROCESS FLOW DIAGRAM

SHEET
DWG
DATE NOVEMBER 2004
PROJ

FILENAME: $FILENAME PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

Attachment A
Regional and Local Pump Station Data

Eugene/Springfield Pump Station Information

Station	Location Code	Pump Qty, Power	Design Q (MGD)	Design Q (GPM)	Max Q (MGD)	TDH (ft)	Utility	Voltage/ Phase	Phase Fail Relays	Generator Hook-up	Generator Size (kW)	Port.Pump Size	Fitting Size	Distance pumped	PS Line Size Inlet / Outlet	PS Service Area	Bypass
Regional																	
Fillmore	63	2, 30 hp 3, 50 hp	12.90	8,958	44	7-16	EWEB	480 / 3 ph	Y	Yes	240				54" / 24"& 48"	West Eugene downtown area	Yes-pumped/gravity
Springfield Plant	64	2, 40 hp	Bypass		17		SUB	480 / 3 ph		Yes	80				48"& 48" / Will. River	Springfield EBI Bypass ONLY	Yes-pumped/gravity
Terry Street	61	3, 200 hp	6.60	4,583	14	115	EWEB	480 / 3 ph	Y	2X power					48" / 30" FM	W. 11th Indust., Royal Ave	Yes-gravity
West Irwin	62	3, 300 hp	11.00	7,639	21	121 - 167	EWEB	480 / 3 ph	Y	2X power					36" / 30" FM	NW Barger	Yes-gravity
Willakenzie	60	5, 300 hp	25.00	17,361	80	50	EWEB	480 / 3 ph	Y	2X power					78" & 48" & 15" / 54" FM	EBI, FSB, Oakway, Delta, Crimson	Yes-pumped/gravity
Glenwood	86	2, 40 hp	5.00	3,472	8	12-30	SUB	480 / 3 ph	Y	Yes	80	6"	6" M	895 ft	36" / 12"& 24" FM	Glenwood, E. Hendricks Park, future	Yes-gravity
Eugene Local																	
Airport	58	2, 10 hp	0.29	201	0.5	50	EWEB	480 / 3 ph				3"	6" F		8" / 6" FM	Airport terminal / complex	
Barger/Greenhill	35	2, 200 hp	3.70	2,569	7.4	160	EWEB	460 / 3 ph	Y	2X power					48" /14" & 24" FM 7350 ft	South GreenHill / Hynix	share w/ Terry St.
Crimson	59	2, 30 hp	2.14	1,486	3.6	49	EWEB	460 / 3 ph		Yes	80				15" / 12" FM - 2650 ft	residential area, north Delta	
Delta	39	2, 9.4 hp	0.80	556	1.4	20	EWEB	**240 / 3 ph**				3"	3"		15" / 10" FM	Delta Oaks Shopping center	
Division	41	2, 20 hp	0.70	486	1.4	79	EWEB	480 / 3 ph	Y	Yes	80	3"	6" F		10" / 8" FM	Santa Clara north of Division	
Enid	57	2, 20 hp	2.30	1,597	4	22	Blatchly/L.	480 / 3 ph		Yes	80	6"			24" / 12"	Airport Rd, Industrial, future	Yes-gravity
Ferry St. Stormwater	48	2, 5 hp	0.57	396	1	23	EWEB	208 / 3 ph								Tunnel under on-ramp to I-105	
Foxcroft	49	2, 7.5 hp	0.60	417	0.9	60	EWEB	**230 / 1 ph**				3"	6" M		8" / 6" FM	residential area, S.34th off Chambers	
Greenwich	36	2, 30 hp	1.00	694	1.5	81	EWEB	480 / 3 ph		Yes	80				12" / 8"	S. Santa Clara - residential	
Irvington	55	3, 250 hp	7.20	9,400	13.5	162	EWEB	480 / 3 ph		Yes	350				42" / 24" FM	Santa Clara, all stations north,west, east	
Judkins Pt.	46	2, 10 hp	0.29	201	0.5	45	EWEB	**230 / 3 ph**		Yes	80	3"	4" M		8" / 4" FM - 465 ft	Commercial blds north of Franklin Blvd.	
Lynnbrook	53	2, 3 hp	0.29	201	0.5	27	EWEB	**240 / 1 ph**		Yes	80	Gravity flow around station			8" / 4" FM	residential area, north Santa Clara	
Oakway	45	3, 25 hp	3.01	2,090	6	32	EWEB	480 / 3 ph	Y	Yes	80				21" / 12" FM	Oakway basin over to Garden Way	
North Santa Clara	65	2, 10 hp	0.60	417	0.9	48	EPUD	480 / 3 ph	Y	Yes	80				8" / 6" FM 1629 ft	Sub-division south of Beacon Dr.	Yes-gravity
Piper	42	2, 1.5 hp	0.20	139	0.3	16	EWEB	**208 / 3 ph**				3"	3"		8" / 4"	Airport Fire Stn., S. hangers	
Prairie Road	38	2, 88 hp	3.30	2,292	5.4	106	EWEB	460 / 3 ph	Y	Yes	160				21" / 12" FM	Prairie Rd. area north/south	
River Ave.	54	2, 7.5 hp	0.70	486	1		EWEB	480 / 3 ph		Plant power		3"	6" M		10" / 8"	River Road S. & W. of Plant	
Riverfront	52	2, 5 hp	0.40	278	0.6		EWEB	480 / 3 ph		Yes	80	3" / 6"	6" F (2)		8" / 6"	Riverfront Park	
Riverfront Stormwater	52	2, 25 hp	3.20	2,222	5.6		EWEB	480 / 3 ph		Yes	80				21" / 14"	Stormwater portion of station	
Skipper	37	2, 60 hp	3.00	2,083	6	76	EWEB	480 / 3 ph		Yes	160				21" / 14" FM	River Road residential area	Yes-gravity
Spring Creek	56	2, 7.5 hp	0.50	347	0.8		EWEB	480 / 3 ph				6"	6" F		12" / 8"	N.E. Santa Clara - residential	
Spyglass	44	2, 4.7 hp	0.60	417	0.9	26	EWEB	**240 / 3 ph**		Yes	80				10" / 8"	residential area at Oakway Golf	
Tadmore	40	2, 3 hp	0.50	347	0.8	15	EWEB	**240 / 3 ph**				3"	3" F		12" / 10"	N.E. Delta Oaks	
Tonawanda	50	2, 15 hp	0.30	208	0.5	90	EWEB	**240 / 3 ph**		Yes	80				8" & 8" / 6" FM	Foxcroft,S. Chambers, Lorane Hwy	
Valley River (gone)	43															Station eliminated by gravity system '03	
Wilkes	34	2, 7.5 hp	0.50	347	0.8		EWEB	480 / 3 ph				3"	6" F		12" / 8"	E. River Rd, N. Wilkes Dr.	
Willamette Towers	47	2, 20 hp	0.80	556	1.3		EWEB	**208 / 3 ph**		Yes	80				8" & 12" / 6"	Will. Tower Appt. / downtown area to Willamette St.	
Springfield Local																	
15th Street	81	2, 3.7 hp	0.30	208	0.5	10	SUB	**240 / 1 ph**	Y			3"		20' to MH	8" / 4"	Appartment complex 15th & Main	
21st & E Street	76	2, 15 hp	1.60	1,111	2.6	40	SUB	480 / 3 ph	Y	Yes	80				18" / 10"	Wet weather flow diversion	
49th Street	80	2, 3.4 hp	0.50	347	0.8	15	SUB	**240 / 3 ph**	Y	Yes	80	3"		20' to MH	8" / 4"	residential area at S 49th St.	
Commercial	75	2, 7.5 hp	0.40	278	0.6	25	SUB	**240 / 3 ph**	Y	Yes	80				8" / 4"	N. Gateway / International - commercial	
Deadmonds Ferry	74	2, 10 hp	1.20	833	1.9	25	SUB	**240 / 3 ph**	Y	Yes	80				10" & 10" / 10"FM (2X)	commercial / residential	
Golden Terrace	71	2, 5 hp	0.20	139	0.3	48	SUB	**240 / 3 ph**		Yes	80				10" / 6"	residential area off S. 57th	
Harlow Road	70	1, 15 hp 2, 20 hp	3.00	2,083	4.4	30	SUB	**240 / 3 ph**	Y	Yes	80				10" & 24" / 12"	Gateway area (mall & apartments)	
Hayden Lo	73	2, 5 hp	0.42	292	0.6	20	SUB	**240 / 3 ph**	Y	Yes	80				10" / 6"	residential area at N 31st & W St.	
Ken Ray	79	2, 3 hp	0.50	347	0.8	15	SUB	**240 / 1 ph**	Y	Yes	80				8" & 8" / 4"	residential area - Beverly Park	
Lucerne Meadows	72	2, 3 hp	0.30	208	0.5	20	SUB	**240 / 3 ph**		Yes	80				8" / 4"	residential area Jasper Rd & Clearwater	
Marcola Road	77	2, 2 hp	0.10	69	0.15	13	SUB	**240 / 1 ph**	Y			3"			8" / 4"	Day care center	
Marshall's Plaza	87	2, 5 hp	0.22	153	0.35	30	SUB	**230 / 3 ph**	Y						8" / 4" FM	Marshall's Oil Plaza - commercial	
Nugget Way	78	2, 20 hp	0.86	597	1.3	90	SUB	**240 / 3 ph**	Y	Yes	80			3575 ft	15" / 6" FM - 3 A/V's	Glenwood industrial park	
Olympic	82	2, 3.4 hp	0.40	278	0.6	25	SUB	**208 / 3 ph**	Y	Yes	80				8" & 12" / 4"	commercial area at Olympic & 28th	
Otto	83	2, 1.75 hp	0.20	139	0.3	15	SUB	**230 / 1 ph**	Y			Gravity flow around station			8" / 4"	residential in Briggs Middle Sch. Area	
Ramada	85	2, 1.5 hp	0.20	139	0.3	18	SUB	**240 / 3 ph**	Y	Yes	80				8" / 4"	Gateway - Gamefarm Rd. area	
River Glenn	88	2, 12 hp	0.70	486	1	54	SUB	**230 / 3 ph**	Y	Yes	80	4"			8" / 6" FM	residential area N. Hayden Bridge	

Station	Station Type Pkg/Can/BOS	Replacement Cost Est.	Construction Date	Age (Yrs)	Re-hab Need/Done Budget YR	Pump Stn. Lift Stn.	Pump MFG	Pump Type	VFD	D152/3 Other	Bubbler	Trans-ducer	Float Balls	Inf. Gate	Odor Control	W/W Volume Gal / Ft.	Telemetry	Rehab Detail
Regional																		
Fillmore	BOS	$1,121,000	1995	9	2000 - 2003	Lift	Flygt	Sub	Y		Y			Y	AC		Intrac	Major Upgrade 1995 - Replace VFD's, and PLC - replace both A side pumps w/N-Style
Springfield Plant	BOS	$1,000,000	1961	43		Lift	Worthington	Dry						Y			phone	
Terry Street	BOS	$2,160,000	1985	19	1998	PS	Worthington	Dry	Y		Y			Y	AC		Intrac	Replace Flowmatcher/VFD w/ VFD & PLC, install new pumps/motors
West Irwin	BOS	$1,840,000	1965	39	1998	PS	Morris	Dry	Y		Y			Y	AC		Moscad	Replace VFD's and PLC , reprogram PLC/add Moscad 3/04
Willakenzie	BOS	$3,400,000	1984	20	1997	PS	Worthington	Dry	Y			Y		Y	Biofilter		Intrac	Replace VFD's and PLC
Glenwood	BOS	$1,900,000	1995	9	2002	PS	Ingersol Dresser	Dry	Y		Y			Y	AC		Intrac	Replace VFD's
Eugene Local																		
Airport	PKG	$450,000	1987	17	2004?	PS	Flygt	Sub		Other	Y						Intrac	New #2 pump installed 1/8/03
Barger/Greenhill	BOS	$2,350,000	1999	5		PS	KSB	Sub	Y			Y		Y	AC		Intrac	
Crimson	PKG	$330,000	1997	7		PS	Flygt	Sub		D152	Y			Y			Intrac	
Delta	PKG	$342,000	1975	29		PS	ABS	Sub		D152		Y					Moscad	New #2 pump 2004
Division	PKG	$223,000	1985	19	2000	PS	Flygt	Sub		D152		Y		Y			Moscad	New control panel, D152, transducer
Enid	BOS	$453,000	1987	17		PS	F-M	Dry			Y			Y			Intrac	
Ferry St. Stormwater	PKG	$120,000	1999	5		Lift	ABS	Sub		DPC2		Y		Y			Moscad	
Foxcroft	CAN	$85,000	1966	38	2002-3	PS	Cornell	Dry			Y						phone	
Greenwich	BOS	$415,000	1987	17		PS	F-M	Dry			Y			Y			Moscad	
Irvington	BOS	$1,658,000	1987	17	2003-Done	PS	Cornell	Dry	Y			Y		Y			Intrac	Three new pumps, new VFD's / controls, transducer - 2003
Judkins Pt.	PKG	$107,000	1995	9	1995	PS	Flygt-new '98	Sub		D153U	Y						Intrac	
Lynnbrook	PKG	$256,000	1997	7	1997	Lift	ABS	Sub		D152		Y		Y			Intrac	Station rebuilt, new wet well, pumps, controls
Oakway	BOS	$1,020,500	2001	3	2001	PS	Ingersoll-Dresser	Dry	Y			Y		Y			Moscad	Brand new station replaced existing
North Santa Clara	PKG	$270,000	2001	3		PS	ABS	Sub		D152		Y		Y			Moscad	
Piper	PKG	$100,000	1977	27		PS	Peabody Barns	Sub					Y				Intrac	
Prairie Road	PKG	$516,000	1997	7		PS	ABS	Sub		D152		Y		Y			Intrac	
River Ave.	PKG	$450,000	1992	12		PS	Flygt	Sub			Y						Intrac	Rebuilt #2 pump May04
Riverfront	PKG	$810,000	1991	13		PS	Flygt	Sub			Y			Y			Intrac	
Riverfront Stormwater	PKG		1991	13		Lift	Flygt	Sub			Y			Y			Intrac	
Skipper	BOS	$525,000	1986	18		PS	F-M	Dry			Y			Y	Biofilter		Intrac	
Spring Creek	PKG	$211,000	1987	17		Lift	Flygt	Sub			Y			Y			Intrac	
Spyglass	PKG	$275,000	1977	27	2003	PS	ABS	Sub					Y				Moscad	New pumps, base, rail system, float balls March 2003
Tadmore	CAN	$348,000	1978	26		PS	Flygt	Sub			Y						Moscad	
Tonawanda	CAN	$141,000	1962	42	2002-3	PS	Cornell	Dry			Y						Moscad	
Valley River (gone)		$250,000	1968	36	Eliminated 2003													Station replaced by gravity system - 2003
Wilkes	PKG	$221,000	1985	19		Lift	Flygt	Sub			Y			Y			Intrac	
Willamette Towers	CAN	$300,000	1965	39	2003	PS	Chicago	Dry			Y						Moscad	
Springfield Local																		
15th Street	PKG	$80,000	1948	56	1999	Lift	ABS	Sub					Y			120	Moscad	Rebuilt station, new pumps, controls, cabinet-new #2 pump 2002
21st & E Street	CAN	$185,000	1967	37	2000	Lift	Cornell	Dry			Y					212	Moscad	Replace inlet isolation valves
49th Street	PKG	$110,000	1974	30	new pumps 2001	Lift	ABS-New 01	Sub					Y			147	Moscad	Replace both pumps
Commercial	CAN	$120,000	1983	21		PS	Paco	Dry			Y					212	Moscad	Y
Deadmonds Ferry	CAN	$150,000	1984	20		PS	Paco	Dry			Y					476	Moscad	Y
Golden Terrace	CAN	$180,000	1980	24	Sunset '05?	PS	S&L	Dry			Y					212	phone	
Harlow Road	CAN	$1,175,000	1968	36	1997/2004?	PS	Flygt	Dry			Y					212	Intrac	
Hayden Lo	CAN	$140,000	1981	23		PS	Paco	Dry			Y					212	Moscad	Replaced motors w/ smaller/slower
Ken Ray	PKG	$100,000	1965	39	1993	PS	Flygt	Sub					Y			147	Moscad	
Lucerne Meadows	CAN	$100,000	1980	24	Sunset '05?	PS	Cornell	Dry			Y					212	phone	
Marcola Road	PKG	$60,000	1977	27		PS	Hydromatic	Dry					Y			120	Moscad	
Marshall's Plaza	PKG	$100,000	1997	7		PS	Hydromatic	Sub				Y				212	Intrac	
Nugget Way	PKG	$90,000	1999	5		PS	Hydromatic	Dry					Y	Y		376	Intrac	
Olympic	PKG	$100,000	1991	13	2004	PS	ABS(salvaged)	Sub		D152		Y				147	Intrac	New control cabinet/230 3-phase, new pumps, transducer-2004
Otto	PKG	$120,000	1994	10		PS	ABS	Sub		Acutec 3001			Y			212	Intrac	
Ramada	PKG	$100,000	1995	9		Lift	Myers	Sub			Y					212	Intrac	
River Glenn	PKG	$100,000	1995	9		PS	ABS	Sub		D152		Y		Y		376	Intrac	

Station	Address	Nearest Cross Street	Priority alarm troubleshooting GUIDE	Low Point Overflow	Sewer Map Page(s)	Approx. Storeage (low flow) (<60 MGD)	Station Classification / Priority	Definitions:
								Large= >25 Hp
			The following list attempts to discuss higher priority alarms					Medium= 10-20 Hp
Regional								Small= <10 Hp
Fillmore	1405 East Briarcliff, Eugene	Lombard Lane / River Road	Power fail, High wet well, Bubbler system, VFD faults, wet well level higher than 100"	MH9351 @Briarcliff-just south of station, 14th & Tyler area	53	2 hrs	Large - Critical	
Springfield Plant	1381 Walnut, Springfield	Aspen / Centennial	High wet well- due to leaky gate when EBI level high - NO CALLOUT REQUIRED				Large	**Critical designation**
Terry Street	5190 Terry St., Eugene	Barger Drive	Power fail, High wet well, Bubbler system, VFD faults	MH15858 @Rupp Street	17,8,18,19	2 hrs	Large - Critical	**Means bad things can**
West Irwin	2525 West Irwin Way, Eugene	Barger Drive	Power fail, High wet well, Bubbler system, VFD faults	MH5937 @Dakota / Barger Dr - MH12074 Sugarpine	7,16,17,18	2 hrs	Large - Critical	**happen if the station is**
Willakenzie	3050 Goodpasture Lakes Loop Road, Eugene	Goodpasture Island Road	VFD faults, rising wet well level - Overflow at Ironwood @ 220"	MH13400 @ 2378 Ironwood - wet well @ 233"	50,63	2 hrs	Large - Critical	**down very long…**
Glenwood - Phase 1	3580 Franklin Blvd, Springfield	Glenwood Blvd.	Normally runs on/off at low flows, both pumps running, rising wet well level, Hi wet well	MH5225 Lane Co. Solid Waste, MH5264 @Judkins Rd / Pepsi	91	6 hrs	Large	**High Priority alarm response**
Eugene Local								
Airport	90550 Greenhill Road, Eugene	Airport Road	Power fail, no generator connection, need Facility crew to set up pump, bubbler tube	assumed to be at wet well - nearby manholes	3C	8 hrs	Medium	
Barger/Greenhill - Phase 1	1725 Legacy Street, Eugene	Barger Drive	Power fail, VFD fail, High wet well	MH16014 Rombauer, MH16023&MH16021 Iron Horse	7	12 hrs	Large	
Crimson	2020 Crimson, Eugene	Gillham Road	Power fail, High wet well, currently flows to station are low	MH15191 Crimson - just north of station	61	4 hrs	Large	
Delta	2980 North Delta Hwy, Eugene	Green Acres	Power fail, no generator connection, need Facility crew to set up pump	MH7357, MH7327 Green Acres Rd, MH6267 Delta Hwy	62,63	2 hrs	Medium	
Division	203 Lone Oak (Division), Eugene	Division / River Road	Power fail, small wet well	MH15985 Taito St, MH15066&15067 Summer Lane	37,38,49,50	2 hrs	Medium	
Enid	Enid Road & Hwy 99, Eugene		Power fail, High wet well, bubbler tube	MH5657 @Airport Rd.	14	2 hrs	Medium	
Ferry St. Stormwater	199 Coburg Road, Eugene	Hwy 105 on ramp	Power fail, no generator connection, need Facility crew to set up pump	Catch basin at center of pedestrian tunnel - only runs during rainfall	65		Small	
Foxcroft	1984 Tigertail Road, Eugne	34th Ave / Chambers	Power fail, no generator connection, need Facility crew to set up pump	wet well at the station -driveway to house	45	2 hrs	Small	
Greenwich	811 Greenwich Ave, Eugene	Kalmia / Irving Road	Power fail, High wet well, bubbler tube	MH49831&49832 @Brett Loop / Shirley St., MH14325 Maesner St.	26,37	2 hrs	Large	
Irvington	1248 Irvington, Eugene	Arrowhead	Power fail, VFD fail, High wet well, bubbler tube	MH14296, 14292, 14295 Carthage	25,35	2 hrs	Large - Critical	
Judkins Pt.	2133 Franklin Blvd., Eugene	Garden Rd. / Walnut Blvd.	Power fail, High wet well, bubbler tube	wet well at the station	79	8 hrs	Medium	
Lynnbrook	165 Lynnbrook Drive, Eugene	River Road	Power fail, High wet well	MH49803 Lynnbrook Dr & Hampshire Lane	25,36	4 hrs	Small	
Oakway	980 St. Andrews Drive, Eugene	Oakway Drive	Power fail, VFD fail, High wet well	MH16532 just south of station @ St. Andrews	64	4 hrs	Large	
North Santa Clara	4699 River Road, Eugene	Beacon Drive	Power fail, High wet well	gravity bypass at wet well to Spring Creek	35	12 hrs	Medium	
Piper	Airport Runway 34, Eugene	Airport Fire Station	Station currently has no alarm telemetry, just a light on pole, Fire Station will call	wet well at the station - probably	2D,4C	4 hrs	Small	
Prairie Road	2350 Prairie Road, Eugene	Hwy 105 off ramp	Power fail, High wet well	MH15539 Prairie Rd @ Leghorn	25,26	12 hrs	Large	
River Ave.	410 River Ave. Eugene	Bike path S.W. of plant	Station power from treatment plant, bubbler tube	MH49289 @River Ave - MH49271 @Owosso Dr.	39,50	4 hrs	Small	
Riverfront	898 Riverfront Parkway, Eugene	Franklin Blvd.	Power fail, High wet well, bubbler tube	MH15146 @Mill Race Drive	79	4 hrs	Small	
Riverfront Stormwater	same		Stations share power but have separate control systems, bubbler tubes	catch basin at corner	79		Large	
Skipper	1195 Skipper Ave., Eugene	Labona Street	Power fail, High wet well, bubbler tube	gravity bypass at wet well to Belt Line ditch	27	2 hrs	Large	
Spring Creek	249 Spring Creek Drive, Eugene	Scottsdale	Power fail, no generator connection, need Facility crew to set up pump	MH14635 @Sedona / Beacon Dr - MH14634 same streets	35,36	2 hrs	Small	
Spyglass	1294 Spyglass Drive, Eugene	Cal Young Road	Power fail, High wet well	MH8604 @Spyglass Drive	64	12 hrs	Small	
Tadmore	3025 North Delta Hwy., Eugene	Lane County Public Works	Power fail, High wet well,bubbler tube	MH6384 @Delta Pines Drive	62	4 hrs	Small	
Tonawanda	1799 Lorane Hwy., Eugene	Chambers	Power fail, High wet well, small wet well, quick response needed, bubbler tube	MH just south of wet well at the station	45	1 hr	Medium - Critical	
Valley River (gone)	311 Goodpasture Island Road, Eugene	Valley River Drive						
Wilkes	275 Wilkes Drive, Eugene	Scenic	Power fail, no generator connection, need Facility crew to set up pump, bubbler tube	MH49438 @ Anchor/Mecca - several others at similar elevation	36,37	2 hrs	Small	
Willamette Towers	250 West 13th. Ave., Eugene	Lincoln Street	Power fail, High wet well, bubbler tube	MH5011 14th&Lincoln, MH4949 13th&Lincoln, MH4954 15th&Olive, others	55,67	4 hrs	Medium	
Springfield Local								
15th Street	1526 Main Street, Springfield	Mohawk Blvd (alley 1/2 block north)	Power fail, no generator connection, can gravity flow through pumps at High wet well	can gravity flow through station - low point at apartment complex to east	F9	12 hrs	Small	
21st & E Street	2102 North 21st Street, Springfield	E Street	Station only runs at high flows, power fail, High wet well, bubbler tube	Station only runs during high flows - low point at station	G9		Medium	
49th Street	4988 Elderberry Street, Springfield	South 49th	Power fail, High wet well, can gravity flow through station	can gravity flow through station if valve opened north of wet well	L11	6 hrs	Small	
Commercial	3756 International Way, Springfield	Game Farm	Power fail, High wet well, bubbler tube	MH at north end of Sports Way Rd.	C2	4 hrs	Small	
Deadmonds Ferry	3980 Deadmonds Ferry Road, Springfield	Game Farm	Power fail, High wet well, bubbler tube	MH at north end of Corporate Way or within Sony complex	D2	4 hrs	Medium	
Golden Terrace	5798 Mount Vernon, Springfield	South 57th	Power fail, High wet well, bubbler tube	overflow at wet well, goes to storm drain to field at south	N12	4 hrs	Small	
Harlow Road	890 Harlow Road, Springfield	Gateway, 1/2 block east on Harlow	Power fail, High wet well, bubbler tube	MH in west end parking lot of Gateway Inn (former Red Lion Motel)	C3	2 hrs	Medium	
Hayden Lo	3101 W. Street, Springfield	31st Street	Power fail, High wet well, bubbler tube	Overflow at wet well, goes to ditch along 31st St.	H5	6 hrs	Small	
Ken Ray	2221 Dornoch Street, Springfield	Lockhaven Ave.	Power fail, High wet well	Overflow at wet well, does to catch basin along Dornoch St.	C6	4 hrs	Small	
Lucerne Meadows	4398 Jasper Road, Springfield	44th Street	Power fail, High wet well, bubbler tube	Overflow at wet well which will flood station (sits on top)	K12	2 hrs	Small	
Marcola Road	3995 Marcola Road, Springfield	Hayden Bridge Rd	Power fail, no generator connection, low flow to station, has pump-around fitting	Lowest point at Daycare center south of station	K5	8 hrs	Small	
Marshall's Plaza	4111 Olympic, Springfield	42nd Street	Power fail, no generator connection, low flow to station, has pump-around fitting	overflow at wet well, goes to storm drain to ditch along 42nd Ave	J8	8 hrs	Small	
Nugget Way	1900 Nugget Way, Springfield	Franklin Blvd.	Power fail, High wet well	MH at 19th and Nugget just east of station, goes to ditch along 19th St.		8 hrs	Medium	
Olympic	2700 Olympic, Springfield	28th Street	Power fail, High wet well	MH at west end of line on Olympic (about Texaco Stn.), goes to catchbasin	G7	12 hrs	Small	
Otto	2300 Otto Street, Springfield	Corral Drive / Hayden Bridge	Power fail, High wet well, can gravity flow through station	can gravity flow through station	G5	12 hrs	Small	
Ramada	3699 Game Farm Road, Springfield	Game Farm / Belt Line	Power fail, High wet well, can gravity flow through station	Overflow at wet well, goes to catchbasin at station	C2	8 hrs	Small	
River Glenn	833 Mckenzie Crest Drive, Springfield		Power fail, High wet well	Overflow at wet well, goes to catchbasin at station		4 hrs	Medium	

Willakenzie Pump Station

3050 Goodpasture Lakes Loop Road, Eugene

Willakenzie Pump Station was built in 1984 as part of the Regional Wastewater Treatment Plant Project and is the largest pump station in the entire system. This station along with its accompanying 78" gravity interceptor line replaced the old Springfield Treatment Facility. Willakenzie serves the entire Eugene-Springfield area east of the Willamette River and discharges directly to the Regional Wastewater Treatment Facility via Owosso Bridge (54 inch discharge). This station is locally controlled by two process computers and is monitored via a direct link by the regional wastewater treatment facilities distributed control system (DCS). In 1997 this station was retrofitted with five new digital variable frequency drive assemblies and a new process control system through the MWMD Equipment Replacement Fund. The station has **one 78 inch, one 48 inch and one 15 inch influent line** and **one 54 inch, one 16 inch, and one 48 inch discharge line** which discharge at the Regional Wastewater Treatment Facility. The station is equipped with one manual gravity bypass and one manual pumped bypass which discharge directly into the Willamette River next to the station. These bypasses, as all of the areas bypass locations, would only be used in the case of an unforeseen catastrophic failure in the collection system or an extremely severe weather event.

Estimated Replacement Cost: $ 3,400,000.00

# Pumps	Design Flow	Maximum Flow	Utility	Emer. Power	Pump Around	Station Bypass	Alarm System
5 - 300 hp VFD (1500 kW)	75 MGD	125 MGD	EWEB	2-Pwr Feeds	No	Yes 2 - Manual @ station	Direct Link to WWTP

Terry Street Pump Station

5190 Barger Drive, Eugene

Terry Street Pump Station was built in 1985 to handle the needs of the southwestern area of Eugene. This area includes the extensive industrial areas around West 11th Avenue and residential areas adjacent to Royal Avenue. Currently (1998) this station is being retrofitted with three new digital variable frequency drive assemblies and a new process control system through the Regional Equipment Replacement Fund. The station has a **48 inch influent line** and a **30 inch effluent line**, which is part of the West Eugene Forcemain System and discharges at the Regional Wastewater Treatment Facility. The station is equipped with a manual bypass feature, which discharges into the A-1 Drainage Canal at Roosevelt Blvd. and Terry Street. This bypass, as all of the areas bypass locations, would only be used in the case of an unforeseen catastrophic failure in the collection system or an extremely severe weather event.

Estimated Replacement Cost: $2,160,000.00

# Pumps	Design Flow	Maximum Flow	Utility	Emer. Power	Pump Around	Station Bypass	Alarm System
3 - 200 hp VFD (485 kW)	6.6 MGD	19.8 MGD	EWEB	2-Pwr Feeds	No	Yes 1 - Manual @ Roosevelt & Terry	Class 1 Radio

West Irwin Pump Station

2525 West Irwin Street, Eugene

West Irwin Pump Station was built in 1965 to handle the needs of the extreme northwestern section of Eugene. This area includes the greater Barger Drive area. West Irwin was upgraded in 1985 to a more modern facility with the installation of one 250 hp variable frequency drive pump assembly to augment the two original 200 hp flow-matcher pump assemblies and a local process computer. Currently (1998) this station is being retrofitted with three new 300 hp digital variable frequency drives & pump assemblies and a new process control system. The station has a **36 inch influent line** and a **30 inch effluent line**, which is part of the West Eugene Forcemain System and discharges at the Regional Wastewater Treatment Facility. The station is equipped with a manual gravity bypass feature which discharges into the A-2 Drainage Canal next to the station. This bypass, as all of the areas bypass locations, would only be used in the case of an unforeseen catastrophic failure in the collection system or an extremely severe weather event.

Estimated Replacement Cost: $1,840,000.00

# Pumps	Design Flow	Maximum Flow	Utility	Emer. Power	Pump Around	Station Bypass	Alarm System
3 - 300 hp VFD (709 kW)	7.6 MGD	23.0 MGD	EWEB	2-Pwr Feeds	No	Yes 1 - Manual @ station	Class 1 Radio

Irvington Pump Station

1248 Irvington Drive

This station is a permanent facility built in 1987 to function as the main collection point and pumping facility for the River Road/Santa Clara sewer project. It also collects sewage pumped from other areas (Airport, Enid, etc.) and has the capability for future expansion. A local process computer controls all functions at this facility and variable frequency drives. The station has a **42 inch influent line** and a **24 inch effluent line** which discharges into the Terry/West Irwin/Irvington Valve Array Vault north of Beltline Road and east of Northwest Expressway.

Estimated Replacement Cost: $ 1,658,000.00

# Pumps	Design Flow	Maximum Flow	Utility	Emer. Power	Pump Around	Station Bypass	Alarm System
2 - 150 hp (1- 150 hp Future) VFD (260 kW currently)	6.2 MGD	12.4 MGD	EWEB	2-Pwr Feeds	Yes - 6" F/CL	No	Class 1 Radio

Glenwood Pump Station

3580 Franklin Blvd.

This station was designed and built in 1995 to serve the greater Glenwood area, eventually south to the Urban Growth Boundary and east to the hills between Franklin Boulevard and 30th Avenue. It was also anticipated that eventually the sewage settling ponds at Lane Community College could be decommissioned and discharge from LCC directed to this station. A local process computer controls all functions at this facility and variable frequency drives. The station has a **36 inch influent line** and a **12 inch and 20 inch effluent line** which discharge, across the Willamette River from the station, into the Springfield Eastbank Interceptor at Aspen Street. The station is equipped with a manual gravity bypass, which discharges directly into the Willamette River next to the station. This bypass, as all of the areas bypass locations, would only be used in the case of an unforeseen catastrophic failure in the collection system or an extremely severe weather event.

Estimated Replacement Cost: $1,900,000.00

# Pumps	Design Flow	Maximum Flow	Utility	Emer. Power	Pump Around	Station Bypass	Alarm System
2 - 40 hp (2-Future) VFD (75 kW currently)	7 MGD	18 MGD Future	EWEB	Port. Gen. (80+)	Yes 2 - 6" M/CL	Yes 1 - Manual @ station	Class 1 Radio