# 1.0 Introduction, Purpose and Need

## 1.1 Introduction

This Facilities Plan, prepared for the Metropolitan Wastewater Management Commission (MWMC), is the result of a comprehensive evaluation of the regional wastewater treatment facilities serving the Eugene-Springfield metropolitan area. Regional wastewater facilities include the Eugene-Springfield Water Pollution Control Facility (WPCF), major pump stations and interceptors, the Biosolids Management Facility (BMF), the Biocycle Farm, and the Seasonal Industrial Waste Facility (SIWF). This Facilities Plan is a comprehensive update to the original "208 Plan," which was completed in 1977. The 208 Plan established the original projections, requirements, and projects needed to serve the Eugene-Springfield community through 2005. The newly developed MWMC Facilities Plan is intended to identify facility enhancements and expansions that are needed to serve the community's wastewater needs through 2025.

Current capacity constraints, new regulatory requirements and anticipated changes to these requirements, future capacity and performance requirements, new treatment technologies available to cost-effectively improve the capacity and performance of existing assets, and existing WPCF operational issues all provide the basis for evaluating and planning for the future of the regional wastewater treatment facilities. This evaluation reviews all of these areas and the resulting plan accounts for the most probable outcomes in the years ahead. The Facilities Plan builds on interim planning efforts that were conducted from 1996 through 2001 to address specifically identified performance, capacity, and operational deficiencies. For example, the models and analyses developed for the Wet Weather Flow Management Plan (CH2M HILL, 2000) and the Biosolids Management Plan (CH2M HILL, 2004) were leveraged in order to develop solutions to both dry and wet weather treatment issues. Also, those solutions are intended to provide for planned community growth that meets current regulations and anticipates future environmental regulatory requirements. The selected alternatives should meet both short-term and long-term objectives and provide facilities that are acceptable to the public. This Facilities Plan provides solutions that address the full range of dry and wet weather liquids treatment and biosolids issues, and operational health and safety concerns. The Plan also provides detailed descriptions and plans for recommended project implementation. It is a comprehensive strategic road map for implementing the most cost-effective solutions to address a full range of regional wastewater needs over the next 20 years.

## 1.2 Intergovernmental Agreements

MWMC is an intergovernmental entity that was created in 1977 by an intergovernmental agreement among Eugene, Springfield, and Lane County. MWMC owns and operates the Eugene-Springfield regional wastewater facilities. In accordance with an intergovernmental agreement (IGA), the MWMC contracts with Eugene to operate and maintain these facilities, and with Springfield to provide administration services to the Commission. The MWMC is

made up of seven Commissioners. The City of Eugene appoints three members, the City of Springfield two, and Lane County two members. One appointee from each jurisdiction is an elected official, the others are lay representatives. MWMC's purpose is to protect the public health, safety, and environment by providing high-quality wastewater management services to the Eugene-Springfield metropolitan area in a manner that is effective, efficient, and meets customer service expectations. Based on past surveys, MWMC is looked upon by the community as a good neighbor and has developed a reputation for being environmental stewards in the communities they serve.

# 1.3 Background

## 1.3.1 Collection System

Both Eugene and Springfield have separate sewer systems that come together into a regional system of lines. Over 800 miles of sewer lines and 48 pump stations transport wastewater to the plant. Most of the conveyance pipelines of 24 inches in diameter or greater and associated pumping facilities necessary to convey the region's wastewater to the regional facility were included in the facilities' original construction.

## 1.3.2 Eugene-Springfield Water Pollution Control Facility

The WPCF, located at 410 River Avenue in Eugene, officially began operation in April 1984 and was constructed as part of a $105 million regional wastewater treatment system program. The regional facility replaced the separate plants previously owned and operated by Eugene and Springfield because studies concluded that neither cities' separate treatment plants could meet water quality standards or capacity. Planning, design, and construction for the regional facility occurred between 1979 and 1984 at the site of the original Eugene wastewater treatment facility. Existing facilities were either expanded and made a part of the new regional facility, or demolished. The Springfield sewage treatment plant was demolished.

Since startup in 1984, the WPCF has been operating successfully, meeting all regional demands for increased sewerage service and complying with the facility's National Pollutant Discharge Elimination System (NPDES) permit issued by the State of Oregon Department of Environmental Quality (DEQ). At the time of construction the capacity of the plant was projected to serve the growing metropolitan area for 20 years. Slower than anticipated growth in the 1980s has slightly extended the design life of the plant. As a result of the slow growth and limited changes in regulatory policy, there has been limited capital investment in the facility over the past 20 years.

## 1.3.3 Biosolids Management Facility

The regional BMF is located at 29689 Awbrey Lane and was constructed in 1985 to provide storage, further stabilization, and drying of digested biosolids received from the WPCF. A 5.5-mile-long pipeline from the WPCF to the BMF feeds anaerobic digested biosolids to four facultative sludge lagoons (FSLs). The FSLs provide the additional detention time for natural processes to further stabilize the biosolids and reduce pathogens. 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) prompted the development of the Biosolids Management Plan, which was adopted by the MWMC in 1997. That plan evaluated available options for long-term, cost-effective management of biosolids, and called for the construction of belt filter presses (BFPs) at the BMF, which were completed in 2001. These facilities added solids processing (drying) capacity that closely matched the original (i.e., 1984-2005) design capacity of the treatment plant. Stabilized biosolids from the FSLs may be either mechanically dewatered with the use of the belt filter presses, or applied to drying beds for seasonal dewatering. Dewatered sludge cake is recycled through land application on cooperative farms and farmland owned by MWMC and leased to private farming operations. Supernatant from the sludge lagoon is returned to the WPCF.

### 1.3.4 Biocycle Farm

Following the development of a feasibility study and development plan, MWMC purchased 596 acres of land near the BMF site in July 2000 to develop a Biocycle Farm. The Biocycle Farm provides MWMC with a dedicated land application site for biosolids utilization. It enables cost-effective land application directly adjacent to the BMF, saving trucking and other costs associated with maintaining distribution of biosolids to cooperative farm sites. It also provides MWMC with long-term certainty as an available and permitted biosolids land application site.

The site is located along Highway 99 between Awbrey Lane and Meadowview Road. The Biocycle Farm is scheduled to be constructed in three phases for completion by 2008. Phase 1 will consist of 160 acres of poplar trees and is scheduled to be complete and put into operation in summer 2004. Stabilized dewatered biosolids from the BMF lagoon will be applied to the Biocycle Farm to provide the necessary nutrients for the poplar trees. The Biocycle Farm is anticipated to complement the current practice of hauling biosolids to cooperative farms. In addition, the Biocycle Farm will provide the flexibility to pump stabilized liquid biosolids directly from the BMF FSLs to the Biocycle Farm for land application. Ultimately, the three phases will occupy 595 acres, of which 400 acres will contain poplar trees.

### 1.3.5 Seasonal Industrial Waste Facility

The SIWF is located at 9199 Prairie Road. The SIWF was originally constructed in 1984 to provide lagoon storage, and disposal of industrial cannery waste by irrigation. Seneca Foods (previously Agripac and then Chiquita) was the sole food processor to use the facility. Cannery waste from the industrial facility was piped directly to the lagoon for stabilization. Irrigation is delivered to the grass crop at the site through a center pivot irrigation system. The cannery facility has permanently closed its operation and the facility is not currently receiving additional cannery waste. The SIWF continues to operate at a reduced level, irrigating with the remaining stored cannery waste. This Facilities Plan evaluates the SIWF to determine how this facility can best be used to optimize the efficiency and cost-effectiveness of the residuals land application program, as well as the long-term asset value of the site.

# 1.4 Previous Planning Efforts

Prior to 1997, no comprehensive evaluation of the regional wastewater treatment facilities had been performed since its startup in 1984. In the mid 1990s MWMC initiated a study to prepare a Master Plan in order to determine how the treatment processes and facilities were performing relative to the original capacity and performance expectations. The Master Plan (CH2M HILL, 1997) was completed in 1997 and recommended further evaluations to assess the facilities' capacity to treat peak wet weather flows, and to adequately process biosolids. The Biosolids Management Plan (described above) was completed in 1997. In late 1997, MWMC initiated a project to develop a comprehensive Wet Weather Flow Management Plan (WWFMP), which was adopted by the MWMC and the two cities in 2001 (CH2M HILL, 2000). In 2000 MWMC initiated a project to develop a feasibility study and management plan for a dedicated biosolids land application site. This report was completed in 2003 (CH2M HILL, 2003).

## 1.4.1 Master Plan

The 1997 Master Plan provided an evaluation of the E-S WPCF based on historical flow, loads, and monitoring report data. Other selected facilities of the regional sewerage system were also evaluated. The purpose of the plan was intended to be twofold: 1) identify low-cost capital improvements that could be implemented in the short term (3 to 5 years) to improve facility operations, and 2) identify facility expansion improvements that would need to be implemented over a longer term to meet increasing regional demands for sewerage service or more stringent regulatory requirements, and to address specific priority issues affecting the WPCF. This plan did not include development of a comprehensive hydraulic and treatment process model. However, key evaluations included a limited flow and load analysis, general strategies to manage peak flows, an assessment of infiltration/inflow (I/I) programs, a preliminary peak flow assessment, a disinfection alternatives evaluation, a U.S. Environmental Protection Agency (EPA) risk management program evaluation, a preliminary biosolids management evaluation that led into the 1997 Biosolids Management Plan, and a plant effluent regulatory assessment.

## 1.4.2 Wet Weather Flow Management Plan

The 2001 WWFMP was developed from recommendations in the 1997 Master Plan and results of preliminary analysis using a hydraulic model developed for the regional wastewater collection system. Developing the plan consisted of evaluating four general technologies for managing excess wet weather flow relative to performance, frequency of sanitary sewer overflows (SSOs), cost, and political and community acceptance. The four technologies were: 1) system rehabilitation to control rainfall-dependent infiltration and inflow (RDII) – both public conveyance systems and private service laterals, 2) in-line and off-line storage of peak flows, 3) additional conveyance (including greater pipe conveyance and pump station capacity), and 4) additional capacity to treat peak flows at the WPCF. The overall objective of the plan was to determine the most cost-effective and politically feasible set of solutions for managing excessive wet weather wastewater flow rates both in the collection system and at the WPCF.

The WWFMP was guided by a steering committee of approximately 20 Eugene and Springfield public works staff, and involved an extensive public involvement process. Staff

from the cities forged a partnership to guide the project and to gather, review, analyze and interpret data as well as perform hydraulic modeling. A data subcommittee to the steering committee performed much of the technical analysis, which 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 RDII in basins with high RDII.

A Citizens Advisory Committee (CAC) was charged with reflecting community values and concerns, assisting in evaluating desirability and priority of alternatives, providing recommendations on policy issues, and assisting in communication and public awareness. Collectively, the groups' charge was to bring forward a plan to the MWMC for its adoption to manage wet weather flows in the separated sanitary sewer system. Key findings resulted in a "convey and treat" approach to managing peak flows, along with an aggressive yet feasible I/I removal program in the two cities. The collection system modeling effort showed that although some pump station improvements were necessary, improvements to the force main systems would not be required to convey the peak flows to the WPCF, where the flows could be further managed and treated.

The WWFP incorporated a 10-year implementation and financing plan outlining activities to be conducted by MWMC and the cities. In general these activities included rehabilitation of specific facilities to reduce RDII, construction of projects to enhance the capacity of specific components of the conveyance and treatment systems, and collecting additional flow and rainfall data to enable continued refinement of the hydraulic model and continued assessment of the effectiveness of RDII reduction efforts.

Since the adoption of the WWFMP, both Eugene and Springfield have initiated positive management practices for the wastewater collection system. 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 WWFMP plan also suggested that MWMC and the cities consider establishing in the future a voluntary private lateral program. Additional discussion of specific components of the WWFMP is presented in Sections 3.1.5, 3.1.6, 4.1.4, 5.4.1, and 6.1 of this Facilities Plan.

### 1.4.3 Biosolids Management Plans

The Biosolids Management Plan was adopted by the MWMC in 1997. Like the WWFMP, it involved a Eugene-Springfield steering committee and a citizen advisory committee. The Biosolids Management Plan included an evaluation of available options for long-term, cost-

effective management of biosolids, and called for the construction of BFPs for mechanical dewatering at the BMF, a further study of alternatives for producing "Class A" biosolids, and the development of a dedicated biosolids land application site using poplar trees. The Class A Biosolids/Compost Evaluation was completed by Brown and Caldwell Engineers in January 1999; however, the MWMC determined that implementing the capital improvements to achieve a Class A product were not cost-effective at that time.

In 1999 and 2000, the MWMC undertook a feasibility study and a reconnaissance study to determine whether to proceed with the purchase of land and development of a dedicated biosolids land application site. These preliminary studies indicated that the site meets the requirements for land application of biosolids as outlined in state and federal guidelines (OAR 340-50 and 40 CFR Part 503) and that it is a favorable site to be purchased for the dedicated land application site.

The 2003 Management Plan for a Dedicated Biosolids Land Application Site was developed after the MWMC purchased the 596 acres on Awbrey Lane. This plan includes a conceptual plan and preliminary designs for the development, construction, and operation of a dedicated farm for biosolids land application. The plan outlines a facility that can provide an economically viable agricultural operation that accommodates a significant portion (20 to 50 per cent) of the current MWMC Class B liquid biosolids production. The plan also stresses that the remainder of the biosolids recycling will be through continued use of cooperating agricultural producers, and that new cooperating producers will likely be required to meet future demands. The MWMC approved the plan to provide a dedicated Biocycle Farm to give MWMC dramatically increased flexibility in solids handling options, and to provide for economically and environmentally advantageous recycling of a significant portion of the biosolids produced at the WPCF.

## 1.5 Industry

There are 16 significant industrial users (SIUs) from Springfield and 22 from Eugene. Hynix Semiconductor in Eugene contributes over half of all significant industrial flow to the collection system. Historically, the total industrial flow contribution to the collection system has remained relatively constant at around 1.7 million gallons per day (mgd), or about three percent of the dry weather average flow. The Eugene and Springfield Industrial Pretreatment Programs require monitoring of historical biochemical oxygen demand (BOD), total suspended solids (TSS), and ammonia contributions from the industries. Industrial flows are not anticipated to increase significantly over the next 20 years.

## 1.6 Project Needs

### 1.6.1 Existing Condition

Design of the original WPCF was based on demographic and population data established in the mid-1970s. The facility was designed to provide adequate sewerage capacity through the year 2005 for a projected population of 277,100. This projection was made for the sewer service area that existed in the 1970s. However, the growth rate during the 1980s was

significantly less than projected. This trend in the growth rate was common throughout much of Oregon because of depressed economic conditions during the mid- 1980s.

The existing average dry weather design flow for the WPCF, as stated in the current NPDES permit, is 49 mgd. This is defined as the average day flow calculated from May 1 through October 31. Although stated as an average dry weather capacity, the facility must meet the effluent requirements on a 30-day average flow (monthly) basis. Because any 30-day period, including the maximum 30-day flow period (or maximum month flow) during the dry season, must meet the NPDES effluent flow and load requirements stipulated for the average dry season flow, it is prudent to compare the actual dry season maximum month flow (DSMM) to the average dry weather design flow in order to assess treatment capacity. This method was reviewed with DEQ staff and verified as the appropriate method.

There is available treatment capacity during certain periods of the year, very little during others, and in some cases there is a capacity deficit. This is because, in part, permit limits change on discrete calendar dates, whereas the changes in influent wastewater flows and characteristics do not necessarily coincide with these permit dates. For example, dry season (May 1 through October 31) permit requirements are more stringent than wet season (November 1 through April 30) requirements, but wastewater temperature and flow in the month of May, and sometimes into June, do not increase and decrease, respectively, to allow the WPCF to easily meet the more stringent dry season requirements. In addition to flow, temperature is important because the warmer the wastewater, the easier it is to treat.

Measured DSMM flows from 1992 through 2003 range from 52 percent to 100 percent of the design capacity. It is anticipated that sufficient dry weather treatment capacity exists to meet short-term growth through 2005 for BOD and TSS, but modifications to the WPCF are needed to address ammonia; however, peak wet weather flows, not influent wastewater characteristics, currently constrain the life span of the plant's design capacity. This capacity constraint exists during winter wet season months as well as during wet periods of the regulatory "dry" season. The plant has a wet weather peak design capacity of 175 mgd.

High levels of wet weather flows are generated by I/I of stormwater into the sanitary sewer system. Infiltration is a process by which groundwater enters the system through cracks and joints in sewer pipes. Inflow is the process by which stormwater enters the system through improper connections of roof drains and other storm drainage facilities to the sanitary sewers, and by surface runoff entering through manholes. The amount of I/I entering the system varies in different areas depending somewhat on the type, age, system characteristics and groundwater table. It occurs throughout the system, and is attributable to newly developing areas as well as older developments. While some of the I/I can be removed through repair and rehabilitation of pipes, and inspection and enforcement of plumbing code standards, water pollution control facilities must be designed to handle the remaining peak wet weather flows in the sanitary system with adequate treatment prior to discharge.

### 1.6.2 Regulatory Drivers

Regulatory drivers include existing conditions contained in the NPDES wastewater discharge permit, and new regulations or changes in regulatory policy that affect the overall treatment capacity rating, treatment strategy, or effluent requirements. Regulations that

were newly included in the 2002 reissuance by DEQ of the WPCF discharge permit include the requirement for a dry season effluent ammonia limitation, a thermal load limit, and implementation of the Temperature Management Plan and WWFMP, which were included as part of the NPDES permit renewal materials. New requirements, expected beginning in 2004 and 2005, include total maximum daily loads (TMDLs) for effluent constituents, such as temperature. Pending changes in federal regulatory policy also include the elimination of SSOs resulting from certain storm events, and changes to current effluent blending practices or new effluent blending policy currently under consideration.

### Dry Season Effluent Ammonia Limitation

The current NPDES permit includes a requirement for dry weather nitrification. The permit requires a dry weather average month and maximum day effluent ammonia concentration limit of 12 milligrams per liter (mg/L) and 22 mg/L, respectively. Wintertime nitrification is not required. The treatment facility must partially or completely nitrify on a peak month basis in the dry season to meet permit. The addition of a nitrification requirement has the overall effect of reducing the design dry weather capacity of the facility because more wastewater treatment volume is required to achieve ammonia removal than is required solely for BOD removal. Additionally, a modification to the biological process is required to provide an environment suitable for nitrification while maintaining capacity.

### CBOD and TSS Limitations

Dry season mass limitations for both carbonaceous biochemical oxygen demand (CBOD) and TSS as outlined in the NPDES permit are based on the average dry season flow of 49 mgd. Concentration limits as well as percent removal requirements are also specified in the NPDES permit. The mass limit requirements must also be met for the highest 30-day flow period in the dry season (maximum month basis). Even if the constant concentration limits for CBOD and TSS are met, the mass limits imply a lower concentration requirement if the wastewater flows exceed the dry weather design capacity of 49 mgd. Because actual DSMM flows from 1992 through 2003 ranged from 52 percent to 100 percent of the design capacity rating, this indicates that the plant is at or near its dry weather capacity at certain critical dry periods. Additional secondary clarifier capacity and tertiary filtration is anticipated as necessary to meet these more stringent effluent requirements.

Similarly, wet season mass limitations for both CBOD and TSS, as outlined in the NPDES permit, are based on the average wet season flow of 75 mgd. Although significantly higher, concentration limits as well as percent removal requirements are also specified in the NPDES permit for wet weather. However, because peak wet weather flows are very dilute, it is the solids percentage removal requirement that limits effluent CBOD and TSS levels during critical wet weather flow periods and this is the most difficult to achieve. Peak wet weather flow, not wet weather influent wastewater characteristics, currently constrains the WPCF's design capacity. The plant has a wet weather peak design capacity of 175 mgd. Current peak wet weather flows to the facility exceed 200 mgd. Only 200 mgd can hydraulically be moved through the WPCF and this is only achieved when spare, redundant pumps are placed on line, which does not meet DEQ redundancy guidelines for influent pumping that specify the ability to pump the peak flow with one unit out of service.

### SSO Limitations

Collection system modeling efforts estimate the current peak wet weather flow in excess of 250 mgd, a situation that now results in SSOs. Current peak wet weather flows exceed 200 mgd, and are limited by both the collection system and plant capacity. An increase in both peak flow conveyance and treatment capacity is necessary to comply with the MWMC WWFMP objectives and policies to eliminate basement flooding and SSOs, as well as DEQ's requirement that the wet season flow associated with the 5-year, 24-hour rainfall event be accommodated by MWMC's facilities without resulting in SSOs. The MWMC WWFMP policies also direct that an increase in the level of full secondary treatment be provided through the expansion of the secondary treatment system. In addition, the treated peak flow must meet the secondary treatment standard. This federal regulatory requirement will take effect by January 2010 [OAR 340-41-0009 (6) and (7)].

### Blending and WWFMP Secondary Treatment Policies

Previous studies and collection system modeling efforts have concluded that peak wet weather flows resulting from the 5-year 24-hour storm could be conveyed by the collection system to the WPCF for treatment without SSOs. Under the 1997 Master Plan and 2001 WWFMP modeling, it was determined that increased raw sewage pumping capability (among other improvements) needed to be completed by 2007 to avoid non-permitted overflows, and to conform to the objectives and policies of the WWFMP. However, current experience and system modeling indicate that current peak flow estimate is in excess of 250 mgd. Recent modeling efforts and actual system performance indicate that plant expansions to avoid non-permitted overflows need to be constructed beginning in 2005. Current collection system modeling results estimate the 2025 projected peak hour flow to the WPCF to be 277 mgd. MWMC and the cities are continually collecting pre- and post-rehabilitation/construction collection system flow data to assess the effectiveness of their I/I reduction efforts. It is anticipated that the peak flow values will be periodically revised based on the more current data and collection model calibrations and output. The current data and information form the basis for increasing the peak flow capacity of the facility to comply with DEQ's requirement to treat the 5-year, 24-hour rainfall event without resulting in SSOs.

Blending is not addressed in the current NPDES permit; however, blending of primary and secondary effluents is the current practice for treating the peak wet weather flows. Flows over 103 mgd (the secondary treatment capacity as identified in the 1997 Master Plan) receive primary treatment and are diverted around secondary treatment and blended with the secondary effluent. This blended effluent must meet current secondary treatment standards before it is discharged to the river. Increases in peak flows resulting from the elimination of SSOs will require that the facility expand both its base secondary treatment capacity and its primary treatment capacity for the plant to meet its NPDES permit. Regardless, in 2001 the MWMC adopted a WWFMP policy that included additional secondary clarifiers to be constructed in order to increase the level of full secondary treatment from 103 mgd to 130 mgd. The increase from 103 mgd to 130 mgd was recommended in the 1997 Master Plan, which assumed a surface overflow rate design criteria of 1,000 gallons per day per square foot. Current effluent blending policy is still evolving; however, blending now provides the most cost-effective approach to treating peak flows. A key underlying assumption in the preparation of this plan is that some level of effluent blending will

continue to be an acceptable approach to treating the peak wet weather flows. If the EPA does not concur with DEQ in accepting this approach, contingency solutions that could be implemented are included and evaluated. However, the cost of these facilities would be significantly greater than those recommended in this plan.

### 1.6.3 Technology Drivers

The original treatment facility was constructed in 1984, implementing the appropriate technologies of the era. New technologies have emerged since that time, and will continue to emerge to address both existing and future wastewater treatment needs. New technologies may have the advantage of providing better environmental results, providing more cost-effective treatment, lowering operational and maintenance requirements and costs, and other benefits. Technologies available for implementation today were evaluated as part of the planning process and are recommended where they meet cost-effectiveness, performance, and capacity criteria to meet the future regional wastewater treatment needs for MWMC's service area.

### 1.6.4 Existing WPCF Issues

A number of concerns at the WPCF were evaluated as part of the planning process to identify improvements to the existing facilities that would provide operational efficiencies, cost savings, reduced risks/liabilities, and improved worker and neighborhood safety. In some areas, the original capacity of equipment may now be limiting operations (influent pumping capacity is inadequate, screen trough sluice capacity is inadequate, etc.) Other needs are simply a result of aging or outdated equipment (i.e., pumps, valves, gates, communication systems, etc.). Process inefficiencies provide further bottlenecks to efficient operations (grease accumulation in influent screening conveyance, limited modes of operation in aeration basins, high operation and maintenance in the existing grit chambers, reduction in struvite scaling, etc.). Finally, the MWMC evaluated the current chlorine disinfection system and the available alternatives, and directed staff to include the conversion to a safer system using sodium hypochlorite. All of these needs must be addressed in order to provide the expansion capability necessary to meet future growth needs and to provide the most cost-effective and safe treatment facility operations.

## 1.7 Project Goals and Objectives

The goals of this Facilities Plan are to build on the previous planning efforts that have been ongoing since 1996 in order to develop a practical and cost-effective set of capital improvements necessary to meet community needs and minimum environmental standards for all MWMC facilities for the next 20 years. The Facilities Plan presents comprehensive and defensible identification and evaluation of available capital improvement strategy alternatives, and recommendations that:

- Accommodate projected growth in Eugene-Springfield through 2025
- Provide the efficiency of solving multiple dry and wet weather issues
- Maximize the WPCF's existing investment in assets by incorporating performance and capacity improving retrofits where possible instead of new facilities

- Meet minimum environmental standards for the Willamette River
- Provide regulatory certainty and protection from liabilities associated with non-compliance with requirements
- Mitigate negative neighborhood impacts such as odors and visual impacts of the treatment facilities

The strategic plan will monitor and address future trends in the industry so that recommended facilities can be implemented with sufficient flexibility to meet anticipated future regulatory requirements.

## 1.8 Public Outreach

Building and maintaining public trust and credibility requires clear and consistent communications. Recent national research has demonstrated that the public is deeply concerned about health risks, environmental protection, and the affordability of services. MWMC recognizes that involving the public in decisions about service changes, public health, safety, environmental protection, and cost increases is essential to the success of its programs. In the past, MWMC has provided proactive public education and participation programs to enhance understanding of the environmental services being provided. CACs have aided the MWMC in establishing the foundational policies and strategies that continue to guide the management of biosolids and wet weather flows, which are the two key areas of increased facilities needed over the next 20 years. Regular and special meetings and workshops have been scheduled to brief MWMC Commissioners and the public on the status of evaluations and proposed alternatives that provide solutions to regional wastewater needs. Table 1.8-1 summarizes the public meetings where the Facilities Plan development was discussed. In addition to public outreach programs, it will be essential to educate the public regarding the capital improvements and policies included in this Facilities Plan. A guidance document will be prepared to assist the MWMC in designing and implementing public information, education, and outreach programs that meet state and federal guidelines for major improvement projects.

**TABLE 1.8-1**
Public Meeting Summary
*MWMC Facility Plan, Eugene-Springfield*

| Date | Discussion Topics |
|---|---|
| November 24,2003 | Briefing to the Commissioners and the general public |
| January 8, 2004 | 20-year project list presented to commissioners, obtained direction on effluent reuse (thermal loading) and odor control issues |
| March 3, 2004 | Briefing to the general public |

## 1.9 Facilities Plan Organization and Content

The organization of this report is based primarily on the facilities plan outline provided in Appendix C of the *Guidelines for the Preparation of Facilities Plans and Environmental Reports for Community Wastewater Projects* (DEQ, 1999).

Some of the components required by the DEQ facilities plan guidelines are addressed in the previous planning documents entitled Metropolitan Wastewater Management Commission Master Plan for the Eugene-Springfield Water Pollution Control Facility (CH2M HILL, 1997*),* Wet Weather Flow Management Plan (CH2M HILL, 2000), and Biosolids Management Plan (CH2M HILL, 2004).

During the facilities planning effort, the project team wrote technical memoranda and/or developed summary tables to document and evaluate its findings. Forming the foundation for this report, the following memoranda and/or tables provide further information about specific topics:

1. Wet Weather Peak Flow Analysis Technical Memorandum
2. Preliminary Screening Technical Memorandum
3. Flow and Load Projections Technical Memorandum
4. Water Quality Regulatory Update Technical Memorandum
5. Pretreatment Expansion Alternatives Technical Memorandum
6. Primary Clarifier Capacity Analysis and Enhancements Technical Memorandum
7. Secondary Treatment Alternatives Technical Memorandum
8. Secondary Clarifier Enhancement Alternatives Technical Memorandum
9. Peak Flow Management Alternatives Technical Memorandum
10. Disinfection Alternatives Technical Memorandum
11. Odor Control Enhancement Alternatives Technical Memorandum
12. Thermal Load Evaluation Technical Memorandum
13. Projected Flowstreams for Solids Processes and Capacity Analysis of Biosolids Treatment Processes and Facilities Technical Memorandum
14. Biosolids and Effluent Reuse Alternatives Analysis Technical Memorandum
15. Biosolids and Effluent Reuse Cost Estimates and Recommended Phasing Technical Memorandum

This Facilities Plan is organized as follows:

**Executive Summary:** Summarizes the conclusions and recommendations of the planning team, including a description of the preferred alternatives.

**Chapter 1 Introduction, Purpose and Need:** Discusses the purpose for this Facilities Plan and what the needs are at the current facilities, describes previous planning efforts, and includes the goals of the MWMC, particularly the public outreach component.

**Chapter 2 Study Area Characteristics:** Locates the study area, describes the physical and socioeconomic environment, and discusses current land use regulations that apply to the MWMC service area.

**Chapter 3 Existing Wastewater Facilities:** Describes the current facilities and their status, and further describes the WPCF, including its history, design, operations, and unit performance and deficiencies.

**Chapter 4 Wastewater Characteristics:** Provides data on wastewater flows and loads to the plant, describes unit design factors, and lists projected wastewater characteristics that will affect facilities planning.

**Chapter 5 Basis of Planning:** Provides information on the basis for design and costing of the alternative(s), water quality impacts, and the design capacity and an analysis of the current conveyance system and WPCF.

**Chapter 6 Development and Evaluation of Alternatives:** Discusses the alternatives development process for the conveyance system, liquid stream treatment, disinfection, effluent disposal, and biosolids management. Synthesizes this information into three complete alternatives.

**Chapter 7 Recommended Plan:** Discusses the recommended improvements, with a cost summary and implementation schedule.

**Chapter 8 Financial Strategy:** Evaluates various options for funding sources, and includes a recommended rate structure and financing strategy for MWMC.

**Chapter 9 Environmental Report:** Discusses the environmental ramifications for the various alternatives, and provides a preferred alternative for parallel primary/secondary treatment.

**Chapter 10 References:** Lists the references used to write this Facilities Plan.