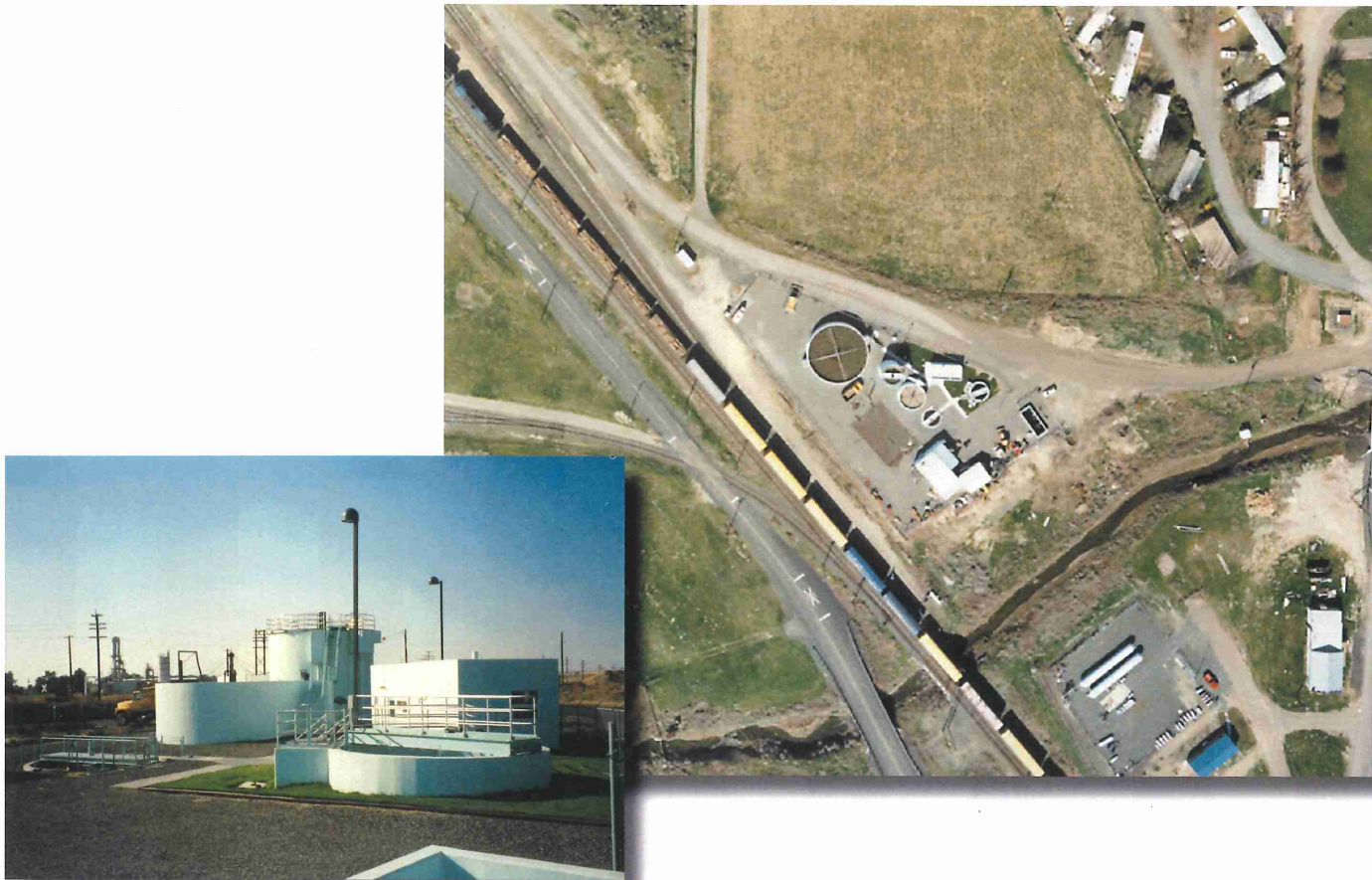


# CITY OF STANFIELD, OREGON WASTEWATER SYSTEM STUDY UPDATE



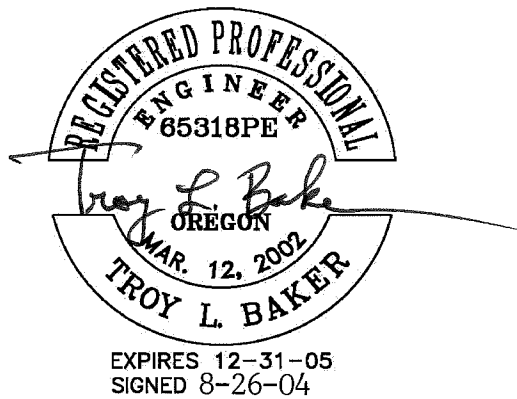
**2004**

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LA GRANDE, OR. WALLA WALLA, WA. BAKER CITY, OR.

**CITY OF STANFIELD, OREGON**  
**WASTEWATER SYSTEM STUDY UPDATE**  
**2004**



**ANDERSON-PERRY & ASSOCIATES, INC.**

**Civil Engineers**

**La Grande, Oregon**  
**Walla Walla, Washington**

## **ACKNOWLEDGMENTS**

We wish to thank the members of the Stanfield City Council; Mayor Tom McCann; Shelley Bonnett, City Manager; Jerry Carlson, City Recorder; Scott Morris, Public Works Director; and the many others for their interest, guidance, and assistance during the course of this Study Update.

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## **APPENDICES**

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## CHAPTER 1

### BACKGROUND INFORMATION

#### INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) State Revolving Loan Fund (SRF) funded a Wastewater System Study for the City of Stanfield that was completed in 2002. That planning document evaluated the existing wastewater collection, treatment, and effluent reuse systems, outlined various system deficiencies, provided improvement options to address the deficiencies, selected the preferred improvement alternatives, presented estimated costs, and summarized funding scenarios and their estimated effects on sewer rates. Improvement options evaluated in the 2002 Study were based on an anticipated aggressive population growth rate and the needs of the system to meet the projected growth rate.

Subsequent to completion and publishing of the 2002 Study, performance of the existing wastewater treatment facility (WWTF) has steadily declined due to documented system deficiencies. As a result, the WWTF is not functioning at a level that is allowing the City to consistently meet the effluent limits specified in their National Pollution Discharge Elimination System (NPDES) Permit. Currently, the facility is not consistently meeting the effluent limits for five-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids, total residual chlorine, percent removal efficiency, and *E. coli* and coliform bacteria (i.e., disinfection criteria). Consequently, to address the compliance matter, the DEQ issued a Notice of Non-Compliance (NON) and a Mutual Agreement and Order (MAO) to the City.

This Update to the 2002 Study is being prepared to address changes in the population trends and design criteria which potentially affect the overall improvement needs of the facilities and the cost of upgrading the system. Additionally, due to changes in funding agency requirements related to the 2000 Census data, an evaluation of funding program scenarios and their effect on sewer rates and affordability to the citizens of Stanfield is necessary.

Given the updated information, it is the goal of this Wastewater System Study Update to outline to the City the current condition and deficiencies of the wastewater collection and treatment facilities, the proposed plan for upgrading the facilities, the estimated impact to sewer rates and/or property taxes to complete the proposed improvements, and potential funding agencies to assist with an improvements project.

Please note that this is a partial study update and more detailed information is available in the original Wastewater System Study. The purpose of this document is to revise the information in the original study that has become outdated. Readers should reference the original study for further information.

## CHAPTER 2

### DESIGN AND PLANNING DATA

#### GENERAL

This chapter outlines basic planning and design data necessary to update the design criteria presented in the original study. More recent historical wastewater data are presented, followed by an updated account of the historical and 2024 projected population. Finally, the revised design criteria for the year 2024 are presented.

#### HISTORICAL WASTEWATER DATA

This section provides a review of the historical wastewater data for the City of Stanfield's WWTF. Information provided in this section was obtained from the City's discharge monitoring reports (DMRs).

A summary of the historical influent flow including maximum daily flow, minimum daily flow, and the average annual flow for the period between January 1999 and January 2004 is shown on Figure 2-1. According to the data, the maximum daily flow occurred in January of 2004 and was 0.182 million gallons per day (MGD). The minimum daily flow occurred in July of 2001 and was 0.070 MGD. The average annual flow was 0.128 MGD during the same 61-month period, or about 65 gallons per capita per day (gpcd).

Figure 2-2 summarizes historical influent and effluent BOD<sub>5</sub> concentrations as recorded on the DMRs during the period between January 1999 January 2004. As indicated on Figure 2-2, the maximum, minimum, and average **influent** BOD<sub>5</sub> concentrations were 522 milligrams per liter (mg/L), 174 mg/L, and 297 mg/L, respectively. The maximum, minimum, and average **effluent** BOD<sub>5</sub> concentrations were 71 mg/L, 13 mg/L, and 27 mg/L, respectively. According to the DMR data, the WWTF average influent BOD<sub>5</sub> mass loading was 315 lb/day and the facility removed an average of 90 percent of the BOD<sub>5</sub>.

The historical influent and effluent total suspended solids (TSS) concentrations, as reported on the DMRs during the same period described above, are shown on Figure 2-3. As illustrated on the figure, the maximum, minimum, and average **influent** TSS concentrations were 527 mg/L, 181 mg/L, and 347 mg/L, respectively. The maximum, minimum, and average **effluent** TSS concentrations were 52 mg/L, 15 mg/L, and 32 mg/L, respectively. The WWTF's average influent TSS mass loading was approximately 368 lb/day. According to the data, the City's secondary wastewater facility achieved an average TSS removal of 88 percent.

Table 2-1 shows a summary of the domestic influent flow analysis for specific flow components of interest. The flow components have been broken into dry weather flow (6 low wastewater flow months) and wet weather flow (6 high wastewater flow months) categories. In this analysis, dry weather flow refers to the six low wastewater flow months

recorded for each year and wet weather flow refers to the six high wastewater flow months recorded for each year.

Table 2-2 is a summary of the City's DMR data. Included in the summary are maximum, minimum and average monthly influent flows. Additionally, Table 2-2 presents the historical influent and effluent BOD<sub>5</sub> and TSS concentration and mass loading data.

The historical influent TSS mass loading is within a normally expected range. However, the flows and BOD<sub>5</sub> mass loading are at the low end of the expected range. Data collected from many domestic wastewater systems similar to Stanfield's indicate that average annual flows usually range from 80 to 120 gpcd, and BOD<sub>5</sub> and TSS per capita contributions typically range from 0.15 to 0.25 lb/capita/day, with a normal contribution of approximately 0.2 lb/capita/day. The typical average annual flow is 100 gpcd. However, Stanfield's historical flows have typically ranged from 50 to 90 gpcd. Stanfield's flow and mass loadings are approximately 65 gpcd (average annual), 0.16 lb/capita/day (BOD<sub>5</sub>), and 0.19 lb/capita/day (TSS), respectively (see Table 2-3). For design and evaluation purposes it will be assumed that the average annual flow will be 85 gpcd and the average mass loading to the WWTF will be 0.20 lb/capita/day for both BOD<sub>5</sub> and TSS.

## POPULATION

This section discusses historical population trends and projected future population growth. The projected population for the year 2024 can then be used to determine the design criteria for the system's 20-year design life.

Historical population data for Stanfield were provided by the Population Research Center at Portland State University. This agency is the official source of population data available in Oregon between the official census data generated at the beginning of each decade. The University does not project population increases for individual cities within the state. Therefore, no official projection is available for Stanfield. The population projections shown on Figure 2-4 (0.5, 1.0, and 2.0 percent annual growth) seem to be realistic based on the data currently available.

Historical population information for the City of Stanfield is as follows:

<u>Year</u>	<u>Population</u>	<u>Average Annual Growth Rate (%)</u> <sup>1</sup>	<u>Population Change</u>
1975	980	-	-
1980	1,590	12.5	610
1985	1,660	0.9	70
1990	1,570	-0.5	-90
1995	1,700	1.7	130
1996	1,755	3.2	55

<u>Year</u>	<u>Population</u>	<u>Average Annual Growth Rate (%)</u> <sup>1</sup>	<u>Population Change</u>
1997	1,770	0.9	15
1998	1,820	2.8	50
1999	1,875	3.0	55
2000	1,990	6.1	115
2001	1,980	-0.5	-10
2002	1,980	0.0	0
2003	1,980	0.0	0

<sup>1</sup> The time period between successive rows is variable. The average annual growth rate is calculated based upon the time span between each successive population shown.

As the table shows, the historical growth rate in Stanfield has fluctuated considerably. The City experienced rapid growth in the late 1970s. The growth moderated in the early 1980s and declined in the late 1980s. The 1990s were marked by a steady, continual population growth. Since 2000 there has been very little change.

For planning purposes, the 2002 Study assumed a growth rate of 10 percent per year for the first 5 years and an annual rate of 1 percent for the following 17 years, which resulted in a projected year 2020 design population of 3,400. For the purpose of this Update, the Stanfield City Council authorized a growth rate of 2 percent per year. This results in a design population for the year 2024 of 3,000. It should be recognized that actual growth could exceed or fall below this estimate.

## **DESIGN CRITERIA**

This section provides an explanation and summary of the design criteria for the year 2024. Table 2-3 summarizes basic wastewater design criteria used in this Wastewater System Study Update. Shown in Table 2-3 are the year 2024 design population, design flows, and expected future influent wastewater strength characteristics.

### ***Wastewater Flow Projections***

**Domestic.** Wastewater flow projections for the year 2024 were made using the existing average annual per capita wastewater contributions extrapolated to the end of the 20-year planning period using the year 2024 design population of 3,000. In situations where significant infiltration/inflow is present, this likely would not be the best method to estimate design flows. Infiltration/inflow does not generally increase proportionally with population. However, because City staff and flow records have indicated low infiltration/inflow in the City's collection system (refer to the infiltration/inflow

analysis in Chapter 4 of the original study), this method appears reasonable for approximating the year 2024 design flows.

**Commercial and Industrial.** The domestic wastewater flow projections are based solely upon growth within the residential sector. In order to serve anticipated future commercial and industrial customers, an additional 10 percent of reserve flow capacity to the population-based (domestic) flow projection was added. The reserve capacity will allow limited commercial and industrial growth within the city, while maintaining the needed capacity to serve residential growth. The assumed reserve capacity will not, however, account for high flow and loading contributing industries such as food processing. If a high flow or loading contributing industry were to locate within the City of Stanfield, the wastewater system would need to be re-evaluated to ensure enough capacity was available to accommodate that industry.

### ***Mass Loadings***

**Domestic.** The BOD<sub>5</sub> and TSS loadings to the WWTF were estimated using the design average annual per capita BOD<sub>5</sub> and TSS contributions projected to the end of the 20-year planning period using the year 2024 design population of 3,000 (i.e., mass loading [BOD<sub>5</sub> or TSS] = contribution [BOD<sub>5</sub> or TSS] lb. pcd x 3,000). Hence using the design mass loading of 0.20 lb/capita/day for both BOD<sub>5</sub> and TSS yields a year 2024 domestic mass loading of 600 lb. per day.

**Commercial and Industrial.** The commercial and industrial design mass loadings were estimated using an assumed population equivalency based on flow. Therefore, the 10 percent reserve wastewater capacity set aside for commercial and industrial growth is equivalent to approximately 310 people, or 26,000 gpd (domestic average annual flow = 255,000 gpd x 0.10 = 26,000 gpd, and 26,000 gpd ÷ 85 gallons per capita per day = 310 people). Using the 310 equivalent population for industrial and commercial mass loading yields 62 lb. per day contribution for both BOD<sub>5</sub> and TSS (0.20 lb. per capita per day x 310 = 62 lb/day).

## **TREATMENT REQUIREMENTS**

The City of Stanfield's existing mechanical WWTF provides secondary treatment of the City's domestic wastewater. Discharge of treated effluent from the treatment facility is regulated under the NPDES Permit. The NPDES Permit (No. 101136) is authorized and administered by the DEQ. The City completed the Permit renewal process in 2003 and was issued a renewed Permit by the DEQ. The Permit is scheduled to expire on August 31, 2008. Refer to Appendix A for a copy of the existing NPDES Permit.

Current effluent limitations for the City of Stanfield's WWTF are given in the City's NPDES Permit. These limitations are based on minimum wastewater treatment requirements for the Umatilla Basin as established in State of Oregon Administrative Rules,

OAR 340-41-655, additional statewide requirements contained in OAR 340-41-120, and the permitted facility average dry weather design flow of 0.244 mgd.

As mentioned in Chapter 1, currently the City's WWTF is not consistently meeting the effluent limits specified by the DEQ in the Permit. As such, the facility is operating out of compliance. To address the compliance matter, the DEQ has issued an MAO. Through an MAO, the City and the DEQ have agreed that it will not be possible for the City to come into compliance with the conditions of the Permit without completion of improvements to the facility. The MAO specifies a time line for completing the design and construction of the upgrade. The MAO protects the City from certain civil penalties and third-party lawsuits while the design and construction of improvements are being completed. Refer to Appendix B for a copy of the MAO.

In addition to liquid treatment requirements, 40 Code of Federal Regulations (CFR) 503 and Oregon Administrative Rules (OAR) Chapter 340, Division 50, set forth minimum treatment standards for wastewater derived biosolids depending on the ultimate disposition of the finished product. Refer to Chapter 6 of the 2002 Study for a comprehensive discussion on biosolids management.

**City of Stanfield, Oregon  
Flow Analysis Summary**

	1999	2000	2001	2002	2003	Average
<b>Dry Weather Flows (MGD)</b> (6 low wastewater flow months)						
Dry Weather Average Flow <sup>1</sup>	0.128	0.120	0.111	0.118	0.122	0.120
Dry Weather Maximum Daily Flow <sup>2</sup>	0.173	0.151	0.137	0.134	0.153	
Dry Weather Minimum Daily Flow <sup>3</sup>	0.110	0.100	0.070	0.101	0.101	
Dry Weather Maximum Month Avg. Flow <sup>4</sup>	0.133 (May)	0.127 (Apr.)	0.118 (Apr.)	0.121 (May)	0.126 (May)	
<b>Wet Weather Flows (MGD)</b> (6 high wastewater flow months)						
Wet Weather Average Flow <sup>1</sup>	0.140	0.138	0.129	0.131	0.137	0.135
Wet Weather Maximum Daily Flow <sup>2</sup>	0.180	0.162	0.154	0.165	0.162	
Wet Weather Minimum Daily Flow <sup>3</sup>	0.112	0.100	0.103	0.100	0.112	
Wet Weather Maximum Month Avg. Flow <sup>4</sup>	0.152 (Jan.)	0.143 (Mar.)	0.138 (Jan.)	0.140 (Jan./ Nov.)	0.142 (Feb.)	

Average Dry Weather Flow (ADWF) = 0.120 MGD

Average Wet Weather Flow (AWWF) = 0.135 MGD

**Notes:**

<sup>1</sup> Average flow during 6 low or high wastewater flow months.

<sup>2</sup> Maximum daily flow during 6 low or high wastewater flow months. Maximum daily flow is the maximum flow that occurred over a 24-hour period.

<sup>3</sup> Minimum daily flow during 6 low or high wastewater flow months. Minimum daily flow is the minimum flow that occurred over a 24-hour period.

<sup>4</sup> Maximum Month Average Flow during 6 low or high wastewater flow months. Maximum Month Average Flow is the average flow rate that occurred during the maximum flow month recorded.

G:\Clients\Stanfield\Wastewater\339-87\Reports\WWSS Update\Table 2-1.wpd



CITY OF  
STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
  
FLOW ANALYSIS SUMMARY

**TABLE  
2-1**



City of Stanfield, Oregon  
Wastewater System Study  
Summary of Historical Wastewater Data  
January 1999 - January 2004

Year	PLANT INFLUENT							PLANT EFFLUENT							
	Flow			Organic and Solids Loadings											
Month	Maximum (mgd)	Minimum (mgd)	Average (mgd)	Average BOD <sub>5</sub> (mg/L)	Average BOD <sub>5</sub> Mass Loading (lb/d)	Average TSS (mg/L)	Average TSS Mass Loading (lb/d)	Average BOD <sub>5</sub> (mg/L)	Average BOD <sub>5</sub> Mass Discharge (lb/d)	Average TSS (mg/L)	Average TSS Mass Discharge (lb/d)	Average BOD <sub>5</sub> Removal (%)	Average TSS Removal (%)	Geometric Mean Total Coliform	Geometric Mean Fecal Coliform
<b>1999</b>															
January	0.180	0.137	0.152	255	323	229	290	17	22	24	30	93	90	13	2
February	0.145	0.117	0.131	219	239	181	198	17	19	19	21	92	90	13	2
March	0.153	0.117	0.127	254	269	213	226	13	14	15	16	95	93	2	11
April	0.151	0.112	0.126	277	291	221	232	25	26	23	24	91	90	14	4
May	0.160	0.121	0.133	NLR <sup>1</sup>				NDR <sup>2</sup>						78	2
June	0.173	0.110	0.126	NLR <sup>1</sup>				NDR <sup>2</sup>						21	3
July	0.137	0.110	0.123	NLR <sup>1</sup>				NDR <sup>2</sup>						16	2
August	0.150	0.130	0.137	NLR <sup>1</sup>				NDR <sup>2</sup>						13	2
September	0.152	0.127	0.137	NLR <sup>1</sup>				NDR <sup>2</sup>						6	8
October	0.158	0.120	0.138	NLR <sup>1</sup>				NDR <sup>2</sup>						12	2
November	0.160	0.112	0.141	288	339	273	321	33	39	35	41	89	87	11	2
December	0.145	0.120	0.133	246	273	193	214	22	24	26	29	91	87	11	2
<b>2000</b>															
January	0.159	0.122	0.141	307	361	234	275	23	27	22	26	93	91	9	3
February	0.162	0.130	0.140	296	346	240	280	18	21	21	25	94	91	29	2
March	0.161	0.127	0.143	472	563	458	546	13	16	15	18	97	97	22	2
April	0.150	0.100	0.127	400	424	299	317	22	23	38	40	95	87	69	20
May	0.126	0.100	0.112	NLR <sup>1</sup>				NDR <sup>2</sup>						57	9
June	0.131	0.100	0.112	NLR <sup>1</sup>				NDR <sup>2</sup>						47	2
July	0.151	0.110	0.123	NLR <sup>1</sup>				NDR <sup>2</sup>						17	2
August	0.137	0.108	0.120	NLR <sup>1</sup>				NDR <sup>2</sup>						28	2
September	0.143	0.110	0.126	NLR <sup>1</sup>				NDR <sup>2</sup>						11	2
October	0.154	0.106	0.133	NLR <sup>1</sup>				NDR <sup>2</sup>						52	14
November	0.159	0.120	0.139	282	327	313	363	22	26	23	27	92	93	13	2
December	0.161	0.100	0.133	227	252	192	213	35	39	25	28	85	87	27	11
<b>2001</b>															
January	0.154	0.118	0.138	231	266	190	219	33	38	31	36	86	84	12	2
February	0.153	0.111	0.134	242	270	213	238	29	32	29	32	88	86	11	2
March	0.146	0.112	0.125	174	181	264	275	32	33	37	39	82	86	7	2
April	0.137	0.102	0.118	253	249	362	356	27	27	26	26	89	93	33	2
May	0.120	0.100	0.106	711	629	1123	993	NDR <sup>2</sup>						47	3
June	0.121	0.101	0.108	357	322	321	289	NDR <sup>2</sup>						31	2
July	0.116	0.070	0.104	266	231	360	312	NDR <sup>2</sup>						15	2
August	0.133	0.105	0.116	272	263	319	309	NDR <sup>2</sup>						4	2
September	0.133	0.106	0.116	319	309	317	307	NDR <sup>2</sup>						2	2
October	0.137	0.110	0.121	303	306	337	340	NDR <sup>2</sup>						5	5
November	0.150	0.103	0.128	1141	1218	2025	2162	25	27	34	36	98	98	26	2
December	0.142	0.115	0.128	282	301	285	304	30	32	33	35	89	88	60	2

- 1 No influent organic and solids loadings recorded (NLR) on the City's DMR.  
2 No effluent discharge BOD or TSS recorded (NDR) because the City is not required to report during effluent reuse periods.

City of Stanfield, Oregon  
Wastewater System Study  
Summary of Historical Wastewater Data  
January 1999 - January 2004

Year	PLANT INFLUENT							PLANT EFFLUENT							
	Flow			Organic and Solids Loadings											
Month	Maximum (mgd)	Minimum (mgd)	Average (mgd)	Average BOD <sub>5</sub> (mg/L)	Average BOD <sub>5</sub> Mass Loading (lb/d)	Average TSS (mg/L)	Average TSS Mass Loading (lb/d)	Average BOD <sub>5</sub> (mg/L)	Average BOD <sub>5</sub> Mass Discharge (lb/d)	Average TSS (mg/L)	Average TSS Mass Discharge (lb/d)	Average BOD <sub>5</sub> Removal (%)	Average TSS Removal (%)	Geometric Mean Total Coliform	Geometric Mean Fecal Coliform
2002															
January	0.165	0.116	0.140	248	290	240	280	26	30	25	29	90	90	39	4
February	0.145	0.117	0.128	313	334	302	322	28	30	34	36	91	89	8	3
March	0.143	0.109	0.123	281	288	502	515	23	24	41	42	92	92	12	4
April	0.134	0.102	0.115	245	235	257	246	43	41	52	50	82	80	13	3
May	0.132	0.109	0.121	296	299	301	304	NDR <sup>2</sup>						40	12
June	0.132	0.101	0.120	308	308	315	315	NDR <sup>2</sup>						15	4
July	0.124	0.101	0.115	229	220	191	183	NDR <sup>2</sup>						92	8
August	0.132	0.108	0.118	215	212	189	186	NDR <sup>2</sup>						17	6
September	0.132	0.104	0.118	522	514	527	519	NDR <sup>2</sup>						27	4
October	0.148	0.100	0.127	252	267	221	234	NDR <sup>2</sup>						18	4
November	0.154	0.118	0.140	232	271	239	279	29	34	44	51	88	82	85	29
December	0.142	0.115	0.128	282	301	285	304	30	32	33	35	89	88	60	2
2003															
January	0.153	0.101	0.121	194	196	207	209	28	28	37	37	86	82	1316	112
February	0.158	0.130	0.142	219	259	279	330	19	23	31	37	91	89	11	4
March	0.150	0.128	0.138	278	320	337	388	20	23	41	47	93	88	5	4
April	0.158	0.122	0.139	289	335	1195	1385	17	20	21	24	94	98	511	66
May	0.144	0.115	0.126	227	239	277	291	31	33	41	43	86	85	149	3
June	0.133	0.112	0.123	249	255	292	300	19	19	50	51	92	83	61	3
July	0.125	0.112	0.118	195	192	189	186	18	18	34	33	91	82	120	45
August	0.139	0.114	0.124	194	201	312	323	22	23	43	44	89	86	30	16
September	0.138	0.108	0.121	203	205	187	189	22	22	38	38	89	80	480	7
October	0.160	0.115	0.133	223	247	202	224	31	34	39	43	86	81	307	189
November	0.162	0.112	0.140	271	316	300	350	22	26	27	32	92	91	6	12
December	0.154	0.117	0.131	268	293	258	282	47	51	35	38	82	86	629	142
2004															
January	0.182	0.127	0.149	245	304	251	312	71	88	32	40	71	87	65	19
Maximum	0.182	0.137	0.152	1,141	1,218	2,025	2,162	71	88	52	51	98	98	1,316	189
Minimum	0.116	0.070	0.104	174	181	181	183	13	14	15	16	71	80	2	2
Average	0.147	0.112	0.128	297	315	347	368	27	29	32	35	90	88	81	14

1 No influent organic and solids loadings recorded (NLR) on the City's DMR.  
2 No effluent discharge BOD or TSS recorded (NDR) because the City is not required to report during effluent reuse periods.

## Design Criteria

	EXISTING 2004 <sup>1</sup>	FUTURE 2024		
		Domestic	Ind/Comm <sup>6</sup>	Total
Population	1,980 <sup>2</sup>	3,000	----	
Average Annual Flow (AAF), MGD	0.128	0.255	0.026	0.281
Per Capita Flow, gpcd	65	85	----	
Average Dry Weather Flow (ADWF), MGD	0.120 <sup>3</sup>	0.240	0.025	0.265
Per Capita Flow, gpcd	61	80	----	
Average Wet Weather Flow (AWWF), MGD	0.135 <sup>3</sup>	0.270	0.028	0.298
Per Capita, gpcd	68	90	----	
Maximum Month Flow (MMF), MGD	0.152	0.300	0.031	0.331
Per Capita, gpcd	77	100	----	
Maximum Daily Flow (MDF), MGD	0.182	0.360	0.037	0.397
Per Capita, gpcd	92	120	----	
Peak Hour Flow (PHF), MGD	0.450 <sup>4</sup>	0.894	0.092	0.986
Per Capita, gpcd	227	298	----	
Average Influent BOD <sub>5</sub> , mg/L	297	282	----	
lb/day	317 <sup>5</sup>	600	62	662
lb/capita/day	0.16	0.20	----	
Average Influent TSS, mg/L	347	282	----	
lb/day	370 <sup>5</sup>	600	62	662
lb/capita/day	0.19	0.20	----	

<sup>1</sup> Existing 2004 column based upon a review of previous 5± years of historical data.

<sup>2</sup> Source: Portland State University, July 1, 2003, Certified Estimate.

<sup>3</sup> ADWF and AWWF from Table 2-1.

<sup>4</sup> Based on an assumed factor of 3.5 times the AAF.

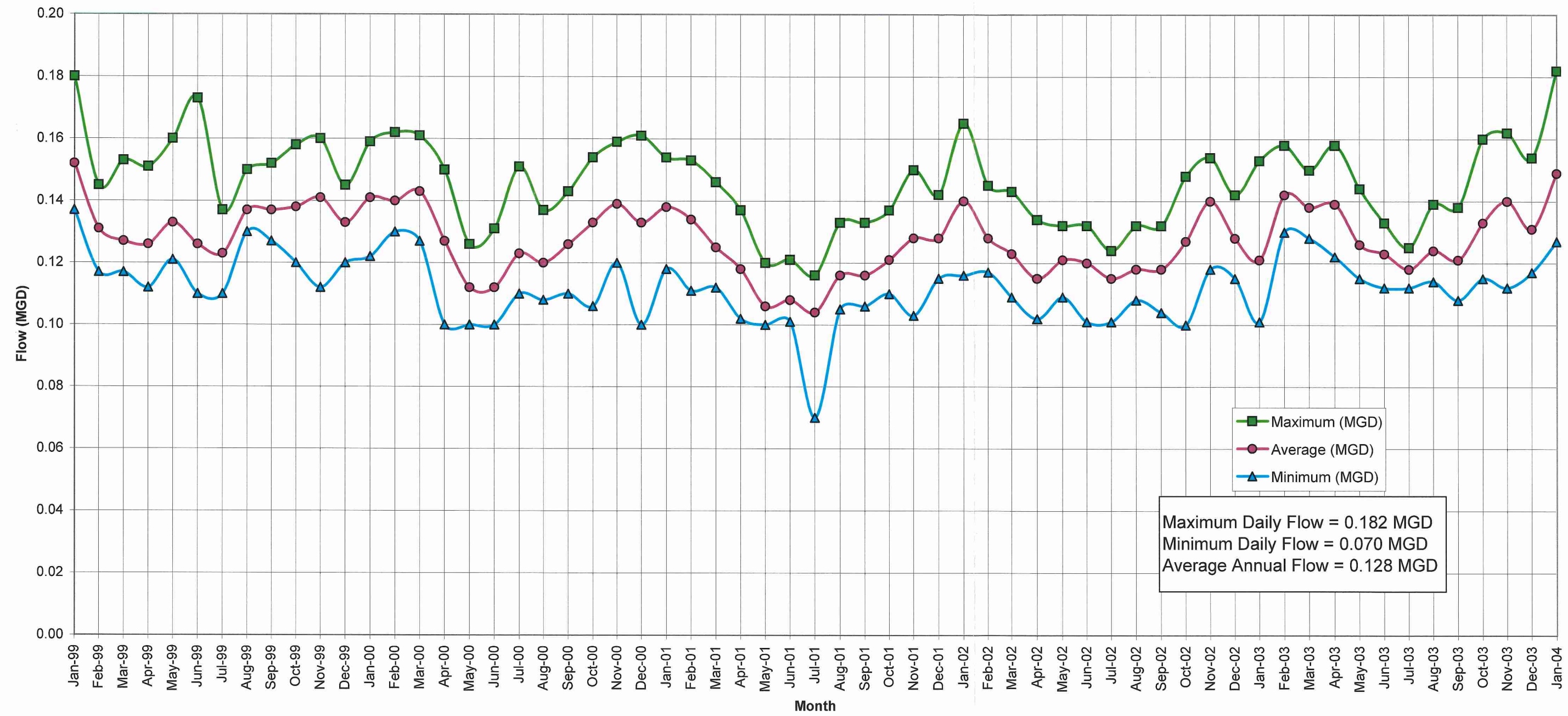
<sup>5</sup> Mass loading estimated using AAF.

<sup>6</sup> An additional 10 percent of reserve flow capacity based on population (domestic) flow projection is being added to serve anticipated commercial and industrial customers (see page 2-3).

MGD = million gallons per day

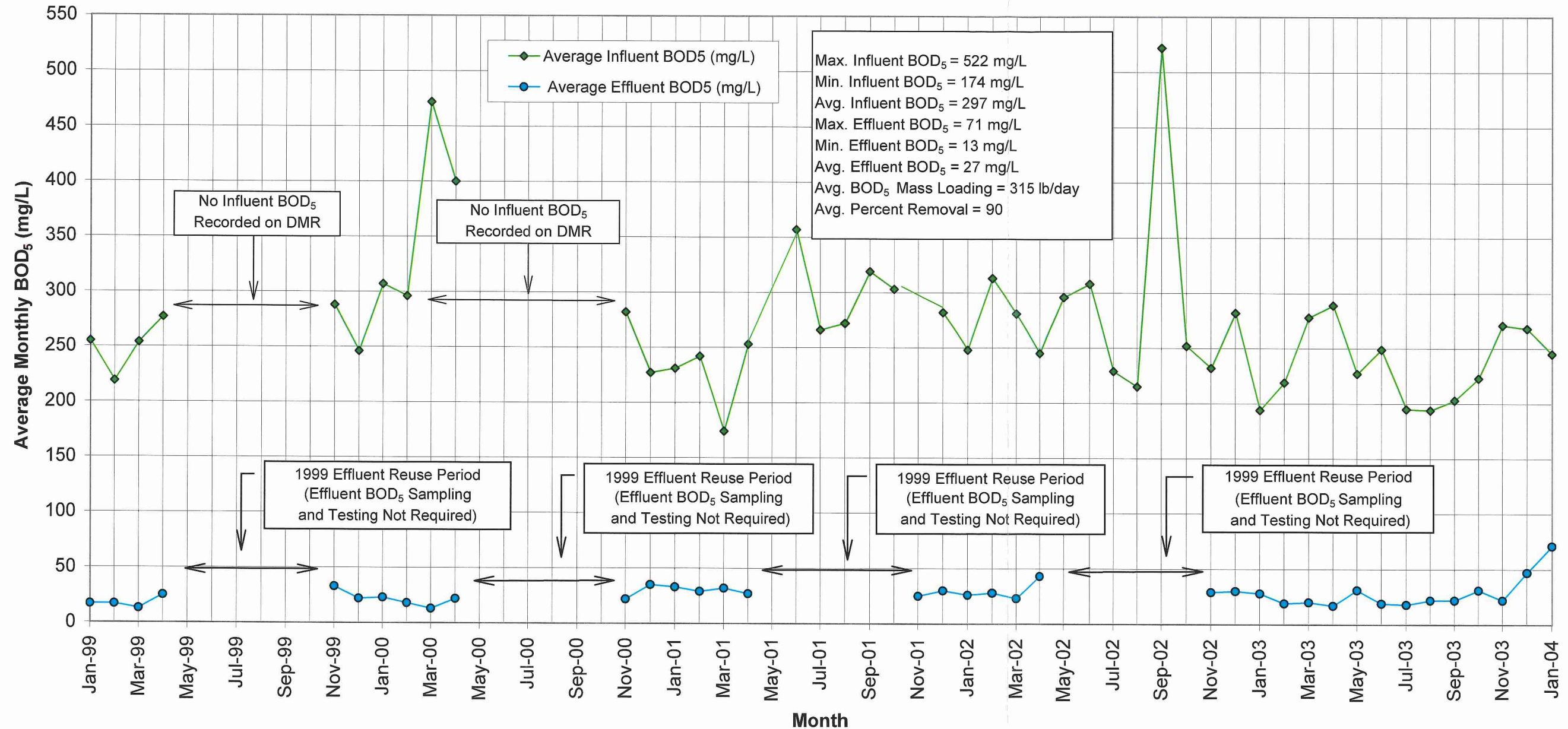
gpcd = gallons per capita per day

# City of Stanfield, Oregon Wastewater System Study Historical Monthly Influent Flows



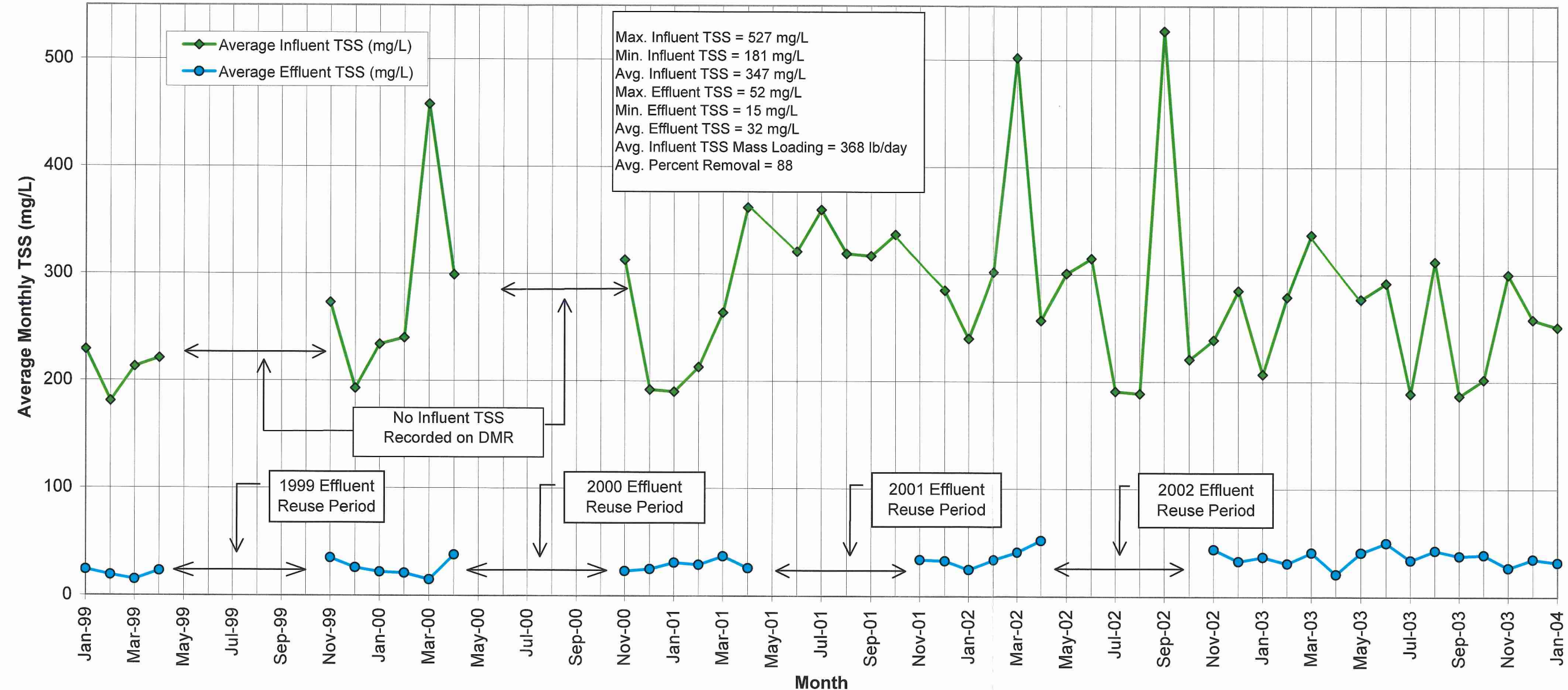


**City of Stanfield, Oregon  
Wastewater System Study  
Historical Average Monthly BOD<sub>5</sub>**



Note: High BOD<sub>5</sub> values were reported in May and November of 2001. For the purposes of this evaluation, they are not plotted above.

# City of Stanfield, Oregon Wastewater System Study Historical Average Monthly TSS



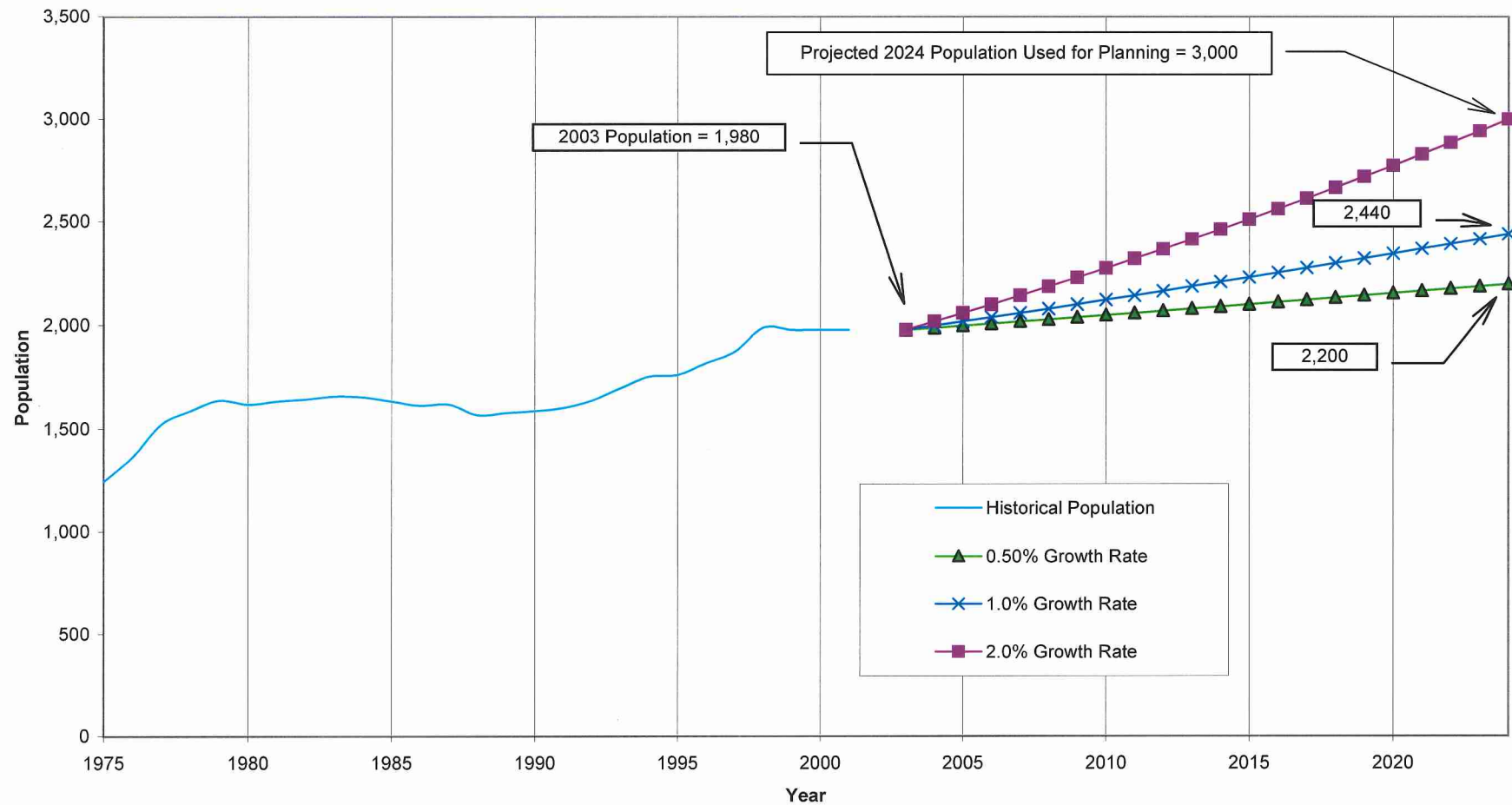
Note: High TSS values were reported in May and November of 2001 and April of 2003. For the purposes of this evaluation, they are not plotted above.



CITY OF  
STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
HISTORICAL AVERAGE  
MONTHLY TSS

FIGURE  
2-3

## Historical and Projected Population



## CHAPTER 3

### SELECTED WASTEWATER SYSTEM IMPROVEMENTS

#### INTRODUCTION

The 2002 Wastewater System Study presented a detailed analysis of the existing wastewater collection and treatment facilities considering hydraulic and organic treatment capacity, and regulatory, operational, reliability, and redundancy issues. Based on this analysis, alternatives for improving the system were developed along with associated cost estimates. The 2002 Study presented a detailed evaluation of the alternatives and the selected system improvements for wastewater collection and treatment, biosolids management, and effluent reuse (refer to Chapter 8 of the 2002 Study). Additionally, in order to address funding and implementation issues, the 2002 Study outlined a phasing approach for completing the selected improvements. The phasing plan showed how the improvement alternatives could be staged given limited resources.

This chapter of the Wastewater System Study Update presents a revised improvements package selected by the City Council at the March 3, 2004, City Council meeting. The proposed improvements package presented hereafter was developed based on the originally selected alternatives considering affordability to the citizens of Stanfield while providing an upgraded system having the ability to adequately meet the current and future needs of the City.

Figure 3-1 shows the selected improvements chosen by the City Council on recommendation of the City staff and City Engineer. In general, the improvements include the Hoosier Road Pump Station Improvements, the Dunne Street Pump Station Improvements, and upgrading the existing mechanical wastewater treatment facility. Table 3-1 presents a summary of the estimated costs of the overall selected wastewater system improvements including the Hoosier Road Pump Station Improvements, the Dunne Street Pump Station, and upgrading the wastewater treatment facility. The remainder of this chapter of the Update describes the selected collection system improvements and wastewater treatment facility improvements.

#### COLLECTION SYSTEM EVALUATION AND IMPROVEMENTS

**General.** As indicated in Chapter 4 of the 2002 Study, based on the infiltration and inflow evaluation and as a result of the completion of the 1985 improvements project, it appears the City's collection system is in generally good condition with the exception of the Dunne Street and Hoosier Road Pump Stations.

##### ***Proposed Collection System Improvements.***

**Pump Stations.** There are currently four operating pump stations in the collection system: Dunne Street, Ardith Street, Hoosier Road, and the recently constructed Main Pump Station. The Coe Avenue Pump Station was abandoned during the North Stanfield Interceptor Improvements Project.



The evaluation presented in the 2002 Study found the Dunne Street Pump Station and the Hoosier Road Pump Station in need of upgrading. The Hoosier Road Pump Station is old and nearing the end of its useful life. As indicated in Table 3-2, the estimated 2006 project cost to complete the Dunne Street Pump Station upgrade is \$110,000. The estimated cost of upgrading the Hoosier Road Pump Station is \$46,000, as shown on Table 3-3.

## WASTEWATER TREATMENT FACILITY EVALUATION AND IMPROVEMENTS

### *Existing Wastewater Treatment Facility Description and Evaluation.*

**Basic Treatment.** The existing treatment process generally consists of influent pumping, primary clarification, trickling filter biological treatment, secondary clarification, chlorine gas disinfection, and anaerobic sludge digestion. The treated effluent is either discharged to the Umatilla River during the winter months or stored and irrigated on the City's reuse site in the summer. Refer to Figure 3-2 for an existing wastewater treatment facility process schematic.

**Treatment Capacity.** The existing facility has adequate capacity both hydraulically and biologically to handle the existing and projected 2024 design flows and loadings with the exception of the primary clarifier (Spiragester). A number of deficiencies from a treatment and operational standpoint were identified in the analysis.

**Identified Deficiencies.** The major deficiencies with the City's existing facility are related to the lack of a preliminary treatment (headworks) system and the Spiragester (primary clarifier) being hydraulically overloaded. As a result, inorganic and organic solids coming into the facility are not being effectively removed, which causes downstream operational problems and reduced treatment efficiency. These downstream operational problems in turn are resulting in the City's inability to adequately and consistently disinfect to meet the permit limits for *E. coli* and total coliform bacteria. Additionally, the sludge handling system needs to be improved to provide the means for effective removal and storage of the waste sludge.

The Permit specifies an allowed maximum effluent total chlorine residual. Currently, the City relies on the storage pond to naturally degrade the chlorine via sunlight prior to discharge to meet the Permit conditions. With this method of dechlorination, the City has not been able to consistently control the residual levels in the effluent. To provide controlled dechlorination, chemical addition is needed prior to discharge to the Umatilla River to ensure consistent chlorine residual compliance with the Permit.

**Proposed Improvements and Estimated Cost.** The proposed improvements consist of the following (refer to Figure 3-3):

**Headworks.** This includes new headworks consisting of a magnetic flowmeter to measure and record influent flows and a fine screening system to remove plastics, rags, and other inorganic debris from the influent. To protect the headworks equipment from the weather and prevent freezing problems, the fine screening system would be housed in a new building. The fine screening system would include an in-channel mechanical screening unit, including screening washer, compactor system, and controls.

**Primary Clarification.** One new 25-foot diameter primary clarifier with a side water depth of 12 to 14 feet will be needed. The primary clarifier would be complete with a scum skimmer, sludge scraper, piping and appurtenances, and flow distribution structure to make a complete primary treatment system.

**Primary Effluent Pumping.** Due to the relatively flat topography at the WWTF site, primary effluent cannot be gravity fed into the trickling filter directly from the primary clarifier. As a result, the primary effluent will need to be pumped into the trickling filter. Therefore, a primary effluent duplex lift station with each pump capable of handling the peak hour flow of approximately 680 gpm will be required. Each pump would be submersible and would be equipped with rails for easy removal and a variable frequency drive unit.

**Dechlorination.** A dechlorination facility using liquid sodium bisulfite as the removal agent will be needed. The dechlorination facility will consist of a small insulated and heated building (supplied and constructed by City staff) to house one or two 55-gallon drums of sodium bisulfite, a metering pump and controls, and associated suction and discharge piping to deliver the dechlorination solution to the point of application.

**Spiragester Modifications.** The existing concrete tank housing the Spiragester components and primary clarifier would be converted to a low rate anaerobic digester. The Spiragester and primary clarifier components would be removed and the concrete tank modified to allow installation of a cover, mixer, and gas safety and burner system. The contents of the anaerobic digester would be unheated and mixed as it would only be necessary to partially digest the biosolids prior to hauling to Pendleton.

**Yard and Process Piping.** Yard and process piping improvements will be necessary to transport wastewater from the influent pump station to the new headworks and to the new primary clarifier. Additionally, new sludge piping will be needed for the new clarifier.

**Control Building.** This will include modifying the existing control building office to provide room for the new electrical, instrumentation, and controls that will be needed for the new process units.

**Site Work.** Site work will be required to accommodate the new units with demolition to allow construction of new and improved facilities and rehabilitation of the site for ease of future maintenance.

**Estimated Project Cost.** Refer to Table 3-4 for the 2006 estimated project cost, which encompasses the above outlined improvements. As Table 3-4 indicates, the estimated project cost including contingency, environmental and permitting, legal, administration, and engineering is approximately \$1.58 million. As shown on Table 3-1, if the collection system improvements are included in the overall project, the total estimated project cost is approximately \$1.77 million.

### Estimated Project Cost Summary

ITEM NO.	DESCRIPTION	TOTAL ESTIMATED PROJECT COST
1	Dunne Street Pump Station Improvements	\$ 135,000
2	Hoosier Road Pump Station Improvements	\$ 57,500
3	Wastewater Treatment Facility Improvements	\$ 1,577,000
TOTAL ESTIMATED PROJECT COST		\$ 1,769,500

**CITY OF STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
DUNNE STREET PUMP STATION IMPROVEMENTS  
COST ESTIMATE (YEAR 2006 COSTS)**

NO.	ITEM	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL ESTIMATED 2002 PRICE
1	Mobilization/Demobilization	LS	\$ 6,500	All Req'd	\$ 6,500
2	Demolition Work including Removing Existing Pumps, Motors, Piping, Wet Well, etc.	LS	12,500	All Req'd	12,500
3	Piping Improvements	LS	15,000	All Req'd	15,000
4	New 5 Hp 200 gpm Duplex Submersible Pumps, Rail System, Wet Well, etc.	LS	44,500	All Req'd	44,500
5	Electrical, Including Motor Control Panel, Telemetry Improvements, Float Switches, etc.	LS	21,500	All Req'd	21,500
Estimated Construction Costs					\$ 100,000
Engineering, Contingency, Administration, Legal, 35%					35,000
<b>TOTAL ESTIMATED PROJECT COST (YEAR 2006 COSTS)</b>					<b>\$ 135,000</b>

**CITY OF STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
HOOSIER ROAD PUMP STATION IMPROVEMENTS  
COST ESTIMATE (YEAR 2006 COSTS)**

NO. ITEM		UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL ESTIMATED 2006 PRICE
1	Mobilization/Demobilization	LS	\$ 2,000	All Req'd	\$ 2,000
2	Demolition Work including Removing Existing Pumps, Motors, Piping, Wet Well, etc.	LS	12,000	All Req'd	12,000
3	Piping Improvements	LS	6,000	All Req'd	6,000
4	New 1 Hp 10 gpm Simplex Packaged Submersible Grinder Pump Station, Including Pump Controls	LS	18,000	All Req'd	18,000
5	Electrical	LS	4,500	All Req'd	4,500
Estimated Construction Costs					\$ 42,500
Engineering, Contingency, Administration, Legal, 35%					15,000
<b>TOTAL ESTIMATED PROJECT COST (YEAR 2006 COSTS)</b>					<b>\$ 57,500</b>

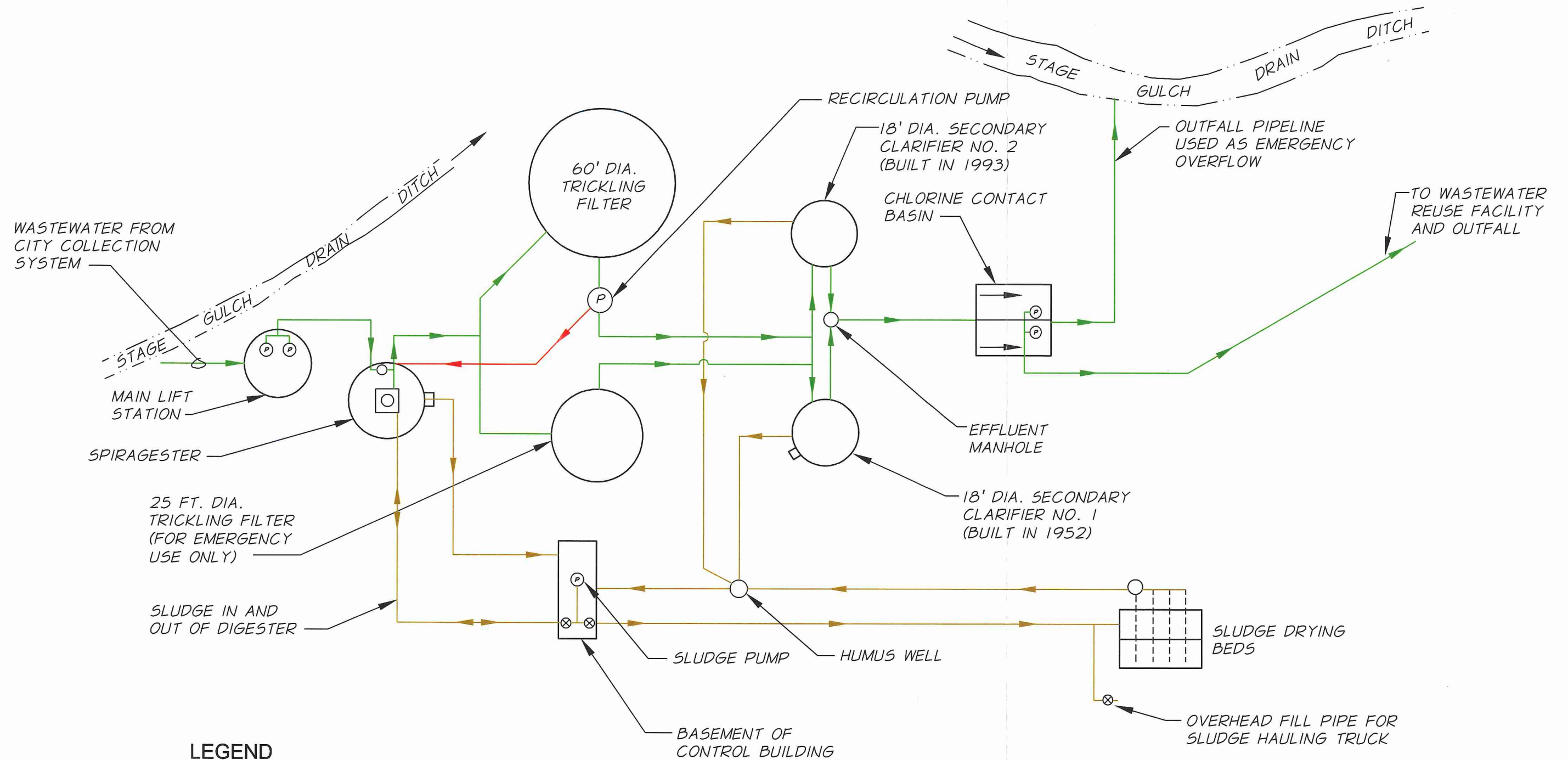
**CITY OF STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
PROPOSED WASTEWATER TREATMENT FACILITY IMPROVEMENTS  
COST ESTIMATE (2006 DOLLARS)**

**CAPITAL IMPROVEMENT COSTS**

NO.	ITEM	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL
					ESTIMATED 2002 PRICE
1	Mobilization/Demobilization	LS	\$ 56,000	All Req'd	\$ 56,000
2	New Headworks including Building	LS	235,000	All Req'd	235,000
3	New 25-foot Diameter Primary Clarifier	LS	232,000	All Req'd	232,000
4	Primary Effluent Pump Station	LS	108,000	All Req'd	108,000
5	Dechlorination Facility	LS	17,000	All Req'd	17,000
6	Modify Spiragester	LS	260,000	All Req'd	260,000
7	Process and Yard Piping	LS	95,000	All Req'd	95,000
8	Electrical, Instrumentation, and Control	LS	130,000	All Req'd	130,000
9	Site Work, Demo, and Rehabilitation	LS	35,000	All Req'd	35,000
Estimated Construction Costs					\$ 1,168,000
Engineering, Contingency, Administration, Legal, 35%					409,000
TOTAL ESTIMATED PROJECT COST (Year 2006 Costs)					<u>\$ 1,577,000</u>

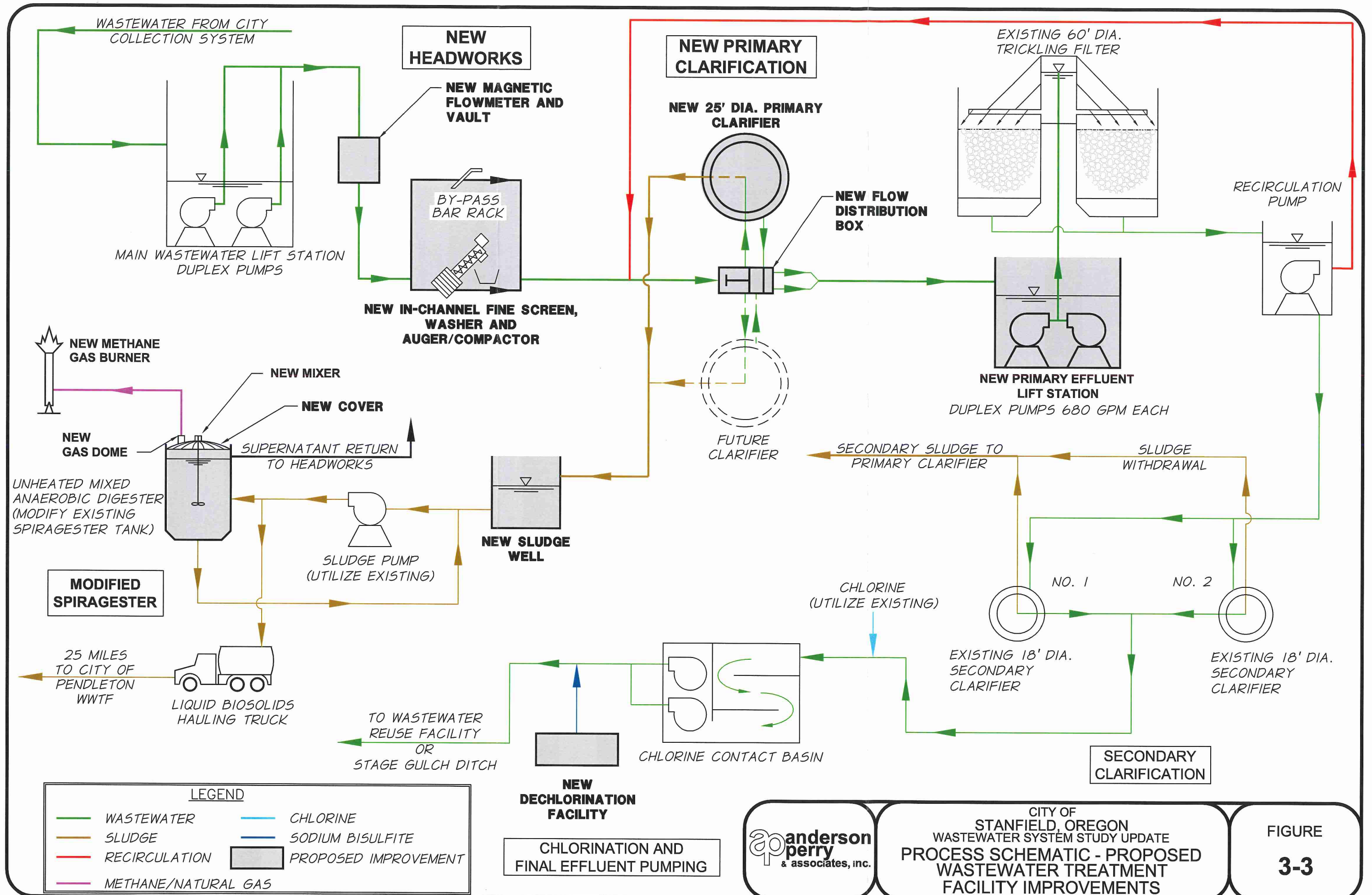






# LEGEND

	WASTEWATER PIPING AND FLOW DIRECTION
	SLUDGE PIPING AND FLOW DIRECTION
	RECIRCULATION PIPING AND FLOW DIRECTION
	PUMP
	VALVE



## CHAPTER 4

### PROJECT FINANCING AND IMPLEMENTATION

#### INTRODUCTION

This chapter outlines methods available for financing and implementing the proposed wastewater system improvements. The existing system budget and user rates are discussed, followed by a summary of state and federal funding programs. Various methods of debt repayment are also presented.

A detailed analysis of Stanfield's current sewer fund and sewer rate structure is beyond the scope of this Update. However, a brief discussion of the existing rate structure and current and future sewer budgets is included in this chapter.

#### WASTEWATER SYSTEM BUDGET AND USER RATES

The annual cost of operating and maintaining the Stanfield wastewater treatment and collection system for fiscal year 2002-03 was approximately \$162,000. Annual wastewater system operation and maintenance costs, not including interfund transfers, have varied between approximately \$127,500 in fiscal year 1994-95 and \$238,000 in fiscal year 1999-2000. The City sewer budget, showing revenues and expenditures from fiscal year 1994-95 through 2002-03, is shown on Figure 4-1. Based on the average trend of past operation and maintenance costs, it is estimated that future costs, if no changes to the wastewater treatment and collection system occur, are expected to be approximately \$244,000 in the year 2006.

Operation and maintenance of the City of Stanfield's existing wastewater treatment and collection system is funded through the annual City budget, primarily through the assessment of sewer use fees and service connection fees. The existing rate structure is as listed in the following table:

#### City of Stanfield Sewer Rate Fee Schedule

Sewer Base Charge:	\$7.50 per 1 connection per month.
Sewer Use Fee Overage Charges:	\$3.75 per 1,000 gallons of water estimated to flow into the City's collection system per month.
Average Residential Rate: \$29.31 per 1 connection per month.	

**Note:** The only exception to the above fee schedule is the Pilot Corporation, which pays a flat fee of \$1,646 per month.

For the purpose of the analysis, sewer connections have been separated into three types based on their contributions to the wastewater system: residential, non-residential, and multiple user (such as apartment complexes), as illustrated in the following table:

**Approximate Average Rate by Connection Type**

Type of Connection	Number of Connections	Percentage of Flow Contribution <sup>1</sup>	Projected Revenue Generated by Overage in 2003-04	Average Annual Rate	Average Monthly Rate <sup>2</sup>	Residential Rate Multiplier
Residential	559	76.5%	\$146,305	\$262	\$29.31	1.00
Non-Residential	38	17.1%	32,703	861	79.22	2.70
Multiple User	3	6.4%	12,240	4,080	347.50	11.86
Total	600	100%	\$191,248			

<sup>1</sup> Based on Equivalent Dwelling Unit (EDU) analysis, Table 4-1.

<sup>2</sup> Including sewer base charge.

Although residential and multiple user connections are relatively consistent as far as flow contribution, the contributions from non-residential connections can vary dramatically. For this reason, it is important to note that the monthly rates in the table above are only average figures for each connection type.

The residential rate multiplier is a factor that approximately relates the average rate of each connection type to that of the residential rate. For example, if the average residential rate were \$40 per month, the average non-residential rate would be  $2.70 \times \$40.00 = \$108.00$  per month and the average multiple user rate would be  $11.86 \times \$40.00 = \$474.40$  per month.

A list of the City's non-residential and multiple user connections and the Equivalent Dwelling Units (EDUs) are presented on Table 4-1. EDUs are an approximate measure of how much flow a connection is contributing to the wastewater system. For example, a residence with one connection is considered one EDU, while an apartment complex with 15 units and a single connection may be considered 15 EDUs.

Ideally, the revenue generated by sewer fees would meet all sewer fund budget requirements, including operation and maintenance costs, debt repayment, and capital fund reserve set asides. However, upon examination of the City's financial records, it appears that the rates are not producing enough revenue to cover the debt repayment and operation and maintenance costs. According to Table 4-2, the average monthly residential sewer rate will need to be approximately \$38 per month in order for the annual revenue to balance the annual sewer fund costs.



The City of Stanfield currently has three outstanding loans serviced by sewer system revenues. These loans are summarized in the following table:

**Outstanding Wastewater Treatment Facility  
and Collection System Loans**

<b>Current Debt Principal and Interest</b>	<b>Annual Payment</b>	<b>Year Debt Expires</b>
\$210,000	\$27,000	2017
199,000	32,000	2010
125,000	30,000	2008
<b>Total Annual Debt Service</b>	<b>\$89,000</b>	

**STATE AND FEDERAL GRANT AND LOAN PROGRAMS**

Financing of public improvement projects is a complex issue that must be resolved before a project can move beyond the planning stage. The cost of providing local financing for wastewater system improvements can be very high and can often exceed the financial capability of local businesses and residents. Obtaining assistance through state and federal grants and low interest loans is imperative to be able to finance a major wastewater system improvements project while maintaining reasonable rates for customers.

A number of state and federal grant and loan programs can provide financial assistance on municipal improvements projects to Oregon cities. These programs offer various levels of funding aimed at different types of projects. These include programs administered by Rural Development (RD) under the U.S. Department of Agriculture (USDA), the U.S. Economic Development Administration (EDA), the Oregon Economic and Community Development Department (OECDD), the DEQ, and others. These agencies can provide low-interest loan funding and some can also provide grant funding for assisting rural communities on public works projects. Most of these agencies will require an increase in sewer rates to certain threshold levels to support a loan for wastewater system improvements, both as a condition of receiving monies and prior to being considered for grant funds. Recent income survey information from the 2000 Census has changed Stanfield's eligibility for grant and loan funds. For this reason, several funding programs that were discussed in the original study are not mentioned in this Update.

- **U.S. Department of Agriculture, Rural Development.** This agency can provide financial assistance to communities with a population under 10,000 through both loans and direct grants. Under the loan program, RD purchases the local bonds. The interest rate for these bonds is dependent on the Median Household Income (MHI) of the community and other factors and varies from year to year based on national economic factors. The grant fund eligibility under the Agency's current rules is dependent upon the City's

MHI in comparison with the 2000 Oregon non-metropolitan MHI. Currently, RD is using a non-metropolitan MHI of \$34,608 as the basis for grant fund eligibility. *The City's current (2000 Census) MHI is \$35,286, which is more than 100 percent of the non-metropolitan MHI. Therefore, when comparing the City's MHI with the non-metropolitan MHI, Stanfield would not qualify for grant funding through RD. However, based on preliminary discussions with personnel from RD, it appears RD will be adjusting the Oregon non-metropolitan MHI to \$41,230 effective October 2004. If this adjustment is made, the City would be eligible for grant funding as the City's MHI would be approximately 86 percent of the state non-metropolitan MHI. It appears, given this change, the City would potentially be eligible for up to 25 percent of the project cost to be paid by grant funds and 75 percent to be paid by a loan. The current interest rate for an RD loan is approximately 4.5 percent and the repayment period can be up to 40 years. Application for this type of funding is a fairly lengthy process involving pre-application, final application, environmental review, etc.*

The agency presently requires communities to establish average residential user costs in the range of \$40 to \$42 per month before the community qualifies for grant funds. The equivalent monthly costs must provide sufficient revenue to pay for all system operation and maintenance costs and pay for the local debt service incurred as a result of the project. All project costs above this level may be paid for by grant funds, up to given limits, which are usually not more than 25 percent of the total project cost. The objective of the RD loan/grant program is to keep the cost for utilities in small, rural communities at a level meeting RD's definition of affordable and similar to what other communities are paying. If the 40-year repayment period for this loan program was utilized, monthly payments would be lower than those for similar loans through the other programs discussed in this section.

Another of the agency's requirements is that loan recipients establish a reserve fund of 10 percent of the bond repayment during the first 10 years of the project, which makes the net interest rate a little higher. One of the major benefits of the RD program is that the agency can purchase either revenue or general obligation bonds. These bonds are generally purchased for a period of 40 years. To be eligible for the funding, the City must be willing to increase its user rates to the average monthly costs required by RD.

- **Clean Water State Revolving Fund Program (CWSRF).** The CWSRF is administered by the DEQ and provides low interest rate loans to public agencies for the planning, design, and construction of water pollution control facilities (e.g., wastewater treatment plants), as well as for some publicly-owned estuary management and non-point source control projects. Priority in the agency's ranking process is always given to projects addressing documented water quality problems and health hazards.

Under the CWSRF program rules, interest rates on all design and/or construction loans are set at two-thirds of the current municipal bond rate during the quarter that the loan agreement is signed. Loans for design and construction currently have an interest rate of 2.91 percent to 4.48 percent for a 20-year repayment term. In addition, fees are being assessed to cover program administration costs by the DEQ. A servicing fee of 0.5 percent of the outstanding balance is added to the current interest rate, and a loan reserve fee equal to the annual debt service must be set aside in a separate fund. *This program has low interest rates, but the repayment period is half of that available through RD. If the project were funded entirely through CWSRF, the monthly sewer rates would probably become unaffordable for the citizens of Stanfield.*

- **Oregon Economic and Community Development Department.** This state agency is responsible for administering a number of funding programs including the **Water/Wastewater Financing Program**, which uses Oregon Lottery funds to help municipalities make improvements to their drinking water and wastewater systems. Eligibility is limited to those projects necessary to ensure compliance with drinking water quality standards administered by the Department of Human Services - Drinking Water Program (DWP) or water quality statutes, rules, orders, or permits administered by the DEQ.

This program requires that the recipient has a monthly residential sewer rate of at least 1.37 percent of the 2000 statewide MHI and the wastewater system improvements project would correct a compliance issue (such as permit compliance). By these guidelines, Stanfield's minimum rate would need to be \$40.28. Funding from this program can be in the form of loans and/or grants. Determination of the final amount of financing available for a specific project, and the loan/grant mix, is based on several factors including the financial strength of the municipality, per capita income of the applicant, existing water and sewer rates as compared to a statewide average, and more. The current grant eligibility criteria are as follows:

- Less than 70 percent of statewide MHI = maximum \$750,000 grant
- 70 to 80 percent of statewide MHI = maximum \$500,000 grant
- 80 to 100 percent of statewide MHI = maximum \$250,000 grant
- Greater than 100 percent of statewide MHI = no grant

Since Stanfield's MHI is between 80 and 100 percent of the state MHI, the maximum amount of grant funds the City could qualify for is \$250,000. Loan rates are currently at approximately 5 percent under this program and the repayment period is 25 years. *Because the City of Stanfield's wastewater treatment facility is operating out of compliance, this is a viable funding option. If RD does not revise the current Oregon non-metropolitan MHI, this*

*program is the only funding option from which grant money may be available for the City of Stanfield.*

**Summary.** OECDD's Water/Wastewater Financing and the RD loan/grant programs appear to be the two most attractive funding sources for the Wastewater System Improvements Project. Both programs appear to be funding sources that can provide the needed grant funds to make the project financially feasible for the City. Before the City will be considered eligible by either OECDD or RD to receive any grant funding, they will need to increase average monthly sewer user fees to the estimated range of \$40 to \$42 to fund the loan portion of a funding package. However, as discussed in the following sections, the \$40 to \$42 rate levels alone will not provide the required revenue to finance the needed improvements and pay for existing debt service and operation, maintenance, and replacement costs. The City would need to increase the rates to a somewhat higher level than the minimum amount to be eligible for grant funding.

It is important for the City to consult with funding agencies early in the project development stages to ascertain under which funding programs the City would receive the most attractive funding package for their proposed improvements. This consultation with funding agencies is usually done at a "One-Stop" Meeting, which is described in more detail later in this chapter. The remainder of this chapter focuses on evaluating loan capacities and funding options for the City's Wastewater System Improvements Project, assuming the project is funded through OECDD and RD, considering the programs' eligibility criteria described above.

## **DEBT REPAYMENT OPTIONS AND LOAN CAPACITY**

**Debt Repayment Using Sewer User Fees.** One method for repayment of loans is through increased sewer user fees. Sewer user fees would be determined by the annual debt service cost of the proposed improvements selected by the City of Stanfield, annual operation and maintenance costs for the wastewater treatment facility and collection system, and existing debt currently serviced by sewer user fees. Table 4-2 was prepared to determine the City's capacity for repayment of loans with sewer user fees given different funding options (refer to subsequent sections for funding option discussions). Several assumptions were made to develop the analysis presented on Table 4-2.

1. Monthly sewer rates are for residential connections. Corresponding average rates for non-residential and multiple user connections may be determined using the methodology described on page 4-2.
2. Operation and maintenance costs for the budget year 2005-06 were set at \$244,000 per year. For the purpose of the analysis, it has been assumed that the City would put \$6,000 in a replacement fund account to pay for future equipment replacement, etc. Therefore, the total estimated operation, maintenance, and replacement (OM&R) cost for the budget year 2005-06 is \$250,000. The total annual expenditures, including \$89,000 debt service, is \$339,000. The budget year 2005-06 was used because this is the time period in which the project would most likely begin.



3. Ten percent of the net annual funds available to service debt was set aside under the RD scenario to create a reserve account in accordance with RD requirements. OECDD does not require reserve funds be set aside.

***Debt Repayment Using Property Tax Revenue.*** Under the Oregon Property Tax Limitation-Measure 5, property tax rates for the payment of general obligation bonds used to finance capital costs, such as the construction of wastewater system improvements, do not come under the \$10.00 per \$1,000 limitation. Therefore, one viable option for the City is to repay wastewater system improvements costs through property tax revenues. Table 4-3 lists the increases in property tax rates required to finance loan amounts solely with property taxes.

It should be noted that debt repayment may also be achieved by some combination of these two methods.

## **PROJECT FUNDING**

***General.*** Based on the estimated cost of the Stanfield Wastewater System Improvements Project, the City will need to obtain a low interest loan(s) coupled with a grant to fund the desired improvements project should they decide to proceed with implementation. The City does not have the financial capacity to feasibly fund the entire project using loan funds only. Of the various funding programs, the most attractive sources of loan and grant funding for the project would be OECDD's Water/Wastewater Financing Program and the RD loan/grant program. If an improvements project is pursued, it is recommended that the City thoroughly investigate potential funding sources to ensure the best funding package is obtained for the project.

### ***Project Funding Alternatives.***

**Alternative A - OECDD Water/Wastewater Loan/Grant.** Alternative A considers funding the entire proposed project with a loan and grant through OECDD. As mentioned previously, the City would potentially be eligible for up to \$250,000 in grant money under OECDD's current program rules. Therefore, the City would need to obtain a loan of \$1,519,500 from OECDD under this option. As shown on Table 4-2, this equates to an approximate average monthly residential sewer rate of \$51.25. Refer to Table 4-4 for a summary of the analysis under this alternative.

**Alternative B - OECDD Water/Wastewater Loan/Grant and RD Loan Only.** This alternative involves obtaining both grant and loan funds from the OECDD Water/Wastewater Financing Program and obtaining loan funds from RD. As discussed under Alternative A, if Stanfield obtains a grant, the City will be required to match the grant funds with OECDD loan funds. This alternative assumes that the remainder of the project costs would be covered by an RD loan. As indicated on Table 4-2, under this alternative, the City's loan requirement for a Water/Wastewater and RD funded project has been estimated to be approximately \$1,519,500, which results in an average residential monthly sewer rate of approximately \$50.25. Under this scenario, the City would need to obtain \$250,000 in grants to fund the project. The

estimated breakdown of funding amounts and sources under this option is given in Table 4-4.

This alternative illustrates the potential funding package the City could obtain if RD does not revise the current Oregon non-metropolitan MHI, which would mean Stanfield would not be eligible for grant money under RD programs.

**Alternative C - OECDD Water/Wastewater Loan/Grant and RD Loan/Grant.** This alternative assumes both grants and loans from the OECDD Water/Wastewater Financing Program and RD could be obtained according to program rules. If the City obtains a grant from OECDD, it will be necessary to match the grant funds with equivalent loan funds. As shown on Table 4-2, under this funding scenario the City's loan requirement for a Water/Wastewater and RD funded project has been estimated to be approximately \$1,202,125, resulting in an average monthly residential sewer rate of about \$47.75. Therefore, assuming this sewer rate, the City would need to obtain about \$567,375 in grants to fund the project. The potential breakdown of funding sources and amounts is presented in Table 4-4.

As discussed earlier, this alternative assumes RD will revise the Oregon non-metropolitan MHI, resulting in Stanfield becoming eligible for a minimum of 25 percent of the RD portion of the package to be funded by grants.

**Alternative D - RD Loan/Grant.** As shown in Table 4-2, this alternative assumes the entire project would be funded through a grant and loan from RD. For the purpose of this analysis, it has been assumed the grant/loan split would be 25 percent/75 percent, respectively. Based on this assumption to fund the entire proposed project, the City would need to acquire a loan of approximately \$1,327,125, which would require an estimated average monthly residential sewer rate of approximately \$48.50. Given this rate, the City would need to obtain \$442,375 in grant funds to complete the proposed project (refer to Table 4-4).

**Needs and Issues Inventory.** OECDD, as well as several other state and federal agencies, utilizes a process for identifying and prioritizing the needs and issues of a community, called the Needs and Issues Inventory. Forms are sent to communities to list their priority infrastructure improvements projects, including pertinent information related to the project. If a community has more than one project, the community also submits a form ranking the priorities of their projects. Once the forms are completed and submitted to individual counties, each county prioritizes potential projects on a county-wide basis prior to consideration by state and federal funding agencies. Obtaining a high ranking on a county-wide basis is important when federal funding sources are targeted for a project. The state funding programs administered by OECDD do not necessarily require a project to have a high ranking on the county-wide ranking list, but do require the projects be on the list.

Although the City of Stanfield has obtained a ranking in the 2003 Needs and Issues Inventory, the City should update the Needs and Issues Inventory. The 2004 prioritization (ranking) forms are due June 18, 2004, and the prioritization meeting will occur in July. On the fiscal year 2003 Needs and Issues Inventory for Umatilla County, the City of Stanfield's Wastewater System Improvements Project ranked No. 9 out of 25 projects. This is a

relatively good ranking, and the City needs to maintain or improve this ranking on the year 2004 Needs and Issues Inventory.

***Project Intake Process and One-Stop Meeting.*** OECDD utilizes a "Project Notification and Intake Form" to outline a community's project, including the needs, project requirements, affected area, estimated project cost, time frame, schedule, etc. OECDD evaluates the project based on information presented on the Intake Form to determine the best funding program suited to the project. A meeting called a "One-Stop Meeting" is then held at which OECDD presents the programs available to fund the project. After the One-Stop Meeting with representatives of the major funding agencies, OECDD may then invite the community to submit a funding application to the particular funding program identified by OECDD. The City of Stanfield will need to go through the process of completing and submitting a Project Notification and Intake Form with an OECDD representative to initiate the project funding process. The Project Intake process can be completed at any time, but should not be completed until the City has an approved planning document and is ready to pursue funding and move forward with an improvements project.

## **LOCAL FINANCING OPTIONS**

Regardless of the ultimate project scope and agency from which loan and grant funds are obtained, the City may need to develop authorization to incur debt, i.e., bonding, for the needed project improvements. The need to develop authorization to incur debt depends on funding agency requirements and provisions in the City charter. The RD program requires a City to obtain authorization to incur debt; however, OECDD does not require bonding.

There are generally two options the City may use for its bonding authority: general obligation bonds and revenue bonds. General obligation bonds require a vote of the people to give the City the authority to repay the debt service through tax assessments, sewer rate revenues, or a combination of both. The taxing authority of the City provides the guarantee for the debt. Revenue bonds are financed through revenues of the wastewater system. Authority to issue revenue bonds can come in two forms. One would be through a local bond election similar to that needed to sell a general obligation bond; the second would be through Council action authorizing the sale of revenue bonds, if the City charter allows. If citizens do not object to the bonding authority resolution during a 60-day remonstrance period, the City would have authority to sell these revenue bonds.

The RD program accepts either revenue bonds or general obligation bonds. As mentioned above, bonding is not required for OECDD programs. Due to current tax measure limitations in the State of Oregon, careful consultation with experienced, licensed bonding attorneys needs to be made if the City begins the process of obtaining bonding authority for the proposed wastewater system improvements.

## PROJECT IMPLEMENTATION

The following action items and implementation steps need to be made by the City of Stanfield to implement the proposed Wastewater System Improvements Project. The steps outlined are general in nature and include the major steps that need to be undertaken.

### ***Action Items***

1. The City will need to formally adopt this Wastewater System Study Update.
2. The City needs to consult with OECDD and, as necessary, complete the Project Notification and Intake Form and submit the form to OECDD to initiate funding discussions.
3. The City will need to investigate if authorization to incur debt for the Wastewater System Improvements Project is required by City charter. If authorization is required by City charter, the City will need to decide how to obtain the authorization to incur debt. Once decided (revenue bond or general obligation bond), a bond attorney should be consulted and the appropriate resolution paperwork should be prepared and considered for implementation.
4. The City needs to provide the necessary documentation and testimony in an effort to maintain or improve their high ranking in Umatilla County for the 2004 Needs and Issues prioritization process, which will occur in June and July.
5. The City will need to hold public information meetings to inform its citizens of the needs and scope of the project, to answer questions, and to generate support for the required sewer rate increase.

## IMPLEMENTATION STEPS

Should the City wish to proceed with a Wastewater System Improvements Project, the following Implementation Plan outlines the key steps the City would need to undertake to proceed with project implementation.

<u>ITEM</u>	<u>COMPLETION DATE</u>
1. Complete the 2004 Needs and Issues Inventory.	June 18, 2004
2. Initiate funding discussions with OECDD, RD, and other appropriate funding agencies.	Summer 2004

<b><u>ITEM</u></b>	<b><u>COMPLETION DATE</u></b>
3. Consult with OECDD and, as necessary, submit information to OECDD for completion of the Project Notification and Intake Form. Attend a "One-Stop Meeting" with OECDD in Salem.	Summer 2004
4. File with County Clerk for November election if election for a revenue bond or general obligation bond is necessary.	By September 2004
5. Hold public information meetings.	Summer 2004
6. If invited to by OECDD/RD, submit funding applications.	Summer/Fall 2004
7. Hold bond election (if election desired/required).	November 2004
8. Complete and submit the necessary environmental reports.	Fall 2004
9. Finalize project funding.	Winter 2004/Spring 2005
10. Complete project design.	December 31, 2005
11. Bid and award construction contract.	Winter 2006
12. Complete project construction.	Spring/Summer 2006
13. Close out project.	Fall 2006

The key to implementing part or all of the Wastewater System Improvements Project, as outlined in this chapter, is the ability of the City to acquire OECDD and/or RD low-interest loans coupled with grant funding. The total project will likely not be economically feasible to the City unless grant funds can be obtained. The City will have to work closely with its citizens to inform them of the system needs and the necessity for increased sewer user costs. Depending on the scope of improvements and the ultimate funding package selected, the City will need to plan on average user costs being in the range of approximately \$46.50 to \$48.50 per month, or annual property taxes increasing by approximately \$1.39 to \$1.99 per \$1,000 of tax assessed value (or some combination of the two), in order to obtain the loan and grant funds required to complete the project.

Wastewater system improvements as outlined in this Wastewater System Study Update will provide the City with a reliable, quality wastewater system that would meet the needs of the City for many years to come. The upgraded treatment facility will provide safer, more reliable operation and increased protection of the Umatilla River's water quality and public health.

ACCOUNT DESCRIPTION	ESTIMATED EDUs
<b>Non-Residential Users</b>	
A.E. Staley Manufacturing	1
Angel Auto Repair	1
Assembly of God Church	1
Auto Parts	1
Banner Bank	1
Baptist Church	1
Car Wash	1
Desert Springs Four Square Church	1
EDS Alternative School	1
Elephant's Trunk	1
Ferrall Gas, Inc.	1
Hair Shop	1
Honey Shack	1
Main Street Market	2
McFarland's Café	4.5
Mike's Custom Head Shop	1
Mike's Mobile Slaughter	1
Moose Lodge	1
Nichols Enterprise	0
Palate Palace	1
Pilot Corp R.V. Park*	0
Pilot Travel Center*	0
Presbyterian Church	1
Purple Pub	3
R&O Services	1
Stage Gulch R.V. Park	16.4
Stanfield Auto Body	1
Stanfield Elementary School (New)	30
Stanfield Elementary School (Old)	1
Stanfield Grange	1
Stanfield Irrigation District	1
Stanfield Laundromat	2
Stanfield Post Office	1
Stanfield Secondary School	30
Stanfield Senior Center	1
Stanfield Tavern	3
Teen Center	1
Timeless Treasures	1
Townsend RV Park	4
U.S. West Communications	1
<b>Subtotal, Non-Residential User EDUs</b>	<b>122.9</b>
<b>Multiple Users</b>	
Premier Apartments	15
North Slope Mobile Home Park	14
Sage Manor Apartments	18
<b>Subtotal, Multiple User EDUs</b>	<b>47</b>

\* Through an agreement with the City of Stanfield, the Pilot Corporation is currently paying a flat monthly fee (\$1,646 per month) for its contribution to the City sewer system, so it has not been included in this estimate of EDUs.

**Preliminary Sewer Rate Analysis  
for Loan Capacity**

Rates	Expenditures					Loan Capacity				
Average Monthly Residential Rate	Annual Revenue <sup>1</sup>	Estimated O&M Costs <sup>2</sup>	Estimated Replacement Costs	Approximate Existing Debt Service	Total Expenditures	Net Annual Funds (Revenue Less Expenditures)	Annual Loan Payment (Net Annual Funds Less 10% Reserve)	OECCD Funds Only <sup>3</sup>	OECCD and Rural Development Funds <sup>4</sup>	Rural Development Funds Only <sup>5</sup>
\$ 29.00	\$ 262,406	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 30.00	\$ 270,774	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 31.00	\$ 279,141	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 32.00	\$ 287,508	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 33.00	\$ 295,876	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 34.00	\$ 304,243	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 35.00	\$ 312,610	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 36.00	\$ 320,978	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 37.00	\$ 329,345	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 38.00	\$ 337,713	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 39.00	\$ 346,080	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 7,080	\$ 6,372	\$ 99,785	\$ -	\$ -
\$ 40.00	\$ 354,447	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 15,447	\$ 13,903	\$ 217,715	\$ 214,440	\$ 238,555
\$ 41.00	\$ 362,815	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 23,815	\$ 21,433	\$ 335,645	\$ 343,658	\$ 367,773
\$ 42.00	\$ 371,182	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 32,182	\$ 28,964	\$ 453,575	\$ 472,877	\$ 496,992
\$ 43.00	\$ 379,550	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 40,550	\$ 36,495	\$ 571,505	\$ 602,095	\$ 626,210
\$ 44.00	\$ 387,917	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 48,917	\$ 44,025	\$ 689,435	\$ 731,313	\$ 755,429
\$ 45.00	\$ 396,284	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 57,284	\$ 51,556	\$ 807,365	\$ 860,532	\$ 884,647
\$ 46.00	\$ 404,652	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 65,652	\$ 59,086	\$ 925,295	\$ 989,750	\$ 1,013,865
\$ 47.00	\$ 413,019	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 74,019	\$ 66,617	\$ 1,043,224	\$ 1,118,969	\$ 1,143,084
\$ 47.25	\$ 415,111	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 76,111	\$ 68,500	\$ 1,072,707	\$ 1,151,273	\$ 1,175,388
\$ 47.50	\$ 417,203	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 78,203	\$ 70,382	\$ 1,102,189	\$ 1,183,578	\$ 1,207,693
\$ 47.75	\$ 419,295	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 80,295	\$ 72,265	\$ 1,131,672	\$ 1,215,882	\$ 1,239,997
\$ 48.00	\$ 421,386	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 82,386	\$ 74,148	\$ 1,161,154	\$ 1,248,187	\$ 1,272,302
\$ 48.25	\$ 423,478	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 84,478	\$ 76,030	\$ 1,190,637	\$ 1,280,491	\$ 1,304,606
\$ 48.50	\$ 425,570	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 86,570	\$ 77,913	\$ 1,220,119	\$ 1,312,796	\$ 1,336,911
\$ 48.75	\$ 427,662	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 88,662	\$ 79,796	\$ 1,249,602	\$ 1,345,101	\$ 1,369,216
\$ 49.00	\$ 429,754	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 90,754	\$ 81,678	\$ 1,279,084	\$ 1,377,405	\$ 1,401,520
\$ 49.25	\$ 431,846	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 92,846	\$ 83,561	\$ 1,308,567	\$ 1,409,710	\$ 1,433,825
\$ 49.50	\$ 433,938	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 94,938	\$ 85,444	\$ 1,338,049	\$ 1,442,014	\$ 1,466,129
\$ 49.75	\$ 436,029	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 97,029	\$ 87,326	\$ 1,367,532	\$ 1,474,319	\$ 1,498,434
\$ 50.00	\$ 438,121	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 99,121	\$ 89,209	\$ 1,397,014	\$ 1,506,624	\$ 1,530,739
\$ 50.25	\$ 440,213	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 101,213	\$ 91,092	\$ 1,426,497	\$ 1,538,928	\$ 1,563,043
\$ 50.50	\$ 442,305	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 103,305	\$ 92,974	\$ 1,455,979	\$ 1,571,233	\$ 1,595,348
\$ 50.75	\$ 444,397	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 105,397	\$ 94,857	\$ 1,485,462	\$ 1,603,537	\$ 1,627,652
\$ 51.00	\$ 446,489	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 107,489	\$ 96,740	\$ 1,514,944	\$ 1,635,842	\$ 1,659,957
\$ 51.25	\$ 448,580	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 109,580	\$ 98,622	\$ 1,544,427	\$ 1,668,147	\$ 1,692,262
\$ 51.50	\$ 450,672	\$ 244,000	\$ 6,000	\$ 89,000.00	\$ 339,000.00	\$ 111,672	\$ 100,505	\$ 1,573,909	\$ 1,700,451	\$ 1,724,566

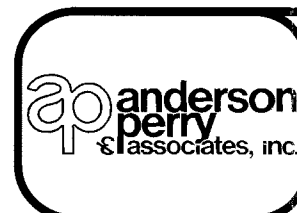
<sup>1</sup> Revenue = (559R + 38x2.70R + 3x11.86R) x 12 months + (\$1,646/month \* 12 months)  
[R = Average Residential Rate; \$1,646/month = Pilot payment]

<sup>2</sup> Projected costs for year 2006.

<sup>3</sup> This column applies to the loan portion of Alternative A (funding through OECCD Water/Wastewater grant and loan funds only).

<sup>4</sup> This column applies to the loan portion of Alternatives B and C (funding through OECCD grants and loans, with a Rural Development loan or Rural Development loan and grant funding). Note that loan amounts through the two programs are combined in this

<sup>5</sup> This column applies to the loan portion of Alternative D (funding through Rural Development grant and loan funds only).



CITY OF  
STANFIELD, OREGON  
WASTEWATER SYSTEM STUDY UPDATE  
SEWER RATE ANALYSIS FOR  
LOAN CAPACITY

**TABLE  
4-2**

**Preliminary Property Tax Analysis  
for Sewer System Bonding Capacity**

**OECD - Water/Wastewater Financing Program Loan**

<b>Loan Amount</b>	<b>Interest Rate</b>	<b>Loan Period</b>	<b>Annual Payment</b>	<b>Estimated Annual Tax Rate Increase per \$1,000<sup>1</sup></b>	<b>Annual Tax Rate Increase for a \$100,000 Home</b>	<b>Equivalent Cost per Month</b>
\$250,000	5%	25 Yrs	\$17,750	\$0.42	\$42.00	\$3.50
\$1,000,000	5%	25 Yrs	\$71,000	\$1.68	\$168.00	\$14.00
\$1,100,000	5%	25 Yrs	\$78,100	\$1.85	\$185.00	\$15.42
\$1,200,000	5%	25 Yrs	\$85,200	\$2.02	\$202.00	\$16.83
\$1,300,000	5%	25 Yrs	\$92,300	\$2.19	\$219.00	\$18.25
\$1,400,000	5%	25 Yrs	\$99,400	\$2.36	\$236.00	\$19.67
\$1,500,000	5%	25 Yrs	\$106,500	\$2.53	\$253.00	\$21.08
\$1,600,000	5%	25 Yrs	\$113,600	\$2.69	\$269.00	\$22.42

**USDA - Rural Development Loan<sup>2</sup>**

<b>Loan Amount</b>	<b>Interest Rate</b>	<b>Loan Period</b>	<b>Annual Payment</b>	<b>Estimated Annual Tax Rate Increase per \$1,000<sup>1</sup></b>	<b>Annual Tax Rate Increase for a \$100,000 Home</b>	<b>Equivalent Cost per Month</b>
\$1,200,000	5%	40 Yrs	\$69,960	\$1.66	\$166.00	\$13.83
\$1,300,000	5%	40 Yrs	\$75,790	\$1.80	\$180.00	\$15.00
\$1,400,000	5%	40 Yrs	\$81,620	\$1.94	\$194.00	\$16.17
\$1,500,000	5%	40 Yrs	\$87,450	\$2.07	\$207.00	\$17.25
\$1,600,000	5%	40 Yrs	\$93,280	\$2.21	\$221.00	\$18.42
\$1,700,000	5%	40 Yrs	\$99,110	\$2.35	\$235.00	\$19.58

<sup>1</sup> The annual tax rate increase is based on the City of Stanfield's assessed valuation of \$42,177,730. It was also assumed that 100 percent of taxes would be collected. Typically a small percentage of taxes are not paid, which would make the estimated tax rate increase slightly higher.

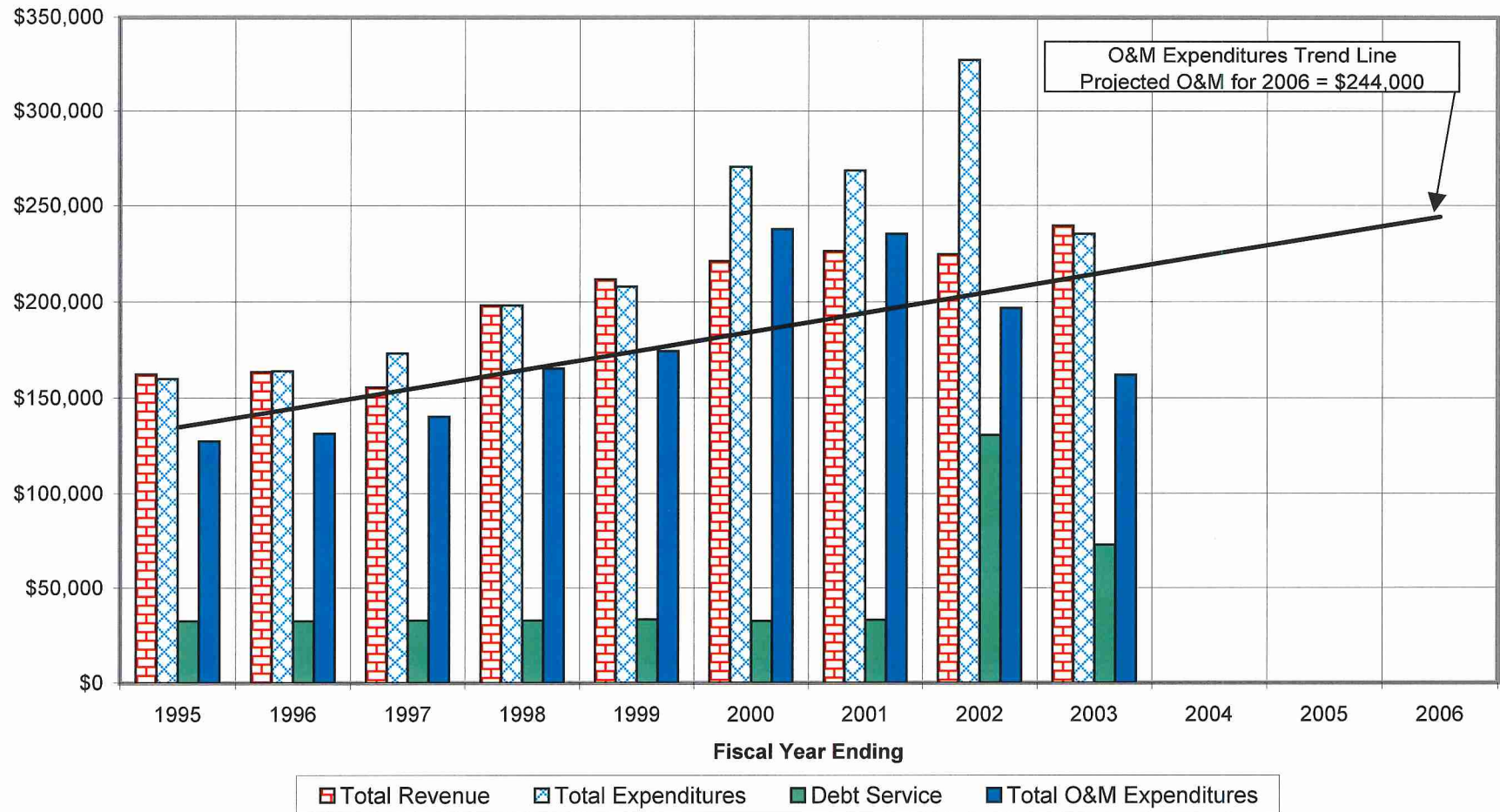
<sup>2</sup> Assumes 10 percent reserve payment not required.



### Funding Scenarios Comparison

	Alternative A	Alternative B	Alternative C	Alternative D
Funding through OECDD Water/ Wastewater Financing Program Loan	\$250,000 Grant \$1,519,500 Loan	\$250,000 Grant \$250,000 Loan	\$250,000 Grant \$250,000 Loan	None
Funding through USDA Rural Development Loan	None	1,269,500 Loan	\$317,375 Grant \$952,125 Loan	\$442,375 Grant \$1,327,125 Loan
Annual Loan Payments and Number of Years	\$98,600 for 25 years	\$91,000 for 25 years then \$74,150 for 15 years	\$72,265 for 25 years then \$65,000 for 15 years	\$77,900 for 40 years
Approximate Average Monthly Rate for Sewer Use	\$51.25	\$50.25	\$47.75	\$48.50
Estimated Annual Tax Rate Increase Per \$1,000	\$2.53	\$2.22	\$1.73	\$1.80

## Historical and Projected Sewer Budget



# **APPENDIX A**

## **NPDES PERMIT**

Expiration Date: August 31, 2008

Permit Number: 101136

File Number: 84405

Page 1 of 18 Pages

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
WASTE DISCHARGE PERMIT**

Department of Environmental Quality  
Eastern Region - Pendleton Office  
700 SE Emigrant, Suite 330, Pendleton, OR 97801  
Telephone: (541) 276-4063

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

**ISSUED TO:**

City of Stanfield  
PO Box 369  
Stanfield, OR 97875

**SOURCES COVERED BY THIS PERMIT:**

Type of Waste	Outfall Number	Outfall Location
Treated Wastewater	001	R.M. 1.0
Reclaimed Water Reuse	002	Hoosier Road
Biosolids	003	Transfer to another treatment plant

**FACILITY TYPE AND LOCATION:**

Trickling Filter  
Stanfield STP  
North Sherman and Hinkle Rd.  
Stanfield

**RECEIVING STREAM INFORMATION:**

Basin: Umatilla  
Sub-Basin: Umatilla  
Receiving Stream: Stage Gulch  
LLID: 1192115457822-1.0-D  
County: Umatilla

Treatment System Class: Level II

Collection System Class: Level II

EPA REFERENCE NO: OR002697-2

Issued in response to Application No. 991886 received September 29, 1997.

This permit is issued based on the land use findings in the permit record.



D. Mitch Wolgamott, Acting Water Quality Manager  
Eastern Region

September 2, 2003  
Date

**PERMITTED ACTIVITIES**

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system and discharge to public waters adequately treated wastewaters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	Page
Schedule A - Waste Discharge Limitations not to be Exceeded .....	2-3
Schedule B - Minimum Monitoring and Reporting Requirements .....	4-5
Schedule C - Compliance Conditions and Schedules .....	6
Schedule D - Special Conditions .....	7-8
Schedule E - Not Applicable .....	—
Schedule F - General Conditions .....	9-18

Unless specifically authorized by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge to waters of the state is prohibited, including discharge to an underground injection control system.

## SCHEDULE A

## 1. Waste Discharge Limitations not to be exceeded after permit issuance.

## a. Treated Effluent Outfall 001

- (1) May 1 - October 31: No discharge to waters of the State (unless approved in writing by the Department)
- (2) November 1 - April 30:

Parameter	Average Effluent Concentrations		Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
	Monthly	Weekly			
BOD <sub>5</sub>	30 mg/L	45 mg/L	56	84	110
TSS	45 mg/L	65 mg/L	84	130	170

\* Average dry weather design flow to the facility equals .224 MGD. Mass load limits have been individually assigned and are based upon prior permit.

(3)

Other parameters (year-round)	Limitations
<i>E. coli</i> Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 1)
pH	Shall be within the range of 6.0 - 9.0
BOD <sub>5</sub> Removal Efficiency	Shall not be less than 85% monthly average.
TSS Removal Efficiency	Shall not be less than 65% monthly average
Total residual chlorine	Shall not exceed a monthly average of 0.03 mg/L and a daily maximum of 0.06 mg/L

- (4) Except as provided for in OAR 340-45-080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-41-0645 except in the following defined mixing zone:

The allowable mixing zone is that portion of Stage Gulch contained within a band extending not greater than 50% and extending from the outfall to a point fifty (50) feet downstream from the outfall. In addition the Zone of Immediate Dilution (ZID) shall not exceed 10 percent of the defined mixing zone. (See Note 2)

- (5) Temperature Limits

The discharge is only during the winter season, so there is no thermal load limit on the discharge.

## b. Reclaimed Wastewater Outfall 002

File Number: 84405

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- (1) From approximately May 1-October 31. All reclaimed water shall be distributed on land, for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:
  - a. Prolonged ponding of treated reclaimed water on the ground surface;
  - b. Surface runoff or subsurface drainage through drainage tile;
  - c. The creation of odors, fly and mosquito breeding or other nuisance conditions;
  - d. The overloading of land with nutrients, organics, or other pollutant parameters; and,
  - e. Impairment of existing or potential beneficial uses of groundwater.
- (2) Prior to land application of the reclaimed water, it shall receive at least level II treatment as defined in OAR 340-055 and in accordance with OAR 340-041:

For sewage treatment plants that are authorized to use reclaimed water and which also use a storage pond as a means to dechlorinate their effluent prior to discharge to public waters, effluent limitations for bacteria shall be based upon appropriate total coliform limits: no two consecutive samples shall exceed 240 total coliform per 100 ml. However, no violation will be found for an exceedance if the permittee takes at least five consecutive re-samples at no greater than four hour intervals beginning as soon as practicable (preferably within 28 hours) after the original sample(s) were taken; and the log mean of the five re-samples is less than or equal to 23 total coliform per 100 ml.

- (3) Irrigation shall conform to the irrigation management plan approved by the Department.

**NOTES:**

1. If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at no greater than four-hour intervals beginning within 28 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.
2. When the permittee completes a dilution and mixing zone study as required by Schedule C, Condition 1, the Department will reopen this permit and amend the total chlorine residual and ammonia limits, the mixing zone and ZID as appropriate.

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**SCHEDULE B**

1. **Minimum Monitoring and Reporting Requirements** (unless otherwise approved in writing by the Department).

## a. Influent

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Flow Meter Calibration	Annually	Verification
BOD <sub>5</sub>	Weekly	Composite (See Note 1)
TSS	Weekly	Composite (See Note 1)
pH	2/Week	Grab

## b. Treated Effluent Outfall 001 (when discharging)

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Flow Meter Calibration	Annual	Verification
BOD <sub>5</sub>	Weekly	Composite
TSS	Weekly	Composite
pH	2/Week	Grab
<i>E. coli</i>	Weekly	Grab (See Note 2)
Quantity Chlorine Used	Daily	Measurement
Chlorine Residual	Daily	Grab
Pounds Discharged (BOD <sub>5</sub> and TSS)	Weekly	Calculation
Average Percent Removed (BOD <sub>5</sub> and TSS)	Monthly	Calculation
NH <sub>3</sub> -N	Monthly	Grab

## c. Biosolids Management

Item or Parameter	Minimum Frequency	Type of Sample
Solids pumped from treatment system	Each Occurrence	Date, volume (gallons), percent solids, hauler, transfer point

## d. Reclaimed Wastewater Outfall 002 (when discharging)

Item or Parameter	Minimum Frequency	Type of Sample
Quantity Irrigated (inches/acre)	Daily	Measurement
Flow Meter Calibration	Annually	Verification
Quantity Chlorine Used	Daily	Measurement
Chlorine Residual	Daily	Grab
pH	2/Week	Grab
Total Coliform	1/Week	Grab
Nutrients (TKN, NO <sub>2</sub> -N, NO <sub>3</sub> -N)	Quarterly	Grab

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## 2. Reporting Procedures

- a. Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the Department's Eastern Region - Pendleton office by the 15th day of the following month.
- b. State monitoring reports shall identify the name, certificate classification and grade level of each principal operator designated by the permittee as responsible for supervising the wastewater collection and treatment systems during the reporting period. Monitoring reports shall also identify each system classification as found on page one of this permit.
- c. Monitoring reports shall also include a record of the quantity and method of use of all sludge removed from the treatment facility and a record of all applicable equipment breakdowns and bypassing.

## 3. Report Submittals

- a. The permittee shall have in place a program to identify and reduce inflow and infiltration into the sewage collection system. An annual report shall be submitted to the Department by **February 1** each year which details sewer collection maintenance activities that reduce inflow and infiltration. The report shall state those activities that have been done in the previous year and those activities planned for the following year.
- b. By no later than **February 1** of each year, the permittee shall submit to the Department an annual report describing the effectiveness of the reclaimed water system to comply with approved reclaimed water use plan, the rules of Division 55, and the limitations and conditions of this permit applicable to reuse of reclaimed water.

## NOTES:

1. Composite samples shall consist of combining no less than four grab samples obtained at not less than two-hour intervals during an eight-hour period between 0600 and 1800 hours.
2. *E. coli* monitoring must be conducted according to any of the following test procedures as specified in **Standard Methods for the Examination of Water and Wastewater, 19th Edition**, or according to any test procedure that has been authorized and approved in writing by the Director or his authorized representative:

Method	Reference	Page	Method Number
mTEC agar, MF	Standard Methods, 18th Edition	9-29	9213 D
NA-MUG, MF	Standard Methods, 19th Edition	9-63	9222 G
Chromogenic Substrate, MPN	Standard Methods, 19th Edition	9-65	9223 B
Colilert QT	Idexx Laboratories, Inc.		



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### **SCHEDULE C**

#### **Compliance Schedules and Conditions**

1. By no later than **January 31, 2006**, the permittee shall submit to the Department a mixing zone dilution study demonstrating that the facility complies with all water quality standards at the edge of the mixing zone. If the facility cannot comply with all standards the mixing zone study report shall include an approvable plan to bring the facility into compliance with these standards.

The mixing zone dilution study should be conducted through a dye study or an approved and verified mathematical model and should include a characterization of the zone of immediate dilution and the mixing zone boundary. The study shall include an evaluation of the dispersion, mixing and dilution of the discharged effluent and should be conducted during critical low flow conditions while discharging.

2. The permittee is expected to meet the compliance dates which have been established in this schedule. Either prior to or no later than 14 days following any lapsed compliance date, the permittee shall submit to the Department a notice of compliance or noncompliance with the established schedule. The Director may revise a schedule of compliance if he determines good and valid cause resulting from events over which the permittee has little or no control.

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### SCHEDULE D

#### Special Conditions

1. The permittee shall meet the requirements for use of reclaimed water under Division 55, including the following:
    - a. All reclaimed water shall be managed in accordance with the approved Reclaimed Water Use Plan. No substantial changes shall be made in the approved plan without written approval of the Department.
    - b. No reclaimed water shall be released by the permittee to another person, as defined in Oregon Revised Statute (ORS) 468.005, for use unless there is a valid contract between the permittee and that person that meets the requirements of OAR 340-55-015(9).
    - c. The permittee shall notify the Department within 24 hours if it is determined that the treated effluent is being used in a manner not in compliance with OAR 340-55. When the Department offices are not open, the permittee shall report the incident of noncompliance to the Oregon Emergency Response System (Telephone Number 1-800-452-0311).
    - d. No reclaimed water shall be made available to a person proposing to recycle unless that person certifies in writing that they have read and understand the provisions in these rules. This written certification shall be kept on file by the sewage treatment system owner and be made available to the Department for inspection.
  2. The permittee shall comply with Oregon Administrative Rules (OAR), Chapter 340, Division 49, "Regulations Pertaining To Certification of Wastewater System Operator Personnel" and accordingly:
    - a. The permittee shall have its wastewater system supervised by one or more operators who are certified in a classification and grade level (equal to or greater) that corresponds with the classification (collection and/or treatment) of the system to be supervised as specified on page one of this permit.
- Note:** A "supervisor" is defined as the person exercising authority for establishing and executing the specific practice and procedures of operating the system in accordance with the policies of the permittee and requirements of the waste discharge permit. "Supervise" means responsible for the technical operation of a system, which may affect its performance or the quality of the effluent produced. Supervisors are not required to be on-site at all times.
- b. The permittee's wastewater system may not be without supervision (as required by Special Condition 3.a. above) for more than thirty (30) days. During this period, and at any time that the supervisor is not available to respond on-site (i.e. vacation, sick leave or off-call), the permittee must make available another person who is certified in the proper classification and at grade level I or higher.
  - c. The permittee is responsible for ensuring the wastewater system has a properly certified supervisor available at all times to respond on-site at the request of the permittee and to any other operator.
  - d. The permittee shall notify the Department of Environmental Quality in writing within thirty (30) days of replacement or redesignation of certified operators responsible for supervising wastewater system operation. The notice shall be filed with the Water Quality Division, Operator Certification Program, 811 SW 6th Ave, Portland, OR 97204. This requirement is in addition to the reporting requirements contained under Schedule B of this permit.

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- e. Upon written request, the Department may grant the permittee reasonable time, not to exceed 120 days, to obtain the services of a qualified person to supervise the wastewater system. The written request must include justification for the time needed, a schedule for recruiting and hiring, the date the system supervisor availability ceased and the name of the alternate system supervisor(s) as required by 3.b. above.
3. All biosolids or septage shall be managed in accordance with the current biosolids or septage management plan approved by the Department and the site authorization letters issued by the Department. The biosolids or septage management plan shall be kept current and remain on file with the permit. No substantial changes shall be made in solids management activities which significantly differ from operations specified under the approved plan without the prior written approval of the Department.
4. The permittee shall notify the DEQ Eastern Region - Pendleton Office (phone: (541) 276-4063) in accordance with the response times noted in the General Conditions of this permit, of any malfunction so that corrective action can be coordinated between the permittee and the Department.
5. An adequate contingency plan for prevention and handling of spills and unplanned discharges shall be in force at all times. A continuing program of employee orientation and education shall be maintained to ensure awareness of the necessity of good inplant control and quick and proper action in the event of a spill or accident.
6. The permittee shall not be required to perform a hydrogeologic characterization or groundwater monitoring during the term of this permit provided:
  - a. The facilities are operated in accordance with the permit conditions, and;
  - b. There are no adverse groundwater quality impacts (complaints or other indirect evidence) resulting from the facility's operation.

If warranted, at permit renewal the Department may evaluate the need for a full assessment of the facilities impact on groundwater quality.
7. The Department may reopen this permit, if necessary, to include new or revised conditions.

**NPDES GENERAL CONDITIONS  
(SCHEDULE F)****SECTION A. STANDARD CONDITIONS****1. Duty to Comply**

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

**2. Penalties for Water Pollution and Permit Condition Violations**

Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to \$10,000 per day for violation of a term, condition, or requirement of a permit.

In addition, a person who unlawfully pollutes water as specified in ORS 468.943 or ORS 468.946 is subject to criminal prosecution.

**3. Duty to Mitigate**

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

**4. Duty to Reapply**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

**5. Permit Actions**

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

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6. Toxic Pollutants

The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

**SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS**

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur

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in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

(1) Bypass is prohibited unless:

- (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
- (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- (c) The permittee submitted notices and requests as required under General Condition B.3.c.

(2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - (1) An upset occurred and that the permittee can identify the causes(s) of the upset;

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- (2) The permitted facility was at the time being properly operated;
  - (3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
  - (4) The permittee complied with any remedial measures required under General Condition A.3 hereof.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions

- (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
- (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:

- (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
- (3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

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- c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.
- d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

**SECTION C. MONITORING AND RECORDS**

1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than  $\pm 10$  percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years or both.



5. Reporting of Monitoring Results

Monitoring results shall be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports shall be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value shall be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

9. Records Contents

Records of monitoring information shall include:

- a. The date, exact place, time and methods of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:

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- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

#### **SECTION D. REPORTING REQUIREMENTS**

##### **1. Planned Changes**

The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

##### **2. Anticipated Noncompliance**

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

##### **3. Transfers**

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

##### **4. Compliance Schedule**

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

##### **5. Twenty-Four Hour Reporting**

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under

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ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission shall contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected;
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
- e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass which exceeds any effluent limitation in this permit.
- b. Any upset which exceeds any effluent limitation in this permit.
- c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

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8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. Falsification of Information

A person who supplies the Department with false information, or omits material or required information, as specified in ORS 468.953 is subject to criminal prosecution.

10. Changes to Indirect Dischargers - [Applicable to Publicly Owned Treatment Works (POTW) only]

The permittee must provide adequate notice to the Department of the following:

- a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;
- b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

11. Changes to Discharges of Toxic Pollutant - [Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]

The permittee must notify the Department as soon as they know or have reason to believe of the following:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - (1) One hundred micrograms per liter (100 µg/L);
  - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
  - (4) The level established by the Department in accordance with 40 CFR 122.44(f).
- b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - (1) Five hundred micrograms per liter (500 µg/L);
  - (2) One milligram per liter (1 mg/L) for antimony;
  - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

- (4) The level established by the Department in accordance with 40 CFR 122.44(f).

**SECTION E. DEFINITIONS**

1. BOD means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. mg/L means milligrams per liter.
4. kg means kilograms.
5. m<sup>3</sup>/d means cubic meters per day.
6. MGD means million gallons per day.
7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
8. FC means fecal coliform bacteria.
9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.
10. CBOD means five day carbonaceous biochemical oxygen demand.
11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
12. Quarter means January through March, April through June, July through September, or October through December.
13. Month means calendar month.
14. Week means a calendar week of Sunday through Saturday.
15. Total residual chlorine means combined chlorine forms plus free residual chlorine.
16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
17. POTW means a publicly owned treatment works.

# **APPENDIX B**

## **MUTUAL AGREEMENT AND ORDER**

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION  
OF THE STATE OF OREGON

IN THE MATTER OF:	)	MUTUAL AGREEMENT
	)	AND ORDER
THE CITY OF STANFIELD	)	No. WQ/M-ER-04-045
	)	UMATILLA COUNTY
	)	

WHEREAS:

1. The City of Stanfield (City or Stanfield) owns and operates a domestic wastewater collection and treatment facility (WWTF) consisting of a sewer collection system, spiragester, trickling filter, secondary clarifiers, drying beds, and irrigation system.

2. On September 2, 2003, the Oregon Department of Environmental Quality (Department or DEQ) issued National Pollutant Discharge Elimination System (NPDES) Permit #101136 (Permit) to the City, in response to a permit renewal application received on September 29, 1997. The Permit authorizes the City to construct, install, modify, or operate a wastewater collection, treatment, control, and disposal system with discharge to public waters in conformance with the requirements, limitations, and conditions set forth in the Permit. The Department issued the Permit pursuant to Oregon Revised Statute (ORS) 468B.050. The Permit has an expiration date of August 31, 2008.

3. Condition 1 of Schedule A of the Permit requires that the treatment facilities not exceed waste discharge limitations for five-day biochemical oxygen demand (BOD5), Total Suspended Solids (TSS), *Escherichia coli* (*E. coli*) bacteria, pH, percent removal efficiencies for BOD5 and TSS, and total residual chlorine. The existing NPDES permit authorizes the City to discharge treated effluent into Stage Gulch, so long as the City meets in-stream water quality standards, from November 1 to April 30. During the rest of the year, the Permit requires the City to land apply the wastewater on local agricultural land owned by the City.

4. On December 9, 2002, the Department issued a notice of noncompliance (NON) to the City for failing to meet Permit Schedule A effluent limitations for total chlorine residual, total coliform

1 bacteria, and BOD5; failing to monitor some of the required parameters in Schedule B; and submitting  
2 incomplete discharge monitoring reports.

3 5. During the period that the current and previous Permits have been in effect, the City has not  
4 been able to consistently meet the total coliform, *E. coli*, total chlorine residual, BOD5, and average percent  
5 removal limits.

6 6. The Department and the City recognize that until new or modified facilities are constructed  
7 and put into full operation, the City will continue to violate the permit limitations for total coliform, *E. coli*,  
8 total chlorine residual, BOD5, and percent removal efficiency.

9 7. The Department and City recognize that the Environmental Quality Commission has  
10 the power to impose a civil penalty and to issue an abatement order for violations of conditions of the  
11 Permit. Therefore, pursuant to ORS 183.415(5), the Department and City wish to settle those past  
12 violations referred to in Paragraphs 4 and 5 and to limit and resolve the future violations referred to in  
13 Paragraph 6 in advance by this MAO.

14 8. This MAO is not intended to limit, in any way, the Department's right to proceed against  
15 the City in any forum for any past or future violations not expressly settled herein.

16 NOW THEREFORE, it is stipulated and agreed that:

17 9. The EQC shall issue a final order:

18 A. Requiring the City to comply with the following schedule:

19 i) By no later than December 31, 2005, the City shall submit to the  
20 Department for review and approval a proposal to upgrade the WWTF including  
21 engineering plans and specifications.

22 ii) Within two (2) years of the Department's approval of the plans and  
23 specifications, the City shall complete the upgrade of the WWTF according to  
24 the plans and specifications.

25 iii) The City shall operate and maintain the wastewater collection, treatment,  
26 and disposal systems as properly and efficiently as possible at all times.

27 B. Requiring the City to meet the following interim effluent limitations as



measured in the permit until the WWTF upgrade is completed:

Parameter	Effluent Limitation
BOD5 effluent concentrations	80 mg/l monthly average, 75 mg/l weekly average
BOD5 mass load limits	400 lbs/day monthly avg., 500 lbs/day weekly avg., 600 lbs/day daily avg.
TSS effluent concentrations	80 mg/l monthly average, 75 mg/l weekly average
TSS mass load limits	500 lbs/day monthly avg., 600 lbs/day weekly, 700 lbs/day daily avg.
BOD5 % removal efficiency	65% monthly average
<i>Eschericia coli (E. coli)</i>	<ul style="list-style-type: none"> <li>The City shall demonstrate disinfection by monthly monitoring for <i>E. coli</i>.</li> <li>The City shall disinfect to maintain <i>E. coli</i> concentrations as low as practicable.</li> </ul>
Total residual chlorine	<p>The City shall maintain residual chlorine greater than or equal to 0.4 mg/L immediately downstream of the chlorine contact chamber and prior to pumping the disinfected effluent to the reclaimed water storage pond.</p> <p>The effluent discharged to Stage Gulch shall be maintained at residual chlorine less than or equal to 0.3 mg/L.</p>
Total Coliform	<ul style="list-style-type: none"> <li>The City shall demonstrate disinfection by monthly monitoring for total coliform.</li> <li>The City shall disinfect to maintain total coliform concentrations as low as practicable.</li> </ul>

C. Requiring the City, upon receipt of a written Penalty Demand Notice from the Department, to pay the following civil penalties:

1 (1) \$250 for each day of each violation of the compliance schedule set  
2 forth in Paragraph 9A.

3 (2) \$100 for each violation of each daily or weekly average waste  
4 discharge limitation set forth in Paragraph 5.

5 (3) \$500 for each violation of each monthly average waste discharge  
6 limitation set forth in Paragraph 9.B.

7 10. If any event occurs that is beyond the City's reasonable control and that causes or may  
8 cause a delay or deviation in performance of the requirements of this MAO, the City shall immediately  
9 notify the Department verbally of the cause of delay or deviation and its anticipated duration, the  
10 measures that have been or will be taken to prevent or minimize the delay or deviation, and the  
11 timetable by which the City proposes to carry out such measures. The City shall confirm in writing  
12 this information within five (5) working days of the onset of the event. It is the City's responsibility in  
13 the written notification to demonstrate to the Department's satisfaction that the delay or deviation has  
14 been or will be caused by circumstances beyond the control and despite due diligence of the City. If  
15 the City so demonstrates, the Department shall extend times of performance of related activities under  
16 this MAO as appropriate. Circumstances or events beyond the City's control include, but are not  
17 limited to, acts of nature, unforeseen strikes, work stoppages, fires, explosion, riot, sabotage, or war.  
18 Increased cost of performance or consultant's failure to provide timely reports may not be considered  
19 circumstances beyond the City's control.

20 11. Regarding the violations set forth in Paragraphs 4, 5 and 6 above, which are expressly  
21 settled herein without penalty, the City and the Department hereby waive any and all of their rights to  
22 any and all notices, hearing, judicial review, and to service of a copy of the final order herein. The  
23 Department reserves the right to enforce this order through appropriate administrative and judicial  
24 proceedings.

25 12. Regarding the schedule set forth in Paragraph 9.A above, the City acknowledges that  
26 the City is responsible for complying with that schedule regardless of the availability of any federal or  
27 state grant monies.

13. The terms of this MAO may be amended by the mutual agreement of the Department and the City.

14. The Department may amend the compliance schedule and conditions in this MAO upon finding that such modification is necessary because of changed circumstances or to protect public health and the environment. The Department shall provide the City a minimum of thirty (30) days written notice prior to issuing an Amended Order modifying any compliance schedules or conditions. If the City contests the Amended Order, the applicable procedures for conduct of contested cases in such matters shall apply.

15. This MAO shall be binding on the parties and their respective successors, agents, and assigns. The undersigned representative of each party certifies that he or she is fully authorized to execute and bind such party to this MAO. No change in ownership or corporate or partnership status relating to the facility shall in any way alter the City's obligations under this MAO, unless otherwise approved in writing by DEQ.

16. All reports, notices and other communications required under or relating to this MAO should be directed to: Heidi Williams, Oregon Department of Environmental Quality, ER-Pendleton office at 700 SE Emigrant, #330, Pendleton, OR 97801, telephone number 541-278-4608. The contact person for the City shall be Scott Morris, P.O. Box 369, Stanfield, OR 97875, at 541-567-3481.

17. The City acknowledges that it has actual notice of the contents and requirements of the MAO and that failure to fulfill any of the requirements hereof would constitute a violation of this MAO and subject the City to payment of civil penalties pursuant to Paragraph 9.C above.

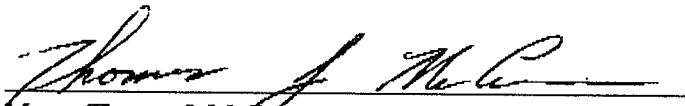
18. Any stipulated civil penalty imposed pursuant to Paragraph 9.C shall be due upon written demand. Stipulated civil penalties shall be paid by check or money order made payable to the "Oregon State Treasurer" and sent to: Business Office, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon 97204. Within 21 days of receipt of a "Demand for Payment of Stipulated Civil Penalty" Notice from the Department, the City may request a hearing to contest the Demand Notice. At any such hearing, the issue shall be limited to the City's compliance or non-compliance with this MAO. The amount of each stipulated civil penalty for each violation and/or day

1 of violation is established in advance by this MAO and shall not be a contestable issue.

2 19. Providing the City has paid in full all stipulated civil penalties pursuant to Paragraph 18  
3 above, this MAO shall terminate 60 days after the City demonstrates full compliance with the  
4 requirements of the schedule set forth in Paragraph 9.A above.

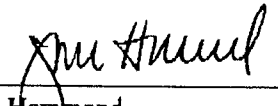
5  
6 **CITY OF STANFIELD**

7  
8  
9 04-12-04  
10 Date

  
11 Mayor Thomas J. McCann  
12 City of Stanfield

13 **DEPARTMENT OF ENVIRONMENTAL QUALITY**

14  
15 4-13-04  
16 Date

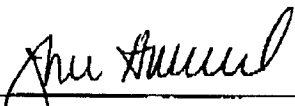
  
17 Joni Hammond  
18 Eastern Region Administrator

19 **FINAL ORDER**

20 IT IS SO ORDERED:

21 **ENVIRONMENTAL QUALITY COMMISSION**

22  
23  
24  
25 4-13-04  
26 Date

  
27 Joni Hammond, Eastern Region Administrator  
Department of Environmental Quality  
Pursuant to OAR 340-11-136(1)