CITY OF WENATCHEE

CHELAN COUNTY **WASHINGTON**

SEWER COMPREHENSIVE PLAN

G&O #16030
May 2017

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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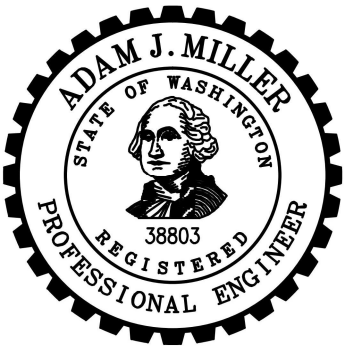

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CHAPTER 1

INTRODUCTION

This *Sewer Comprehensive Plan* (*2017 Plan*) for the City of Wenatchee (City) addresses the City's planning needs for wastewater collection, transmission, treatment, and disposal for the 20-year planning period. This *2017 Plan* was prepared in accordance with the provisions of the Revised Code of Washington (RCW) Section 90.48, *Water Pollution Control*, Washington Administrative Code (WAC) Section 173-240-050, *General Sewer Plan*, and WAC 173-240-060, *Engineering Report*. Development of the *2017 Plan* has been coordinated with the City of Wenatchee's *Comprehensive Water System Plan* (2012) and the *2016 Wastewater Treatment Plant Facilities Plan.*

The *2017 Plan* provides proposed conceptual designs, cost estimates, a schedule, and a financing plan for recommended major system improvements. A State Environmental Policy Act (SEPA) checklist is provided in Appendix A. The projects described in the *2017 Plan* are consistent with Washington State regulations relating to the prevention and control of discharge of pollutants into waters of the state, anti-degradation of existing and future beneficial uses of groundwater, and anti-degradation of surface water.

The City of Wenatchee is located on the eastern edge of Chelan County in central Washington State as shown in Figure 1-1.

SCOPE OF WORK

The *2017 Plan* addresses the wastewater collection system and the wastewater treatment system. This evaluation includes collection system modeling, analysis, and a capital improvement plan with cost analysis and a schedule. The *2017 Plan* includes the following chapters:

Chapter 1 – Introduction
Chapter 2 – Land Use, Population Projections, and Service Area Characteristics
Chapter 3 – Regulatory Requirements
Chapter 4 – Existing Facilities
Chapter 5 – Wastewater Flow and Loading Projections and Design Criteria
Chapter 6 – Collection System Analysis
Chapter 7 – Wastewater Treatment Plant Analysis
Chapter 8 – Operations and Maintenance
Chapter 9 – Capital Improvement
Chapter 10 – Financial Plan

RELATED PLANNING DOCUMENTS

The documents described below were consulted in the preparation of this General Sewer Plan.

GROWTH MANAGEMENT ACT (GMA) RELATED PLANS, POLICIES AND DEVELOPMENT REGULATIONS

Wenatchee Urban Area Comprehensive Plan, City of Wenatchee (Amended December 2014)

The Wenatchee Urban Area Comprehensive Plan provides a comprehensive vision for life in Wenatchee in the year 2025. This comprehensive vision for Wenatchee will be used as a guide for the development of future goals and policies to be enacted. The vision addresses three important areas concerning Wenatchee's future including economic development, quality of life and learning/human services. Sanitary sewer specific related portions of the Plan include a policy for working to ensure that sewer systems are extended to the urban area of Olds Station and Sunnyslope in a timely manner without a required annexation (per the City/County agreement), discussion of reusing treated wastewater, evaluating emerging technologies related to the sewer industry, encouraging connections to the City sewer system within the city limits. The three specific policy goals for sanitary sewer include maintaining and updating the collection and treatment system, developing strategies for extension into urban areas including Sunnyslope, and protecting the waterfront and park by minimizing odors and addressing visual impacts related to the WWTP.

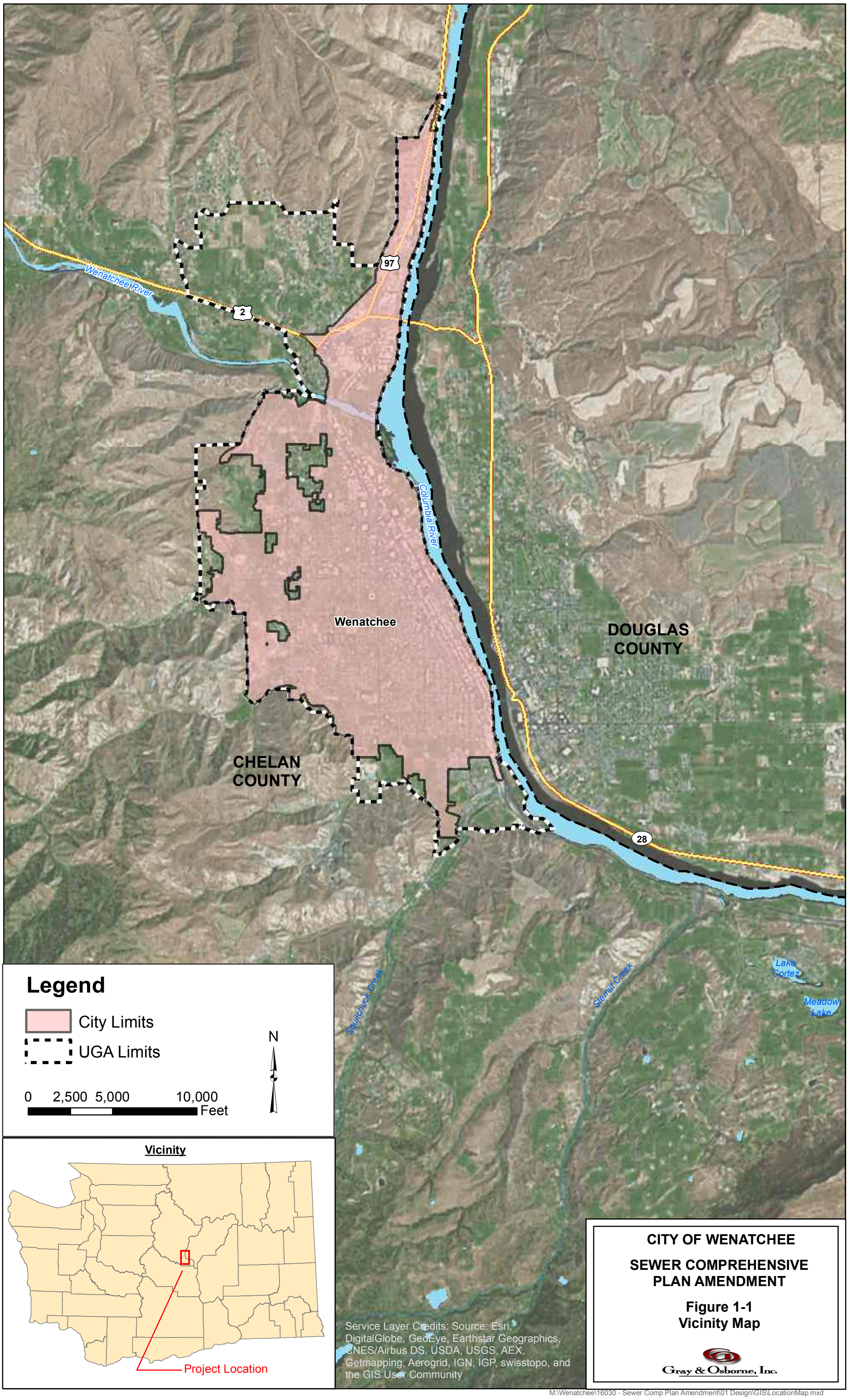
Capital Facilities Plan (CFP), City of Wenatchee (December 2016)

The CFP provides a comprehensive project list and schedule guiding the investment of City resources in infrastructure. These resources are made up of local revenues as well as State and Federal grants. The CFP identifies those projects which have secured funding as well as a list of projects which have not yet been funded. The funded projects relating to the sewer collection system within this Plan include the Princeton Sewer Extension, Sewer Infill Extension projects, and projects at the WWTP such as grit removal and UV disinfection system improvements, as well as the Digester No. 4 project and a third secondary clarifier. There were also various annual sewer system repair and replacement projects. These were funded from either revenue bonds or reserves.

WASTEWATER SYSTEM PLANNING

Comprehensive Sewer Plan, City of Wenatchee, Department of Public Works (April 2009)

The most recent City of Wenatchee Comprehensive Sewer Plan (*2009 Plan*) was originally adopted in 2009. The *2009 Plan* addressed land use, planning, the wastewater



CITY OF WENATCHEE

SEWER COMPREHENSIVE PLAN AMENDMENT

Figure 1-1
Vicinity Map

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treatment plant, sewer collection system, sewer system analysis, capital improvement plan, operation and maintenance, and a financial program. The following four improvements were recommended to the current system in order to meet current and future needs. These projects have since been completed:

- Install 6,200 linear feet of a 30-inch gravity sewer main to upsize the BNSF line.
- Provide 150,000 gallons of equalization storage for the Olds Station Lift Station to handle additional flows.
- Relocate Squilchuck LS to a new location, away from Squilchuck Creek
- Various WWTP improvements including odor control, digester cover replacement, expansion of the drying bed

The *2009 Plan* also recommended other growth related projects including an Easy Street trunk line, the Chatham Hill sewer extension, and a new Sunnyslope LS. In addition, it was recommended the Olds Station Lift Station pumps were recommended to be upgraded to a 40-hp pump along with associated electrical improvements to bring the station to 1,000 gpm capacity.

City of Wenatchee Wastewater Treatment Plant Facilities Update, HDR Engineering (August 2016)

The *City of Wenatchee Wastewater Treatment Facilities Plant Update (2016)* was submitted to Ecology in 2015 for review and approved in 2016. The update provides new facility flow and loading projections that correlate to more recent data collected following the recent upgrades to the wastewater treatment facility. In addition, the update includes an evaluation of facility unit process capacity and demonstrates that adequate capacity exists to treat the projected influent flows and loads through the planning period. The Update recommends process improvements to provide for needed process unit redundancy and to assure capacity is available for future wastewater flows. The planning period for the Update is through the years 2015 through 2035 (20 years).

ADDITIONAL PLANNING DOCUMENTS

Additional planning documents prepared for the City include:

- The City of Wenatchee Comprehensive Water System Plan, City of Wenatchee (2012)

- City of Wenatchee Comprehensive Stormwater Plan Update, HDR Engineering, Erlandsen & Associates, and Clear Water Solutions (May 2010)

CHAPTER 2

LAND USE, POPULATION PROJECTIONS, AND SERVICE AREA CHARACTERISTICS

The City of Wenatchee is located on the eastern edge of Chelan County, at the confluence of the Wenatchee and Columbia rivers. The City is bordered by fruit orchards as well as the eastern foothills of the Cascade Mountain Range.

SEWER SERVICE AREAS

The City of Wenatchee has its own designated sewer service area as shown in Figure 2-1. All wastewater is treated at the Wenatchee Wastewater Treatment Plant (WWTP). Regions such as Sunnyslope that are adjacent to the sewer service area are currently being served by septic systems.

CITY OF WENATCHEE

The City of Wenatchee's current sewer service area includes approximately 4,975 acres within its corporate limits and 1,300 acres within its Urban Growth Area (UGA), as shown on Figure 2-1. The City's sewer service boundary coincides with the UGA. The collection system is primarily conventional gravity sewer systems. The collection system consists of an estimated 745,000 linear feet (or 141 miles) of mainline gravity sewers and approximately 15,400 linear feet of force main with five lift stations.

ADJACENT SEWER SERVICE AREAS

The sewer system nearest to the City lies within the City of East Wenatchee (directly across the Columbia River from Wenatchee) and is operated by the Douglas County Sewer District. Leavenworth and Cashmere both have wastewater treatment plants upstream of Wenatchee along the Wenatchee River. Additionally, Chelan County PUD operates small wastewater collection and treatment facilities in nearby Peshastin and Dryden. There are also several small cities being served upstream along the Columbia River.

NATURAL ENVIRONMENT

TOPOGRAPHY

The City of Wenatchee is located in Chelan County and borders Douglas County which is across the Columbia River. Elevations in Wenatchee range from 620 feet above mean sea level along the Columbia River to 1,450 feet above mean sea level where the land rises

towards Burch Mountain. Slopes mostly range to approximately 3 percent within most of the City, with steeper slopes (up to 50 percent) along the western city limits towards the foothills of the Cascade Mountain Range and in the region north of the Wenatchee River in the Sunnyslope area.

Figure 2-2 is a topographic map based on the United States Geologic Survey (USGS) showing the varying elevations within the City's sewer service area.

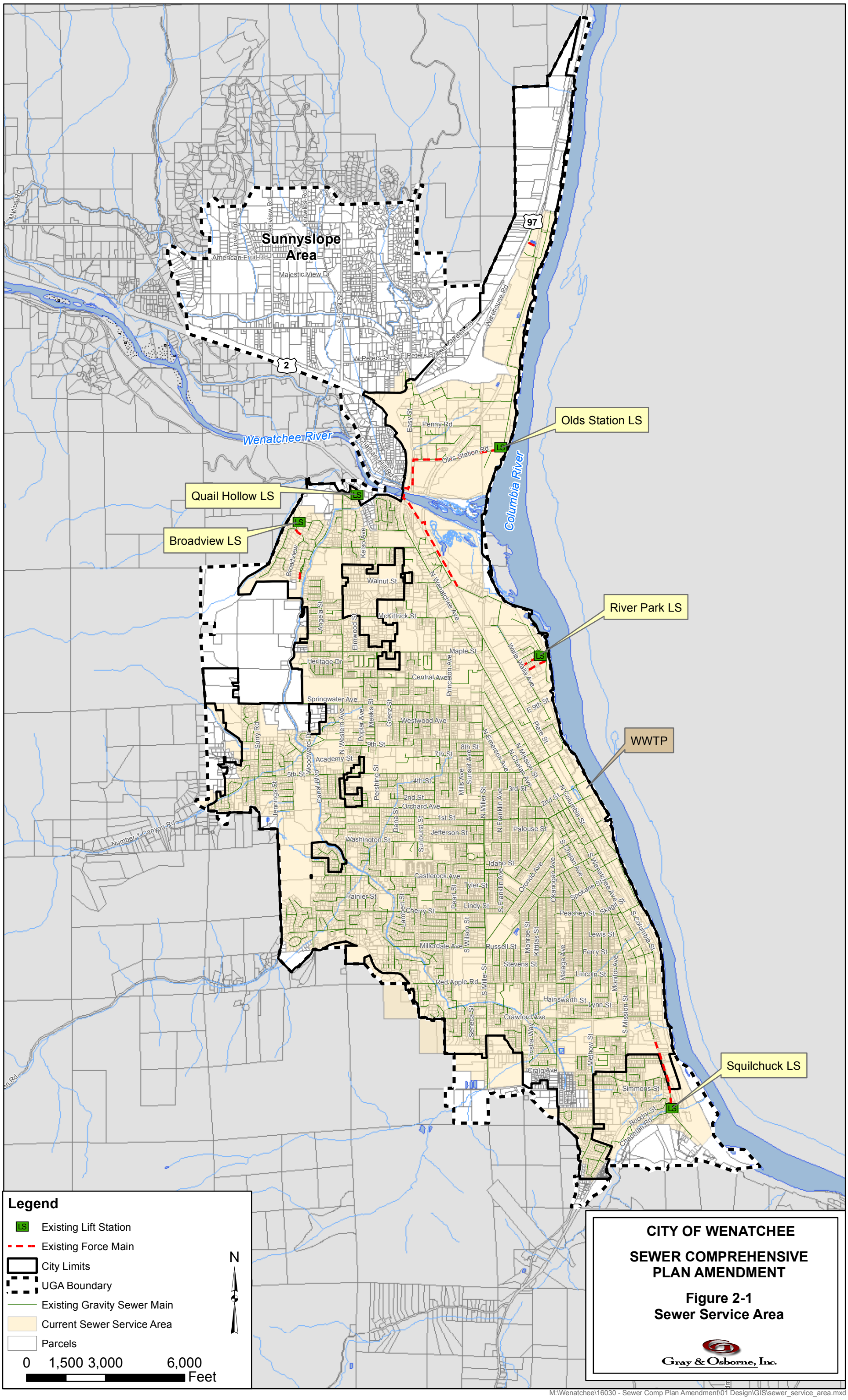
SOILS AND GEOLOGY

The primary soil types in the City of Wenatchee are typical of what is found in the foothills of the Cascades that drain into the Columbia River. This area was also heavily influenced by the erosion caused by the Missoula Floods. Most of the soil is very fine and has a combination of sandy loam and silt loam according to the NRCS Soil Survey of Chelan County. There are several rock outcroppings at the edges of the City towards the nearby mountain ridges. Drainage is characterized as poor to moderately well drained. This combination of soil along with the ideal climate makes this area prime for growing fruit.

A more detailed definition of the types and locations of the soil classifications within the sewer service area is presented in Figure 2-3, based on an NRCS Soil Survey of Chelan County. Wenatchee consists mostly of alluvial land, including Beverly, Burch, and Cashmont soils. The surface layer is generally grayish-brown fine sandy loam or silt loam about 8- to 12-inches thick. For agriculture, this land type is appropriate for pasture, hay and orchards.

CLIMATE

A weather station located near the vicinity of Wenatchee is found at the Pangborn Memorial Airport. The airport is located to the east of the Columbia River approximately 5 miles east of Wenatchee. Table 2-1 provides precipitation data from this weather station.


Sunnyslope Area
Olds Station LS
Quail Hollow LS
Broadview LS
River Park LS
WWTP
Squilchuck LS
Wenatchee River
Columbia River
Legend
Existing Lift Station
Existing Force Main
City Limits
UGA Boundary
Existing Gravity Sewer Main
Current Sewer Service Area
Parcels
N
0 1,500 3,000 6,000
Feet
CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
Figure 2-1
Sewer Service Area
Gray & Osborne, Inc.
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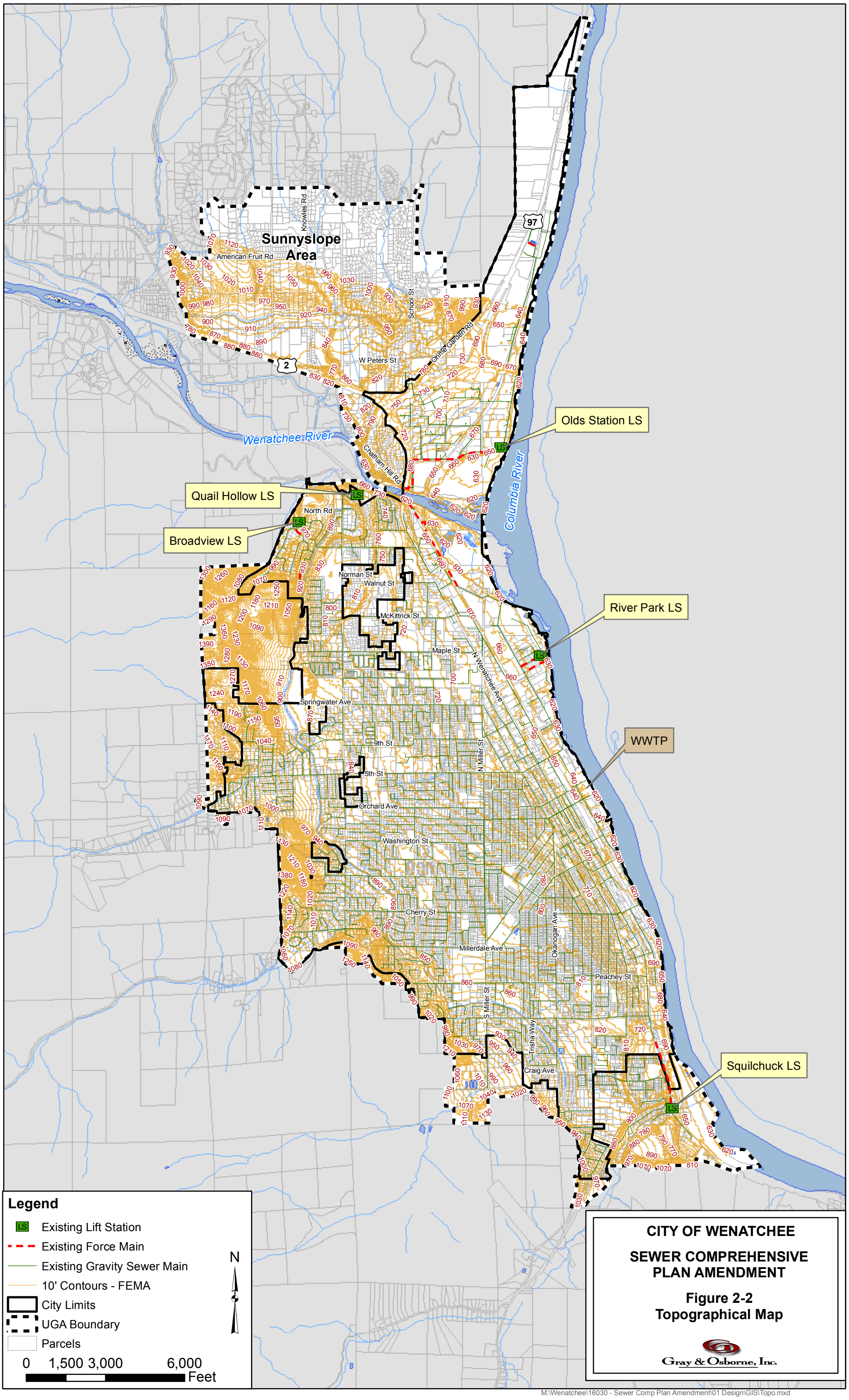
Sunnyslope Area
Olds Station LS
Quail Hollow LS
Broadview LS
River Park LS
WWTP
Squilchuck LS
Wenatchee River
Columbia River
Legend
Existing Lift Station
Existing Force Main
Existing Gravity Sewer Main
10' Contours - FEMA
City Limits
UGA Boundary
Parcels
0 1,500 3,000 6,000
Feet
N
CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
Figure 2-2
Topographical Map
Gray & Osborne, Inc.
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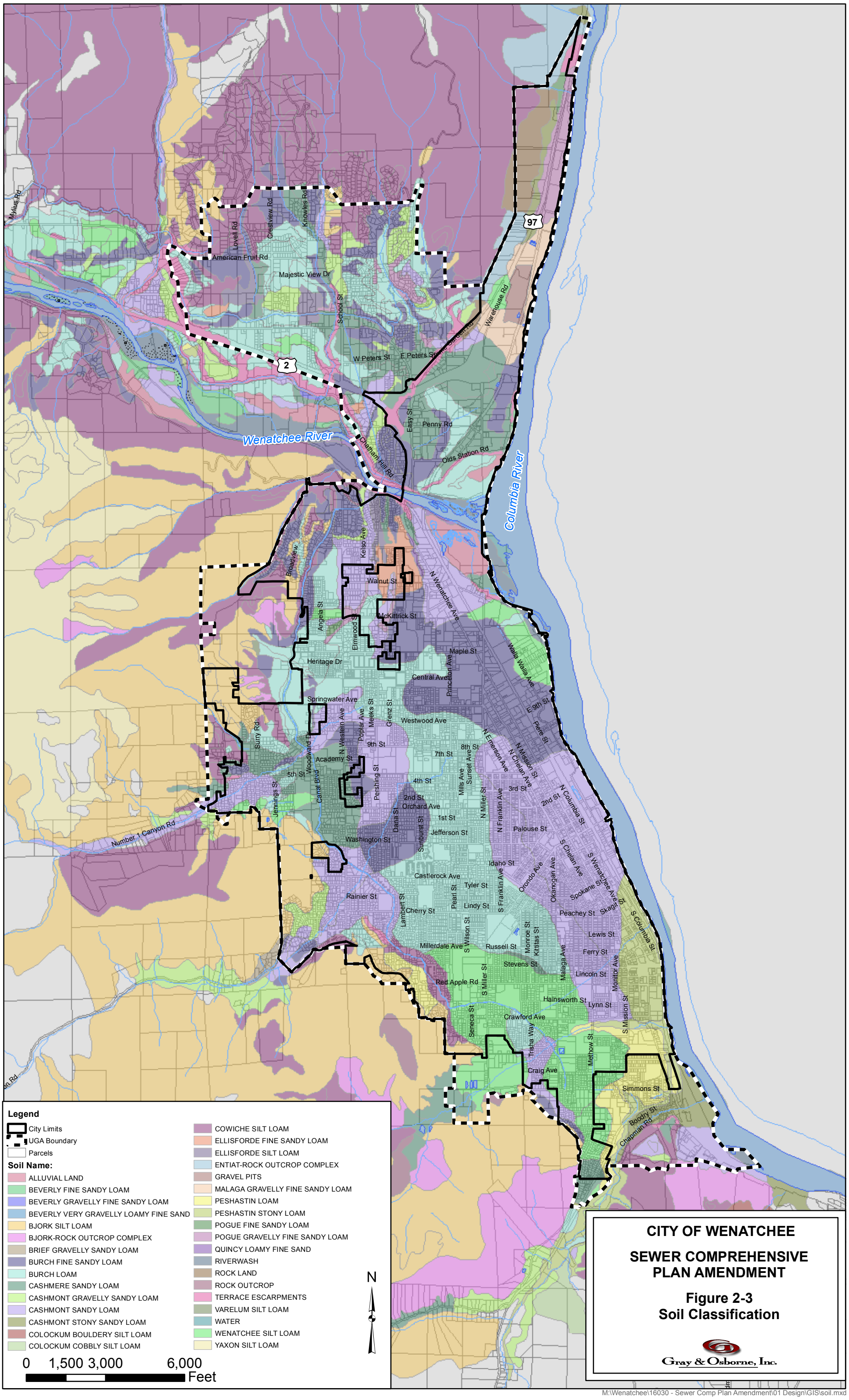

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TABLE 2-1

Wenatchee Area Total Precipitation 2006 through 2015 (inches)
(Data from Pangborn Memorial Airport, Washington)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
2006	4.13	0.67	0.95	0.51	1.06	0.74	0.03	0.12	0.4	1.18	3.39	2.28	15.46
2007	0.37	1.76	1.09	0.73	2.29	0.93	0.29	0.48	0.7	0.89	1.6	3.27	14.4
2008	2.75	0.6	1.73	1.0	0.75	1.37	< 0.1	0.76	0.37	0.25	1.44	3.36	14.38
2009	1.28	1.45	2.24	0.54	1.1	1.89	0.91	0.68	0.41	2.78	1.33	1.72	16.33
2010	1.26	1.69	0.99	1.42	1.98	1.82	0.04	0.22	0.84	1.25	2.99	3.06	17.56
2011	2.17	1.2	2.71	2.29	2.7	0.87	0.25	0.45	0.04	0.78	1.36	0.43	15.25
2012	1.08	1.25	3.89	1.92	0.65	2.37	1.1	< 0.1	< 0.1	1.3	1.17	2.64	17.37
2013	0.95	0.54	0.47	0.81	0.66	2.44	0.07	0.93	1.69	0.27	1.94	0.67	11.44
2014	0.73	1.66	2.64	1.35	0.5	2.67	1.64	0.3	0.09	1.28	1.08	1.76	15.7
2015	1.63	1.21	2.22	0.68	0.83	0.9	0.04	0.27	0.41	0.67	0.75	3.47	13.08
Avg.	1.64	1.20	1.89	1.13	1.25	1.60	0.44	0.42	0.50	1.07	1.71	2.27	15.10
Min.	0.37	0.54	0.47	0.51	0.50	0.74	0.03	0.12	0.04	0.25	0.75	0.43	11.44
Max.	4.13	1.76	3.89	2.29	2.70	2.67	1.64	0.93	1.69	2.78	3.39	3.47	17.56
Source: Weather Underground, Malaga, WA.													

The precipitation data from the Pangborn weather station is a reasonably accurate representation of the precipitation that Wenatchee experiences, due to its close proximity to the City. The station experienced a 10-year annual average precipitation of 15.1 inches. The maximum monthly precipitation over the past 10 years was 4.13 inches which occurred in January 2006. The 10-year minimum annual precipitation is < 0.1 inches (negotiable), seen in July 2008/2013, August 2012 and September 2012.

SITE-SENSITIVE AREAS

The following section summarizes information regarding site-sensitive/critical areas presented in the 2014 *City of Wenatchee Comprehensive Plan*. Critical areas within the sewer service area include those classified as wetlands, areas critical to the protection of drinking water resources, areas sensitive to flooding (i.e., 100-year flood plains), geologically hazardous areas (such as areas susceptible to landslides, and erosion), and fish and wildlife habitat regions.

The State's Growth Management Act requires that the best available science be included in developing policies and development regulations to protect the functions and values of critical areas. Special consideration should be given to conservation or protection measures necessary to preserve or enhance anadromous fisheries, which rear migratory fish.

Wenatchee has adopted the Resource Lands and Critical Area Development Ordinance. Designated critical areas within the Wenatchee Urban Growth Area include: wetlands, frequently flooded areas, and erosion and landslide hazard areas. The Ordinance does not designate agricultural lands of long-term commercial significance but assures the continued use of farm lands for agricultural purposes.

Title 15.80, Critical Areas Regulation, of the Wenatchee Municipal Code provides protection for site-sensitive areas. The 2014 Comprehensive Plan states the following, in regard to goals for environmental preservation and conservation:

> *"Ensure the protection of natural and built environments through preservation, conservation, and enhancement."*

Policies implemented by the City to meet this goal include encouraging development to be located away from environmentally sensitive areas, encouraging open space buffers around the banks of the Columbia and Wenatchee Rivers, compliance with SEPA and the Shorelines Management Act, planning and development review, developer incentives for protecting critical areas on site, and coordination with other jurisdictions in the area.

The site-sensitive areas within the sewer service area are described further below.

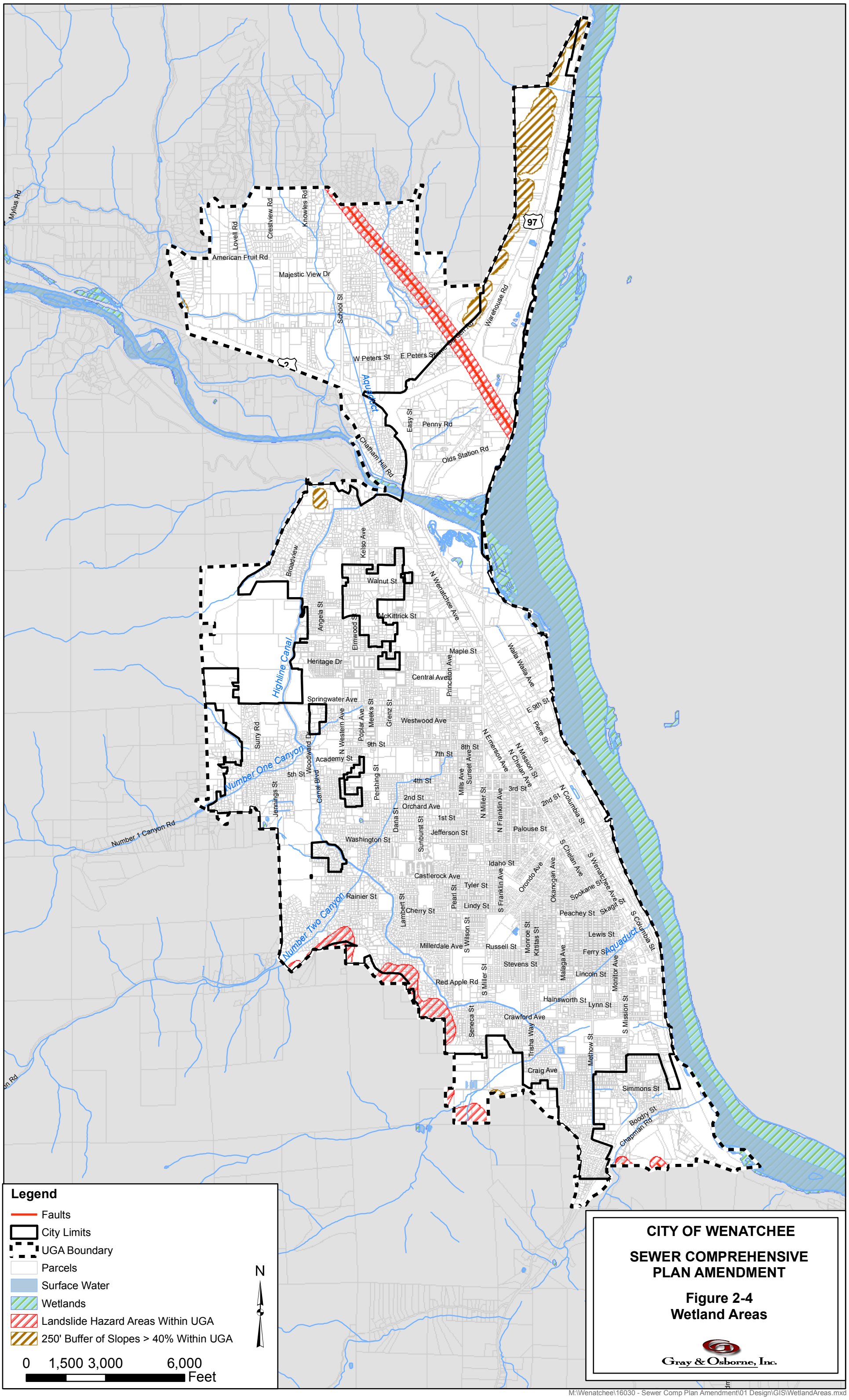
Shorelines

Due to the Shoreline Management Act, the Chelan County Shoreline Master Program (SMP) was adopted in 1975. The SMP applies to all uses and activities along shorelines, shorelines of statewide significance including associated shore lands (within 200 feet of shoreline), and associated wetlands.

In 2003, the State legislature linked SMP updates with the Growth Management Act update cycle. The Chelan County SMP provided a draft update to their SMP in 2010.

Wetlands

The Growth Management Act defines wetlands as areas that have surface or ground water that supports vegetation typically adapted in saturated soil conditions. Wetlands support valuable and complex ecosystems and consequently, development is severely restricted if not prohibited in most wetlands and buffer areas around the wetland. Although there are no specific wetlands identified within the city limits shown within the City's GIS database, City staff recently identified wetlands near the Olds Station area. Wenatchee Municipal Code Section 12.08.130 discusses regulations pertaining to wetlands. Figure 2-4 shows wetland and geologically hazardous areas within the Wenatchee region.



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Frequently Flooded Areas

Flood hazard areas are areas adjacent to lakes, rivers, and streams that are prone to flooding during peak runoff periods. Construction of buildings and other development in these areas is regulated in accordance with flood hazard zoning defined in the Wenatchee Municipal Code Section 12.08.150. The Wenatchee 100-year flood zones (land that has a 1 percent chance of flooding each year) are depicted in Figure 2-5.

Critical Aquifer Recharge Resources

Aquifer recharge areas are areas that have a critical effect on aquifers used for potable water as defined by WAC 365-190-030(2). The City of Wenatchee draws all of its water from the Eastbank Aquifer just north of the Rocky Reach Dam on the east side of the Columbia River which is then piped into the City. Although outside of the City's sewer service area, any groundwater flowing into the aquifer region can affect the water supply and therefore, critical aquifer recharge areas are important areas to protect.

Geologically Hazardous Areas

Seismic hazard areas are those with low-density soils that are more likely to experience greater damage due to seismic-induced subsidence, liquefaction, or landslides. Seismic hazard areas are regulated mainly with respect to public safety, and with the exception of a severe earthquake, these hazard areas do not impact wastewater facilities. The United States is divided into seismic hazard design categories (SDCs). These categories range from Category A to F, with F representing the highest risk. The City of Wenatchee falls into Seismic Design Category C (i.e., moderate seismic vulnerability).

Erosion and landslide hazard areas are regulated under Section 12.08.160 through 12.08.190 of the Wenatchee Municipal Code. These areas are shown in Figure 2-4.

Fish and Wildlife Habitat Conservation Areas

Sensitive fish and wildlife habitat is defined as areas which meet the definition of a "Fish and Wildlife Habitat Critical Area" pursuant to WAC 365-190-080(5) and is essential for maintaining specifically listed species in suitable habitats. Any proposed activity within 300 feet of these areas, including construction related to wastewater collection systems, requires that a habitat assessment be prepared.

The waters in the area are home to a number of species of trout and salmon, both year-round and some seasonally. The urban areas contain a variety of small mammals, such as mice, squirrels, skunks, opossums, and raccoons. There are also larger animals such as mule deer, coyotes, foxes, marmots, muskrats and river otters that frequent the City. Most of the land that has been developed and/or is close to the City has lost many of the animals that were once here. The native animals of this area before it was settled include bears,

cougars, bobcats, rabbits, coyotes, deer, minks, muskrat, beavers and wolves. Ducks, geese, grouse, doves, and nongame birds were more abundant before the prairie sod was plowed as well. Marmot, rabbits, and rattlesnakes are also present in the rocky and drier parts of the area. Before this valley was settled by humans, perennial streams such as Peshastin, Chumstick, Entiat, Icicle, and Nason were clear and well supplied with fish. The Columbia and Wenatchee Rivers have large annual runs of salmon and steelhead. There are also abundant songbirds while the more sparsely populated areas in the hills are occupied by hawks, owls, pheasant and many others. At the time of the 2005 Comprehensive Plan Update, the City stated the following:

> *"At this time, the City of Wenatchee has not classified or designated any fish and wildlife habitat conservation areas. However, the city recognizes that the urban environment is shared with fish and wildlife. The city recognizes that its habitats exists within a regional habitat system and will coordinate the city's management program with other jurisdictions in the bioregion."*

The City also has many habitats along the Columbia River especially for waterfowl and fish. The extensive network of parks and open space along the waterfront increases the success and availability of habitat for wildlife. The foothills around the City provide a major habitat area for wildlife as well.

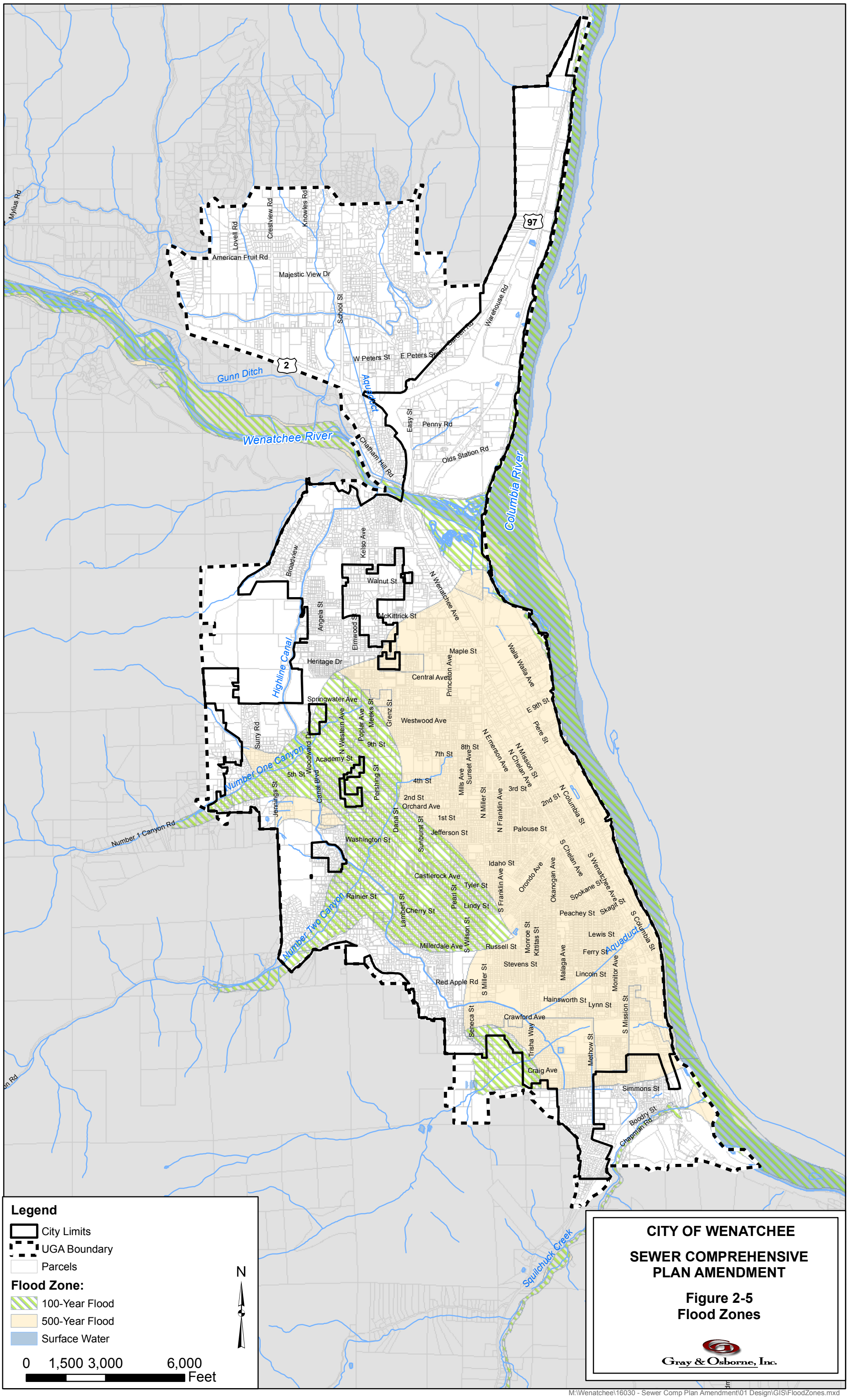
Table 2-2 summarizes the priority anadromous and resident fish species in the Wenatchee area.

TABLE 2-2

Priority Anadromous and Resident Fish Species(1)

Species	Columbia River	Wenatchee River
Bull Trout	ü	ü
Chinook	ü	ü
Coho	ü	
Kokanee	ü	
Sockeye	ü	ü
Steelhead	ü	ü

Source: WDFW Salmonscape Database.
(1) Checkmark indicates species is present.



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WENATCHEE WATER SYSTEM

The City of Wenatchee has a water system with two domestic water purveyors since the City and Chelan County PUD have adjacent service area areas that grew together. The City and the PUD provide water within the City's sanitary sewer service area. The City supplies water within the City limits from Crawford Ave. north to Maple Street and then from Western Avenue to the Columbia River. The PUD supplies water within the City limits north of Maple Street and in the surrounding area within the UGA.

The City of Wenatchee and Public Utility District No. 1 of Chelan County developed the regional water supply system. This was done according to the terms and conditions of the "Water Contract – Regional Water System" from February 1979. A new contract was executed in 1998 and added the East Wenatchee Water District to the Regional System. The Eastbank Aquifer is slightly north of the Rocky Reach Dam and east of the Columbia River. The current hydraulic capacity of this system is estimated at 42 MGD for the aquifer wells with a 23 MGD transmission system. The current regional contract is based upon the transmission main's capacity of 23 MGD. The total capacity of 20 MGD for the regional contract is within the allocation of up to 15.5 MGD for the City of Wenatchee and 4.0 MGD for PUD. The East Wenatchee Water District can utilize the excess. The water is connected to the City water system through a 30-inch transmission main between the wellfield and the connection point to the City's transmission system at 5th Street. It is also chlorinated at the source. The users of this system include East Wenatchee Water District, City of Wenatchee, PUD's Greater Wenatchee Area (including Monitor), Squilchuck/Wenatchee Heights Water Systems, individual users near Rocky Reach Dam of PUD, and the satellite system of Barker of the East Wenatchee Water District. All distribution mains can maintain a minimum pressure of 20 psi with static conditions.

PLANNING PERIOD

In order to provide wastewater services for future growth, the wastewater system is in need of continuous evaluation and improvement. A planning period for the evaluation of the wastewater utility should be long enough to be useful for an extended period of time, but not so long as to be impractical. Comprehensive sewer plans are generally rewritten every 6 years so as to assess previous projections and to determine any necessary adjustments needed for future growth. The planning period for this *2017 Plan* is from 2016 through 2035, coinciding with a 20-year planning interval. Included will be a 6-year planning horizon to address immediate needs. Long term growth will be accommodated for in the 20-year capital improvement program.

LAND USE, ZONING, AND POPULATION

Table 2-3 shows a summary of existing land use in the City of Wenatchee compared with land use in 2007. The values shown in Table 2-3 for 2016 include the newly annexed Olds Station region which mainly consists of industrial area. Figure 2-6 shows future land use within the City's UGA.

TABLE 2-3

Land Use

	2007(1)		2016(2)	
Land Use Designation	**Acres**	**Percentage**	**Acres**	**Percentage**
Civic and Cultural	78	2%	387	7%
Commercial	538	10%	760	14%
Industrial	216	4%	346	7%
Multi-Family	188	4%	244	5%
Parks and Open Space	199	4%	240	5%
Public Facilities	526	10%	349	7%
Resource Lands	206	4%	255	5%
Single-Family	2,948	57%	2,414	46%
Undeveloped	234	5%	257	5%
Total	**5,133**	100%	**5,252**	100%

(1) 2007 data from Wenatchee Urban Area Comprehensive Plan.
(2) 2016 data from City's GIS-based land use information.

CURRENT POPULATION

Table 2-4 provides a history of population for Wenatchee over a 14-year period (2002 to 2015) based on data from the Washington State Office of Financial Management (OFM). Since the OFM data for housing units is currently available only to 2010, data since then has been projected, using population data to calculate persons per household (pph). In 2015, OFM estimated the total number of housing units in Wenatchee to be 13,808. Wenatchee's 2015 population was estimated to be 33,260. This equates to an average population of 2.4 pph.

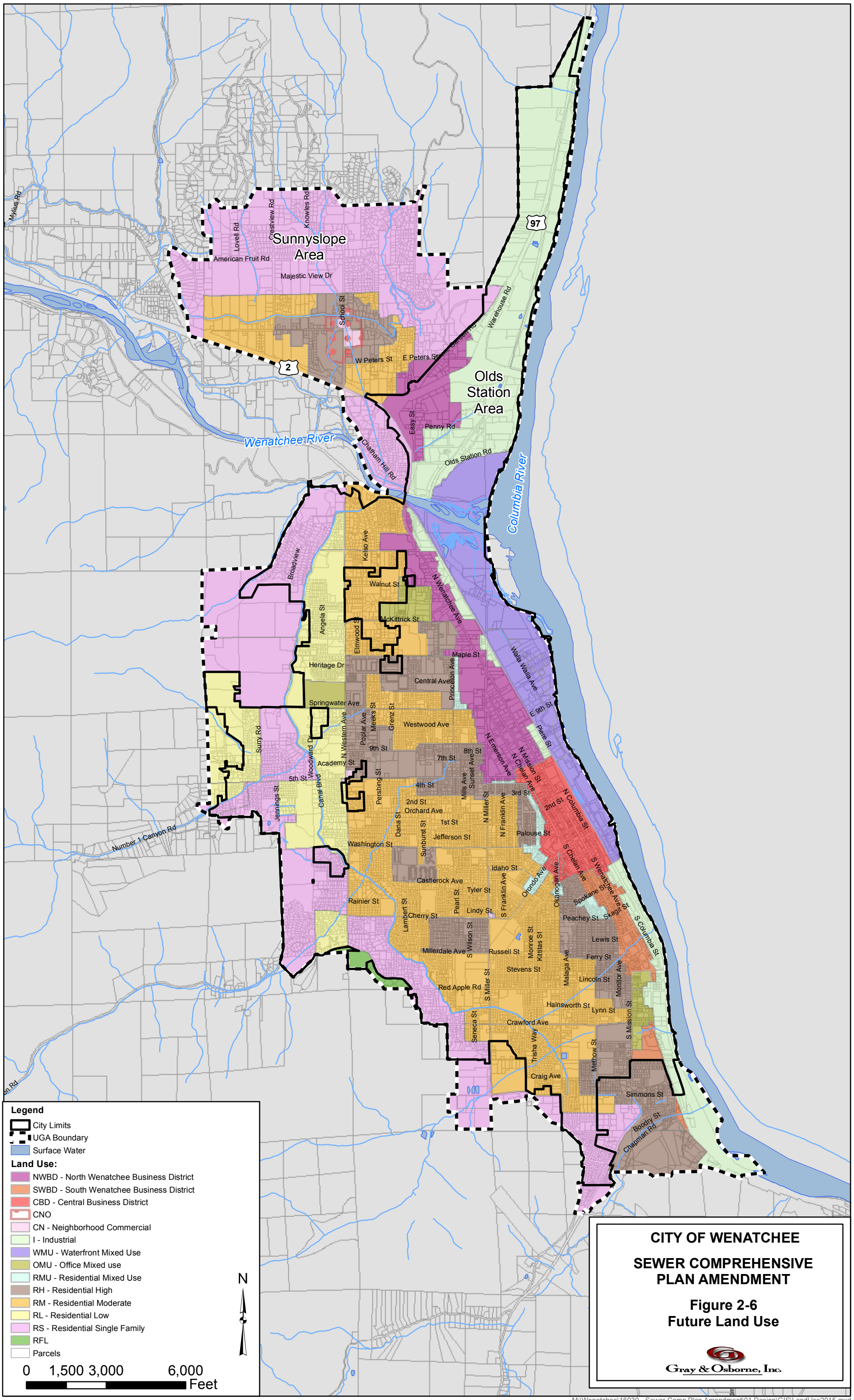

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TABLE 2-4

Historical Population 2000 to 2013

Year	Population City of Wenatchee	Growth
2002	28,520	1.95%
2003	28,637	0.41%
2004	28,992	1.24%
2005	29,636	2.22%
2006	30,312	2.28%
2007	30,711	1.32%
2008	31,358	2.11%
2009	31,659	0.96%
2010	31,925	0.84%
2011	32,090	0.52%
2012	32,400	0.97%
2013	32,520	0.37%
2014	33,070	1.69%
2015	33,260	0.48%
Average		**1.19%**

Source: Washington State Office of Financial Management (OFM). Population estimated as of April 1 of each year.

PROJECTED FUTURE CITY POPULATION

The City of Wenatchee updated their *Wenatchee Urban Area Comprehensive Plan* in 2014. This Comprehensive Plan, in conjunction with Chelan County planning figures, establishes a population growth rate for future growth within the City. The City evaluates water/sewer service to properties outside the UGA on a case-by-case basis, but in general does not serve new development outside the UGA. Table 2-5 shows projected population totals to the Year 2040, assuming a growth of 0.77 percent per year within the UGA region, as projected in the Comprehensive Plan.

TABLE 2-5

Future Population Projections for City of Wenatchee UGA(1)

Year	Wenatchee UGA Population
2014	38,454
2015	38,921
2016	39,279
2017	39,649
2018	39,954
2019	40,262
2020	40,729
2021	41,043
2022	41,359
2023	41,677
2024	41,998
2025	42,481
2026	42,808
2027	43,138
2028	43,470
2029	43,805
2030	44,017
2031	44,356
2032	44,697
2033	45,042
2034	45,388
2035	45,286
2036	45,635
2037	45,741
2038	46,093
2039	46,448
2040	46,389

(1) Population projections provided by Chelan County Resolution 2015-112; A 0.77 percent annual growth rate is assumed.

SEWER CONNECTIONS

An estimate of the average number of sewer connections to the City of Wenatchee in 2015 is provided in Table 2-6 and is based on billing data received from the City.

TABLE 2-6

Average Sewer Service Connections by Class for 2015

Customer Class	2015
Single-Family Residential	5,365
Multi-Family Residential	1,218
Commercial	1,079
Total	**7,662**

INDUSTRIES IN THE SEWER SERVICE AREA

There are several industries that the City of Wenatchee provides sewer service to that may have an effect on the projected flow and/or loadings of the sewer plant. The following describes the significant industrial users (SIUs)

BLUE BIRD, INC.

Blue Bird Inc. is a fruit packing facility on Walla Walla Avenue that consists of an apple, pear, and cherry packing line and a receiving hydrocooler. All of the packing wastewater from the facility is discharged to the WWTP. The facility is regulated under an NPDES and State Wastewter General Discharge Permit for the fresh fruit packing industry.

CHATEAU FAIRE LE PONT

Chateau Faire Le Pont is a winery located along Vineyard Way. This facility discharges winery related wastewater to the WWTP and is regulated under an Industrial State Waste Discharge Permit.

COLUMBIA FRUIT PACKERS

Columbia Fruit Packers is located along Columbia Avenue and is subject to a Fresh Fruit Packing General Permit for their apple and cherry packing facilities. All of the packing wastewater from the facility is discharged to the WWTP.

CUSTOM APPLE PACKERS

Custom Apple Packers is a fruit packing facility that consists of an apple packing line, three cherry packing lines, two hydrocoolers and an engine room, all of which discharge to the WWTP. The facility is subject to a Fresh Fruit Packing General Permit and is located on Euclid Avenue.

MCDOUGALL & SONS, INC.

McDougall & Sons, Inc. is a cherry packing facility that consists of two cherry packing lines which discharge to the WWTP. They are subject to a Fresh Fruit Packing General Permit and are located on Olds Station Road.

PHILLIPPI FRUIT

Phillippi Fruit is a fruit packing facility located on 5th Street. The facility contains both pear and apple packing lines where the pear rinse wastewater and all apple packing wastewater is sent to the WWTP. Phillippi Fruit has both a Fresh Fruit Packing General Permit and an Industrial State Waste Discharge Permit.

PIEPEL LAND HOLDINGS

Piepel Land Holdings are the owners of the Piepel Premium Fruit Storage Facility located along Chehalis Street. All of the packing wastewater from the facility is discharged to the WWTP and is regulated under a Fresh Fruit Packing General Permit.

SOURIAU PA&E

Souriau PA&E designs, manufactures, and supplies ceramic and metal components and assemblies, hermetic connectors, and micro-electronic hermetic packaging solutions applications in defense, space, medical, and commercial industries. Two production lines (consisting of a water jet cutting line and a dye penetrant line) discharge to the City's sewer system via an Industrial State Waste Discharge Permit.

STEMILT GROWERS

Stemilt Growers is a fruit packing company that discharges packing wastewater from apple, pear and cherry packing from various facilities to the WWTP. They have five permits in total which include their Euclid, Ohme, Olds Station and Hill Road facilities. Each is regulated under a Fruit Packer General Permit.

CHAPTER 3

REGULATORY REQUIREMENTS

Federal and state regulatory requirements were used in developing the design criteria for improvements to the City of Wenatchee's wastewater collection, treatment, and disposal facilities. The purpose of this chapter is to identify and summarize the regulations that affect the planning, design, and approval of improvements discussed in this plan.

This chapter does not describe each regulation in detail; rather, it addresses important facets of the regulations that affect the planning and design process. Subsequent sections of this report address technical requirements of the regulations at a level of detail appropriate for the evaluation provided by that section.

FEDERAL AND STATE STATUTES, REGULATIONS, AND PERMITS

This section discusses some of the various federal and state laws that may affect wastewater system construction and operations, as well as other relevant permits, programs, and regulations.

FEDERAL CLEAN WATER ACT

The Federal Water Pollution Control Act is the principal law regulating the water quality of the nation's waterways. Originally enacted in 1948, it was significantly revised in 1972 and 1977, when it was given the common title of the "Clean Water Act" (CWA). The CWA has been amended several times since 1977. The 1987 amendments replaced the Construction Grants program with the Water Pollution Control State Revolving Fund (SRF) that provides low-cost financing for a range of water quality infrastructure projects.

NPDES and State Waste Discharge Permits

The National Pollutant Discharge Elimination System (NPDES) program was established by Section 402 of the CWA and its subsequent amendments. The Department of Ecology administers NPDES permits for the U.S. Environmental Protection Agency (EPA). Most NPDES permits have a 5-year term and place limits on the quantity and quality of pollutants that may be discharged to water bodies. There are 41 current NPDES and State Waste Discharge Permits (SWDP) issued to facilities in the Wenatchee area, as shown in Table 3-1. The NPDES program covers wastewater (including biosolids), industrial discharge, and stormwater permits. If considered significant, industrial discharges to municipal wastewater collection/treatment systems are typically addressed in SWDPs.

TABLE 3-1

NPDES and State Waste Discharge Permits Issued

Facility	Permit Number	Permit Type
Wenatchee Reclamation District	WAG991001	AP Irrigation System Aquatic Weed Control GP
Stemilt Growers Euclid	WAG435172	Fruit Packer GP
Custom Apple Packers Euclid Avenue Plant	WAG435084	Fruit Packer GP
Stemilt Growers Ohme CA	WAG435134	Fruit Packer GP
Piepel Land Holdings Piepel Premium Fruit Storage	WAG435289	Fruit Packer GP
McDougall & Sons Olds Station	WAG435027	Fruit Packer GP
Stemilt Growers Stemilt Hill Road	WAG435165	Fruit Packer GP
Phillippi Fruit Co 1921 5th Street Plant	WAG435025	Fruit Packer GP
Phillippi Fruit Co 6A 5th Street Plant	WAG435218	Fruit Packer GP
Stemilt Growers Miller Street Apple 1	WAG435116	Fruit Packer GP
Stemilt Growers Olds Station 2	WAG435157	Fruit Packer GP
Custom Apple Packers Hiway CA	WAG435163	Fruit Packer GP
Blue Bird Inc. Wenatchee Plant	WAG435089	Fruit Packer GP
Columbia Fruit Packers Olds Station Plant 2	WAG435017	Fruit Packer GP
Columbia Fruit Packers Olds Plant 1	WAG435019	Fruit Packer GP
Souriau PA&E	ST0009231	Industrial (IU) to POTW/PRIVATE SWDP IP
Chateau Faire Le Pont Winery	ST0009264	Industrial (IU) to POTW/PRIVATE SWDP IP
Phillippi Fruit Co Inc. 1921 5th Street Winery	ST0501296	Industrial (IU) to POTW/PRIVATE SWDP IP
Keyes Fibre Corp Naumes Proc	WA0051811	Industrial NPDES IP
Keyes Fibre Corporation	WA0003492	Industrial NPDES IP
Tree Top Inc. Wenatchee	WA0051527	Industrial NPDES IP
Lineage Columbia LLC Wenatchee Main	WA0052400	Industrial NPDES IP
Northwest Wholesale Inc. Wenatchee	WAR127326	Industrial SW GP
Michelsen Packaging Wen	WAR000810	Industrial SW GP
Randys Towing	WAR127325	Industrial SW GP
Waste Management Wenatchee Hauling Co.	WAR000576	Industrial SW GP
Lineage Columbia Wenatchee	WAR003769	Industrial SW GP
BNSF Wenatchee	WAR127014	Industrial SW GP
Dolco Packaging	WAR002514	Industrial SW GP
Wilbur Ellis Company Wenatchee	WAR011240	Industrial SW GP
Wenatchee POTW	WA0023949	Municipal NPDES IP
Chelan County PUD No 1	WAR046208	Municipal SW Phase II Eastern WA GP
Wenatchee Valley College	WAR303571	Municipal SW Phase II Eastern WA GP
Chelan County Public Works Wenatchee	WAR046002	Municipal SW Phase II Eastern WA GP
Wenatchee City	WAR046011	Municipal SW Phase II Eastern WA GP
WSDOT Ingalls Creek Pit Site QS K 37	WAG505179	Sand and Gravel GP
Wenatchee Rock Products Rocky Reach Dam	WAG505196	Sand and Gravel GP
Wenatchee Sand & Gravel Batch Plant	WAG505054	Sand and Gravel GP
North Central Construction Crusher 1	WAG500019	Sand and Gravel GP
North Central Construction Crusher2	WAG500029	Sand and Gravel GP
Lloyd Palm Construction UM15 Recycle Crusher 1	WAG500107	Sand and Gravel GP
Lloyd Palm Construction Eagle Impact Crusher 2	WAG500043	Sand and Gravel GP

SWDP = Stormwater Discharge Permit, GP = General Permit, IP = Industrial Permit

City of Wenatchee WWTP NPDES Permit

The City of Wenatchee's current wastewater treatment plant NPDES permit, number WA0023949 and fact sheet are attached as Appendix B. The City's current permit effluent limits are shown in Chapter 4. Condition S1 of the City's permit requires the treatment plant effluent meet limits for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform bacteria, pH, and total ammonia.

Condition S2 lists monitoring requirements including BOD_5, TSS, and Total Kjeldahl Nitrogen (TKN) for the influent. Monitoring requirements for the effluent include flow, $CBOD_5$, BOD_5, TSS, fecal coliform, ammonia, pH, dissolved oxygen, temperature, and total hardness. Additional monitoring requirements in the permit include TKN, nitrate plus nitrite, oil and grease, total phosphorous, total nitrogen, alkalinity and dissolved solids. Condition S3 lists reporting and recording requirements.

Condition S4.A specifies the WWTP design capacity for maximum month BOD_5 loading is 13,006 pounds per day (lb/d) and 13,111 lb/d for TSS. The maximum month flow capacity for the WWTP is 5.5 million gallons per day (MGD). Condition S4.B requires the City to prepare a plan to maintain adequate capacity when flows and loadings to the WWTP exceed 85 percent of design capacity for 3 consecutive months or the projected increase would reach design capacity within 5 years, whichever occurs first. There are other conditions of the permit that can be found in Appendix B. The City of Wenatchee *2016 Wastewater Treatment Facilities Plan Update* includes an evaluation of the WWTP operating conditions and provides recommendations for improving and maintaining adequate treatment capacity to ensure long-term NPDES permit compliance.

Other NPDES and State Waste Discharge Permits Issued to Facilities in the Wenatchee Area

Eight of the significant industrial users discharging industrial wastewater to the Wenatchee WWTP have state waste discharge permits. These include Blue Bird, Inc., Stemilt Growers LLC, Pipel Premium Fruit Packing, Columbia Fruit Packers, McDougall & Sons Inc., Custom Apple Packers, and Phillippi Fruit. In addition, Keyes Fiber has an NPDES permit that allows it to discharge to the Columbia River.

A number of the facilities with NPDES permits in the Wenatchee area listed in Table 3-1 are for stormwater discharges to water bodies. (The City's NPDES permit does not allow discharge of stormwater to the WWTP.) The EPA requires stormwater discharge permits for certain types of industrial activities. The EPA uses two methods to determine if the activity requires a permit. The first method is the Standard Industrial Classification (SIC) code. The second method is called a narrative description. This distinction is important because an SIC code activity may or may not require an NPDES permit. However, narrative description activities require a permit for any described activity. Even if there is an applicable SIC code for the type of activity taking place, businesses may not always

need a discharge permit. Under current EPA regulations, these types of industrial activities may be conducted without obtaining a stormwater discharge permit if no material handling equipment or activities, raw materials, intermediate products, final products, waste materials, byproducts, or industrial machinery are exposed to stormwater (40 CFR 122.26(b)(14)).

Industrial Pretreatment/Source Control

Section 307 of the CWA established the National Pretreatment Program; 40 CFR Part 403 lists the federal pretreatment requirements. This program is designed to protect publicly owned treatment works (POTW) from *pass-through* of pollutants or *interference* with the treatment process from industrial or other non-residential discharges that is not "domestic-equivalent" (similar in quality to domestic wastewater). *Pass-through* is defined as "a discharge that exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation). *Interference* is defined as a discharge that inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal.

Wenatchee's NPDES permit includes requirements for ensuring prevention of pass-through and interference. The permit requirements include:

1. Identification and reporting of existing, new, and proposed industrial users.

2. Working with Ecology to ensure that all commercial and industrial dischargers are compliant with 40 CFR Part 403.

3. Ensuring prohibitions on flammability, pH (5 to 11), toxicity, viscosity, and dangerous wastes.

4. Testing to identify priority pollutants and other deleterious constituents in influent, effluent, and biosolids.

PROPOSED CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE REGULATIONS

In 2005, EPA adopted a round of recommendations titled Capacity, Management, Operation and Maintenance (CMOM). Though the regulations are yet to be formally made into law by EPA, some municipalities are anticipating the adoption and have moved forward with implementation. In addition, EPA has used CMOM as de facto standards for collection system audits, including for some facilities in Washington State. CMOM focuses on implementing standards to prevent the failure of collection systems and suggests a program for long-term financing and repair. Under its authority granted

by the federal Clean Water Act, EPA seeks to address sanitary sewer overflows (SSO) under the CMOM program.

In general, the CMOM guide can be summarized in the following elements:

1. General performance standards including collection system maps, information management, and odor control.

2. Program documentation including the goals, organizational, and legal authority of the organization operating the collection system.

3. An overflow response plan that requires response in less than 1 hour and is demonstrated to have sufficient and adequate personnel and equipment, etc. Estimated volumes and duration of overflows must be accurately measured and reported to the regulatory agency.

4. System evaluation requires that the entire system be cleaned on a scheduled basis (for example, once every 5 years), be regularly television inspected, and that a program for short- and long-term rehabilitation replacement be generated. EPA has proposed, as a rule of thumb, a 1.5 to 2 percent system replacement rate, which implies that an entire collection system is replaced somewhere in the range of a 50- to 70-year time period.

5. A capacity assurance plan that will use flow meters to evaluate infiltration and inflow (I&I), ensure lift stations are properly operated and maintained, and that source control is maintained.

6. A self-audit program to evaluate and adjust performance.

7. A communication program to communicate problems, costs, and improvements to the public and decision-makers.

EPA is considering some changes in design standards for collection systems including requiring that sanitary sewer overflows not occur except in extreme storms. They have also decided that they will not predefine the type of storm, leaving that decision to the design engineer.

FEDERAL ENDANGERED SPECIES ACT

There are currently a total of seventeen salmon, steelhead, and trout Evolutionarily Significant Units (ESUs)/Distinct Population Segments (DPSs) in Washington State. There are currently ten Endangered Species Act (ESA) listed salmonid ESUs/DPSs in the Columbia River. Of these, two including Chinook and Steelhead are present in the Columbia River near Wenatchee.

ESA listings impact activities that affect salmon and trout habitat, such as water uses, land use, construction activities, and wastewater disposal. Impacts to the City of Wenatchee may include longer timelines for permit applications and more stringent regulation of construction impacts on in-water work and riparian corridors. The presence of ESA-listed species and associated critical habitat in the Columbia River has the potential to impact future WWTP and outfall improvement projects.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) was established in 1969 and requires federal agencies to determine environmental impacts on all projects requiring federal permits or funding. Federally delegated activities such as NPDES permits or Section 401 certification are considered state actions and do not require NEPA compliance. If a project involves federal action (through, for example, an Army Corps of Engineers Section 404 permit), and is determined to be environmentally insignificant, a Finding of No Significant Impact (FONSI) is issued; otherwise, an Environmental Assessment (EA) or Environmental Impact Statement (EIS) would be required. NEPA is not applicable to projects that do not include a federal component or nexus. If there is a federal nexus, the City will need to follow NEPA procedures in order to obtain any permits required for upgrades to the WWTP, which are outlined in the Capital Improvement Plan of this document.

When both federal and state licenses or permits are required, then both NEPA and SEPA requirements must be met. WAC 197-11-610 allows the use of NEPA documents to meet SEPA requirements.

FEDERAL CLEAN AIR ACT

The Federal Clean Air Act requires all wastewater facilities to plan to meet the air quality limitations of the region. Wenatchee falls in the jurisdiction of the Ecology Central Regional Office. Ecology is responsible for enforcing federal, state and local outdoor air quality standards and regulations in Chelan County.

STATE STATUTES, REGULATIONS, AND PERMITS

STATE WATER POLLUTION CONTROL ACT

The intent of the State Water Pollution Control Act is to “maintain the highest possible control standards to ensure the purity of all waters of the state consistent with public health and the enjoyment…the propagation and protection of wildlife, birds, game, fish and other aquatic life, and the industrial development of the state.” Under the Revised Code of Washington (RCW) 90.48 and the Washington Administrative Code (WAC) 173-240, Ecology issues permits for wastewater treatment facilities and land application of wastewater under WAC 246-271.

Submission of Plans and Reports for Construction of Wastewater Facilities, WAC 173-240

Prior to construction or modification of domestic wastewater facilities, engineering reports, plans, and specifications must be submitted to and approved by Ecology. This regulation outlines procedures and requirements for the development of an engineering report that thoroughly examines the engineering and administrative aspects of a domestic wastewater facility project. This State regulation defines a facility plan as an engineering report under federal regulations, 40 CFR Part 35.

Key provisions of WAC 173-240 are provided below:

- An engineering report for a wastewater facility project must contain everything required for a general sewer plan unless an up-to-date general sewer plan is on file with Ecology.

- An engineering report shall be sufficiently complete so that plans and specifications can be developed from it without substantial changes.

- A wastewater facility engineering report must be prepared under the supervision of a professional engineer.

Criteria for Sewage Works Design, Washington State Department of Ecology

Ecology has published design criteria for collection systems and wastewater treatment plants. While these criteria are not legally binding, their use is strongly encouraged by Ecology since the criteria are used by the agency to review engineering reports for upgrading wastewater treatment systems. Commonly referred to as the "Orange Book," these design criteria primarily emphasize unit processes through secondary treatment, and also include criteria for planning and design of wastewater collection systems. Any expansion or modification of the City of Wenatchee's collection system and/or WWTP will require conformance with Ecology criteria unless the City demonstrates alternate standards provide similar reliability and efficacy.

Certification of Operators of Wastewater Treatment Plants, WAC 173-230

Wastewater treatment plant operators are certified by the State Water and Wastewater Operators Certification Board. The operator assigned overall responsibility for operation of a wastewater treatment plant is defined by WAC 173-230 as the "operator in responsible charge." This individual must have State certification at or above the classification rating of the plant.

Per the City of Wenatchee's WWTP NPDES Permit, the operating staff assigned to the plant must be certified for a Class III plant. The permit notes that the operator in charge must have at least a Class III certification and any operators in charge of each shift must

have a Class II certification. The City currently employs one Class III and four Class II operators for the WWTP.

Surface Water Quality Standards (WAC 173-201A)

WAC 173-201A establishes water quality standards within Washington State. The State adopted revised water quality standards in May 2011. The standards are based on two objectives: protection of public health and enjoyment, and protection of fish, shellfish, and wildlife. For each surface water body in the State, the standards assign specific uses, such as aquatic life, recreation, or water supply. Water quality standards have been developed for each use for parameters such as fecal coliform, dissolved oxygen, temperature, pH, turbidity, and toxic, radioactive, and deleterious substances. The surface water criteria include 29 toxic substances, including ammonia, residual chlorine, several heavy metals, polychlorinated biphenyls (PCBs), and pesticides.

The water uses that are defined in the standards for the portion of the Columbia River to which the WWTP discharges include:

Aquatic Life Uses

- Salmonid Spawning, Rearing

Recreational Uses

- Primary Contact

Water Supply Uses

- Domestic Water
- Industrial Water
- Agricultural Water
- Stock Water

Miscellaneous Uses

- Wildlife Habitat
- Harvesting
- Commerce and Navigation
- Boating
- Aesthetics

It is the policy of the State of Washington to maintain existing beneficial uses of surface water by preventing degradation of existing water quality. However, certain allowances are made by Ecology for discharging treated wastewater into a surface water that enable a

temporary or mitigated degradation to occur. These allowances are made by establishing mixing zones and determining the assimilative capacity of the receiving water.

The anti-degradation policy aims to maintain the highest possible quality of water in the State by preventing the deterioration of water bodies that currently have higher quality than the water quality standards require. The revised water quality standards define three tiers of waters in the anti-degradation policy:

- Tier I water bodies are those with violations of water quality standards from natural or human-caused conditions. The focus of water quality management is on maintaining or improving current uses and preventing any further human-caused degradation.

- Tier II water bodies are those of higher quality than required by the water quality standards. The focus of the policy is on preventing degradation of the water quality and to preserve the excellent natural qualities of the water body. New or expanded actions are not allowed to cause a "measurable change" in the water quality unless they are demonstrated to be "necessary and in the overriding public interest."

- Tier III are the highest quality "outstanding resource waters." Tier III(A) prohibits any and all future degradation, or Tier III(B) which allows for de minimis (below measurable amounts) degradation from well-controlled activities.

Discharging to surface water requires an NPDES permit issued by Ecology under WAC 173-220. Wastewater treatment plants must generally, at a minimum, meet technology-based limits that include 30 mg/L total suspended solids (TSS) and 30 mg/L 5-day biochemical oxygen demand (BOD_5) (typically termed "30-30 limits"). Additionally, under WAC 173-201A-060, State Water Quality Standards, Ecology is authorized to condition NPDES permits so that the discharge meets water quality standards. Therefore, other permit conditions in addition to or more stringent than the 30-30 limits could be added to ensure that the water quality of the receiving water is not degraded.

The State is currently in the process of updating its water quality standards. The biggest proposed changes would come from a reassessment of human health protection based on increased assumptions of fish consumption rates. If adopted, more stringent water quality standards are likely for some parameters, which may result in more stringent NPDES permit limits. The most likely parameters to be affected are persistent, bioaccumulative toxic compounds, including polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), and mercury.

RECLAIMED WATER STANDARDS

The State *Water Reclamation and Reuse Standards* define the water quality standards for reclaimed water. The City of Wenatchee WWTP does not generate reclaimed water; however, an evaluation of the feasibility of generating reuse water generated at the existing WWTP (after appropriate modifications) was provided in the 2008 *Wastewater Treatment Facilities Plan*, as required by State regulations (see Appendix A).

The standards for the use of reclaimed water are outlined in RCW 90.46 and within a separate document published by the Washington State Departments of Health and Ecology entitled "Water Reclamation and Reuse Standards." Reclaimed water is the effluent derived from a wastewater treatment system that has been adequately and reliably treated, such that it is no longer considered wastewater and is suitable for a beneficial use or a controlled use that would not otherwise occur. The legislature has declared that "the utilization of reclaimed water by local communities for domestic, agricultural, industrial, recreational, and fish and wildlife habitat creation and enhancement purposes (including wetland enhancement) will contribute to the peace, health, safety, and welfare of the people of the State of Washington."

The generation of Class A reclaimed water has four minimum requirements that are described below:

1. **Continuously Oxidized** – Wastewater that at all times has been stabilized such that the monthly average BOD_5 and TSS are less than 30 mg/L, is non-putrescible, and contains dissolved oxygen.

2. **Continuously Coagulated** – Oxidized wastewater that at all times has been treated by a chemical or equally effective method to destabilize and agglomerate colloidal and finely suspended matter prior to filtration.

3. **Continuously Filtered** – Oxidized and coagulated wastewater that at all times has been passed through a filtering media so that the turbidity of the filtered effluent does not exceed an average of 2 nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.

4. **Continuously Disinfected** – Oxidized, coagulated, and filtered wastewater that at all times has been disinfected to kill or inactivate pathogenic organisms. A group of indicator microorganisms, coliform bacteria, are used to measure the effectiveness of the disinfection process. The Class A reclaimed water standard is a total coliform density of 2.2 per 100 milliliters (ml) for the median of the last 7 days of samples, with no sample having a density greater than 23 per 100 ml.

Reclaimed water may be used to recharge groundwater by surface percolation or through direct injection, as long as the quality of the reclaimed water meets groundwater recharge criteria which are defined in the Reuse Standards. Groundwater recharge projects must also be in compliance with the State's groundwater regulations listed in WAC 173-200. This regulation contains groundwater quality criteria that are to be met in the saturated zone. Recharge of groundwater with reclaimed water would require a state waste discharge permit issued by Ecology. Ecology may also require the development of a groundwater monitoring program to ensure degradation does not occur.

Discharge of reclaimed water for the purpose of stream flow augmentation, fish and wildlife habitat, irrigation supply, or water right replenishment or transfer must comply with WAC Chapter 173-201A. A beneficial use of the reclaimed water must be established for the project to be accepted as a stream flow augmentation project.

Short-term storage or an alternative disposal system (e.g., an outfall) must be provided for situations where the reclaimed water cannot be used due to bad weather, reduced demand, etc. Provisions must also be made for storage or disposal of water that does not meet the treatment and water quality criteria, perhaps due to a treatment upset or equipment failure.

The Reuse Standards require reliability for individual treatment units such as biological treatment, secondary clarification, coagulation, filtration, and disinfection. Generally, if long-term storage or an alternative disposal method is not available, the facility must have redundant units each capable of treating the entire flow, or short-term storage with standby replacement equipment provided. Furthermore, coagulation and chlorination unit processes must have standby chemical feed equipment provided, regardless of storage and disposal options, to ensure uninterrupted chemical feed.

Washington State began a rulemaking process in 2006 to update and to convert the 1997 Water Reclamation and Reuse Standards (Washington State Department of Ecology, 1997) into a regulation, the Reclaimed Water Rule, Chapter 173-219 Washington Administrative Code (Washington State Department of Ecology, 2010). The rule is intended to provide a consistent and efficient regulatory process as well as to be sufficiently adaptable in order to govern reclaimed water production over a long time period.

The rule refers to a Reclaimed Water Facilities Manual, a.k.a., the "Purple Book," for supplemental guidance on implementing the rule. Gray & Osborne, Inc. was retained by the Washington Coalition for Clean Water and the Washington State Department of Ecology (Ecology) to assist in development of the manual, which as of June 2015, has been released in draft form for review by stakeholders. The date for final adoption of the Reclaimed Water Rule is uncertain due to State financial and policy issues.

STATE ENVIRONMENTAL POLICY ACT

WAC 173-240-050 requires a statement in all wastewater comprehensive plans regarding proposed projects in compliance with the State Environmental Policy Act (SEPA), if applicable. The capital improvements proposed in this plan will fall under SEPA regulations. A SEPA checklist is included in Appendix A of this plan for use in the environmental review for the project. In most cases, a Determination of Non-Significance (DNS) is issued; however, if a project will have a probable significant adverse environmental impact, an Environmental Impact Statement (EIS) will be required.

ACCREDITATION OF ENVIRONMENTAL LABORATORIES (WAC 173-050)

The State of Washington established a requirement that all laboratories reporting data to comply with NPDES permits must be generated by an accredited laboratory. This accreditation program establishes specific tasks for quality control and quality assurance (QA/QC) that are intended to ensure the integrity of laboratory procedures. Accreditation requirements must be met for any on-site laboratory or outside laboratory used to analyze samples. Only accredited laboratories may be used for analyses reported for compliance with NPDES permits. In planning for an on-site laboratory, staffing must be sufficient to allow for QA/QC procedures to be performed. The Wenatchee WWTP laboratory is currently accredited for testing the following parameters: alkalinity, total hardness, TSS, BOD_5, $CBOD_5$, ammonia, dissolved oxygen, pH, and fecal coliform.

MINIMAL STANDARDS FOR SOLID WASTE HANDLING (WAC 173-304)

Grit and screenings are not subject to the sludge regulations in WAC 173-308, but their disposal is regulated under the State solid waste regulations, WAC 173-304. Waste placed in a municipal solid waste landfill must not contain free liquids, nor exhibit any of the criteria of a hazardous waste as defined by WAC 173-303. To be placed in a municipal solid waste landfill, grit, screenings, and incinerator ash must pass the paint filter test. This test determines the amount of free liquids associated within the solids. If there is reasonable concern about the leaching of toxics from the screenings, the screenings should also be tested with the characteristic leachate procedure (TCLP) test, which determines if the waste has hazardous characteristics.

WETLANDS

Dredging and Filling Activities in Natural Wetlands (Section 404 of the Federal Water Pollution Control Act)

A U.S. Army Corps of Engineers permit is required when locating a structure, excavating, or discharging dredged or fill material in waters of the United States or transporting dredged material for the purpose of dumping it into ocean waters. Typical

projects requiring these permits include the construction and maintenance of piers, wharves, dolphins, breakwaters, bulkheads, jetties, mooring buoys, and boat ramps.

If wetland fill activities cannot be avoided, the negative impacts can be mitigated by creating new wetland habitat in upland areas. If other federal agencies agree, the Corps would generally issue a permit.

Wetlands Executive Order 11990

This order directs federal agencies to minimize degradation of wetlands and enhance and protect the natural and beneficial values of wetlands. This order could affect the siting of lift stations and sewer lines.

SHORELINE MANAGEMENT ACT

The Shoreline Management Act of 1971 (RCW 90.58) establishes a broad policy giving preference to shoreline uses that protect water quality and the natural environment, depend on proximity to the water, and preserve or enhance public access to the water. The Shoreline Management Act jurisdiction extends to lakes or reservoirs of 20 acres or greater, streams with a mean annual flow of 20 cubic feet per second (cfs) or greater, marine waters, and an area inland 200 feet from the ordinary high-water mark. Projects are reviewed by local governments according to State guidelines.

The Wenatchee WWTP and portions of the collection system are located within shoreline areas.

FLOODPLAIN DEVELOPMENT PERMIT

Local governments that participate in the National Flood Insurance Program are required to review projects in a mapped floodplain and impose conditions to reduce potential flood damage from floodwater. A Floodplain Development Permit is required prior to construction, including projects involving wastewater collection facilities.

HYDRAULIC PROJECT APPROVAL

Under the Washington State Hydraulic Code (WAC 220-110), the WDFW requires a hydraulic project approval (HPA) for activities that will “use, divert, obstruct, or change the natural flow or bed” of any waters of the State. For City activities, such as pipeline crossings of streams or WWTP outfall modifications, an HPA will be required. The HPA will include provisions necessary to minimize project-specific and cumulative impacts to fish.

CITY SEWER ORDINANCES AND PLANNING POLICIES

The City of Wenatchee has Municipal Code Sections 4.08 and 9.15 which regulate sewer services. These chapters of the municipal code have been included in Appendix C. The sewer ordinances address such issues as requirements for connections to sewer system, permits for sewer installation by developers, rates for sewer service, development requirements, conditions for sewer service extensions, and sewage pretreatment regulations.

Section 4.08 of the Wenatchee Municipal Code, titled "Sewers - Rates and Charges," includes standards for public and private sewers, a list of substances prohibited from the sewer system, and requirements for pretreatment facility design and operation for industrial dischargers and dischargers of fats, oils, and greases (e.g., food service establishments).

Per Section 4.08.020 of the code, all properties within the City's sewer service area are required to connect to the City's sewer system.

Per section 10.42.60 of the code, planned development projects may be required to include facilities such as sanitary sewers.

CHAPTER 4

EXISTING FACILITIES

This chapter describes existing facilities within the City of Wenatchee wastewater collection and treatment systems. These facilities include pressure and gravity sewers, pump stations, the wastewater treatment plant, and river outfall.

WASTEWATER COLLECTION SYSTEM

LIFT STATIONS

The City of Wenatchee operates five lift stations. Station locations and force main routes are shown on Figure 4-1. These five lift stations serve isolated areas and are located throughout the city limits. Olds Station, Quail Hollow and Broadview lift stations convey flows from the northern portion of the City whereas Squilchuck Lift Station serves an area along the southern UGA limits. River Park Lift Station serves an isolated area located adjacent to the Columbia River, just north of the treatment plant. In general, the treatment plant is located in the middle of the service area along the Columbia River. Wastewater collected from approximately half of the City's service area flows south and east into the plant whereas the remaining half of the area flows north and then east into the wastewater treatment plant. A schematic showing how the pumps stations are linked is shown in Figure 4-2. In addition to the City lift stations, various commercial establishments maintain private lift stations that pump pretreated process effluent to the City collection system.

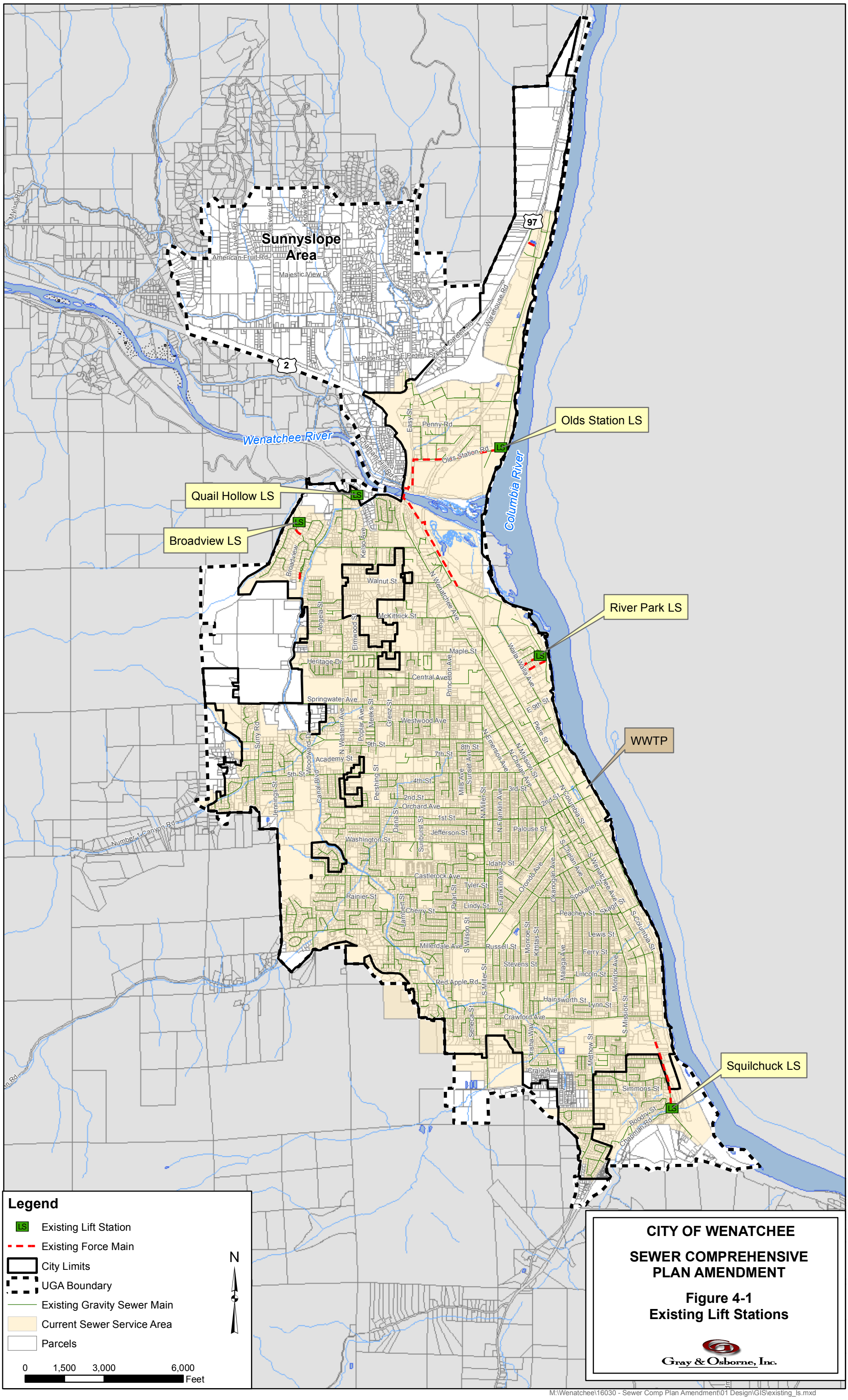
Basic information about the lift stations is summarized in Table 4-1. All of Wenatchee's lift stations are equipped with submersible pumps, and all are duplex stations. The City utilizes Flygt submersible pumps for the Olds Station, Quail Hollow and River Park Lift Stations, Goulds pumps for the Broadview LS and Vaughn pumps for the Squilchuck Lift Station.

With the exception of Olds Station LS, the pump controls and associated utility service and telemetry are mounted in weather-tight enclosures on unsheltered racks at grade. For Olds Station, the controls are enclosed in a CMU building. The stations generally consist of a wet well with rail-mounted submersible pumps, a discharge valve vault with check valve and isolation valve for each pump, and an unsheltered rack for electrical power, control, and telemetry equipment. Most stations are equipped with a bypass connection and valving to allow the pumps and/or wet well to be bypassed for maintenance or in an emergency. Most of the stations are not equipped with security fencing with the exception of the Olds Station and Squilchuck Lift Stations.

A variety of pump controllers are used including Milltronics' Multi Ranger Plus Ultra Sonic (Olds LS), Flygt's Multitrode MT2PC (Quail Hollow), Intrinsically Safe Float Control (Broadview LS), Multitrode MultiSmart (River Park) and Allen Bradley's Panel View C600 pump controller (Squilchuck LS). These pump controllers are used to control the pumps, monitor wet well level and other station parameters, and furnish basic status information and alarms. Wet well levels are detected using a conductance probe, which detects levels in predetermined increments. Each increment of level detection is independently hardwired, providing redundancy. Pump starters are either full-voltage non-reversing (FVNR) or soft starters, depending on motor size. None of the lift stations currently uses variable frequency drives to modulate pump speed. All stations are equipped with radio-based telemetry, which transmits status information to the main telemetry computer interface at the City's Wastewater Treatment Plant. Such status information includes alarms for high wet well, low wet well, pump fail, and cumulative pump run time and the number of run cycles. On some stations, an intrusion alarm is radioed to the plant as well.

High wet well level produces a local alarm, which typically consists of a red light (with the exception of Olds Station LS which has no light). In addition, a communication alarm, pump on/off or a failure alarm are transmitted to the WWTP, which notifies on-duty personnel of the problem. Pump Run, Pump Fail, Pump Thermal Overload, Pump Seal Fail and 3-Phase Power Fail are displayed on the pump controller at the lift station site. City personnel visit the stations typically once a week to inspect the wet well, panel and power meter readings and other pertinent information. Olds Station LS is visited 5 days a week.

The Squilchuck, Quail Hollow and River Park all have generator receptacles available for the use of a portable generator in the event of a power failure. The City has one 45-kw portable generator available to be used for emergency purposes as well as a few smaller portable generators. The Olds Station LS has a permanent generator located onsite.



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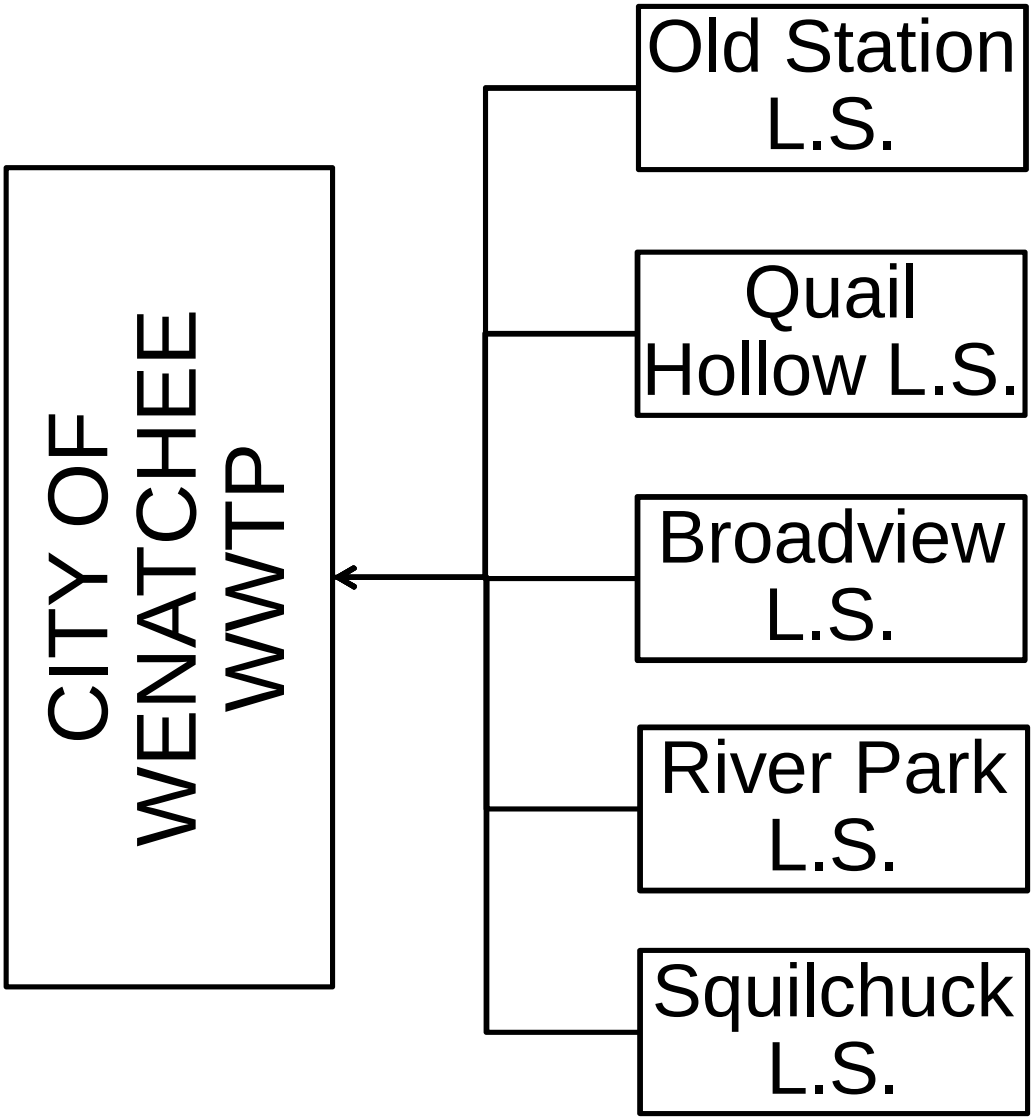


CITY OF WENATCHEE

SEWER COMPREHENSIVE PLAN AMENDMENT

FIGURE 4-2
LIFT STATION FLOW SCHEMATIC

Gray & Osborne, Inc.

TABLE 4-1

City of Wenatchee Lift Stations

Pump Station	Olds Station	Squilchuck	Broadview	Quail Hollow	River Park
Year Constructed	1983	2013	1995	2004	2009
Existing ERUs	Not Available(1)	112	59	17	50
Station Type	Submersible, Centrifugal Pumps	Submersible Grinder Pumps	Submersible Grinder Pumps	Submersible Grinder Pumps	Submersible, Centrifugal Pumps
Number of Pumps	2	2	2	2	2
Pump Manufacturer, Model	Flygt HT-CP-3152 1,750 rpm	Vaughn SE3V-070, S3V-070	Goulds 3SD12H3BA 1,725 rpm	Flygt MP-3102-263HT	Flygt NP-3127- 090HT
Motor Size	20 hp 230v, 3 phase	30 hp 460v, 3 phase	3 hp 230v, 3 phase	5 hp 230v, 3 phase	7.5 hp 230v, 3 phase
Wet Well Diameter	8'	8'	6'	6'	6'
Level Control Primary/Backup	Ultrasonic/Float	Pressure/Float	Float/Float	Conductivity/Conductivity	Pressure/Conductivity
Depth to Bottom of Wet Well	18'-8"	21'	18'	13'-2"	23'
Mix Flush Valve?	No	No	No	Yes	Yes
Lift Station Firm	750 gpm @ 70'	375 gpm @ 100'	165 gpm @ 40'	86 gpm @ 90'	400 gpm @ 40'
Capacity	TDH	TDH	TDH	TDH	TDH
Estimated Peak Hour Flow (gpm)(2)	979	232	30	13	36
Available Emergency Storage Volume (gal)	27,200	6,200	2,655	3,300	5,400
Force Main, Length	12" – 4,800'	6" – 2,685'	4" – 650'	4" – 1,250'	4" – 850'
Force Main Material	PVC	Ductile Iron	PVC	Ductile Iron	HDPE
Sufficient Emergency Storage	Yes	Yes	Yes	Yes	Yes
Flow Meter	Mag-meter	None	None	None	None
Telemetry	Yes	Yes	Yes	Yes	Yes
Emergency Generator	Yes	Yes	No	No	No
Generator Receptacle	No	Yes	No	Yes	Yes

(1) Flow metering information is insufficient to determine exact ERUs from the industrial areas.
(2) From sewer model for the existing scenario.

COLLECTION SYSTEM

Gravity sewer lines in downtown Wenatchee were first constructed in the early 1900s when they were part of a combined sanitary sewer and storm drainage system. Most of the City's gravity mains were constructed prior to 1980 and are mainly constructed of 8-inch concrete pipe. As the City has grown and replaced pipe, PVC pipe has been installed to reduce infiltration and improve the condition of the sanitary sewer system.

Figure 4-1 shows the existing sewer system. Wastewater is discharged to the City's wastewater treatment facility, which has an outfall in the Columbia River. The sewer system service area is gently sloping in the downtown region toward the Columbia River, where the treatment facility is located. The outer edges of the city limits contain more dramatic slopes through which wastewater is conveyed to the more gently sloping reaches of the downtown area. Most of the collection system consists of gravity sewers, some of which drain to lift stations. The current system consists of 4-inch to 42-inch-diameter pipe, constructed mostly of concrete and PVC.

A summary of the various pipe diameters within the City's gravity sewer system are provided in Table 4-2. This summary is based on information provided by the City's geographical information system (GIS) data.

TABLE 4-2

Sewer Pipe Summary

Pipe Diameter (in)	Length (ft)
4	2,404
6	6,279
8	430,477
10	91,505
12	82,290
15	20,117
18	20,321
21	917
24	18,635
30	10,075
36	5,794
42	535
Total	**713,685**

The Wenatchee sanitary sewer system contains a total of approximately 2,991 manholes. These manholes vary in construction material from stone, brick or the newer precast

concrete manholes. Approximately 80 percent of the manholes are precast whereas the remaining ones are either brick or stone. The older manholes are located in the older section of downtown and within the southern neighborhoods. These manholes present a greater opportunity for infiltration to occur, due to the mortar joints between the bricks or stone material, than the newer precast manholes.

COLLECTION AREAS

For the purposes of this plan, the Wenatchee collection system is divided into a total of 38 collection areas, or sewer drainage basins. These collection areas predominantly follow the natural drainage patterns of the service area. The basins were subsequently divided into a total of 139 subbasins to allow for amore finite analysis of the system. Five of the basins drain to an existing lift station while the remaining basins currently drain directly to the WWTP or are intended for future development. These subbasins are shown in Figures 4-3 through 4-5. The subbasin boundaries reflect developments and flow routing.

The following section describes the land use designations within the generalized regions throughout the City as well as information about the sewer lines within each basin.

Squilchuck

The Squilchuck area consists of an area of approximately 275 acres in the southern portion of the City's UGA. It includes areas primarily designated for single family residential use and small areas zoned multifamily. Wastewater from this area flows to the Squilchuck LS located on South Wenatchee Avenue. From there, flow is pumped to a manhole located approximately 2,745 LF to the north of the station along South Wenatchee Avenue. The discharge manhole is situated within the South City Basin. From there, flow is directed north to the WWTP by gravity.

South City

The South City area consists of most of the southern half of the City limits and contains approximately 2,518 acres. The South City region includes a multitude of land use areas including low to high-density residential, and portions of the Central and South Wenatchee Business Districts. Wastewater from this basin generally flows entirely by gravity to the east where it eventually reaches the WWTP.

North City

The North City region consists of an area of approximately 2,695 acres located near the north end of the City situated south of the Wenatchee River and East of the Columbia River. The North City region includes areas designated for low to high-density residential, office mixed use, waterfront mixed use and the North Wenatchee Business District. Wastewater from this area flows by gravity toward the east and south until it reaches the

WWTP. This area also takes flow in from the Quail Hollow LS Basin, Broadview LS Basin, Olds Station LS Basin, and River Park LS Basin. In the future, it is anticipated that it will take flow in from the Sunnyslope region as well.

River Park

The River Park region consists of 88 acres located adjacent to the Columbia River in northern Wenatchee. This area consists entirely of a waterfront mixed land use. Wastewater from this region flows by gravity to the River Park LS and is then pumped into the North City area via 850 feet of force main. Flows then continue south to the WWTP.

Broadview

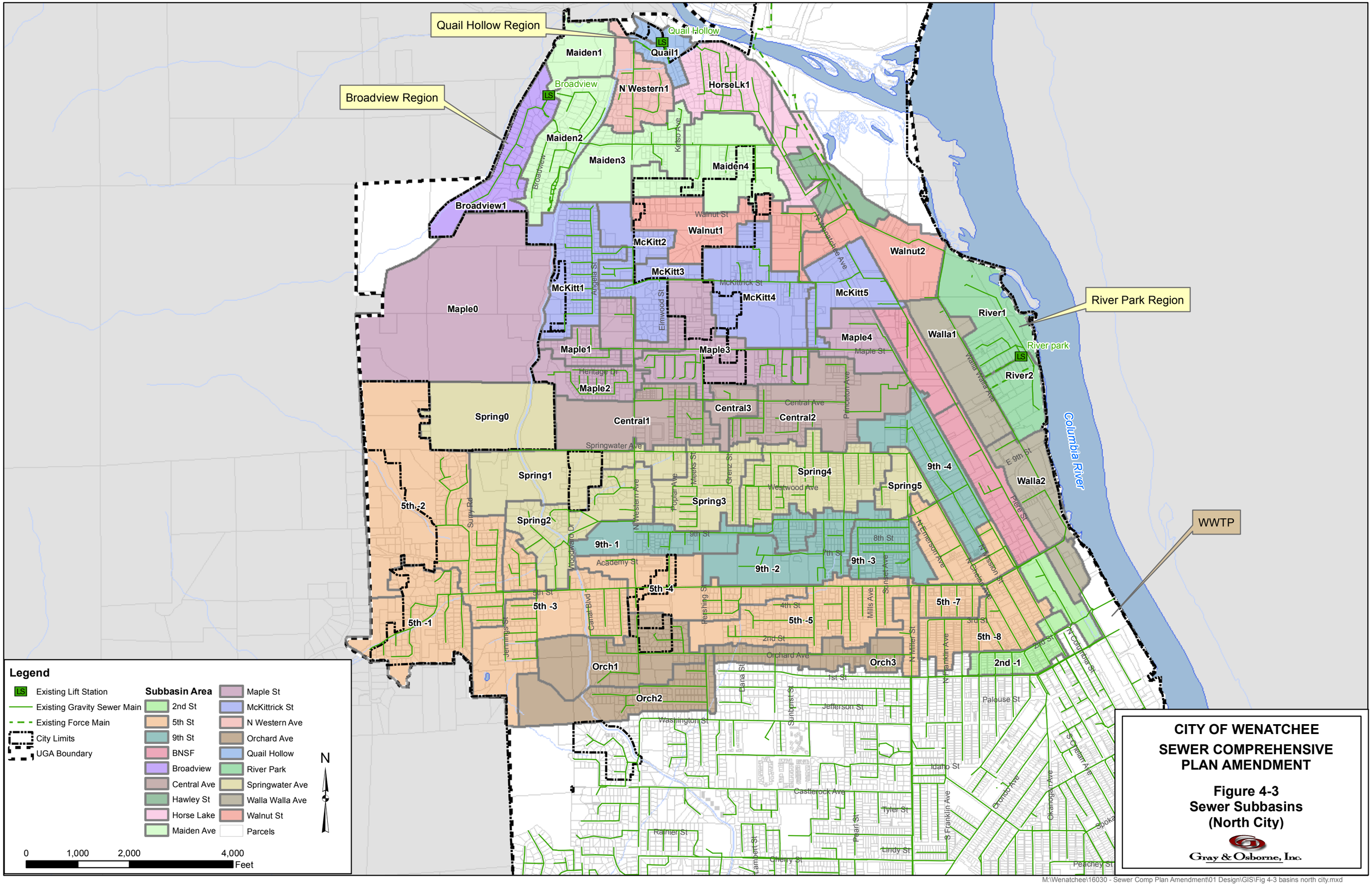
The Broadview region is located in the northwestern portion of the City and consists of approximately 35 acres. The Broadview area includes only single-family residential properties. Wastewater from this area flows by gravity to the northeast into the Broadview LS Basin, which conveys the wastewater to the North City region through approximately 645 feet of force main. Flow from the North City region is conveyed east and then south into the WWTP.

Quail Hollow

The Quail Hollow region consists of an area of approximately 15 acres situated at the north end of the City near the Wenatchee River. The Quail Hollow area includes a moderate-density residential land use. Wastewater from this region flows by gravity to the Quail Hollow LS and is then pumped into the North City region via 1,160 feet of force main. Similar to the Broadview LS Basin, flows enter the North City region and eventually are conveyed east and south into the WWTP.

Olds Station

The Olds Station region consists of an area of approximately 843 acres and is located in the northeast portion of the City, north of the Wenatchee River, adjacent to the Columbia River. This area was annexed into the City in 2016. The Olds Station area consists primarily of industrial land uses. Wastewater from this area flows by gravity to the Olds Station LS, which conveys wastewater into the North City region via a series of 12-inch PVC force main and 12-inch gravity pipes. Flow is discharged from the force main on the north side of the Wenatchee River Bridge (SR 285). From here, it enters a 12-inch fiberglass gravity main that crosses under the SR 285 bridge and then enters a 12-inch PVC inverted siphon at the south end of the bridge where it discharges to a gravity main along the railroad tracks between Hawley Street and North Miller Street. In the future, it is anticipated that wastewater from the Ohme Garden and US 97 Alt. Basins would be conveyed to the Olds Station LS Basin.



CITY OF WENATCHEE

SEWER COMPREHENSIVE PLAN AMENDMENT

Figure 4-3
Sewer Subbasins (North City)

Gray & Osborne, Inc.

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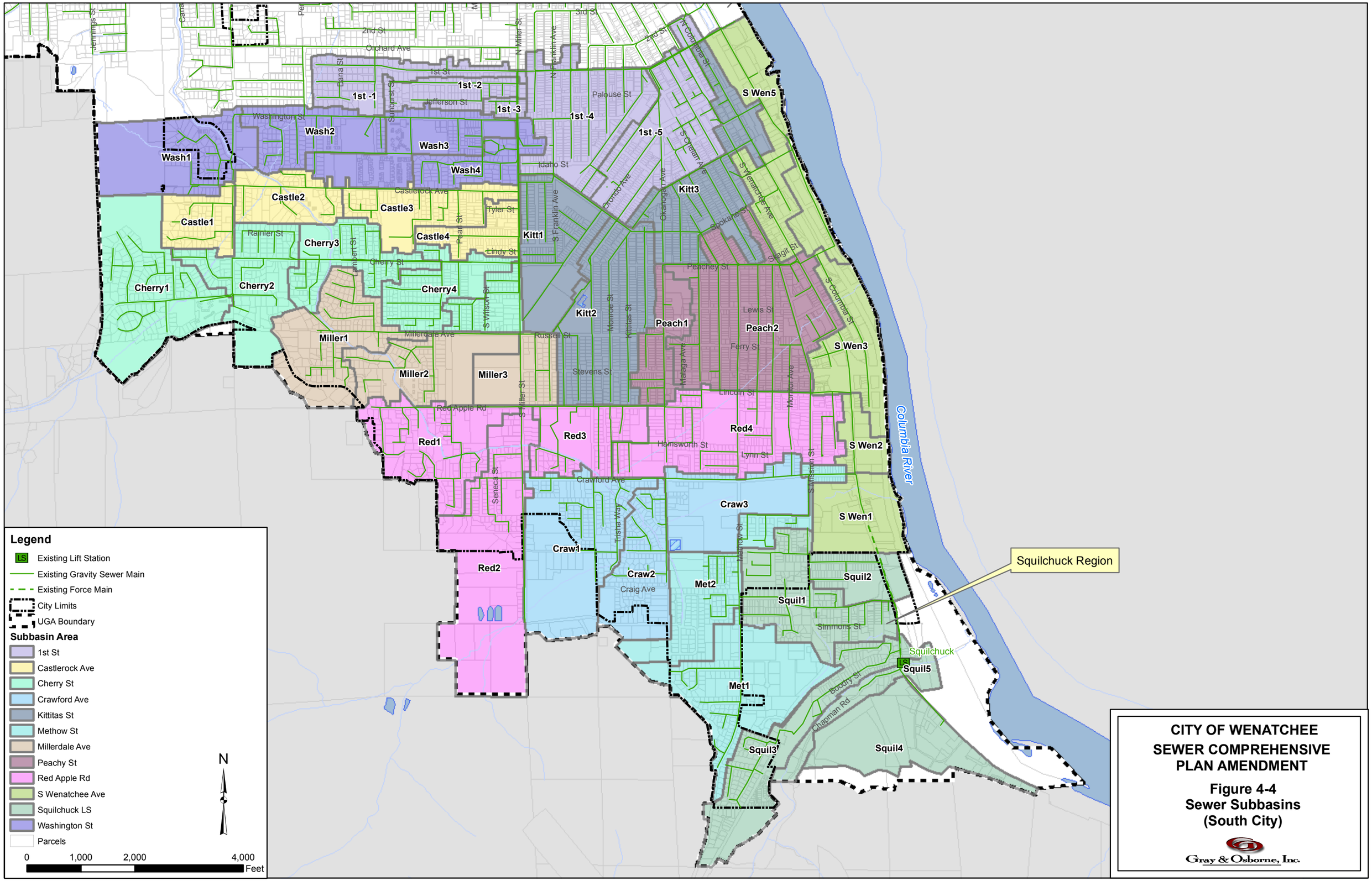

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT

Figure 4-4
Sewer Subbasins
(South City)

Gray & Osborne, Inc.

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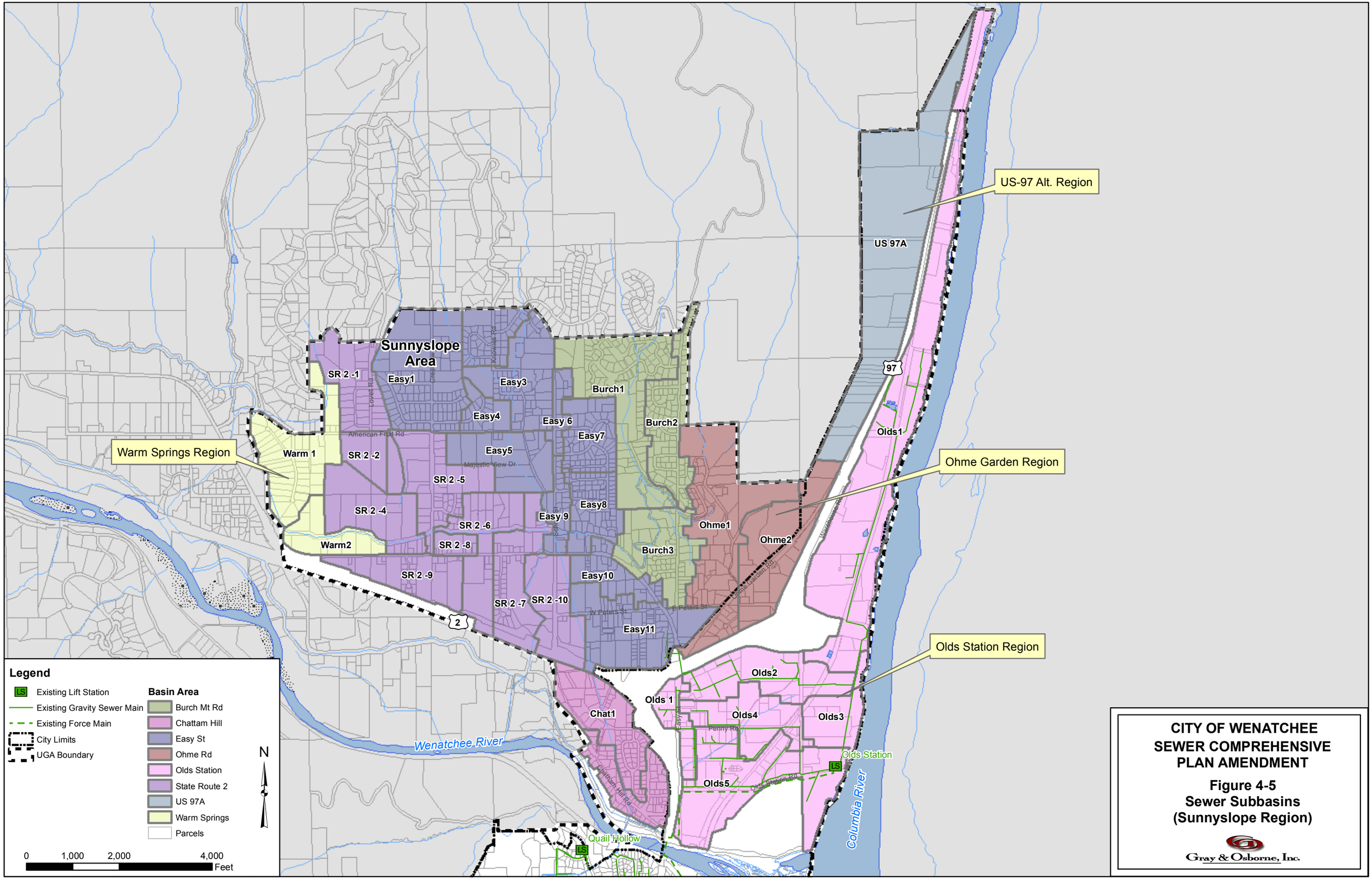

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Ohme Garden

The Ohme Garden region consists of a small region of approximately 83 acres located along Ohme Garden Road, north of the Wenatchee River, in between portions of the Olds Station LS Basin. The southern half of this basin was annexed into the City in 2016. The northern half lies within unincorporated Chelan County. The Ohme Garden area consists primarily of the Ohme Gardens in the north end and industrial areas located on the south end. This basin is currently not served by the City's sewer system. In the future, it is anticipated that wastewater from this area would flow to a new lift station located in the northeast portion of the basin. Flow would then be pumped southwesterly into the Olds Station LS Basin.

US 97 Alt.

The US 97 Alt. region consists of an area of approximately 230 acres located in the northeast portion of the City, along the west side of the US 97 Alternate Route. This area consists primarily of industrial land uses and steep slopes. It is currently not served by the City's sewer system. It is anticipated that development within this area would need to gravity flow to a lift station in the Ohme Garden area that would then convey flow west and then south to a new lift station in the Sunnyslope region.

Sunnyslope

The Sunnyslope region consists of an area of approximately 1,310 acres north of the current City limits. This area is currently served by septic systems and includes predominantly low-density residential land uses. It is anticipated that wastewater from this area would flow to a new Sunnyslope lift station, just east of the SR 285 bridge and just north of the Wenatchee River, where it would eventually be conveyed into the gravity system within the North City region.

Warm Springs

The Warm Springs region is located in the most northwestern portion of the City's UGA and is currently in unincorporated Chelan County. It consists of 130 acres with a low density residential land use. This system is currently served by septic systems. A future gravity line within the Warm Springs Basin would convey wastewater west toward a new lift station that would then convey flow easterly into the Sunnyslope Basin via Easy Street.

WASTEWATER TREATMENT PLANT

HISTORY

The City originally constructed the wastewater treatment plant (WWTP) in 1958 as a primary treatment facility. In 1975, it added secondary treatment, which included aeration basins, secondary clarification, return activated sludge pumping, and a new diffuser in the Columbia River. The City increased the capacity of the activated sludge aeration basins in 1984.

In 1992-1993, the City completed other WWTP upgrades which allowed for an increase in the overall design capacity of the facility. The upgrades included a headworks, a second primary clarifier, heat exchangers for the anaerobic digesters, and a waste-gas burning boiler for heating the digesters as well as some new buildings. The plant's solid waste handling processes were updated in 1992.

The WWTP was again upgraded in 2005, including the following improvements:

- Construction of a 1.7 MG flow equalization basin for peak flow above 11 MGD.
- Replacement of influent gates.
- Replacement of raw sewage pumps and drives.
- Replacement of the coarse bubble diffusers in the aeration basins with fine bubble diffusers.
- Installation of baffles in the aeration basins to create four aeration zones in each basin.
- Modification of the influent and effluent channels in the aeration basins to facilitate operations in either plug flow or step-feed.
- Installation of mixers and pumps in the aeration chambers to create anoxic conditions in the first aeration zone.
- Replacement of secondary clarifier mechanisms.
- Modification of return activated sludge (RAS) pumping controls.
- Replacement of chlorine disinfection system with ultraviolet (UV) disinfection.
- Modification of the stormwater collection piping on the treatment plant site to discharge into the influent pump station for treatment, rather than the Columbia River.
- Changed the control system for the liquid treatment stream to programmable logic control (PLC) and supervisory control and data acquisition (SCADA) based systems.

In addition to these improvements, the City recently completed a project to improve odor control and mitigate the visual impact of the WWTP.

EXISTING WWTP

Below is a brief synopsis of the liquid and solid treatment processes for the Wenatchee WWTP.

Liquid Treatment

The treatment process is conventional activated sludge with provisions for either step feed or plug flow operation. The peak flow within the WWTP is limited to 11 MGD by the equalization basin. Any excess flows are directed to an open storage basin located directly west of the plant site on the other side of North Worthen Street. Influent screening is performed by two perforated plate screens which were installed in 2012. The screenings are processed by the washer/compactor equipment provided with each screen mechanism. The capacity of each screen and washer/compactor system is 15 MGD. There are two vortex grit removal chambers with a peak hydraulic capacity of 11 MGD each.

Screened influent is conveyed to two primary clarifiers (65 feet and 85 feet in diameter), which have a combined total surface area of 8,340 sf. The combined loading rate of the two clarifiers is over 3500 gal/sf/d.

Following removable of settleable solids in the primary clarifiers, wastewater (now primary effluent) is conveyed to the aeration basins. The aeration basins are 15-feet deep and composed of two trains. The total volume is 1.11 MG. Each train has a 0.065 MG selector basin and can be operated in either aerobic or anoxic mode when the plant is nitrifying, or denitrifying in an anaerobic condition. The selector operates in anoxic mode most of the time. The existing aeration system uses nine inch Sanitaire membrane diffusers. The maximum oxygen transfer capacity for a single train is 4,250 lb/d using 1.5 SCFM per diffuser as the design basis. The existing three aeration blowers have a capacity of 5,500 SCFM each. With the firm capacity of 11,000 SCFM or roughly 3.8 SCFM per diffuser and both trains online, this capacity can be achieved.

The two existing secondary clarifiers have a side water depth of 12-feet deep, which is relatively shallow. (Typical secondary clarifiers can handle a TSS loading of 25-35 lb/sf at maximum month flows but would typically have a side wall depth of 16 feet or more.) The maximum solids loading rate is assumed to be 20 lb/sf to account for the shallow clarifier. The existing RAS pumping station has a firm capacity of 2.7 MGD.

In 2004 – 2005, the City constructed an ultraviolet light disinfection system to replace the existing gaseous chlorination system. The original UV Equipment was manufactured by WEDECO, and included the WEDECO TAK 55 design using a triple UV channel configuration with three UV lamp banks configured to provide 11 MGD capacity assuming two channels in operation. The TAK 55 was designed to provide a UV dose of >40,000 microW-s/cm^2 at a UV transmittance (at 253.7 nm) of 50 percent.

Solids Treatment

The existing solids processing train consists of waste activated sludge (WAS) thickening, separate WAS and primary sludge anaerobic digestion, and dewatering. The biosolids produced by the Wenatchee WWTP solids handling facility are Class B biosolids.

The Wenatchee WWTP has no primary sludge thickening. The sludge is settled in the primary clarifiers as mentioned above in the liquids treatment section. The thickened sludge concentration ranges between 3 percent and 5 percent. There is a single 2-meter gravity belt thickener for waste activated sludge which has a capacity of 800 lb/hr – 1400 lb/hr. There is no redundancy in the system since there is only a single gravity belt thickener.

The two primary sludge digesters have enough volume to meet the minimum 15 days HRT goal, but both units must be online. A single digester is not sufficient to meet the minimum recommended HRT goal of 15 days unless primary sludge is thickened to TS values greater than 6 percent.

Drying beds are located 10 miles south of the City. The drying beds facility is used to dewater the biosolids and dry them sufficiently to produce Class A, Exceptional Quality (EQ) biosolids. Once the biosolids are dry enough and fully stabilize, they are ready for the final agricultural land application.

CHAPTER 5

EXISTING AND PROJECTED WASTEWATER FLOWS AND CHARACTERISTICS

INTRODUCTION

In this chapter, the existing wastewater characteristics for the service area will be analyzed and projections made for future conditions.

Appropriate design of wastewater treatment and conveyance facilities requires the determination of the current and future quantity and quality of wastewater generated from each of the contributing sources. Typically, wastewater is predominantly domestic in origin with lesser amounts contributed by commercial businesses and by public use facilities such as schools, parks, hospitals, and municipal functions. In addition to these flows, the City of Wenatchee's WWTP also has a significant amount of flow from agricultural processing sources which increases the organic loadings. Additionally, infiltration and inflow (I/I) contributions result from surface water entering the sewer system, mostly from roof drains in the downtown core of the City.

DEFINITIONS OF TERMS

The terms and abbreviations used in the analysis are described below, listed in alphabetical order.

AVERAGE ANNUAL FLOW

Average annual flow is the average daily flow over a calendar year. This flow parameter is used to estimate annual operation and maintenance costs for treatment and lift station facilities.

AVERAGE DRY WEATHER FLOW

Average dry weather flow is wastewater flow during periods when the groundwater table is low and precipitation is at its lowest of the year. The dry weather flow period in much of western Washington normally occurs during June through September; however, in much of central and eastern Washington, flows in summer are often higher due to the influence of irrigation. During dry weather (low infiltration and inflow) periods, the wastewater strength is highest, due to the lack of dilution with the ground and surface water components of infiltration and inflow. The average dry weather flow is often considered the average daily flow during the three lowest consecutive flow months of the year.

BASE FLOW

Base flow is wastewater flow during periods when the groundwater table is low and there is no precipitation. This is the sanitary sewer flow without any inflow or infiltration (defined below). Base flow is often determined from the influent flow charts during the driest summer months; however, in much of central and eastern Washington, flows in summer are often higher due to the influence of irrigation. Base flow values are slightly lower than the average dry weather flow, because the base flow is not an average over dry (low infiltration and inflow) months, but the lowest flow during dry days.

BIOCHEMICAL OXYGEN DEMAND (BOD_5)

Biochemical oxygen demand (BOD) is a measure of the oxygen required by microorganisms in the biochemical oxidation (digestion) of organic matter. BOD is an indicator of the organic strength of the wastewater. If significant quantities are discharged untreated to the environment, biodegradable organics will deplete natural oxygen resources and result in the development of septic (anaerobic) conditions. BOD data together with other parameters are used in the sizing of the treatment facilities and provide a measurement for determining the effectiveness of the treatment process. BOD is expressed as a concentration in terms of milligrams per liter (mg/L) and as a load in terms of pounds per day (lb/d). The term BOD typically refers to a 5-day BOD, often written BOD_5, since the BOD test protocol requires 5 days for completion. BOD_5 of a wastewater is composed of two components – a carbonaceous oxygen demand ($CBOD_5$) and a nitrogenous oxygen demand ($NBOD_5$). The use of $CBOD_5$ as a parameter for evaluating wastewater strength removes the influence of nitrogenous components, including ammonia and organic nitrogen.

CHLORINE

Chlorine is a chemical compound that acts as a strong oxidant. Chlorine is widely used as a disinfectant in wastewater treatment, and is available both in gaseous (elemental chlorine) and solution forms (hypochlorite). Chlorine is a toxic chemical and is lethal to aquatic biota (as well as other species, including humans) if present in too high a concentration. Additionally, some organic constituents may react with the chlorine to interfere with chlorination or form toxic compounds, such as chloroform, that can have long-term adverse effect on the beneficial uses of the waters to which they are discharged. To minimize the effects of potentially toxic chlorine residuals on the environment, it has sometimes been found necessary to dechlorinate wastewater treated with chlorine or substitute alternative disinfection systems such as ultraviolet disinfection, as the City of Wenatchee uses.

CONTAMINANTS OF CONCERN

Contaminants of concern in wastewater, in addition to chlorine, BOD, and TSS discussed elsewhere in this section, include nutrients, priority pollutants, heavy metals, and dissolved organics.

Nutrients, such as nitrogen and phosphorus along with carbon, are essential requirements for growth. When discharged to the aquatic environment, these nutrients can lead to the growth of undesirable aquatic life. When discharged in excessive amounts on land, they can also lead to the pollution of groundwater. Additionally, in too high a concentration, nutrients, particularly ammonia, can be toxic to aquatic life.

Priority pollutants are organic and inorganic compounds selected on the basis of their known or suspected carcinogenicity, mutagenicity, teratogenicity, or high acute toxicity. Many of these compounds are found in wastewater. Inorganic constituents, including heavy metals, are often present in wastewater due to commercial and industrial activities and may have to be removed if the presence of the metals will adversely affect the receiving water, or if the wastewater is to be reused. Some heavy metals (most notably copper, zinc and lead) can be present in wastewater due to leaching from drinking water pipes.

DOMESTIC WASTEWATER

Domestic wastewater is wastewater generated from single- and multi-family residences, permanent mobile home courts, and group housing facilities such as nursing homes. Domestic wastewater flow is generally expressed as a unit flow based on the average contribution from each person per day. The unit quantity is expressed in terms of gallons per capita per day (gpcd).

EQUIVALENT RESIDENTIAL UNIT (ERU)

An equivalent residential unit (ERU) is a baseline wastewater generator that represents the average single-family residential household. An ERU can also express the average annual flow contributed by a single-family household, in units of gallons per day, or an annual average loading (of 5-day biochemical oxygen demand or total suspended solids) contributed by a single-family household, in units of pounds per day.

INFILTRATION

Infiltration is groundwater entering a sewer system by means of defective pipes, pipe joints, or manhole walls. Infiltration quantities exhibit seasonal variation in response to groundwater levels. Storm events or irrigation trigger a rise in the groundwater levels and increase infiltration. The greatest infiltration is observed following significant storm events or prolonged periods of precipitation. Since infiltration is related to the total amount of piping and appurtenances in the ground and not to any specific water use

component, it is often expressed in terms of the total land area being served. The unit quantity generally used is gallons per acre per day (gpad) or gallons per capita per day (gcpd).

INFLOW

Inflow is surface water entering the sewer system from yard, roof and footing drains, from cross connections with storm drains, and through holes in manhole covers. Peak inflow occurs during heavy storm events when storm sewer systems are taxed beyond their capacity, resulting in hydraulic backups and local ponding. Inflow, like infiltration, can be expressed in terms of gallons per capita day or gallons per acre per day.

MAXIMUM MONTH FLOW (TREATMENT DESIGN FLOW)

Maximum month flow is the highest monthly flow during a calendar year. The maximum month flow in western Washington normally occurs in the winter due to the presence of more I/I; however, in much of central and eastern Washington, flows in summer are often higher due to the influence of irrigation. These peak flows are composed of the normal domestic, commercial, and public use flows with significant contributions from inflow and infiltration. The predicted maximum month flow at the end of the design period is used as the design flow for sizing treatment processes and selecting treatment equipment.

NON-RESIDENTIAL WASTEWATER

Non-residential wastewater is wastewater generated from commercial activities, such as restaurants, retail and wholesale stores, service stations, and office buildings, and industrial flow (process wastewater, rinse water, and other industrial activities).

PEAK HOUR FLOW

Peak hour flow is the highest hourly flow during a calendar year. The peak hour flow usually occurs in response to a significant storm event preceded by prolonged periods of rainfall which have previously developed a high groundwater table in the service area. In Wenatchee, peak hour flows are expected to occur during a confluence of irrigation-impacted infiltration, storm events and diurnal peaks. Peak hour flows are typically used in sizing the hydraulic capacity of wastewater collection, treatment, and pumping components; however, for Wenatchee, peak hour flows within the WWTP are limited to 11 MGD, so WWTP components have been sized for 11 MGD. Peak hour flow is typically determined from treatment facility flow records and projected future flows.

SUSPENDED SOLIDS

Suspended solids is the solid matter carried in the waste stream. The total suspended solids (TSS) in a wastewater sample are determined by filtering a known volume of the

sample, drying the filter paper, and measuring the increase in weight of the filter paper. TSS is expressed in the same terms as BOD; milligrams per liter for concentration and pounds per day for mass load. The amount of TSS in the wastewater is used in the sizing of treatment facilities and provides another measure of the treatment effectiveness. The concentration of TSS in wastewater affects the treatment facility biosolids production rate, treatment and storage requirements, and ultimate disposal requirements.

WASTEWATER

Wastewater is water-carried waste from residential, business, industry, and public use facilities, together with quantities of groundwater and surface water which enter the sewer system through defective piping and direct surface water inlets. The total wastewater flow is quantitatively expressed in millions of gallons per day (MGD).

EXISTING WASTEWATER FLOWS AND LOADING

WWTP records for the 5-year period from 2011 through 2015 were reviewed and analyzed to determine current wastewater characteristics and influent loadings. Current wastewater flows and loadings were then used in conjunction with projected population data to determine projected future wastewater flows and loadings.

WASTEWATER FLOWS

Table 5-1 summarizes reported WWTP flows for the 5-year period, from 2011 to 2015, in millions of gallons per day (MGD). (Note: The WWTP flows cited are effluent flows, as influent flows are not measured.) Table 5-2 is an expanded version of Table 5-1 and includes monthly data and several additional categories for flow and loadings. The monthly average WWTP flows ranged from 2.41 MGD to 3.14 MGD. The peak instantaneous flows shown in Table 5-1 do not include flows that were sent to the Flow Equalization Basin, which are discussed later in this chapter.

TABLE 5-1

Historical WWTP Flows (2011 to 2015)(1)

Flow Type (MGD)	2011	2012	2013	2014	2015	Average
Annual Average Flow	2.85	2.64	2.63	2.74	2.80	2.73
Maximum Monthly Flow	3.11	2.89	2.87	3.10	3.14	3.02
Peak Day Flow	4.70	3.50	4.10	4.40	5.30	4.40
Peak Instantaneous Flow	10.00	8.40	10.20	10.60	8.50	9.54

(1) Compiled from WWTP DMR Data.
(2) As reported in DMRs, does not include excess flows going to Flow Equalization Basin.

Monthly Discharge Monitoring Report (DMR) data for this period are provided in Appendix D and summarized in Table 5-2. Graphical representations of average monthly WWTP flows, influent BOD_5 loadings, and influent TSS loadings for the period from

January 2011 through December 2015 are shown in Figures 5-1, 5-2 and 5-3, respectively.

Reported peak instantaneous WWTP flow was 10.6 MGD in August 2014. The maximum daily flow was 5.30 MGD and was in May 2015.

TABLE 5-2

Summary of Discharge Monitoring Reports (DMRs)
WWTP Influent Monthly Averages

Month	Average Monthly Flow (MGD)	Instantaneous Max Flow (MGD)	Peak Day Flow (MGD)	BOD_5 (mg/L)	BOD_5 (lb/d)	TSS (mg/L)	TSS (lb/d)
Jan-11	2.75	6.70	3.90	350	7,880	333	7,611
Feb-11	2.69	4.30	3.00	340	7,694	312	6,991
Mar-11	2.83	8.70	4.70	335	7,886	314	7,421
Apr-11	2.71	4.40	3.00	368	8,410	344	7,768
May-11	2.92	9.80	4.40	355	8,432	363	8,815
Jun-11	2.92	6.40	3.50	356	8,881	354	8,614
Jul-11	3.11	10.00	3.50	317	8,271	337	8,734
Aug-11	2.93	4.40	3.20	299	7,398	338	8,241
Sep-11	2.84	5.80	3.00	310	7,553	345	8,140
Oct-11	2.80	8.70	3.80	334	8,178	369	8,617
Nov-11	2.70	5.20	3.10	351	8,099	362	8,160
Dec-11	2.71	7.60	3.30	355	8,352	360	8,102
Jan-12	2.69	5.10	3.30	369	8,534	376	8,402
Feb-12	2.54	5.50	3.10	380	8,174	360	7,624
Mar-12	2.49	7.60	3.30	448	9,490	475	9,884
Apr-12	2.49	8.40	3.40	430	9,206	466	9,795
May-12	2.46	7.70	2.90	428	9,044	431	8,816
Jun-12	2.76	7.50	3.10	350	8,160	322	7,394
Jul-12	2.89	4.70	3.10	313	7,610	351	8,445
Aug-12	2.71	5.40	3.30	357	8,211	391	8,841
Sep-12	2.57	5.10	2.80	345	7,685	381	8,167
Oct-12	2.67	7.00	3.50	376	8,420	443	9,776
Nov-12	2.55	5.80	3.10	376	8,205	422	8,976
Dec-12	2.56	5.40	3.10	393	8,466	597	12,663
Jan-13	2.57	6.10	3.20	423	9,190	612	12,874
Feb-13	2.48	4.80	2.70	336	7,170	466	9,571
Mar-13	2.51	6.10	3.20	406	8,937	683	14,184
Apr-13	2.56	7.30	2.80	401	8,543	490	10,422
May-13	2.69	7.60	4.10	357	8,073	404	9,098
Jun-13	2.82	8.20	3.70	362	8,431	441	10,328
Jul-13	2.87	4.80	3.40	376	9,006	458	10,910
Aug-13	2.80	7.80	3.80	380	8,930	513	12,035
Sep-13	2.80	10.20	4.00	394	9,347	565	13,100

Oct-13	2.60	4.30	2.80	361	8,034	486	10,495

TABLE 5-2 – (continued)

Summary of Discharge Monitoring Reports (DMRs)
WWTP Influent Monthly Averages

Month	Average Monthly Flow (MGD)	Instantaneous Max Flow (MGD)	Peak Day Flow (MGD)	BOD_5 (mg/L)	BOD_5 (lb/d)	TSS (mg/L)	TSS (lb/d)
Nov-13	2.50	5.00	2.80	376	8,079	440	9,146
Dec-13	2.41	6.00	2.80	403	8,274	526	10,511
Jan-14	2.46	6.60	2.60	481	9,913	560	11,501
Feb-14	2.54	6.21	3.30	403	8,632	498	10,335
Mar-14	2.53	7.80	4.00	376	8,192	406	8,439
Apr-14	2.54	4.50	2.70	376	8,021	442	9,340
May-14	2.51	5.70	2.80	363	7,855	489	10,198
Jun-14	3.01	5.70	3.40	331	8,340	386	9,655
Jul-14	3.10	4.80	3.40	350	9,240	437	11,311
Aug-14	2.93	10.60	3.90	386	9,832	559	13,683
Sep-14	2.91	4.80	3.30	379	9,445	541	13,065
Oct-14	2.81	6.80	4.00	299	7,000	433	10,105
Nov-14	2.68	7.40	4.00	350	8,212	487	10,780
Dec-14	2.82	7.50	4.40	356	8,495	482	11,159
Jan-15	2.71	5.90	3.40	380	8,687	481	10,762
Feb-15	2.59	7.80	3.10	334	7,348	376	8,127
Mar-15	2.68	5.00	3.40	345	7,924	375	8,366
Apr-15	2.79	5.50	3.00	310	7,314	351	8,175
May-15	2.89	8.50	5.30	278	7,106	328	7,864
Jun-15	3.14	5.30	3.40	259	6,818	299	7,818
Jul-15	3.04	6.10	3.30	273	7,008	285	7,222
Aug-15	2.78	4.50	3.00	274	6,498	315	7,313
Sep-15	2.85	8.30	3.40	300	7,211	329	7,838
Oct-15	2.68	4.90	3.00	321	7,318	341	7,593
Nov-15	2.64	8.40	4.80	326	7,511	385	8,417
Dec-15	2.78	8.30	4.40	327	7,661	356	8,232
Average	2.72	6.54	3.42	356	8,197	419	9,433
Max.	3.14	10.60	5.30	481	9,913	683	14,184
Min.	2.41	4.30	2.60	259	6,498	285	6,991

From data provided by the City.

As shown below on Figure 5-1, the NPDES-permitted capacity of 5.5 MGD has not been exceeded on any given day during the testing time. The highest monthly average influent flow over the period of 2011 through 2015 was 3.14 MGD and it occurred in June 2015. The data also indicates that the peak day design flow of 11.0 MGD has not been exceeded. The peak day flow over the period between 2011 and 2015 was 5.30 MGD.

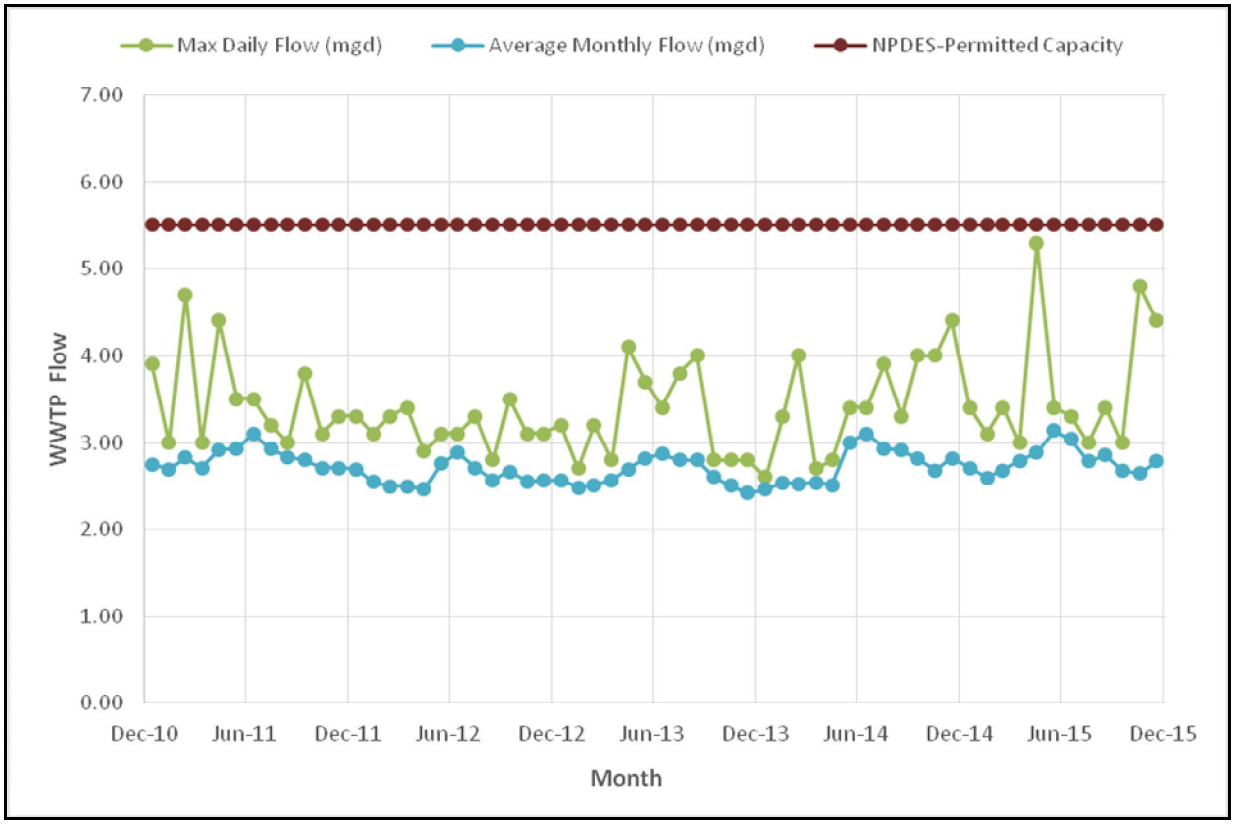


FIGURE 5-1

WWTP Flows – 2011 through 2015

WASTEWATER INFLUENT LOADINGS

The annual average and maximum month BOD_5 and TSS mass loading for 2011 through 2015 are listed in Table 5-3.

TABLE 5-3

WWTP Influent Annual Average Flow, BOD_5 and TSS(1)

Year	Annual Average Influent Flow (MGD)	Annual Average BOD5 (lb/d)	Annual Average TSS (lb/d)	Maximum Month BOD5 (lb/d)	Maximum Month TSS (lb/d)
2015	2.80	7,367	8,144	8,687	10,762
2014	2.74	8,598	10,798	9,913	13,683
2013	2.64	8,501	11,056	9,347	14,184
2012	2.62	8,434	9,065	9,490	12,663
2011	2.83	8,086	8,101	8,881	8,815
Average	2.72	8,197	9,433	9,264	12,021

(1) Average of monthly values, calculated from City data.

Figures 5-2 and 5-3 show the influent loads of BOD_5 and TSS loadings and the plant capacities for those loadings. Annual average BOD_5 influent loadings varied between approximately 6,500 and 10,000 lbs/day compared to the NPDES-permitted capacity of 13,006 lbs/day. Annual average TSS influent loadings were between 7,000 and 14,000 lbs/day in comparison to the design capacity of 13,111 lbs/day.

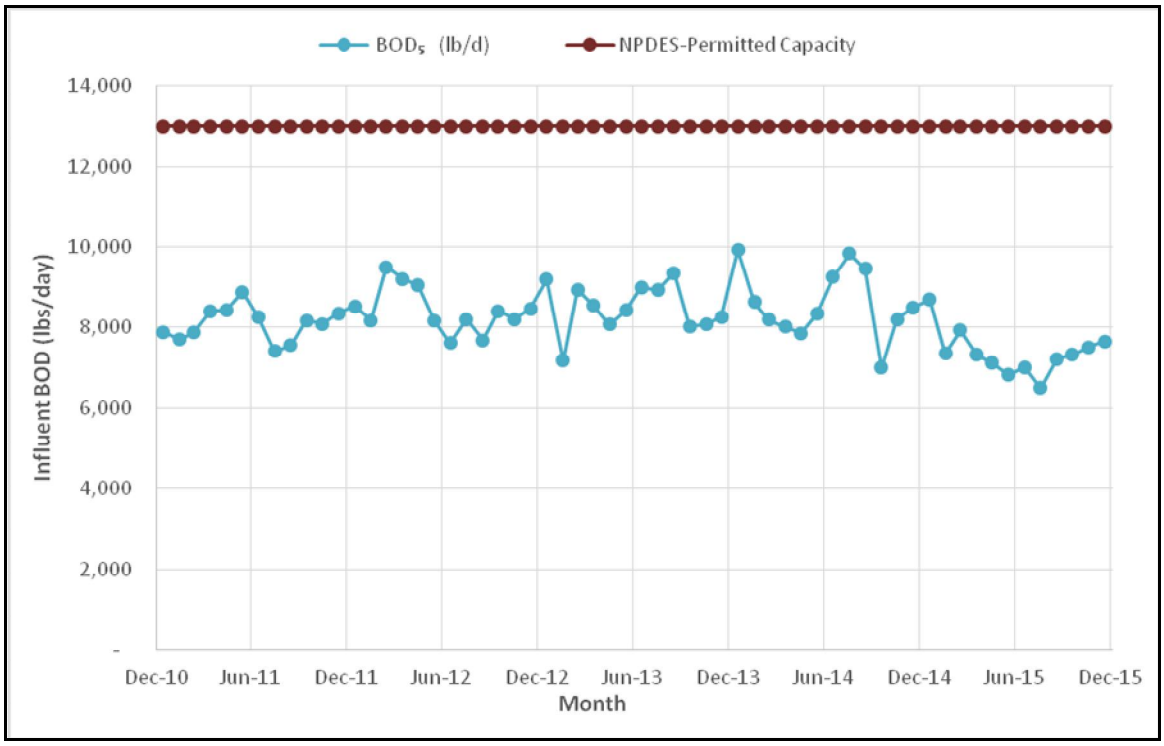


FIGURE 5-2

Influent BOD_5 Loading January 2011 through December 2015

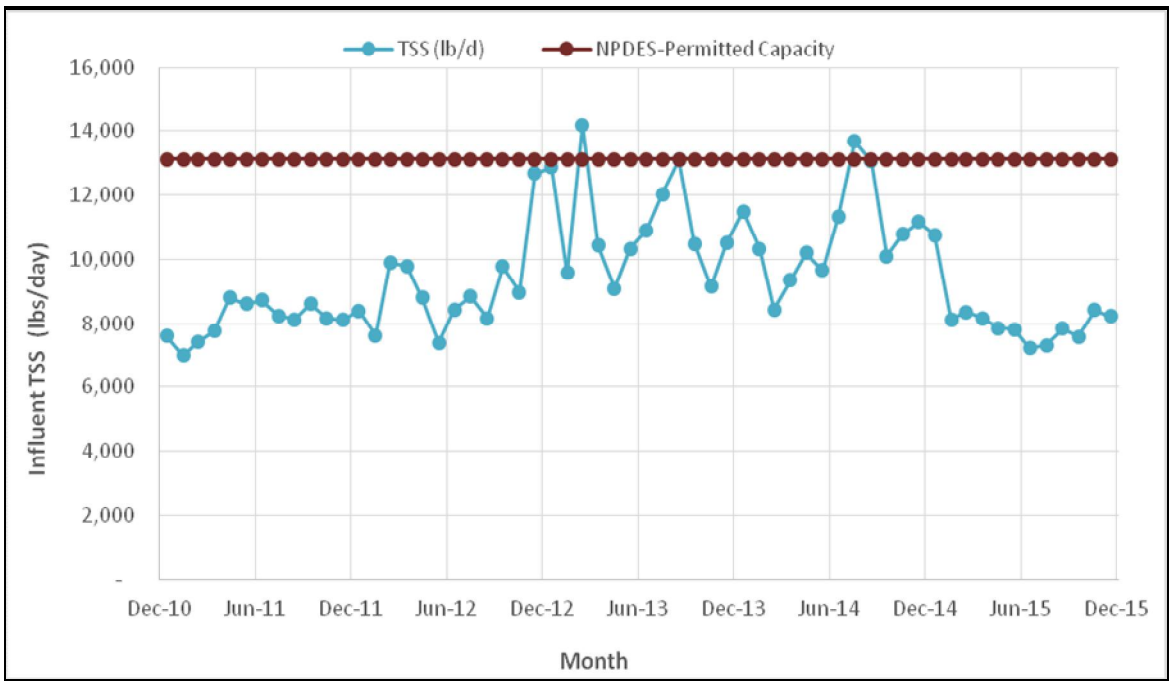


FIGURE 5-3

Influent TSS Loading January 2011 through December 2015

EXISTING EQUIVALENT RESIDENTIAL UNITS (ERUS)

In the 2016 *WWTP Facilities Plan*, a per capita BOD loading of 90 g/d was used for evaluation of Population Equivalents (PE) and Equivalent Dwelling Units (EDUs, which are equivalent to ERUs). As calculated in the 2016 *WWTP Facilities Plan*, using this per capita loading and WWTP influent loadings yields a population equivalent of 42,000 people. Since the City only has a population of 34,500, it is concluded that roughly 7,500 of these population equivalents (or about 17 percent of the total) must be from industrial sources.

Table 5-4 summarizes the ERUs and PEs calculated in the 2016 *WWTP Facilities Plan.*

TABLE 5-4

2015 Wenatchee Population Equivalents and Equivalent Residential Units(1)

Category	Population Equivalents (PE)	Equivalent Residential Units (EDUs)(2)
Residential	34,500	13,600
Commercial/Industrial	7.500	2,960
Total	**42,000**	**16,560**

(1) Based on Section 3.5 of the 2016 *WWTP Facilities Plan.*
(2) Based on 2.53 PEs per ERU.

PEAK HOUR FLOW ASSESSMENT

Analysis of peak hour flows in the sewer system must take into account the historical flows to the Flow Equalization Basin (FEB), which are not accounted for in the peak instantaneous flows reported at the WWTP flow meter. Table 5-5 summarizes flows to the FEB.

TABLE 5-5

Flows to the Flow Equalization Basin, 2010-2016

Year	Date	Precipitation (in.)	Flow to Flow Equalization Basin (FEB), gallons
2010	2/26/2010	0.99	30,000
	7/28/2010	0.84	Unknown
	9/8/2010	0.49	347,800
2011	3/10/2011	0.25	41,000
	3/19/2011	0.79	60,000
	3/20/2011	0.36	265,000
	5/25/2011	0.25	40,000
	5/30/2011	0.22	37,000
	5/31/2011	0.22	15,000
	7/25/2011	0.23	3,000
	12/28/2011	0.19	52,500
2012	4/25/2012	0.53	141,500
	4/26/2012	0.07	8,800
	5/21/2012	0.22	87,250
	10/16/2012	0.08	44,400
	10/24/2012	0.34	192,000
	10/26/2012	0.34	180,000

TABLE 5-5 – (continued)

Flows to the Flow Equalization Basin, 2010-2016

Year	Date	Precipitation (in.)	Flow to Flow Equalization Basin (FEB), gallons
2013	5/21/2013	0.8	174,000
	6/29/2013	0.47	505,000
	8/1/2013	0.12	219,000
	8/10/2013	0.22	57,500
	9/5/2013	0.4	52,500
2014	8/14/2014	0.33	203,500
2015	9/6/2015	0.23	137,000
2016	3/5/2016	1.07	532,800
	4/14/2016	0.24	198,600
	5/21/2016	0.39	126,000

The biggest storm was on March 5-6, 2016. The influent flow exceeded 11 MGD for about 6 hours and 532,800 gallons was conveyed to the the EQB during that time. This amount of flow to the EQB over a 6-hour period is equivalent to an average flow of 2.13 MGD [(0.532 million gal) x (24 h/d)/6 h = 2.13 MGD].

The average influent flow during the 6 hours was 11 MGD + 2.13 MGD = 13.13 MGD.

However, the actual peak hour flow would be higher. If we use a peaking factor (peak hour/6-hour average) of 1.5 for the flow to the EQB, the peak hour flow to the EQB was 3.20 MGD.

Thus the peak hour influent flow (with these assumptions) is 14.2 MGD (= 11 MGD +3.20 MGD).

INFILTRATION AND INFLOW

The City of Wenatchee evaluated recent infiltration and inflow in a report entitled *2014 Infiltration and Inflow Evaluation (2014 I/I Evaluation*). In that report, a comparison was made between the increase in inflow at the WWTP during storm events and dry times. The impact of summer irrigation flows was also evaluated in the calculations.

Table 5-6 summarizes the infiltration/inflow data for 2011 to 2013. The data contained in this table is useful as a baseline for evaluating changes in infiltration and inflow in the future.

The U.S. EPA manual entitled *I/I Analysis and Project Certification* provides recommended guidelines for determining if infiltration and/or inflow is excessive.

1. To determine if excessive *infiltration* is occurring, a threshold value of 120 gallons per capita per day (gpcd) is used. This infiltration value is based on an average daily flow over a seven to 14-day non-rainfall period during seasonal high ground water conditions.

2. To determine if excessive *inflow* is present in a collection system, the U.S. EPA uses a threshold value of 275 gpcd. If the average daily flow (excluding major commercial and industrial flows greater than 50,000 gpd each) during periods of significant rainfall exceeds 275 gpcd, the amount of inflow is considered excessive.

TABLE 5-6

Estimated Inflow/Infiltration (2011-2013) Relative to EPA Criteria(1)

Criteria	Units	2011	2012	2013	EPA Criteria
Average Flow, all conditions	gpd	2,826,301	2,615,847	2,635,616	
	gpcd	87.9	79.9	79.0	
Infiltration Calculations					
Dry Weather with Irrigation	gpd	2,891,250	2,653,988	2,748,630	
	gpcd	89.9	81.0	82.4	120
Inflow Calculations					
Wet Weather Flows, no irrigation	gpd	2,790,476	2,612,698	2,593,750	
	gpcd	86.8	79.8	77.8	275
Worst Case					
Irrigation and Precipitation Flows	gpd	3,7333,333	3,000,000	3,750,000	
	gpcd	116.1	91.6	112.4	
Population					
Estimated Population	people	32,157	32,756	33,355	

(1) Based on data in the City of Wenatchee *2014 Infiltration and Inflow Evaluation*.

The peak year infiltration value of 90 gpcd shown in Table 5-5 is well below the 120 gpcd criteria. This value is less than the EPA limit; and therefore, the system is not considered to have excessive infiltration.

The peak year inflow value of 87 gpcd is below the required 275 gpcd value set by EPA guidelines; and therefore, the sewer collection system is not considered to have excessive inflow by EPA criteria.

In comparison to a similar analysis conducted on data from 2001 to 2003, the infiltration and inflow have declined significantly, on a per capita basis, over the 10-year period. In 2001-2003, the infiltration value was an average of 104 gpcd, while the inflow value was 103 gpcd.

INDUSTRIAL FLOW CHARACTERIZATION

Table 5-7 shows the Significant Industrial Users that discharge industrial wastewater to the Wenatchee WWTP and average estimated current discharge flows. Most of the industries are connected with fruit packaging along with a few wineries and manufacturing facilities. These industrial flows have a significant impact on the facility planning since they are large users and have high loadings compared to the residential and other commercial users.

TABLE 5-7

Wenatchee SIU Current Estimated Average Flows

Business Name	Business Type	Average Flow (gpd)
Blue Bird, Inc.	Fresh Fruit Packers and Cold Storage	22,435
Columbia Fruit Packers	Fresh Fruit Packers and Cold Storage	8,312
Custom Apple Packers	Fresh Fruit Packers and Cold Storage	3,062
McDougall & Sons, Inc.	Fresh Fruit Packers and Cold Storage	16,323
Phillippi Fruit Co.	Fresh Fruit Packers and Cold Storage	1,793
Stemilt Growers	Fresh Fruit Packers and Cold Storage	54,670
Souriau PA&E	Manufacturing	11834
Chateau Faire Le Pont	Winery	641

As noted below, industrial flows are assumed to grow with the rate of population growth.

PROJECTED FUTURE WASTEWATER FLOWS AND LOADINGS

The 2016 *WWTP Facilities Plan* calculated projected future WWTP flows and influent maximum month BOD_5 and TSS loadings based on population projections and existing per capita loadings and flows. Table 5-8 shows the population growth projections for the sewer service area presented in the 2016 *WWTP Facilities Plan.*

TABLE 5-8

Current and Projected Population(1)

Year	2009	2010	2011	2012	2013	2015	2020	2025	2030	2035
Total in Urban Growth Area	37,149	37,388	37,566	37,697	37,877	40,115	43,521	46,820	47,109	N/A
Connected to Sewer	32,090	32,129	32,157	32,756	33,355	34,499	37,564	40,533	43,137	46,497

(1) Source: Table 2-4, 2016 *WWTP Facilities Plan,* City of Wenatchee.

In Table 5-9, the 2014 per capita flows and waste loads are summarized. Using a combination of historical data, current data and future population projections, future flows and loads for the City of Wenatchee WWTP were calculated and are summarized in Table 5-10. Because there are large contributions from industrial dischargers, the per capita loads are higher than for typical municipal waste. The projections of future flows and loads assume that the industrial contribution expands at the same rate as the population. This is reasonable since the local population growth of those employed in fruit production and similar businesses is linked with the population growth at large, thus linking SIU growth with population growth.

TABLE 5-9

2014 Per Capita Flows and Waste Loads(1)

Parameter	Unit	Average	Maximum Month	Maximum Week	Maximum Day
Flow	gal/PE/d	76.53	87.87	93.54	102.04
TSS	lb/PE/d	0.31	0.46	0.59	0.73
VSS	lb/PE/d	0.28	0.43	0.54	0.68
BOD	lb/PE/d	0.24	0.3	0.34	0.39
TKN	lb/PE/d	0.03	0.03	0.04	0.04
NH4-N	lb/PE/d	0.02	0.02	0.02	0.02

(1) Source: 2016 *WWTP Facilities Plan,* City of Wenatchee.

TABLE 5-10

Current and Projected WWTP Flows and Influent Loadings(1)

Parameter	2015	2020	2025	2030	2035
Flow (MGD)	3.03	3.30	3.56	3.79	4.09
TSS (lb/d)	16,000	17,400	18,800	20,000	21,500
VSS (lb/d)	14,700	16,000	17,300	18,400	19,800
BOD (lb/d)	10,600	11,500	12,400	13,200	14,200
TKN (lb/d	1,175	1,300	1,400	1,475	1,600
NH4-N(lb/d)	740	800	870	920	990

(1) Source: 2016 *WWTP Facilities Plan,* City of Wenatchee.

Table 5-11 shows the loadings for the projected year 2035, as presented in the 2016 *WWTP Facilities Plan*.

TABLE 5-11

2035 Flow and Load Projections(1)

Parameter	Unit	Average	Month Maximum	Maximum Week	Maximum Day
Flow	MGD	3.56	4.09	4.35	4.74
TSS	lb/d	14,400	21,500	27,300	34,100
VSS	lb/d	13,200	19,800	25,200	31,700
BOD	lb/d	11,400	14,200	16,100	18,000
TKN	lb/d	1,400	1,600	1,650	1,725
NH4-N	lb/d	860	990	1,060	1,130

(1) Source: 2016 *WWTP Facilities Plan,* City of Wenatchee.

CHAPTER 6

COLLECTION SYSTEM EVALUATION

INTRODUCTION

This chapter presents the results of the City of Wenatchee collection system evaluation. The evaluation includes a hydraulic/hydrologic analysis to evaluate the capacity of the collection systems under existing and future conditions. Existing and future population, land use, and wastewater flows presented previously are utilized to develop data for use in the hydraulic model. Total land use area and wastewater flows are allocated to individual subbasins to identify current and future deficiencies in the collection system.

The components of the collection system are organized into three categories for the evaluation:

- Major Gravity Lines
- Force Mains
- Sewage Lift stations

The hydraulic modeling program InfoSewer, has been used to analyze the collection system's capacity to accommodate current flows (Year 2015), a 20-year flow scenario (Year 2035), and buildout conditions. For the capacity analysis of force mains and sewage lift stations, peak wet weather flows for buildout conditions were estimated and compared to existing pump capacities.

HYDRAULIC MODEL

The output from the hydraulic model was used to evaluate the capacity of the existing collection system and to identify improvements that will be required to accommodate existing and future wastewater flows. The model can be updated and maintained for use as a tool to aid in future planning and design.

The hydraulic model was developed using InfoSewer (Version 7.6) software by Innovyze. The software program was designed for steady-state and dynamic analysis of gravity flow and pressure flow pipe networks. Version 7.6 is capable of modeling up to 6,000 nodes and is also capable of integration with GIS mapping. This version of InfoSewer has the capability of extended period simulation (EPS) modeling which was used for this analysis. Extended period simulation allows flow attenuation to occur as flow travels downstream, whereas steady state models carry a plug of flow throughout the model to the most downstream point without attenuation.

MODEL LAYERS

The hydraulic model consists of numerous layers, each of which mimics a shapefile (or layer) utilized in GIS. Although the layers are not specific .shp files, they can be exported as a .shp file which can be utilized in a GIS system. The layers consist of manholes, outlets, wet wells, pipes, force mains, and pumps. In the model, each lift station is modeled as a fixed capacity pump that discharges to downstream manholes. Flows within each of the basins were calculated separately in an Excel spreadsheet based on land use area, ERUs, and infiltration and inflow and then input into the model at specific designated manholes.

The majority of the City's sewer mains were inserted into the model, however, since flow was only inserted at one location within each subbasin (i.e., the upstream end of the trunk), only the major trunk lines (approximately 36 percent of the pipes within the combined collection system) were truly modeled with flow. The sections of the collection system that were modeled include all major sewer trunk lines and manholes that are expected to convey the majority of flows through the collection system. A schematic of the modeled system is shown in Figures 6-1 through 6-3, along with the basin overlay. Information required to construct the model was reported using the NAVD 88 datum and was obtained from existing GIS data, linear interpolation between known inverts, survey, and assumed minimal slopes for the unknown areas. Use of each item is described below.

Surveyed Manholes

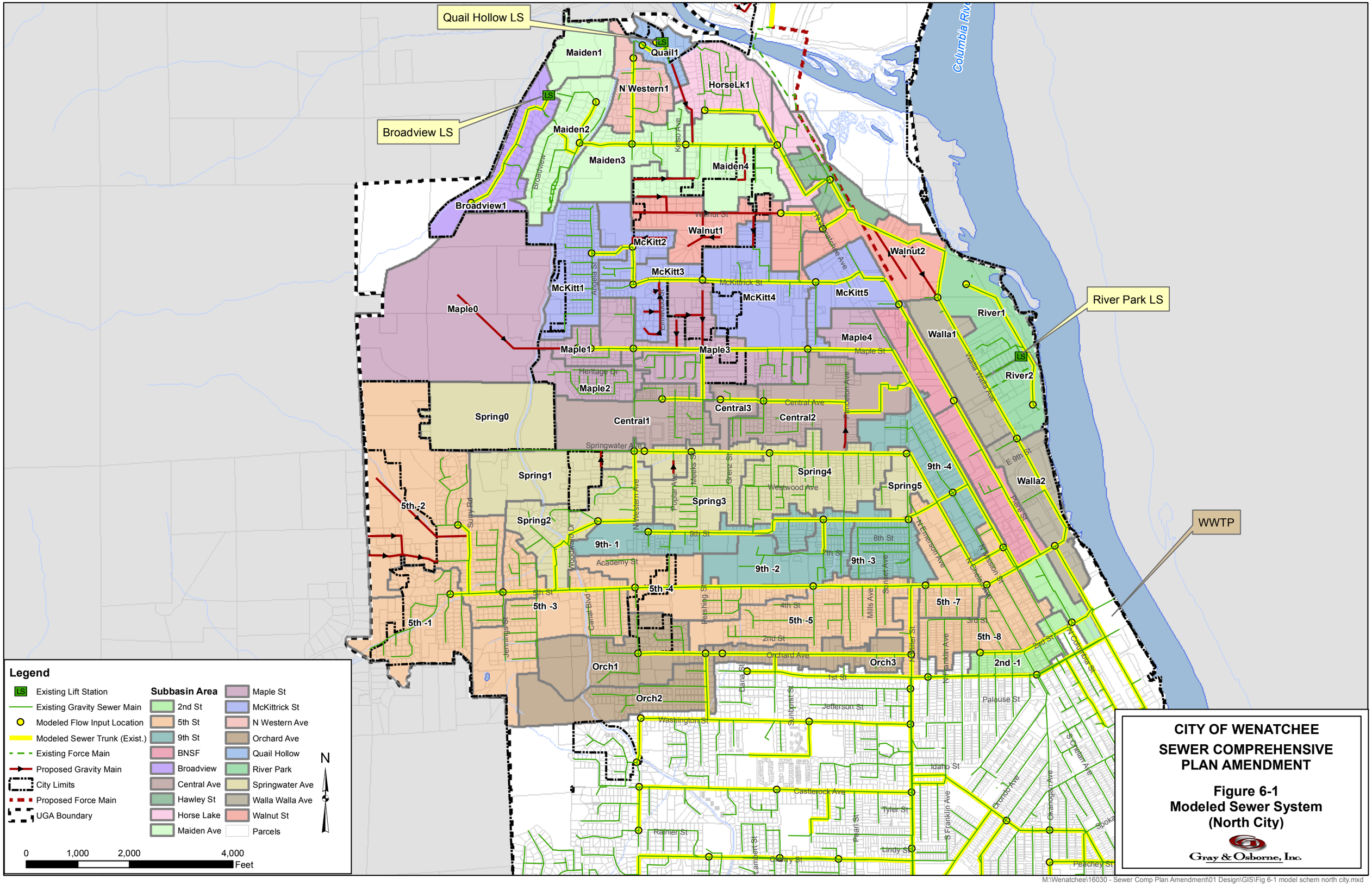
After collecting all the information available from City GIS, Gray & Osborne surveyors gathered data on manhole rim elevations and conducted drop down measurements to inverts within the Olds Station region.

Interpolated Manholes

After collecting all the information available from GIS and survey, there were still minor gaps in the information necessary for a functional model. In the case where manhole information was missing along a straight run, the inverts at this manhole were interpolated and/or an assumed minimal slope was inserted. The minimum slope assumed was 0.005 ft/ft for 8-inch pipes.

Lift Stations

The lift stations are modeled as constant discharge pumps that pump at the lift station capacity, so that the lift stations produce a constant discharge regardless of head conditions. A future refinement of the model may include the pump curves for all of the lift stations and/or the results from drawdown tests for each lift station.



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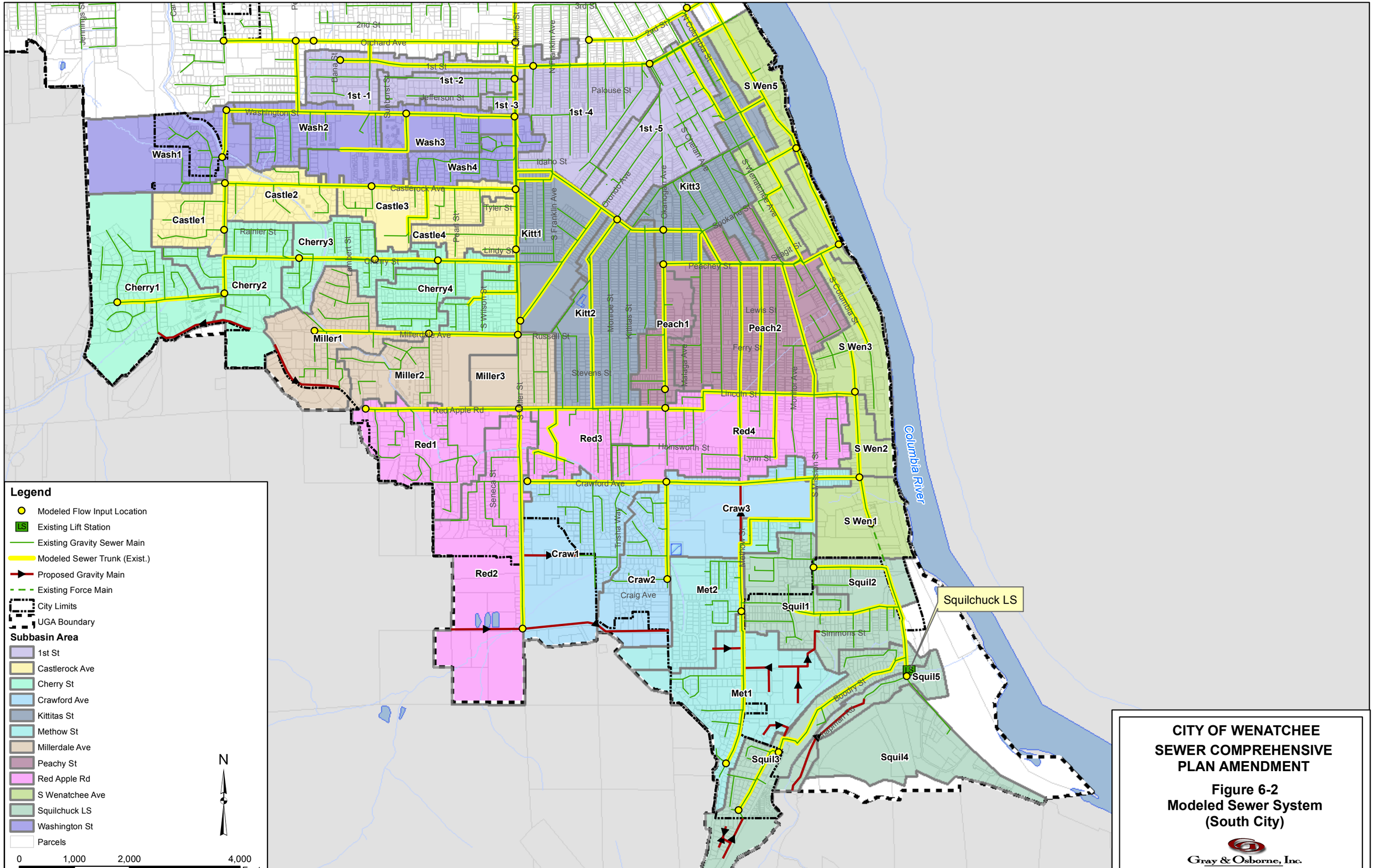

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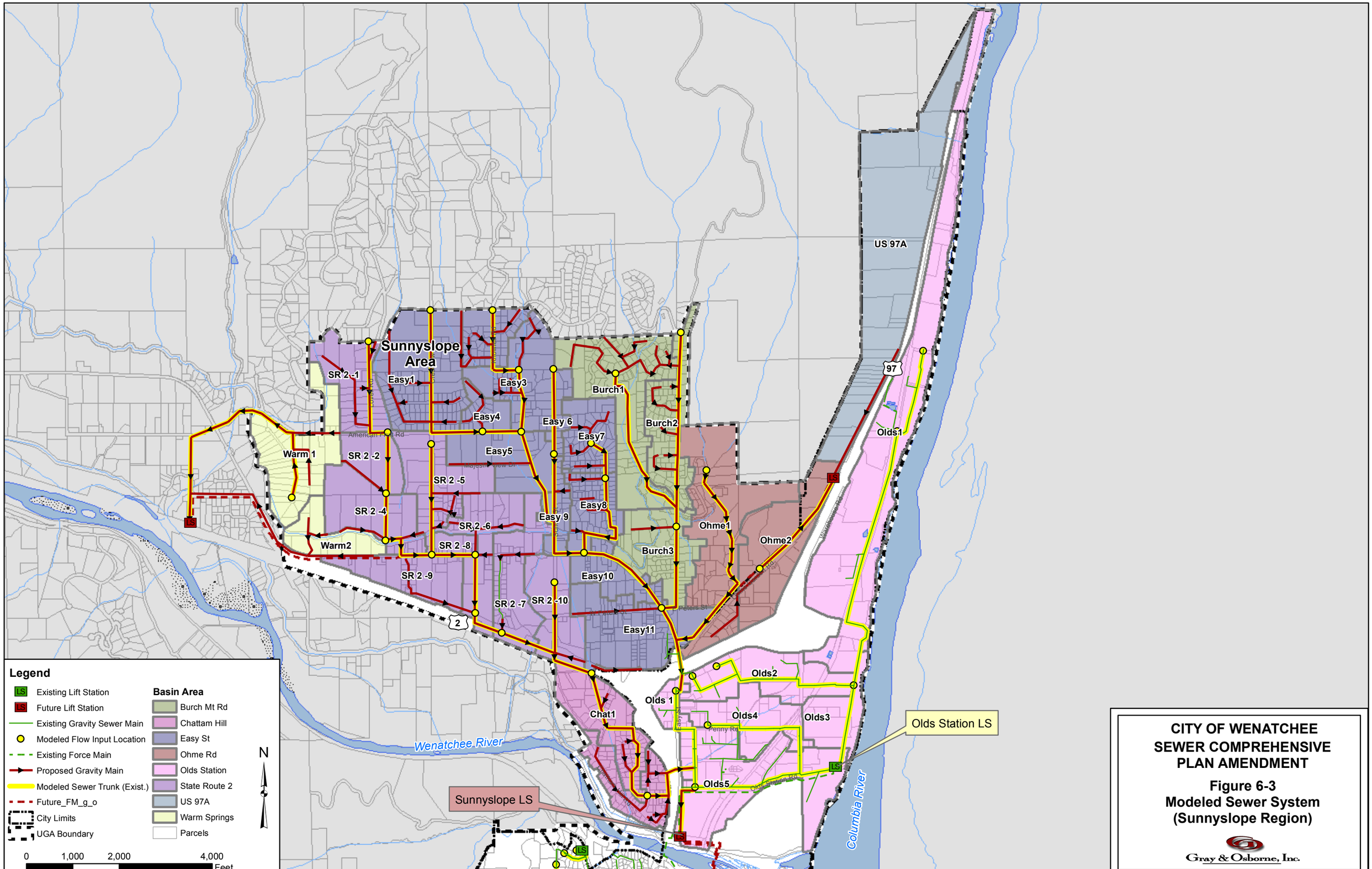

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BASINS

To characterize flow throughout the various land uses spread throughout the City, the collection system was organized around 38 primary sewer basins. These basins are described in Chapter 4 and are shown in Figures 6-1 through 6-3.

The model inputs for InfoSewer originated from tables set up in an Excel spreadsheet (see Appendix E). The flows applied to the model include an average sanitary flow, base I/I flow and individual inflows inserted at known inflow locations throughout the City. Known industrial flows for significant users were converted to ERUs and applied to the total flow for the subbasin.

HYDRAULIC MODELING ANALYSIS

Once basin data were collected, hydraulic models were developed for the 2015, 2035 and buildout conditions utilizing the major trunk lines of the existing sewer collection system. This approach was used to identify pipeline deficiencies including surcharged pipes or pipes with low velocities.

Basin data for the three scenarios are presented in Appendix E. Pipe deficiencies resulting from the model are included in Appendix F for 2015, 2035 and Buildout scenario. For the model setup, there are a total of 2,709 nodes, or manholes, in the InfoSewer model. Approximately 677,525 linear feet of pipe is included for the hydraulic model which includes both existing and future sanitary sewer mains. As indicated earlier, approximately 36 percent of the City's existing sewer mains were included within the model runs.

To support the development of the hydraulic model, an overall map was prepared to show the pipe and manhole identification numbers of the modeled system. This map is included in Appendix G.

YEAR 2015 HYDRAULIC MODELING ANALYSIS

Land use data and the subbasins from Figure 4-3 were used to distribute wastewater flows into the hydraulic model. Appendix E contains the results of the distribution. Individual subbasins were delineated amongst each of the basins to help distribute flow where necessary as shown in Figures 6-1 through 6-3. For 2015, Chelan County GIS parcel data was used to determine the land use within these subbasins. The land use area for each parcel was then associated with a designated number of ERUs. Table 6-1 shows the ERU assignments per land use classification.

TABLE 6-1

ERU Assignments per Land Use Classification

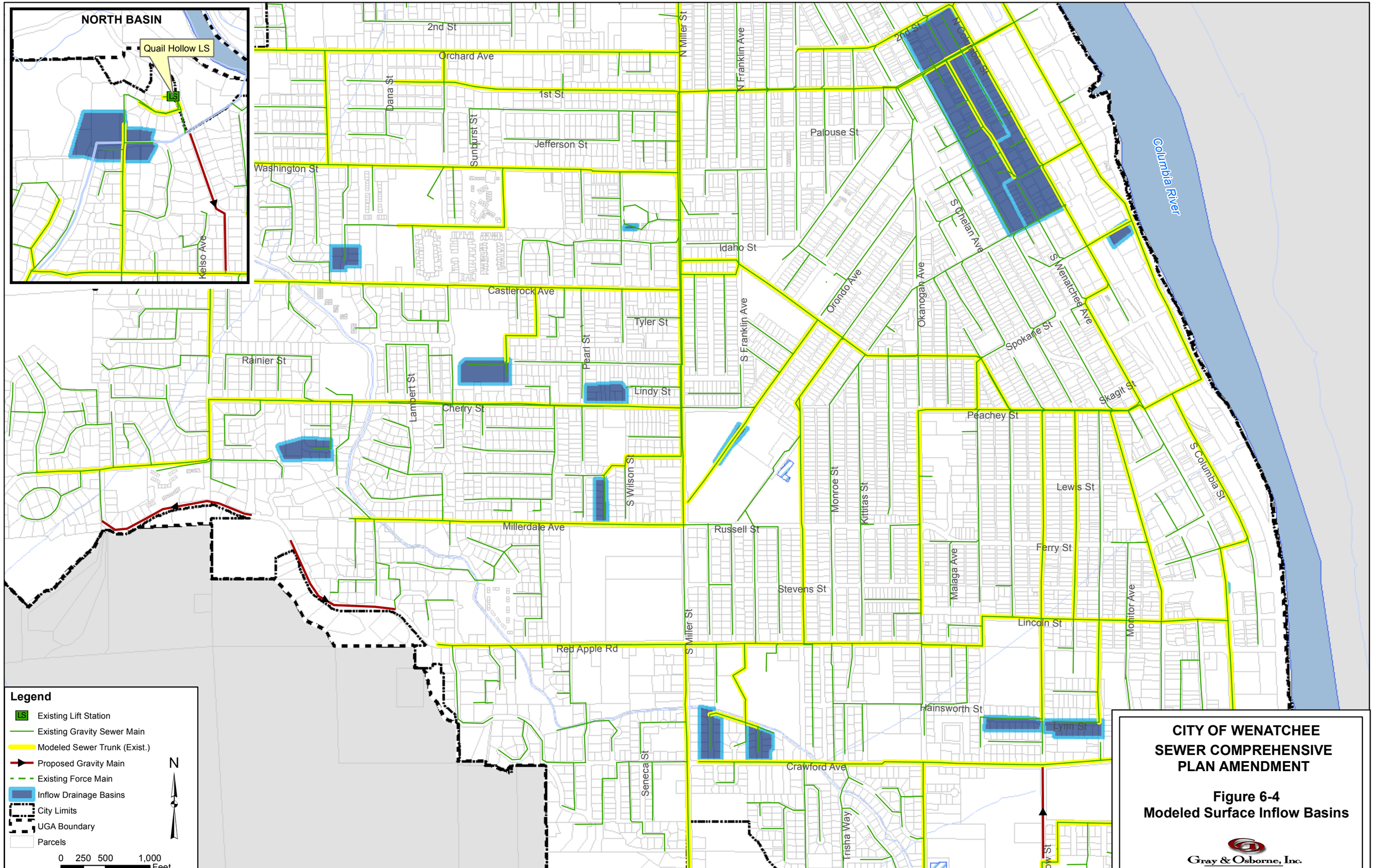
Land Use Category	No. of ERUs Assigned(1)
Single-Family Residential, Condos, Business Retail	1
Multi-Family (2-4 Units)	4
Multi-Family (5 Units or more)	9
Mobile Home Parks/Courts	10
Restaurant	3
Food/Kindred Products	2
Agriculture	0
Schools	50 per student/staff
Hospitals	2 + (0.2 x No. of beds)
Hotels	1 + (0.2 x No. of beds)
Significant Industrial Water Users	Based upon water meter records

(1) The number of ERUs for non-single-family residential parcels were estimated based upon calibration efforts. The number of ERUs per parcel were adjusted accordingly in an effort to equal the total number of ERUs within the City as estimated from the 2015 *WWTP Facilities Plan*.

The ERUs were multiplied by the average annual base flow value of 149 gpd/ERU. In addition to the sanitary flows, I/I was added as well. All sewered acreage for all three scenarios (i.e., 2015, 2035, and Buildout) was multiplied by the I/I value of 300 gpad which is based upon the value that was used in the 2009 Plan. Base I/I is assumed to be constant throughout the sewer service area.

Peak hour flows are used for design purposes in the hydraulic model. To obtain the peak hour flows the peak baseflow value of 2.5 MGD for 2015 was disbursed throughout the subbasins and then peaked within the model with diurnal curves relating to the typical basin land use (i.e., 100 percent residential, 20 percent commercial/80 percent residential, 40 percent commercial/60 percent residential, or 100 percent commercial). The diurnal curves peak the flow approximately 1.5 times greater than the peak day flow to represent the peak hour flow. This peaking factor of 1.5 was determined from flows seen at the WWTP flow meter. Residential related diurnal curves peak flow in the morning and evening hours whereas commercial flows peak flow during mid-day. Appendix H displays the diurnal curves.

Due to the presence of a combined sewer/storm system within the City, inflow was inserted into the model as well. Beyond the global base I/I flow of 300 gpad, inflow was estimated for discrete points throughout the downtown core of the City (see Figure 6-4). These input points were determined from the City's GIS data where known sources of inflow occur due to identified connection points with storm drains. Although other sources of inflow may be present throughout the system, these locations are unknown as



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of this time. Therefore, the known discrete points were used to provide a gateway for inflow to enter into the model beyond the base I/I of 300 gpad. This flow was apportioned based upon the curve shown in Appendix H. It should be noted that inflow may very well not be concentrated into just these areas but until other sources are known, this approach provides an initial model that recognizes that inflow enters into the system in the downtown core. It is recommended that these inflow locations be adjusted as further sources are located and additional information obtained in the future.

The inflow observed at the WWTP was estimated by calculating the difference between the total estimated flow at the plant minus the sum of the domestic flow and base I/I flow. The WWTP has been designed such that any flow greater than 11 MGD is sent to an equalization basin where flow is stored until influent flows recede below 11 MGD. On March 5, 2016, a 1.07" rainfall event occurred. Based on WWTP records from this day, 532,800 gallons were stored within the equalization basin over a 6-hour period which results in an average flow of 2.13 MGD. Peaking this flow by a factor of 1.5 results in a peak hour flow of 3.2 MGD to the equalization basin Adding this 3.2 MGD equalization basin flow to the capacity of the WWTP (11 MGD) results in a total incoming peak hour flow to the plant of 14.2 MGD. Therefore, this peak hour flow of 14.2 MGD was the calibrating target intended for the model under the present day (2015) scenario. Of this 14.2 MGD, 1.63 MGD was attributed to a base I/I flow (=300 gpad x 5,426 sewered acres) and 3.71 MGD was attributed to the peak hour domestic/commercial flow (= 2.5 MGD average baseflow x a peaking factor of 1.5). The remaining flow was attributed to inflow which amounted to 8.86 MGD (=14.2 MGD total peak hour flow – 1.63 MGD base I/I flow – 3.71 MGD domestic/commercial flow). Table 6-2 summarizes the flow components.

TABLE 6-2

Modeled Flow Components

Flow Component	
Peak Hour Sanitary Flow(1)	3.71 MGD
Peak Hour Base I/I(2)	1.63 MGD
Estimated Peak Hour Inflow(3)	8.86 MGD
Total Estimated Incoming Flow to WWTP	14.20 MGD

(1) Determined by average baseflow of 2.5 MGD x peaking factor of 1.5. The peaking factor was determined by reviewing flows from the WWTP flow meter.
(2) Determined by 300 gpad x 5,426 sewered acres
(3) Determined by subtracting domestic/commercial flow (3.71 MGD) and peak hour base I/I (1.63 MGD) from the total flow of 14.20 MGD

Detailed spreadsheets of the flow calculations are presented in Appendix E.

SITE SPECIFIC FLOW INPUTS

Industrial flows for a number of businesses with significant water uses were added within the appropriate subbasin. Due to the high volume, short duration discharge of flows from Stemilt Growers, flows representing this business were added to the model at discrete points (SSMH02836 and SSMH02854). A flow rate of 600 gpm for 1 hour was inserted at both of these locations to mimic the high discharges seen in the middle of the night during cherry packing season when fruit packing companies discharge their tanks. In addition, to prepare for future growth with a similar land use, an additional 600 gpm was placed at the north end of the Olds1 subbasin in the 2035 scenario (at SSMH02846). Similar to the current Stemilt flow, this discharge was modeled as a point flow in the middle of the night, slightly staggered (i.e., by one hour) after the current flows occur. Table 6-3 displays the specific sanitary sewer loads inserted into the model for these industries.

TABLE 6-3

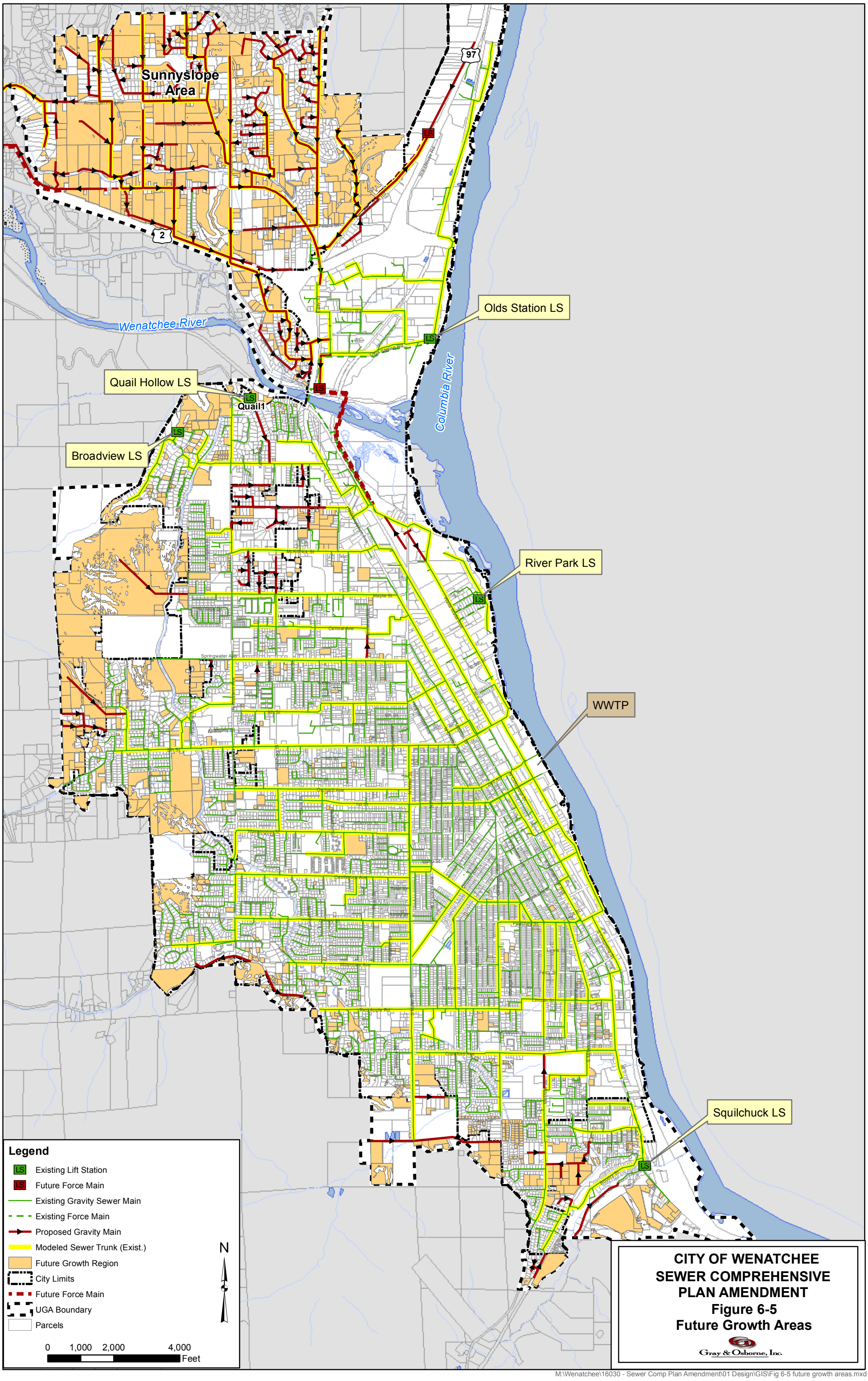
Industrial Flow Allocations

Industry	Location	Average Daily Water Meter Usage(1) (gpd)	No. of ERUs(2)
Phillippi Fruit Warehouse	2009 5th Street	1,795	12
Stemilt Growers LLC	5 Chehalis Street	4,114	28
Keyes Fibre	3715 Highway 97A	3,426	23
Stemilt Growers LLC	3101 Warehouse Road	58,381	N/A(3)
Stemilt Growers LLC	2811 Euclid Avenue	2,124	131
Stemilt Growers LLC	2809 Euclid Avenue	9,200	N/A(3)
Columbia Fruit Packers, Inc.	2575 Euclid Avenue	8,310	76
Chateau Faire Le Pont	1 Vineyard Way	643	4
Pacific Coast Technologies	434 Olds Station Road	11,833	79
McDougall & Sons, Inc	305 Olds Station Road	16,321	110
Stemilt Growers LLC	1705 North Miller Street	27,093	338
Piepel Premium Fruit Packing	5 Chehalis Street	4,810	184

(1) Determined by dividing average monthly water meter usage by 30 days.
(2) Determined by multiplying daily water usage in gpm times the average base flow of 149 gpd/ERU
(3) Due to the high flow released by Stemilt Growers during cherry season, discrete point flows of 600 gpm for a 1-hour duration were added into the model at these locations based on input received by Stemilt Growers.

YEAR 2035 HYDRAULIC MODELING ANALYSIS

Once the data was developed to represent 2015 conditions, the model was revised to represent 2035 projections. The City's future land use GIS data was the basis for these



M:\Wenatchee\16030 - Sewer Comp Plan Amendment\01 Design\GIS\Fig 6-5 future growth areas.mxd

future estimates. The additional ERUs anticipated for 2035 were disbursed to areas of new or redeveloped growth based on the future land use shown in Figure 6-5.

For the hydraulic model, the base I/I flow rate (300 gpad) is assumed to remain constant at the levels observed in 2015. Likewise, the inflow levels were also assumed to remain constant at 8.86 MGD.

Appendix E summarizes the data assumed for each subarea under 2035 conditions.

FUTURE INFRASTRUCTURE

Residential and commercial growth was predicted in the Olds Station region and undeveloped areas within the current city limits. However, most of the future growth was concentrated in the undeveloped areas of the Sunnyslope region. To accommodate conveyance of buildout flows from the west portion of the Sunnyside region, a 10-inch pipe crossing was inserted into the model south of School Street where it would cross SR 2, into the Chatham Hill neighborhood (see Figure 6-6). From there, the main trunk would wind generally to the south and eventually east across SR 285 and Easy Street to the existing trunk main along Chester Kimm Road. To serve the eastern region of Sunnyslope, a new 12-inch main was inserted into the model along Easy Street where it crosses SR 2 (see Figure 6-6). From there, it would flow south where it would join flow from the western Sunnyslope area. The combined flows would eventually discharge into the Chester Kimm Road trunk line. From there, flow would be conveyed southerly to a new Sunnyslope lift station at the south end of Horan Road, just north of the Wenatchee River. Due to the interim growth anticipated in Sunnyslope, the station was modeled as having 670 gpm capacity. The lift station would need to increase in capacity to handle buildout flows of 1,150 gpm beyond 2035. A new 12-inch force main was also inserted with a discharge point similar to where the Olds Station Lift Station discharges today, downstream on Hawley Street.

Additional future lift stations that were not modeled include two lift stations in the Warm Springs basin near the western edge of Sunnyslope located along Easy Street and American Fruit Road, respectively. Two additional lift stations are planned for the US 97-A basin to service industrial businesses located west of US 97-A and one additional lift station is intended for the Ohme2 subbasin to service the west side area adjacent to US 97-A.

Further detail related to future infrastructure is included in the Capital Improvement Plan, Chapter 8.

BUILDOUT HYDRAULIC MODELING ANALYSIS

The Buildout scenario includes growth projections beyond 2035. Per discussions with City planning staff, growth beyond the next 20 years is anticipated to be concentrated on the north side of the Sunnyslope region. Therefore, the northern subbasins delineated for

Sunnyslope were included in the Buildout scenario. These include Warm1-2, SR2-1, Easy1-4, Easy 6-7, Burch 1-2, and Ohme2. The additional ERUs anticipated for the Buildout scenario were disbursed amongst these subbasins based upon their future land use.

A short analysis was conducted for the scenario of extending the UGA limits to serve the area above Sunnyslope. This scenario increased the size of two trunk lines and the buildout flow of the Sunnyslope Lift Station and is explained in more detail in Chapter 9.

MODELING RESULTS

Deficiencies in the collection system are defined as follows:

- Manholes are shown as deficient when InfoSewer reports that the manhole is full and surcharged to the manhole rim during peak hour flow conditions. In this case, the manhole itself is not the actual deficiency but it alludes to a problem downstream due to either a pipe or a certain hydraulic restriction.

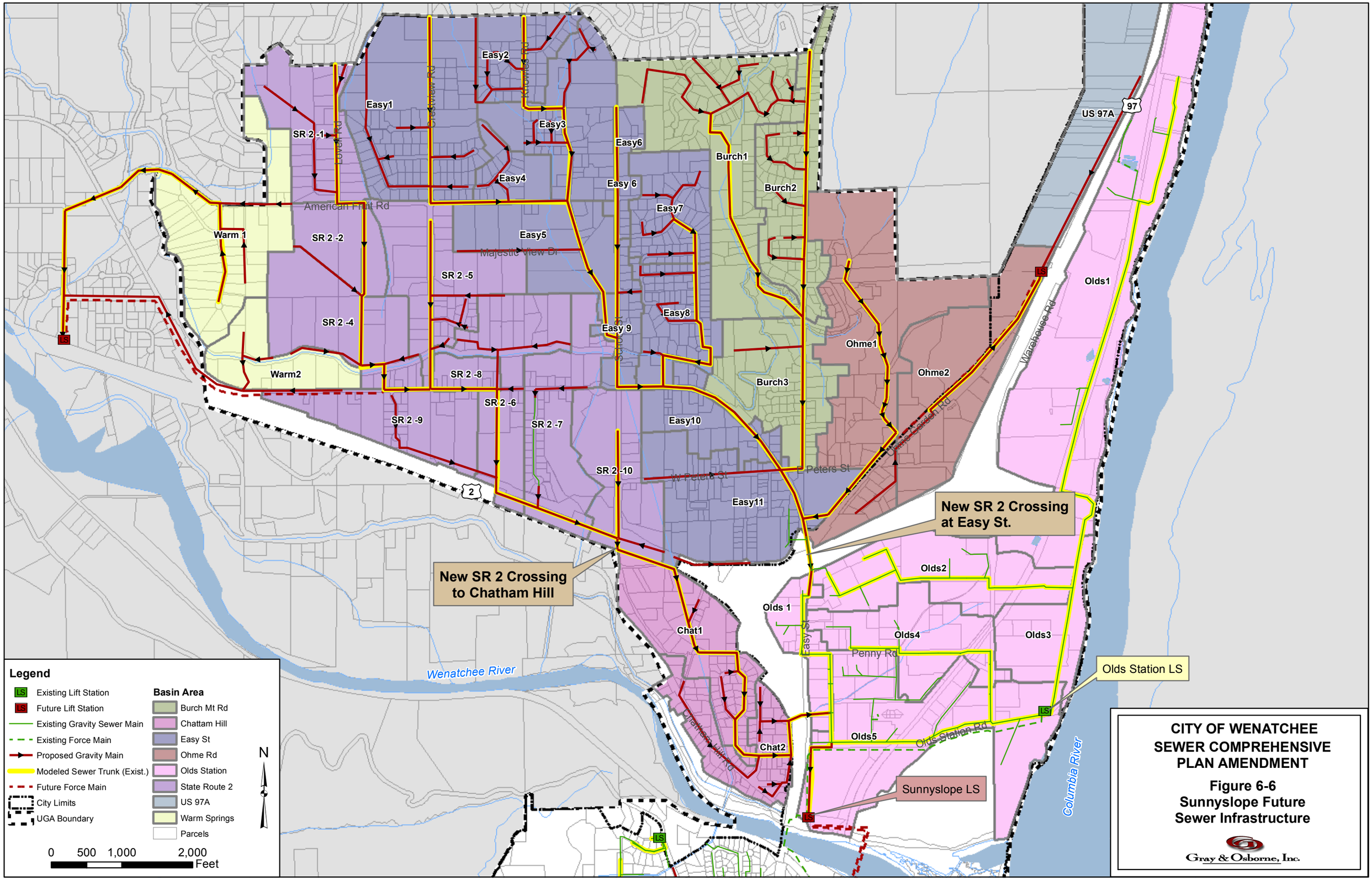
- Pipe segments are considered deficient with respect to capacity when InfoSewer reports that the depth at the peak hour flow through the pipe is equal to or exceeds the maximum depth of pipe (i.e., the diameter). Essentially, this means that the pipe is running full at the modeled flows and that flow is surcharging within the manholes. This may be due to a lack of capacity in the pipe itself or a downstream hydraulic condition.

Appendix F and Figures 6-7 through 6-9 present the initial modeling output results for the 2015, 2035 and Buildout peak hour flow conditions. The output results identify each pipeline segment and manhole with a capacity deficiency. A total of 23 segments are shown to have insufficient conveyance capacity. Of these segments, four of the deficiencies are due to flat or reverse slope pipes.

Appendix F presents the initial modeling output results for 2035. For 2035, two additional existing pipe segments had insufficient capacity, one of which was caused by having a flat slope.

Appendix F also presents the initial modeling output results for the Buildout scenario where 13 additional existing pipe segments had insufficient capacity.

The 2035 peak hour influent flow at the WWTF predicted by InfoSewer is 10,692 gpm, or 15.4 MGD. The buildout flows were calculated to be 10,725 gpm or 15.4 MGD. The difference between the 2035 and Buildout scenarios is an additional 480 gpm discharge at the new Sunnyslope Lift Station (i.e., from 670 gpm capacity to 1,150 gpm capacity). This extra 480 gpm of flow is attenuated throughout downtown Wenatchee so that only a minor increase is seen within the model between the two scenarios at the WWTP.



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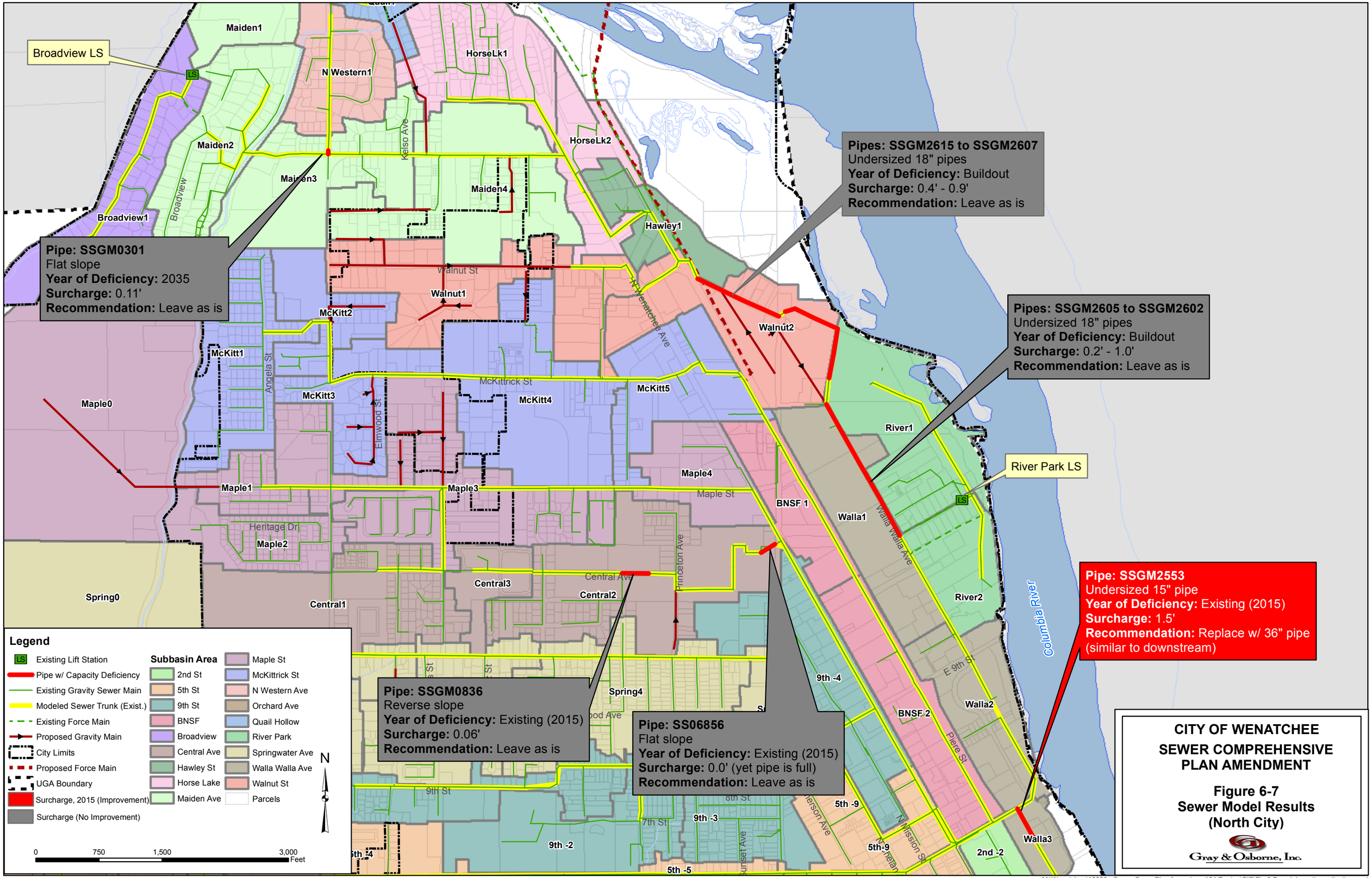

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Pipe: SSGM0961
Undersized 8" pipe
Year of Deficiency: Existing (2015)
Surcharge: 0.03'
Recommendation: Leave as is

Pipes: SSGM1104, 2148, 2149, 2543, 2544, 2725, 2960, 6849,6851
Surcharges due to high inflows (directly connected storm systems) inserted into the model
Year of Deficiency: Existing (2015)
Surcharge: 1.5' to MH Rims
Recommendation: Monitor this area for I/I influence.

Pipe: SSGM2318
Reverse slope
Year of Deficiency: Existing (2015)
Surcharge: 0.1'
Recommendation: Leave as is

Pipes: SSGM1196, SSGM1196A
Undersized 8" pipes
Year of Deficiency: Existing (2015)
Surcharge: 0.5' to 4.5'
Recommendation: Replace with 24" (similar to downstream and upstream pipes)

Pipe: SSGM2065
Flat slope
Year of Deficiency: Existing (2015)
Surcharge: 0.06'
Recommendation: Leave as is

2nd St
Orchard Ave
1st St
Sunburst St
Jefferson St
Palouse St
N Columbia St
Columbia River
Idaho St
S Chelan Ave
S Wenatchee Ave
Castlerock Ave
Tyler St
S Franklin Ave
Orondo Ave
Okanogan Ave
Spokane St
Lindy St
Skagit St
Peachey St
S Wilson St
Monroe St
Kittitas St
Lewis St
S Columbia St
Russell St
Ferry St
Malaga Ave
Stevens St
1st -1
1st -2
1st -3
1st -4
1st -5
Wash2
Wash3
Wash4
Castle4
Kitt1
Kitt2
Kitt3
S Wen4
S Wen5
Peach1
Peach2
Miller3

Legend
- Existing Lift Station
- Buildout_deficiencies
- Existing Gravity Sewer Main
- Modeled Sewer Trunk (Exist.)
- Proposed Gravity Main
- Existing Force Main
- City Limits
- UGA Boundary

Subbasin Area
- 1st St
- Castlerock Ave
- Cherry St
- Crawford Ave
- Kittitas St
- Methow St
- Millerdale Ave
- Peachy St
- Red Apple Rd
- S Wenatchee Ave
- Squilchuck LS
- Washington St
- Parcels
- Surcharge, 2015 (Improvement)
- Surcharge (No Improvement)

N

0 250 500 1,000 Feet

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT

Figure 6-8
Sewer Model Results
(South City)

Gray & Osborne, Inc.

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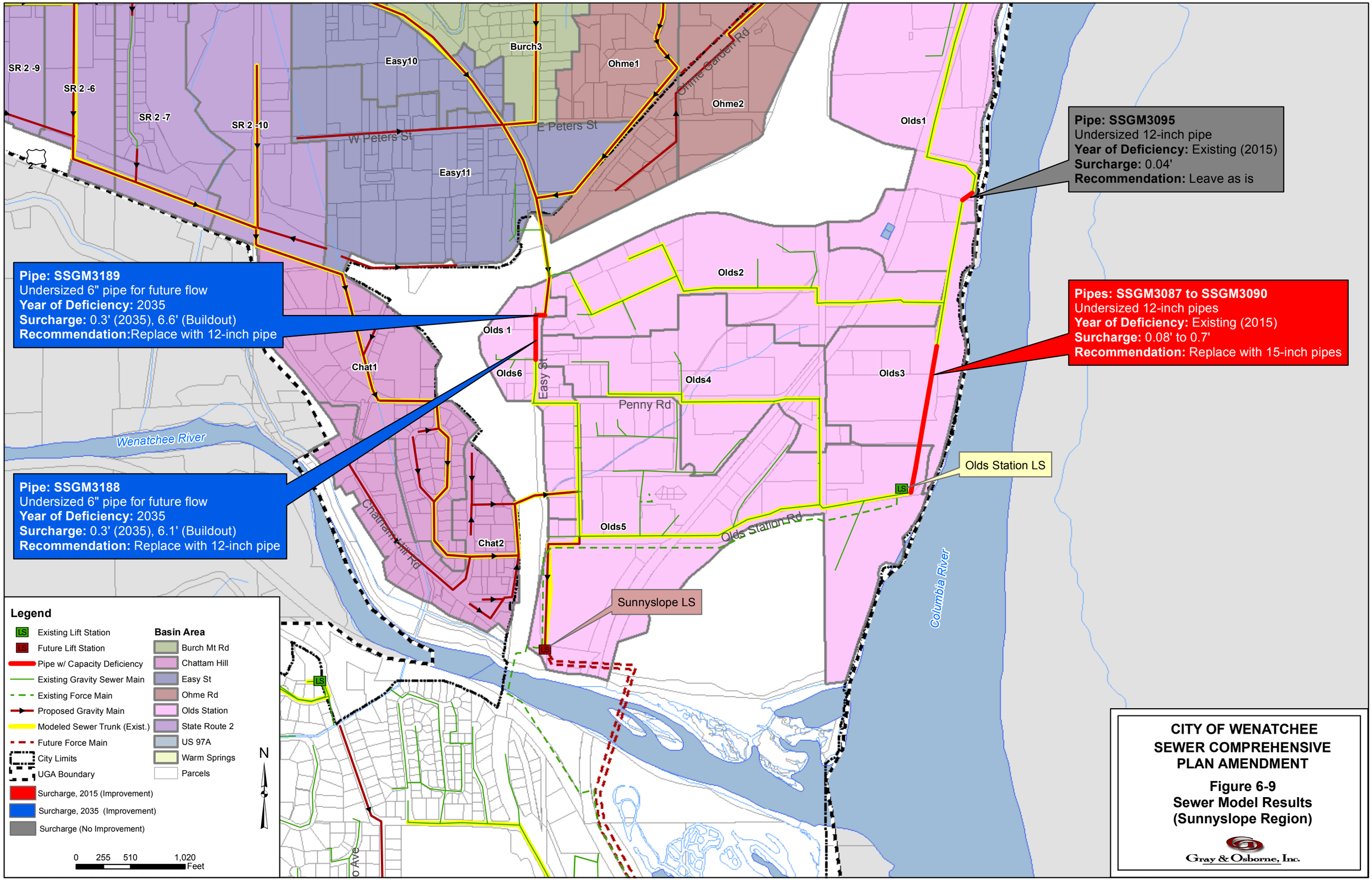

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The 2035 hydraulic modeling analysis identified a total of 25 conveyance capacity deficiencies whereas the Buildout scenario presented a total of 38 capacity deficiencies. Table 6-4 lists the deficiencies per subbasin. These deficiencies are also shown in Figures 6-7 through 6-9. Although there were numerous deficiencies shown in the 2015, 2035 and Buildout models, only a few recommended improvements are necessary (see Table 6-4). Figures 6-7 through 6-9 show the recommended improvements to correct these deficiencies. It should be emphasized that the model was based on the available GIS information and thus it is recommended that implementation of all projects related to this capacity assessment be further evaluated prior to design and construction.

TABLE 6-4

Gravity Main Pipe Model Deficiencies

Pipe ID by Subbasin	Year Deficiency Begins	Location	Modeling Location	Capacity Issue Identified in Model[(1)] *(Recommendation)*
1st-5				
SSGM0961	2015	North Chelan Avenue/1st Street	SSMH01315 to SSMH01330	Undersized 8-inch pipe *(Minimal surcharge of 0.03' so replacement is not recommended)*
SSGM1104	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH01981 to SSMH02730	Surcharges from approximately 1.5' to the rims due to high insertion of inflow in this vicinity *(Actual flows may be less than estimated so it is recommended this area be monitored.)*
SSGM2148	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02734 to SSMH01981	
SSGM2419	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02988 to SSMH01241	
SSGM2543	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02614 to SSMH01337	
SSGM2544	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02730 to SSMH02614	
SSGM2725	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH01337 to SSMH02994	
SSGM2960	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH01241 to SSMH02734	
SSGM06849	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02994 to SSMH01334	
SSGM06851	2015	South Wenatchee Avenue (Kittitas Street to 1st Street)	SSMH02994 to SSMH01334	
Castle3				
SSGM2318	2015	Castlerock Avenue/South Wetherald Street	SSMH00869 to SSMH00942	Reverse slope, surcharges 0.1' *(Minimal surcharge so replacement is not recommended)*

TABLE 6-4 – (continued)

Gravity Main Pipe Model Deficiencies

Pipe ID by Subbasin	Year Deficiency Begins	Location	Modeling Location	Capacity Issue Identified in Model[1] *(Recommendation)*
Central2				
SSGM0836	2015	Central Avenue/Princeton Avenue	SSMH01007 to SSMH01005	Reverse slope, surcharges 0.06' *(Minimal surcharge so replacement is not recommended)*
SSGM06856	2015	North Wenatchee Avenue	SSMH02988 to SSMH02005	Flat slope, full pipe but no surcharge occurs *(No surcharge so replacement is not recommended)*
Kitt1				
SSGM2065	2015	Pioneer Middle School	SSMH01251 to SSMH01250	Flat slope, surcharges 0.06' *(Minimal surcharge so replacement is not recommended)*
Maiden3				
SSGM0301	2035	Maiden Lane/North Western Avenue	SSMH02243 to SSMH02244	Flat slope, surcharges 0.11' *(Minimal surcharge so replacement is not recommended)*
Olds1				
SSGM3095	2015	Just south of SR 2, West of Columbia River	SSMH02831 to SSMH02830	Undersized 12-inch pipe *(Minimal surcharge of 0.04' so replacement is not recommended)*

TABLE 6-4 – (continued)

Gravity Main Pipe Model Deficiencies

Pipe ID by Subbasin	Year Deficiency Begins	Location	Modeling Location	Capacity Issue Identified in Model[1] *(Recommendation)*
Olds3				
SSGM3087	2015	East of Euclid Court	SSMH02857 to SSMH02858	Undersized 12-inch pipes, Surcharges from approximately 0.08' to 0.7' *(Recommend 15-inch pipe replacement)*
SSGM3088	2015	East of Euclid Court	SSMH02856 to SSMH02857	
SSGM3089	2015	East of Euclid Court	SSMH02855 to SSMH02856	
SSGM3090	2015	East of Euclid Court	SSMH02854 to SSMH02855	
Olds6				
SSGM3189	2035	Easy Street/South of SR 2	SSMH02911 to SSMH02882	Undersized 6-inch pipe, surcharges 0.3' [2035], 6.6' [Buildout] *(Replace with 12-inch pipe)*
SSGM3188	Buildout	Easy Street/South of SR 2	SSMH02882 to SSMH02879	Undersized 6-inch pipe, surcharges 0.3' [2035], 6.1' [Buildout] *(Replace with 12-inch pipe)*
Peach2				
SSGM1196A	2015	Walker Avenue/Peachey Street	SSMH02995 to SSMH00640	Undersized 8-inch pipes, surcharges 0.5 to 4.5' *(Replace with 24 inch, similar to adjacent upstream and downstream pipes)*
SSGM1196	2015	South Walker Avenue/Peachey Street	SSMH00328 to SSMH02995	

TABLE 6-4 – (continued)

Gravity Main Pipe Model Deficiencies

Pipe ID by Subbasin	Year Deficiency Begins	Location	Modeling Location	Capacity Issue Identified in Model[(1)] *(Recommendation)*
Walla1				
SSGM2605 to SSGM2602 *(four pipe segments)*	Buildout	Walla Walla Avenue	SSMH01024 to SSMH01028	Undersized 18-inch pipe, surcharges 0.2' to 1.0' [Buildout] *(Minimal surcharge so replacement is not recommended)*
Walla3				
SSGM2553	2015	North Worthen Street	SSMH01960 to SSMH01967	Undersized 15-inch pipe, surcharges 1.5' *(Replace with 36-inch pipe, similar to downstream pipe)*
Walnut2				
SSGM2615 to SSGM2607 *(nine pipe segments)*	Buildout	Hawley Street	SSMH02175 to SSMH01028	Undersized 18-inch pipe, surcharges 0.4' to 0.9' [Buildout] *(Minimal surcharge so replacement is not recommended)*

(1) Verification of inverts for these areas should be done prior to design or construction to confirm capacity issues.

FIELD OBSERVATIONS

The model can be used to determine discrepancies based upon a capacity issue. However, other problems may exist that are not determined from the hydraulic model but instead, are observed from the field. These issues can include deterioration of pipes, sags in the line, or pipes that are failing at their joints. Discussions with City maintenance staff indicate that a few problem areas of this type exist throughout the City's sewer system. Staff identified three primary areas of concern:

- 500 block of Methow Street (Approximately 634 feet of deteriorating 8-inch clay pipe).
- 100 block of Penny Road (Sag in the line for the 8-inch PVC pipe).
- 300 block of Okanogan Avenue, between Spokane Street and Kittitas Street (Broken 10-inch pipe and damaged manhole).

The City will have an annual financial allowance set aside to address replacement issues such as these as they arise.

LIFT STATION CAPACITY ANALYSIS

The City operates and maintains five lift stations. Table 6-5 shows the capacity analysis for each of the lift stations.

For Wenatchee's lift stations, the peak flows previously developed for the 2015, 2035, and Buildout scenarios are compared to each of the lift station's existing capacity in Table 6-5. For the 2035 and Buildout scenarios, capacity surplus or deficiency is determined.

The lift station analysis presented in Table 6-5 shows that all five of the lift stations have adequate capacity for flows projected through buildout. Although Olds Station is showing a deficit in available capacity in Table 6-5, the station has additional wet well storage via 804 linear feet of 60-inch-diameter pipe to handle flows larger than 750 gpm. Both the 2035 and Buildout scenarios demonstrated that this additional storage is adequate to handle the future flows anticipated for this region.

TABLE 6-5

Lift Station Capacity Analysis

Lift Station	Total 2015 Peak Flow (gpm)	Total 2035 Peak Flow (gpm)	Buildout Flow (gpm)	Lift Station Capacity (gpm)	Surplus (+)/ Deficit (-) (gpm)(1)		
					Existing	2035	Buildout
Olds Station	979	1,059	1,070	750(3)	(-) 229	(-) 309(3)	(-) 320(3)
Squilchuck	232	274	274	300	(+) 68	(+) 26	(+) 26
Broadview	30	33	33	165	(+) 135	(+) 132	(+) 132
Quail Hollow	13	16	16	86	(+) 73	(+) 70	(+) 70
River Park	36	36	36	400	(+) 364	(+) 364	(+) 364
Sunnyslope *(Future LS)*	--	670	1,150(4)	670/ 1,150(2)	--	--	--

(1) Bold font represents lift stations shown to be undersized within the model and should be monitored for capacity issues in the future. Dark shading indicates a recommended capacity upgrade.

(2) The Future Sunnyslope LS would be phased to accommodate near term growth until 2035 and then buildout growth beyond that.

(3) Olds Lift Station has 804 linear feet of 60-inch-diameter pipe attached to the wet well which acts as storage for incoming flows. Based on the results of the 2035 and Buildout flow scenarios, this storage can adequately handle flows under both scenarios.

(4) Buildout lift station capacity of 1,655 gpm with expanded UGA.

FORCE MAIN CAPACITY EVALUATION

The capacity evaluation for the force mains is tied directly to the lift station capacity evaluation. With the exception of the Olds Station force main, the capacity of each force main is based on a maximum design velocity of 8 feet per second (fps). Each force main capacity is compared to the existing lift station capacity and the predicted peak flow for the 2035 and Buildout conditions. The results of this evaluation are shown in Table 6-6.

It should be noted that the Olds Station force main consists of 4,420 feet of 12-inch-diameter C900 PVC pipe and 380 feet of 12-inch ductile iron pipe terminating at a tee east of the Wenatchee River highway bridge on the north side of the river. Per the 2009 Plan:

> *A 'tee' branch is installed in a vertical orientation with a 12-inch diameter pipe extending from this tee into a manhole adjacent to the roadway and slightly higher in elevation than the tee, thus creating an air break. A 6-inch standpipe is located within the manhole 8.9 feet higher than the invert elevation of the force main tee which serves as the inlet for the flow return system in the event the siphon capacity is exceeded. The flow return system was designed so that if the capacity of the pipe on or south of the bridge is partially or wholly plugged, the wastewater would back up into the airbreak manhole and routed back to the Olds Station lift station via a 6-inch gravity pipe along Horan Rd…Based on field tests of the existing system, the capacity of the bridge crossing and the siphon combined is approximately 800 gpm. The transition from pressure to gravity on*

the north end of the bridge, followed by a drop in the hydraulic grade line, results in air binding within the system. Any increase in pumping capacity would require improvements to the bridge and siphon conveyance capacity…Modifications could be made to the current bridge crossing to allow for air release during pumping that should increase the capacity of the crossing to 1,000 gpm.

TABLE 6-6

Force Main Capacity Analysis

Lift Station	Existing Lift Station Capacity (gpm)	Force Main Diameter (in)	Force Main Capacity (gpm)	Existing Force Main Velocity(3) (fps)	2035 Peak Flow Requirement (gpm)	Buildout Peak Flow Requirement (gpm)	Buildout Surplus (+)/ Deficiency (-) (gpm)
Olds Station	750	12	800(2)	2.1	1,059	1,070	(+) 1,804
Squilchuck	300	6	715	3.3	274	274	(+) 441
Broadview	165	4	320	4.1	33	33	(+) 287
Quail Hollow	86	4	320	2.1	16	16	(+) 304
River Park	400	4	320	10.0	36	36	(+) 284
Sunnyslope *(Future LS)*	670/ 1,150(1)	12	2,870	--	670	1,150(4)	(+) 125

(1) The Future Sunnyslope LS would be phased to accommodate near term growth until 2035 and then buildout growth beyond that.
(2) The existing 12-inch Olds Station force main is limited to 800 gpm due to a siphon located at the bridge.
(3) Velocity based upon 2015 discharge flow from the lift station.
(4) Buildout peak flow of 1,655 gpm with expanded UGA.

As shown in Table 6-6, all force main capacities are assumed to be adequate as they exceed both the current lift station capacity and Buildout planning period capacity for all lift stations.

COLLECTION SYSTEM IMPROVEMENT SUMMARY

A summary of the recommended improvements to the collection system based on the model results are described in Table 6-4 and shown in Figures 6-7 through 6-9. Detailed cost estimates are provided in Appendix I and a timeline for improvements is presented in the Capital Improvement Plan Chapter.

CHAPTER 7

WASTEWATER TREATMENT PLANT ANALYSIS

This chapter provides a description and analysis of the City of Wenatchee Wastewater Treatment Plant (WWTP). The WWTP's ability to meet current and potential future NPDES permit discharge limits are evaluated at future flows and loadings.

WASTEWATER TREATMENT FACILITIES PLAN

The analysis in this chapter relies heavily on the 2016 *City of Wenatchee Wastewater Treatment Facilities Plan Update* ("2016 *WWTP Facilities Plan*," HDR).

To enable the City of Wenatchee (City) to improve unit process maintenance, and continue to meet effluent quality requirements, the recommendations in the 2016 *WWTP Facilities Plan* include modifications to the City's WWTP and Biosolids Drying Beds Facility. The Plan's recommendations are based on an evaluation of feasible alternatives, with recommendations for improvements.

The stated primary purposes of the 2016 *WWTP Facilities Plan* were to:

- Update the facility flow and loading projections to reflect more recent data collected following the recent upgrades to the wastewater treatment facility including a new Screenings Building;

- Evaluate facility unit process capacity to show that adequate capacity exists to treat the projected influent flows and loads through the planning period; and

- Recommend process improvements to provide for needed process unit redundancy and to assure capacity is available for future wastewater flows. The planning period for the plan is years 2015 through 2035 (20 years).

A site plan and process flow diagram for the WWTP are shown in Figures 7-1 and 7-2, respectively.

NPDES PERMIT

The WWTP NPDES Permit includes effluent limits for Carbonaceous Biological Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), fecal coliform, ammonia and Whole Effluent Toxicity (WET) for treated effluent discharged into the Columbia River. These limits are presented in Table 7-1. The WWTP NPDES Permit also establishes limits for

the maximum month flow, $CBOD_5$ influent loading for maximum month and TSS influent loading for the maximum month, which are also included in Table 7-1.

TABLE 7-1

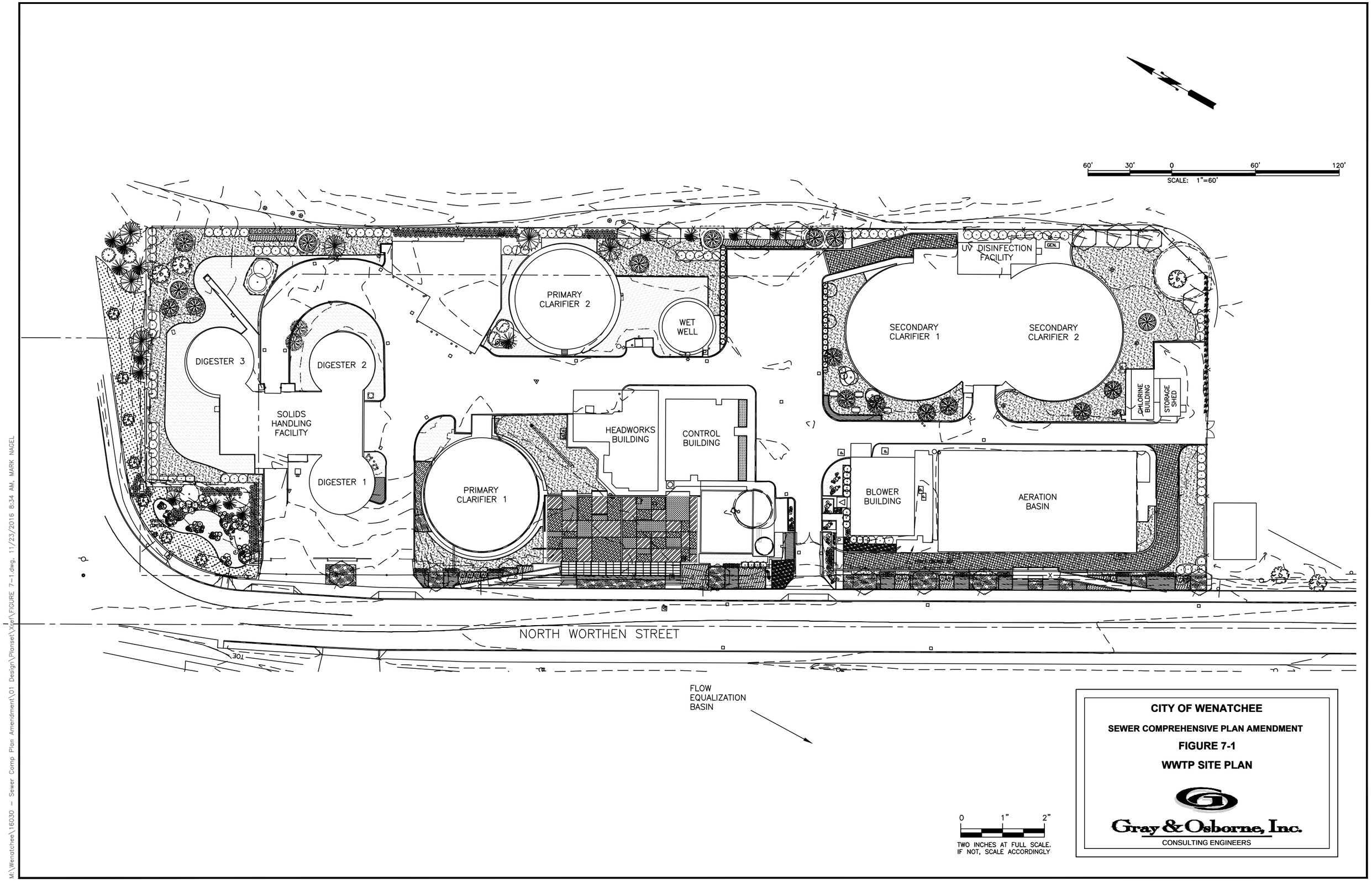
Wenatchee WWTP NPDES Permit Limits

Parameter	Monthly Average	Weekly Average
Effluent Limits		
Carbonaceous Biological Oxygen Demand ($CBOD_5$)(1)	25 mg/L	40 mg/L
	1,147 lb/d	1,835 lb/d
Total Suspended Solids (TSS)(1)	30 mg/L	45 mg/L
	1,376 lb/d	2,064 lb/d
Total Ammonia	25 mg/L	47 mg/L
	1,147 lb/d	2,156 lb/d
Fecal Coliform	200/100 mL	400/100 mL
pH	Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0.	
Acute WET Limit	The acute toxicity limit shall be no statistically significant difference in test organism response between the chronic critical effluent concentration (ACEC), 0.72 percent of the effluent, and the control.	
Monthly average flow (max. month)	5.5 MGD	
Influent Limits		
Maximum Month BOD_5 Loading	13,006 lbs/day	
Maximum Month TSS Loading	13,111 lbs/day	
Maximum Month TKN Loading	1,800 lbs/day	

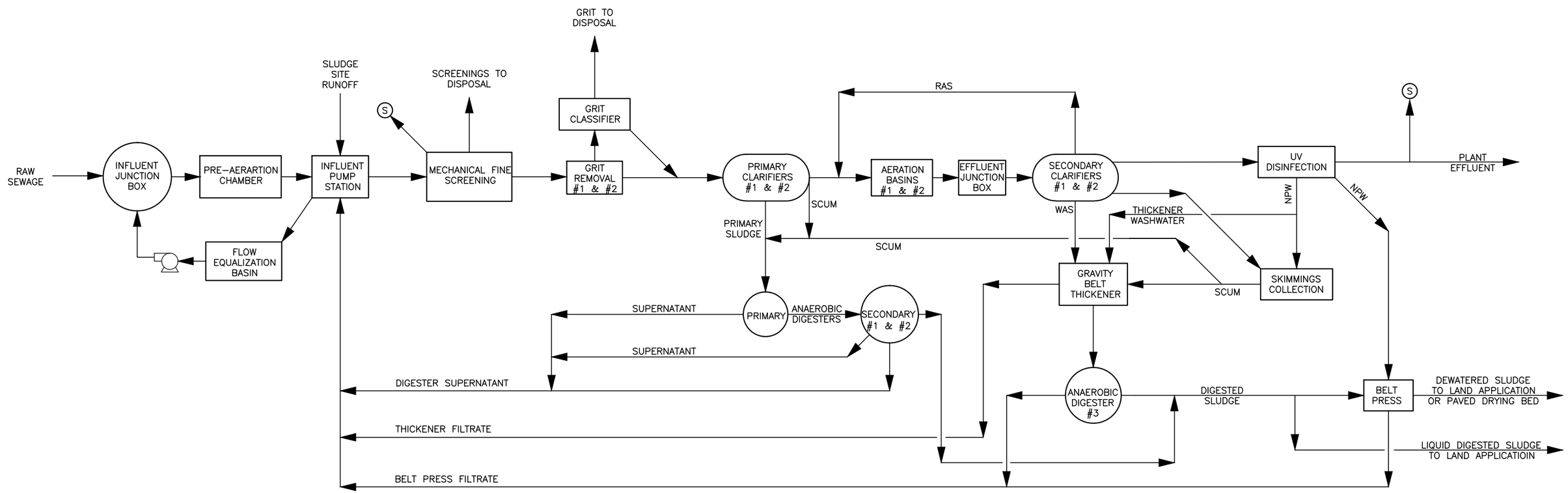
(1) Monthly average effluent concentrations shall not exceed the limit listed in the table, or 15 percent of the respective influent concentrations, whichever is more stringent.

CURRENT WWTP LOADINGS AND PERFORMANCE

Figures 5-2 and 5-3 in Chapter 5 showed the influent loads of BOD_5 and TSS loadings as well as the plant capacities for those loadings. As noted in Chapter 5, annual average BOD_5 influent loadings varied between approximately 6,500 and 10,000 lbs/day compared to the NPDES-permitted capacity of 13,006 lbs/day. Annual average TSS influent loadings were between 7,000 and 16,000 lbs/day in comparison to the design capacity of 13,111 lbs/day.



M:\Wenatchee\16030 - Sewer Comp Plan Amendment\01 Design\Planset\Xref\FIGURE 7-1.dwg, 11/23/2016 8:34 AM, MARK NAGEL



(S) = AUTOMATIC SAMPLER

CITY OF WENATCHEE

SEWER COMPREHENSIVE PLAN AMENDMENT

FIGURE 7-2

WWTP FLOW SCHEMATIC

Gray & Osborne, Inc.
CONSULTING ENGINEERS

M:\Wenatchee\16030 – Sewer Comp Plan Amendment\01 Design\Planset\Xref\FIGURE 7.2.dwg, 11/22/2016 1:37 PM, MARK NAGEL

As was shown in Figure 5-1, the NPDES-permitted capacity of 5.5 MGD has not been exceeded. The highest monthly average influent flow over the period of 2011 through 2015 was 3.14 MGD and it occurred in June 2015. The data also indicates that the *peak day* design flow of 11.0 MGD has not been exceeded. The peak day flow over the period between 2011 and 2015 was 5.30 MGD. As noted in Chapter 5, the 11-MGD threshold at which flows enter the flow equalization basin has been exceeded a few times a year.

Figures 7-3 and 7-4 show historical $CBOD_5$ and TSS effluent concentrations and removal efficiencies between 2010 and 2015. As these figures indicate, the plant has not exceeded effluent limits for $CBOD_5$ and TSS and has consistently met the 85 percent removal requirement for both, although effluent TSS has approached the limit.

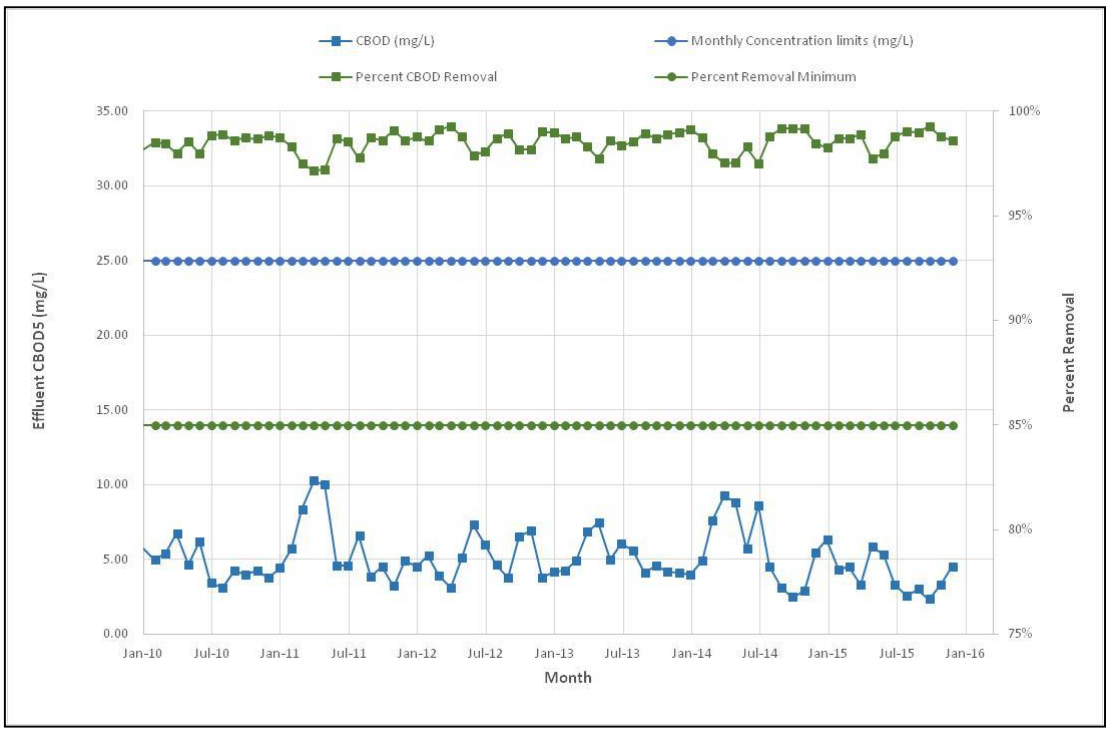


FIGURE 7-3

Wenatchee WWTP – Effluent $CBOD_5$ Concentrations and Removal

Figures 7-5, 7-6 and 7-7 show the projected maximum month flows and loadings through 2035 described in Chapter 5 (and based on the 2016 *WWTP Facilities Plan)*, plotted against the NPDES-Permitted Capacity. As shown in these figures, projected 2035 flows do not exceed the permitted capacity, while projected 2035 BOD loadings do exceed the limits, and TSS loading is already exceeding the NPDES permitted capacity.

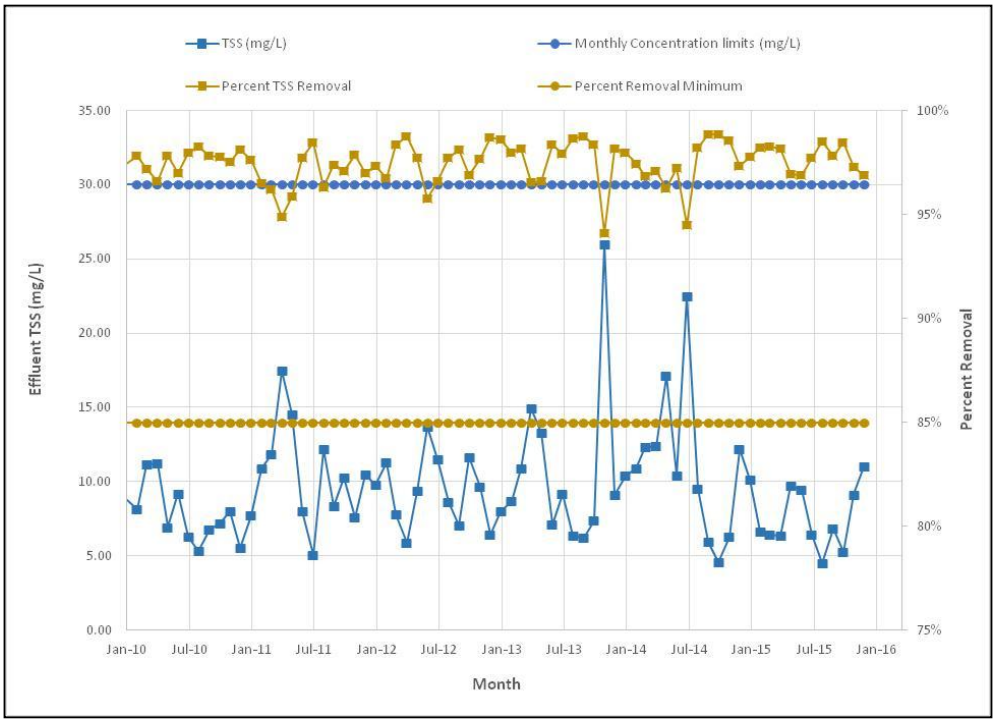


FIGURE 7-4

Wenatchee WWTP – Effluent TSS Concentrations and Removal

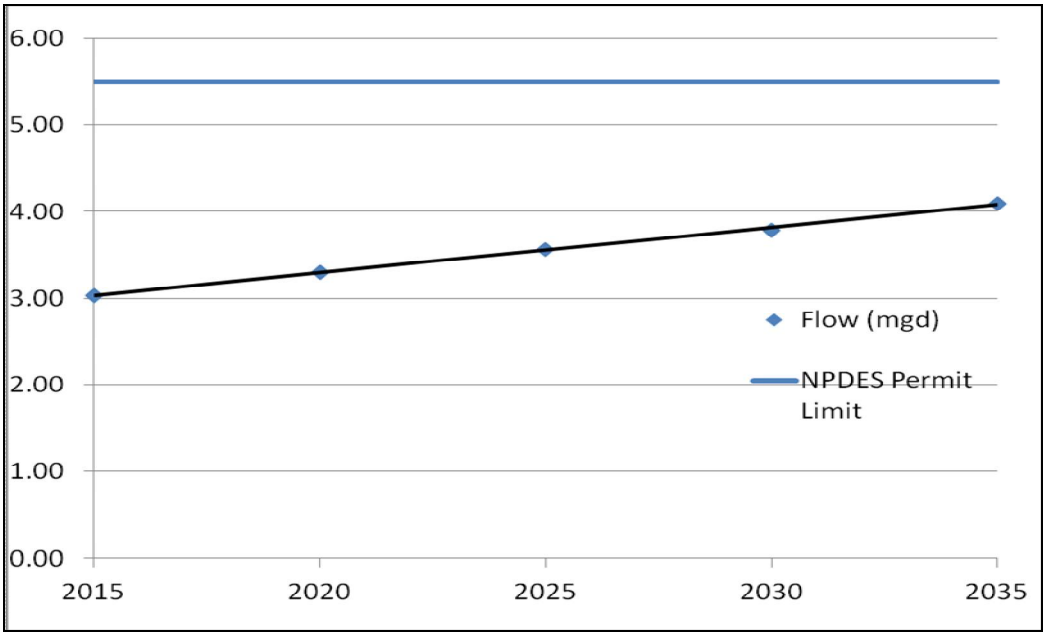


FIGURE 7-5

Wenatchee WWTP – Projected Max. Mo. Flows and NPDES-Permitted Capacity

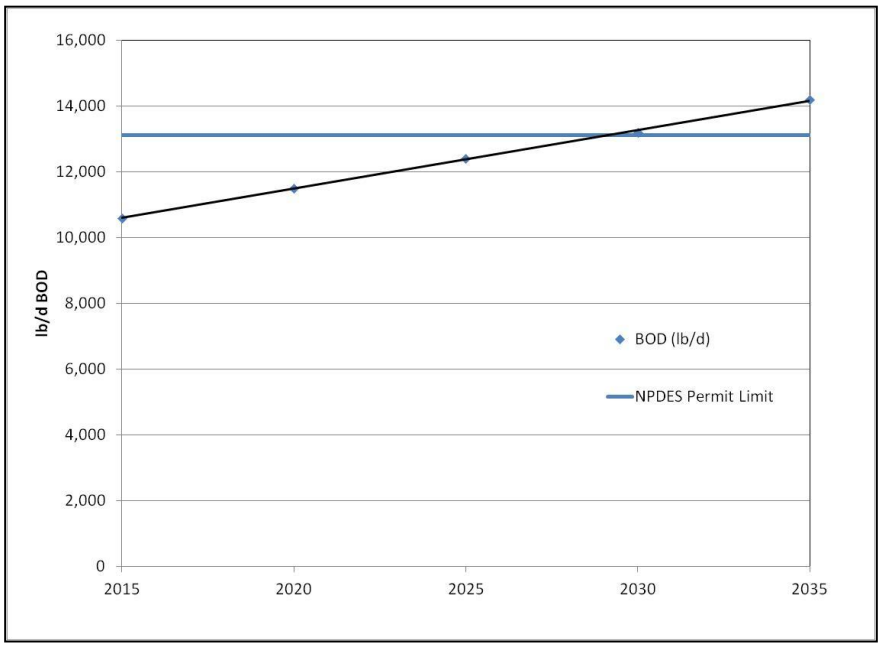


FIGURE 7-6

Wenatchee WWTP – Projected Max. Mo. BOD_5 Loadings and NPDES-Permitted Capacity

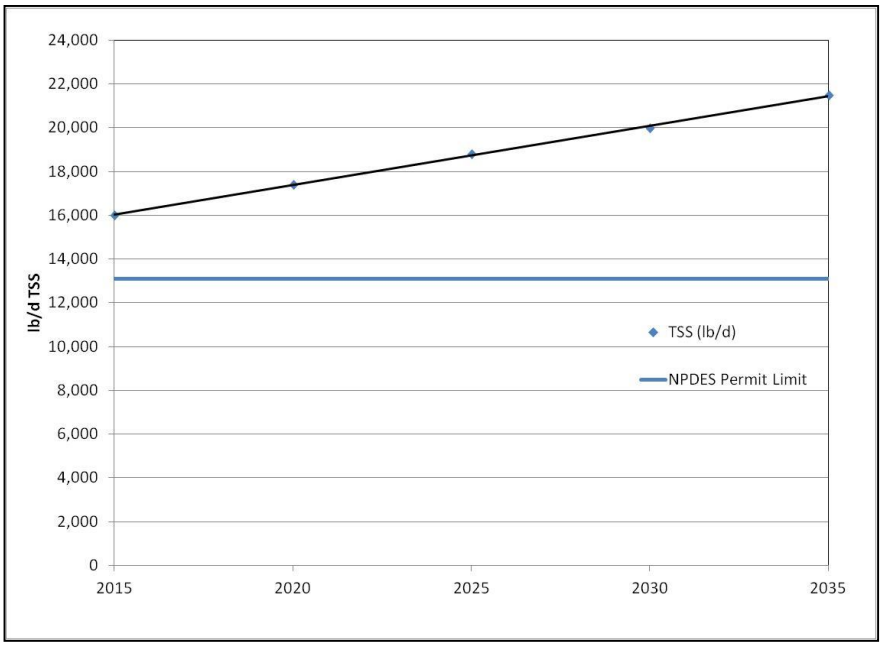


FIGURE 7-7

Wenatchee WWTP – Projected Max. Mo. TSS Loadings and NPDES-Permitted Capacity

LIQUID STREAM PROCESS

The treatment process is conventional activated sludge with provisions for either step feed or plug flow operation. A discussion of each major process unit is presented below, along with recommendations from the 2016 *WWTP Facilities Plan.*

INFLUENT JUNCTION BOX

Flow entering the treatment plant is conveyed to the influent junction box by the 18-, 36-, or 42-inch interceptor sewers. The influent junction box provides access to gate valves used to control the direction of flow of the influent wastewater. Wastewater may be routed through the preaeration chamber or bypass the pre-aeration chamber to allow maintenance. The chamber also provides a connection point where wastewater that has been diverted to the Flow Equalization Basin is reintroduced into the influent flow. The influent next passes through the preaeration chamber before entering the influent pump station wet well. Flow is split into two channels before the pumps. In each channel, a coarse bar screen removes very large solids; the flow with the remaining smaller solids is pumped to the headworks.

INFLUENT PUMP STATION

The six influent pumps in the influent pump station take their suction from the plant pump station wet well. All the pumps are non-clog Fairbanks-Morse pumps. The pumps are shown in Figure 7-8. Pumps 1 and 2 intake through a 12-inch line from the wet well and discharge to the headworks. Pumps 3 and 4 intake through a 16-inch line and discharge to the headworks. Pumps 5 and 6 intake through a 24-inch line and discharge to the flow equalization basin. Pump capacities and horsepower are:

Pump 1 - 3,150 gpm @ 47' TDH, 40 hp
Pump 2 - 3,150 gpm @ 47' TDH, 40 hp
Pump 3 - 2,000 gpm @ 26' TDH, 20 hp
Pump 4 - 2,500 gpm @ 26' TDH, 25 hp
Pump 5 - 5,500 gpm @ 25' TDH, 40 hp
Pump 6 - 6,000 gpm @ 25' TDH, 50 hp

FIGURE 7-8

Influent Pumps

FLOW EQUALIZATION BASIN

The instantaneous flow within the WWTP is limited to 11 MGD by the influent pump control scheme, and flows in excess of 11 MGD are pumped to the flow equalization basin (FEB), an open storage basin located directly west of the plant site on the other side of North Worthen Street.

Flow equalization was implemented at the Wenatchee WWTP to reduce hydraulic impacts of peak flows through the plant. Influent Pumps 5 and 6 discharge to a 24-inch pipeline that feeds the FEB. A single submersible pump (rated for 700 gpm or 1 MGD) pumps the flow equalization basin contents back into the influent sewer following the equalization event.

The FEB consists of a membrane lined basin with sand filled membrane tubes, concrete sump, simplex submersible pump station with local controls, and a 4-inch discharge pipeline. The FEB is shown in Figure 7-9.

The flow equalization basin has a capacity of 1.7 million gallons below elevation 639.0 (NAVD88).

Following a flow equalization event, a flushing valve can be opened to flush City water (isolated by a backflow preventer) into the pipeline to displace dilute influent in the pipeline. Sodium hypochlorite can be dosed into this same water using the RAS chlorination pump. Due to the nature of the FEB, operations staff need to manually clean the FEB after overflow events. As described in Chapter 5, overflows into the FEB typically occur only a few times a year. However, as the service area population increases, the frequency of overflows is expected to increase unless efforts to reduce infiltration and inflow are implemented.

FIGURE 7-9

Flow Equalization Basin

HEADWORKS

Influent screening is performed by two perforated plate screens which were installed in 2012. The screenings are processed by the washer/compactor equipment provided with each screen mechanism. The capacity of each screen and washer/compactor system is 15 MGD. The screens are shown in Figure 7-10.

The influent channels are aerated both at the influent end, ahead of the bar screens, and at the effluent end, ahead of the primary clarifier influent weir gates. A single 20-scfm rotary lobe aeration blower supplies air to diffusers in the channels and in the scum wells of the primary clarifiers.

Grit is removed from the liquid flow stream in two concrete chambers, each equipped with a rotating paddle mechanism, an air scouring mechanism, and a baffle plate for directing incoming wastewater downward. The chambers consist of an upper and lower compartment separated by a plate with an opening in the center. The hydraulics through

the upper compartment move the grit toward the center opening. The rotating paddle mechanism serves to resuspend organic material that has settled with the grit before it drops into the lower compartment.

Grit accumulates in the lower compartment in each chamber and is pumped out by one of two 250 gpm recessed impeller grit chamber pumps. Two 75 scfm rotary lobe blowers provide air for the scouring mechanism. The air scouring mechanism serves to fluidize the grit for pumping.

The grit is conveyed by a grit chamber pump to one of two cyclone separators. The cyclone separator returns lighter material to the channels upstream of the grit chambers and discharges the heavier grit into an existing grit classifier.

Each grit chamber is designed to handle the design year maximum month hydraulic flow of 5.5 MGD. It is anticipated that under normal operation, only one grit chamber will be in service. When a storm event is foreseen that will result in hydraulic flows approaching the 10.6 MGD maximum day flow, then the second grit chamber should be placed in service.

FIGURE 7-10

Influent Screens

Recommended Improvements

The 2016 *WWTP Facilities Plan* recommends construction of additional coarse fraction grit removal upstream of the influent pump station, including the installation of an influent sewer grit collection manhole upstream from the existing screenings building. This manhole would enable removal of heavy fraction grit from the influent sewer with an eductor truck and help avoid accumulation of grit in the treatment plant from the screenings building to the existing vortex grit removal units. In order to maintain grit in suspension between the Screenings Building and the existing vortex grit removal units, construction of a dedicated scour air blower for the Influent Pump Station wet well and a separate dedicated air scour blower for the grit removal inlet channel is also recommended. Construction of this project is scheduled for 2017-2018.

PRIMARY CLARIFIERS

Screened influent is conveyed to two primary clarifiers (65 feet and 85 feet in diameter), which have a combined total surface area of 8,340 sf. The combined loading rate of the two clarifiers is over 3,500 gal/sf/d. Under normal operating conditions, it is anticipated that only one clarifier will be in service.

The primary sludge/scum pumps convey primary sludge and scum from the primary clarifier or clarifier scum well. Primary sludge and scum will normally be pumped to Digester 1. Two 85 gpm plunger pumps located in the headworks pump room are dedicated for primary sludge and scum pumping.

AERATION BASINS

Following removable of settleable solids in the primary clarifiers, primary effluent is conveyed to the aeration basins. Figure 7-11 shows the basins.

FIGURE 7-11

Aeration Basins

Biological treatment removes biochemical oxygen demand (BOD), solids, and nutrients from wastewater. Biological treatment is accomplished with aeration basins and return activated sludge (RAS) pumping. The aeration basin blowers provide oxygen to aerobic zones to promote biological treatment. RAS pumps return settled solids to the aeration basin anoxic zone and waste activated sludge (WAS) pumps maintain the microbial population by wasting excess biomass. During nitrification, mixed liquor (ML) recycle pumps are provided to recycle nitrate rich mixed liquor to the anoxic zones to reduce the oxygen requirement in the aerobic zones and restore alkalinity to the ML due to denitrification.

The aeration basins are 15-feet deep and composed of two trains. The total volume is 1.11 million gallons. Each train has a 0.065-million gallon selector basin and can be operated in either aerobic or anoxic mode when the plant is nitrifying, or denitrifying in an anaerobic condition. The selector operates in anoxic mode most of the time. The existing aeration system uses 9-inch Sanitaire membrane diffusers. The maximum oxygen transfer capacity for a single train is 4,250 lb/d using 1.5 SCFM per diffuser as the design basis. The existing three aeration blowers have a capacity of 5,500 SCFM each. With the firm capacity of 11,000 SCFM or roughly 3.8 SCFM per diffuser and both trains online, this capacity can be achieved.

SECONDARY CLARIFIERS

From the ML splitting box at the aeration basins, ML is conveyed to two 80-foot-diameter clarifiers by gravity through a 30-inch pipe. The clarifiers are designed for an average overflow rate of 550 gal/ft^2/day, and peak overflow rate of 1,100 gal./ft^2/day. Flow enters the circular clarifiers through the center column of the secondary clarifier mechanisms. Solids settle to the bottom of the clarifiers and clarified effluent flows over and through V-notch weirs and scum baffles into the collection launders located around the perimeter of the clarifiers. Secondary effluent from both

clarifiers exits the launders through two separate 30-inch pipes that convey flow to the UV Disinfection Facility. Manual slide gates at each effluent pipe entrance to the UV influent channel can be closed to isolate the clarifier for maintenance and prevent backwater from the UV Disinfection Facility from entering the clarifier launder.

The two existing secondary clarifiers have a side water depth of 12-feet deep, which is relatively shallow. Typical secondary clarifiers can handle a TSS loading of 25 to 35 lb/sf at maximum month flows but would typically have a side wall depth of 16 feet or more. The maximum solids loading rate is assumed to be 20 lb/sf to account for the shallow clarifier. The existing RAS pumping station recycles settled solids to the aeration basins. The capacity of the RAS pumping system is 2.7 MGD. One of the secondary clarifiers is shown in Figure 7-12.

FIGURE 7-12

Secondary Clarifiers

Recommended Improvements

The 2016 *WWTP Facilities Plan* recommends the construction of Secondary Clarifier 3 and connection of the new clarifier to the existing gravity controlled return flow system and RAS pumping station. Construction of the new clarifier would also require installation of a new aeration basin effluent pipeline from the aeration basin effluent junction box to the clarifier and extension of a clarifier effluent pipeline from the clarifier effluent launder to the influent channel of the UV disinfection building. Return flow recirculation and secondary scum piping will be directed to the sludge recirculation pump station via the abandoned chlorine contact channel contiguous with existing Secondary Clarifier 1 and combined with the existing pumping systems. When the existing two RAS pumping units are replaced under regular maintenance upgrades, it is recommended the replacement pumping units be increased in size to provide for full pumping redundancy for the 100 percent return, or recycle, flow condition. Construction of this project is scheduled for 2020-2035.

ULTRAVIOLET DISINFECTION SYSTEM

In 2004 to 2005, the City constructed an ultraviolet (UV) light disinfection system to replace the existing gaseous chlorination system. The original UV Equipment was manufactured by WEDECO, and included the WEDECO TAK 55 design using a triple UV channel configuration with three UV lamp banks configured to provide 11 MGD capacity assuming two channels in operation. The TAK 55 was designed to provide a UV dose of greater than 40,000 micro J/cm^2 at a UV transmittance of 50 percent (at 253.7 nm).

The UV banks contain low pressure, high-intensity UV lamps arranged parallel to the direction of flow in the channel. The lamps are provided with a pneumatically operated automatic wiping system for lamp cleaning. The plant air system provides the air for system operation. Each channel has a low level probe to detect if the water level in the channel becomes too low. A UV intensity monitoring system is provided for each channel. The intensity reading is used to automatically adjust the lamp output as required to meet the dosage requirements for disinfection. The UV Disinfection System is shown in Figure 7-13.

FIGURE 7-13

Ultraviolet Disinfection System

Recommended Improvements

The 2016 *WWTP Facilities Plan* recommends modifications to the UV disinfection system control system and installation of continuous ultraviolet transmittance (UVT) monitoring to enhance the firm peak flow capacity of the disinfection system.

SOLIDS TREATMENT PROCESS

The existing solids processing train consists of WAS thickening, separate WAS and primary sludge anaerobic digestion, and dewatering.

SLUDGE THICKENER

The Wenatchee WWTP has no primary sludge thickener. The sludge is settled in the primary clarifiers as mentioned above in the liquids treatment section. The thickened sludge concentration ranges between 3 percent and 5 percent.

The gravity belt thickener (GBT) removes water from conditioned sludge by passing it over a woven belt filter that retains the solids while filtrate passes through and is collected below. The primary purpose of the GBT and associated equipment is to reduce the volume of WAS that must be handled after it is removed from the secondary clarifiers. The thickener can also be used to thicken digested sludge for either of the following purposes: (1) reducing the volume of digested sludge to be to loaded in liquid form into trucks for disposal; or (2) increasing solids retention time in the digester by returning thickened sludge solids back to the digester.

ANAEROBIC DIGESTERS

Waste sludge streams from the primary clarifier are pumped, through a common line with the recirculated contents of the primary digester, into the center of the digester. The circulated sludge passes through an external heat exchanger which is heated by hot water. The water in the boiler is heated by digester gas. An auxiliary natural gas line is also provided as a secondary fuel.

The two primary sludge digesters have enough volume to meet the minimum 15 days HRT goal, but both units must be online. A single digester is not sufficient to meet the minimum recommended HRT goal of 15 days unless primary sludge is thickened to TS values greater than 6 percent.

The contents of the primary digesters are kept in a mixed condition by a gas-mixing system which utilizes digester gas. As the mixed streams enter the digester, and equal volume of digested sludge is displaced into an overflow box from Digester 1, and flows by gravity to the Digester 2.

Digester 2 is essentially a separation chamber in which the sludge solids are settled from the supernatant and then pumped to a blend tank and then pumped to the belt filter press or to pumped to the sludge loading stand pipe.

A third anaerobic digester (Digester 3) was built to permit secondary sludge and scum to be digested separately from primary sludge and scum. Separate digestion of secondary sludge was desired to reduce the potential for foaming, which had been observed in the past during attempts to digest primary and secondary sludge together in the existing digesters.

There is a single two meter gravity belt thickener (ahead of Digester 3) which has a capacity of 800 lb/hr – 1,400 lb/hr. Based on these loading rates, the required operation does not exceed 8 hours per day. There is no redundancy in the system since there is only a single gravity belt thickener.

A single belt filter press (BFP) thickens digested primary and secondary sludge. The thickened sludge (biosolids) is sent to the drying bed and land-applied.

Recommended Improvements

The 2016 *WWTP Facilities Plan* recommends construction of a new Anaerobic Digester 4 that matches the capacity of existing Anaerobic Digester 3. A new Digester Control Building expansion will provide an additional hot water boiler, gas, and recirculation pumping systems to support the digester and additional piping modifications to the other digesters on site to enable full redundancy of digester tankage. Installation of gas handling and odor control systems would also be incorporated into the digestion upgrade, and space within the digester control building would be provided to allow

installation of a future WAS rotary screen thickener (RST) that would also be able to be used for digester recuperative thickening. This project is scheduled for 2018-2019.

DRYING BEDS

The City currently uses solar drying in drying beds located about 10 miles south of Wenatchee to dry dewatered biosolids and produce a Class A product. Production of Class A biosolids through solar drying is rare in Washington State. (Only one other facility is able to produce Class A biosolids in this fashion.) To permit this process, the City worked in conjunction with the US EPA's Pathogen Equivalency Committee and Ecology in 2011 to conduct a field experiment to demonstrate a Process to Further Reduce Pathogens (PFRP) that is equivalent to methods set forth in WAC 173-308-170. The Notice of Final Coverage Under the General Permit was issued by Ecology on October 31, 2012. The Final Coverage allows the City to produce biosolids that are either Class A or Class B for pathogens depending on the process the City uses.

In order for the City to produce Class A biosolids, the City is required to:

- Anaerobically digest an average of 20 days at 35 degrees to 55 degree C (95 degree to 131 degree F) and then dewatered on a belt filter press to 10 to 20 percent total solids.

- Begin the PFRP drying bed process between May 1 and September 30 as long as the average daily ambient air temperatures has reached 15 degree C for at least 7 consecutive days before the process starting date.

- Process the biosolids in batch mode, turning (at least once a week) and drying the biosolids in the dying beds for a minimum of 35 days. During the treatment period(s), the average ambient air temperature must be at least 15 degree C.

- Test each batch. The criteria for Class A are total solids > 90 percent, fecal coliform <1,000 MPN per gram of total solids, and <3 viable helminth ova per 4 grams of total solids.

In addition to these requirements, in order to qualify for relatively unrestricted land application as Exceptional Quality (EQ) biosolids, the biosolids must pass periodic pollutant (trace metals) tests, and achieve $\geq$ 38 percent volatile solids reduction in the digester to demonstrate vector attraction reduction. Based on data from 2014, the City is meeting the criteria for Class A, EQ, biosolids.

Recommended Improvements

The 2016 *WWTP Facilities Plan* recommends:

- Construction of four additional biosolids drying beds located in a mirrored fashion immediately north of the existing drying beds. This configuration would allow efficient operations for solids handling equipment and will allow the City to avoid co-mingling of processed and non-processed materials. It has been assumed that the City will not be required to purchase additional property to provide for the added biosolids drying beds facility capacity.

- Construction of a second storm water retention facility that will operate using evaporative disposal similar to the existing storm water facility. The retention facility will also be mirrored with the existing facility as a separate pond from the existing facility. The existing perimeter fence will be extended around the new facilities and the new access road and drying beds will be paved.

CAPITAL IMPROVEMENT PLAN

Table 5-2 shows the 20-year Capital Improvement Plan for the WWTP, as identified in the 2016 *WWTP Facilities Plan* and as modified for this Plan.

TABLE 7-2

20-Year Capital Improvement Plan – WWTP

Improvement	2017	2018	2019	2020	2021[(1)]
WWTP Grit Removal Improvements/Influent Flow Meter Design/Construction Engineering	$24,000				
WWTP Grit Removal Improvements/Influent Flow Meter Construction		$270,000			
WWTP UV Disinfection System Modifications					$161,000
WWTP Digester 4 and Digester Control Building Design/Construction Engineering		$541,000			
WWTP Digester 4 and Digester Control Building Construction				$4,151,000	
WWTP Secondary Clarifier 3 and Return Flow Control Design/Construction Engineering					$309,000

TABLE 7-2 – (continued)

20-Year Capital Improvement Plan – WWTP

Improvement	2017	2018	2019	2020	2021[(1)]
WWTP Secondary Clarifier 3 and Return Flow Control Construction					$2,366,000
Rotary Screen Thickener (RST) Addition					$784,000
Drying Bed Expansion Design/Construction Engineering					$330,000
Drying Bed Expansion Construction					$2,208,000
SCADA Upgrade		$500,000			
EQ Basin Parking Lot Cap		$1,000,000			
Total	**$24,000**	**$2,311,000**	**$0**	**$4,151,000**	**$6,158,000**

(1) Recommended Improvements that exceed the 3- to 5-year capital improvements planning horizon

CHAPTER 8

OPERATION AND MAINTENANCE PROGRAM

INTRODUCTION

This chapter summarizes the operation and maintenance (O&M) programs maintained by the City to ensure performance and reliability of the wastewater system. Since O&M for the WWTP is comprehensively addressed in the 2008 *City of Wenatchee WWTP O&M Manual*, this chapter focuses more on the collection system. This chapter includes a discussion of the responsibility and authority, normal system operation, routine preventative maintenance criteria, current staffing organization and needs, new construction, records, safety and emergency response procedures.

As discussed in Chapter 4, the City of Wenatchee's wastewater collection system includes 135 miles of sewer lines, with pipes ranging in size (diameter) from 4 inches to 42 inches, and five lift stations. Station locations and force main routes are shown in Figure 4-1. These five lift stations serve isolated areas and are located throughout the city limits. Olds Station, Quail Hollow and Broadview lift stations convey flows from the northern portion of the City whereas Squilchuck Lift Station serves an area along the southern UGA limits. River Park Lift Station serves an isolated area located adjacent to the Columbia River, just north of the treatment plant.

There are two primary objectives of this chapter. The first objective is to provide documentation of satisfactory wastewater management operations in accordance with WAC 173-240, including a description of the staff organization, existing facilities and their normal operation, as well as safety procedures and an emergency response program. The second objective is to provide recommendations for modifications to the operation and maintenance program.

WASTEWATER SYSTEM ORGANIZATION

The City of Wenatchee is led by an elected Mayor and City Council. The Mayor's Office includes the Mayor, Executive Services Director and City Clerk. The Mayor serves as the highest elective office in the municipal government, and serves as the head of the City, while providing direction and acting as a community leader. Routine operation of the wastewater system is under the supervision of the Public Works Director. The Public Works Director of Operations reports directly to the Mayor. Operators are provided with opportunities to attend seminars and conferences through several trade organizations. A complete organizational chart for the City's wastewater system is presented in Figure 8-1.

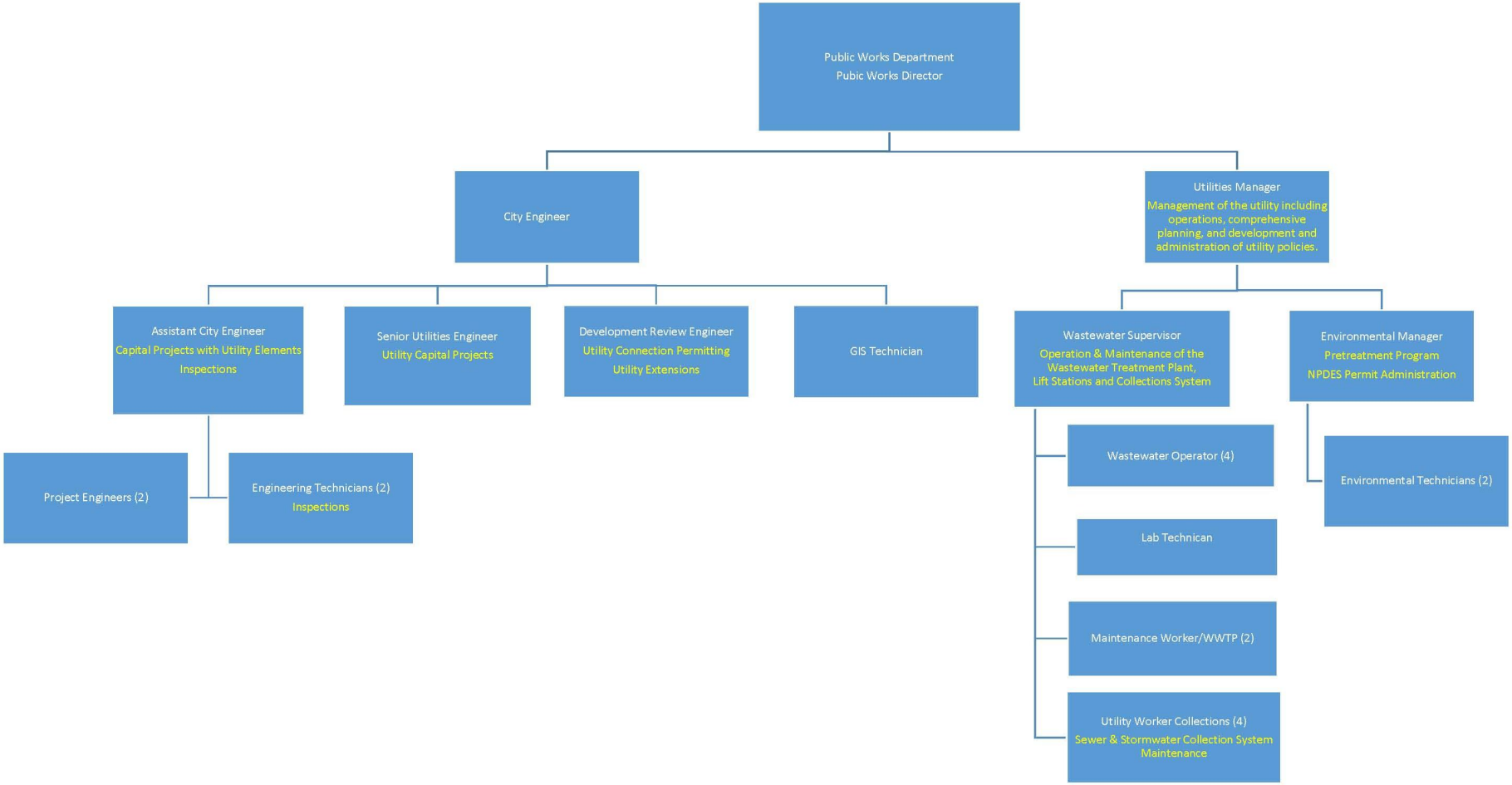


FIGURE 8-1

Wastewater Staff Organization

OPERATOR CERTIFICATION

The City currently employs one Class III and four Class II operators for the WWTP. In addition, the City has one WWTP Lab Technician and two WWTP Maintenance staff at the WWTP. In addition, the Environmental Manager is a certified wastewater operator.

The Wenatchee WWTP laboratory is accredited for testing the following analytes: Alkalinity, Total Hardness, Total Suspended Solids (TSS), pH, Ammonia, Dissolved Oxygen, Carbonaceous Biochemical Oxygen Demand (CBOD), and Fecal coliform.

There are currently no Washington State certification requirements for wastewater collection system operators. Collection crew members are expected to have a mechanical aptitude, with experience with pipelines and pumps and their controls preferred.

Routine wastewater collection system work and assignments include the following tasks:

- Sewer gravity main maintenance and inspections
- Wet well maintenance and repair
- Lift station maintenance and repair
- Manhole inspection and repair

PROFESSIONAL TRAINING REQUIREMENTS

Operator training is an important component in maintaining a safe and reliable wastewater collection system. At a minimum, all personnel performing wastewater system related duties receive training in the following areas:

- Confined space
- Lock-out/tag-out
- Traffic flagging
- First Aid/CPR/blood borne pathogens

SYSTEM OPERATION AND CONTROL

As discussed in Chapter 4, the City of Wenatchee operates five lift stations. (Station locations and force main routes were shown on Figure 4-1.) These five lift stations serve isolated areas and are located throughout the city limits. Olds Station, Quail Hollow and Broadview lift stations convey flows from the northern portion of the City whereas Squilchuck Lift Station serves an area along the southern UGA limits. Table 8-1 summarizes information about the lift stations (previously summarized in Chapter 4.)

TABLE 8-1

City of Wenatchee Lift Stations

Pump Station	Olds Station	Squilchuck	Broadview	Quail Hollow	River Park
Year Constructed	1983	2013	1995	2004	2009
Existing ERUs	Not Available	112	59	17	50
Station Type	Submersible, Centrifugal Pumps	Submersible Grinder Pumps	Submersible Grinder Pumps	Submersible Grinder Pumps	Submersible, Centrifugal Pumps
Number of Pumps	2	2	2	2	2
Pump Manufacturer, Model	Flygt HT-CP-3152 1,750 rpm	Vaughn SE3V-070, S3V-070	Goulds 3SD12H3BA 1,725 rpm	Flygt MP-3102-263HT	Flygt NP-3127-090HT
Motor Size	20 hp 230v, 3 phase	30 hp 460v, 3 phase	3 hp 230v, 3 phase	5 hp 230v, 3 phase	7.5 hp 230v, 3 phase
Wet Well Diameter	8'	8'	6'	6'	6'
Level Control Primary/Backup	Ultrasonic/ Float	Pressure/Float	Float/Float	Conductivity/ Conductivity	Pressure/ Conductivity
Depth to Bottom of Wet Well	18'-8"	21'	18'	13'-2"	23'
Mix Flush Valve?	No	No	No	Yes	Yes
Lift Station Firm	750 gpm @ 70'	375 gpm @ 100'	165 gpm @ 40'	86 gpm @ 90'	400 gpm @ 40'
Capacity	TDH	TDH	TDH	TDH	TDH
Estimated Peak Hour Flow (gpm)	979	232	30	13	36
Available Emergency Storage Volume (gal)	27,200	6,200	2,655	3,300	5,400
Force Main, Length	12" – 4,800'	6" – 2,685'	4" – 650'	4" – 1,250'	4" – 850'
Force Main Material	PVC	Ductile Iron	PVC	Ductile Iron	HDPE
Sufficient Emergency Storage	Yes	Yes	Yes	Yes	Yes
Flow Meter	Mag-meter	None	None	None	None
Telemetry	Yes	Yes	Yes	Yes	Yes
Emergency Generator	Yes	Yes	No	No	No
Generator Receptacle	No	Yes	No	Yes	Yes

River Park Lift Station serves an isolated area located adjacent to the Columbia River, just north of the treatment plant. Basic information about the lift stations is summarized in Table 8-1. All of Wenatchee's lift stations are equipped with submersible pumps, and all are duplex stations. The City utilizes Flygt submersible pumps for the Olds Station, Quail Hollow and River Park Lift Stations, Goulds pumps for the Broadview LS and Vaughn pumps for the Squilchuck Lift Station.

With the exception of Olds Station LS, the pump controls and associated utility service and telemetry are mounted in weather-tight enclosures on unsheltered racks at grade. For Olds Station, the controls are enclosed in a CMU building. The stations generally consist of a wet well with rail-mounted submersible pumps, a discharge valve vault with check valve and isolation valve for each pump, and an unsheltered rack for electrical power,

control, and telemetry equipment. Most stations are equipped with a bypass connection and valving to allow the pumps and/or wet well to be bypassed for maintenance or in an emergency. Most of the stations are not equipped with security fencing with the exception of the Olds Station and Squilchuck Lift Stations.

A variety of pump controllers are used including Milltronics' Multi Ranger Plus Ultra Sonic (Olds LS), Flygt's Multitrode MT2PC (Quail Hollow), Intrinsically Safe Float Control (Broadview LS), Multitrode MultiSmart (River Park) and Allen Bradley's Panel View C600 pump controller (Squilchuck LS). These pump controllers are used to control the pumps, monitor wet well level and other station parameters, and furnish basic status information and alarms. Wet well levels are detected using a conductance probe, which detects levels in predetermined increments. Each increment of level detection is independently hardwired, providing redundancy. Pump starters are either full-voltage non-reversing (FVNR) or soft starters, depending on motor size. None of the lift stations currently uses variable frequency drives to modulate pump speed. All stations are equipped with radio-based telemetry, which transmits status information to the main telemetry computer interface at the City's Wastewater Treatment Plant. Such status information includes alarms for high wet well, low wet well, pump fail, and cumulative pump run time and the number of run cycles. On some stations, an intrusion alarm is radioed to the plant as well.

High wet well level produces a local alarm, which typically consists of a red light (with the exception of Olds Station LS which has no light). In addition, a communication alarm, pump on/off or a failure alarm are transmitted to the WWTP, which notifies on-duty personnel of the problem. Pump Run, Pump Fail, Pump Thermal Overload, Pump Seal Fail and 3-Phase Power Fail are displayed on the pump controller at the lift station site. City personnel visit the stations typically once a week to inspect the wet well, panel and power meter readings and other pertinent information. Olds Station LS is visited 5 days a week.

The Squilchuck, Quail Hollow and River Park all have generator receptacles available for the use of a portable generator in the event of a power failure. The Broadview LS does not currently have a generator receptacle. The City has one 45-kW portable generator available to be used for emergency purposes as well as a few smaller portable generators. The Olds Station LS has a permanent generator located onsite, and a portable 175-kW generator is housed at the Squilchuck LS.

City staff note that the Multitrode systems are old and difficult to use, so replacement of the Multitrode systems with Allen Bradley systems is desired.

SCADA SYSTEM

The existing Supervisory Control and Data Acquisition (SCADA) system monitors the operation of various wastewater system components. The Master Control Panel (MCP) is located at the WWTP. It consists of an operator interface, a programmable logic

controller (PLC), and a communication network. The SCADA system provides a visual display of all the City's lift stations.

Examples of the SCADA system's ability to monitor flows and sound alarms follow:

Monitors

- Pump motor speed and amperage
- Wet well levels
- Monitor pump run times, and pump failures
- Generator status, along with run, starts, and fail counts
- Communications, RTU Panel and commercial power, fail counts and hours

Alarms

- High and low wet well level
- Wet well high float emergency
- Communication failure
- Pump fail
- Generator run or fail
- Intrusion alarm
- Commercial power fail
- RTU Panel power fail

The existing SCADA system is approaching the end of its useful life. As discussed in Chapter 9, per discussion with the City, upgrades to the SCADA system will be implemented in the near future.

ROUTINE AND PREVENTIVE MAINTENANCE PROGRAM

Planning for present and future maintenance of the wastewater system facilities is as important as planning gravity sewer main extensions, lift stations, force mains, and other physical improvements. The maintenance effort must be continuous in order for the City to continue to fulfill its role as a wastewater collector in the future.

The role of maintenance is to preserve the value of the physical infrastructure and ensure that the City can continue to provide a safe and reliable wastewater collection system. The most cost-effective method for maintaining a wastewater collection system is to provide a planned preventative maintenance (PM) program. Through a planned PM program, the optimum level of maintenance activities can be provided for the least total maintenance cost.

The City's PM program involves defining the tasks to be performed, scheduling the frequency of each task, and providing necessary staff to perform the task. For large and complex wastewater collection systems, the administration, scheduling, and record keeping generated by the PM program may be the greatest challenge.

SCADA SYSTEM

The SCADA system is monitored continuously to ensure that it is operating correctly. After hours if a SCADA alarm is activated, it contacts an "on-call" staff member for investigation and response.

LIFT STATIONS AND GENERATOR MAINTENANCE

Preventive maintenance on the lift stations is categorized into daily, weekly, quarterly or annual activities.

Daily Data Collection

Site Visit: The Olds Station Lift Station is visited daily to collect samples. (See Industrial Pretreatment /Source Control.)

Equipment: Record pump run times from telemetry information

Weekly Lift Station Maintenance

Site Condition: Check the physical condition of the site, including fences, buildings and grounds

Wet Wells:

- Check each wet well for appearance, grease and debris accumulation
- Inspect floats and level control equipment

Equipment:

- Manually operate all pumps
- Check amperage draw for ragging of pumps
- Visually inspect all valve vaults
- Inspect all locks, hinges and handles on vaults and wet well
- Inspect general appearance and condition of generator(s)

Quarterly Lift Station Maintenance

- Clean wet wells

Annual Lift Station Maintenance

- Clean all check valves
- Change oil, oil filter and fuel filters on gen-set(s)
- Check for loose wiring
- Clean gutters and roofs
- Check generator batteries

FORCE MAINS

The City's force mains are designed to achieve scouring velocities that self-clean under normal system operations, and therefore, require no maintenance. Air and vacuum relief assemblies may be located at the high points in the force mains. These assemblies are checked annually or as needed to ensure property operation. Failure of the assembly may cause an air blockage in the force main, which can reduce or prevent flow through the force main and damage lift station pumps. It is recommended that City staff exercise force main valves on an annual basis.

MANHOLES AND GRAVITY SEWER LINES

The City's manholes are inspected and gravity lines jetted on a regular basis. In some cases segments of pipe have been identified to receive more frequent inspection and jetting. Collection operators regularly clean and flush the collection lines. Some lines that have been identified as troublesome mains may be flushed and cleaned more often until repairs or improvements can be made to mitigate the adverse condition. The frequency of cleaning is dictated by the condition of the pipe. Frequent televising of the mains allows the City to identify sags or bellies, excessive roots, structural issues or corrosion. The City's objective is to televise all the major pipes every 3 to 5 years. A condition assessment of each manhole is performed during the flushing operations. The assessment documents the type of manhole (brick, precast concrete, etc.), the condition of the bench, penetrations, walls, neck and cover. Deficiencies are noted and added to work order requests for prioritization of repairs.

EMERGENCY RESPONSE PROGRAM

Wastewater utilities have the responsibility to provide collection of wastewater in a reliable manner at all times. Therefore, utilities must reduce or eliminate the effects of natural disasters, accidents, and intentional acts.

The City has prepared an emergency operations plan to address operating procedures during emergency situations. One operator is always designated as on-call for alarm conditions off hours or other small emergency needs.

The City participates in a mutual aid program with the Chelan County PUD, Douglas County Sewer District and Chelan County. Through this agreement, the participating agencies agree to request or provide needed resources to each other during emergencies.

EMERGENCY PROCEDURES

Though it is not possible to anticipate all potential disasters affecting the City's wastewater system, formulating procedures to manage and remedy several common emergencies is appropriate.

Power Failure

Various types of weather can cause loss of power, such as wind, lightning, freezing rain, and snowstorms. Power may also be lost through traffic accidents. The City has an on-site generator at the WWTP to maintain operation of the SCADA system master telemetry unit. The City has generators auxiliary power at two of its lift stations to allow operation in the event of a power failure to provide. Should power be interrupted, Chelan County PUD will be contacted to determine the estimated length of the power outage. If an extended power outage is anticipated, City crews report to check sites for problems and monitor fuel levels.

Severe Earthquake

A severe earthquake may not only have a substantial impact on the City's wastewater system but also the adjacent purveyors, including the East Wenatchee collection and wastewater treatment facilities. Table 8-2 presents potential effects of a severe earthquake on the wastewater system components.

TABLE 8-2

Emergency Response Procedures for an Earthquake

Wastewater System Component	Potential Effects	Recommended Actions
Lift Stations	Station surcharge and backup into residential side sewers	Check telemetry and dispatch pump trucks and portable generator trucks as necessary.
Force Mains	Broken force main	Dispatch pump truck and repair crew
Gravity Sewer and Manholes	Broken sewer pipe or manhole	Dispatch pump truck and repair crew

SAFETY PROCEDURES

Work place hazards for this system include confined space entry, electrical equipment, health hazards associated with sewage, and traffic hazards associated with doing work in the right of way. The City participates in the Association of Washington Cities Risk Management Service Agency (AWC RMSA). The RMSA creates standards for risk management and safety. They also sponsor programs and training events to educate and train personnel on practices designed to maximize safety and minimize risk. Through this agency and the City's safety committee, programs to ensure a safe working environment are adhered to and help maintain compliance with OSHA and WISHA regulations. The City designates one employee as a safety officer. The safety officer is responsible for conducting safety meetings, inspecting and maintaining safety equipment and reviewing safety incidents.

INDUSTRIAL PRETREATMENT / SOURCE CONTROL

As discussed in Chapter 2, the City has several Significant Industrial Users, and operates a pretreatment/source control program. As discussed in Chapter 3, this program is designed to protect publicly owned treatment works (POTW) from pass-through of pollutants or interference with the treatment process from industrial or other non-residential discharges that is not "domestic-equivalent" (similar in quality to domestic wastewater).

Key portions of the City's Administrative Code addressing pretreatment/source control include 4.08.080 Prohibited Discharges, 4.08.090 Regulation of Waste Received from Contributing Jurisdictions, and 4.08.100 Pretreatment. The City's local limits, listed in 4.08.100 Pretreatment, are as follows:

Copper	0.68 parts per million (ppm)
Lead	0.5 ppm
Zinc	1.48 ppm
Total Phenols	0.10 ppm

The City also has a Fats, Oils, Greases limit of 100 ppm, and, in Section 4.08.100 (6), requires "all commercial/industrial customers who operate restaurants, cafes, lunch counters, cafeterias, bars or clubs, or hotel, hospital, factory or school kitchens, butcher shops, grocery stores or any other establishment where grease may be introduced into the sewer system shall have a gravity grease interceptor to prevent the discharge of fat, oil, and grease waste." The City has an education and inspection program to maintain compliance.

The Olds Station Lift Station has a sampler onsite to collect samples from the drainage basin to monitor pH, TSS and BOD from the many industrial users within the basin. Samples are collected two to four times per week.

OPERATION AND MAINTENANCE RECOMMENDATIONS

The following O&M-related recommendations and planned O&M improvements are summarized for the City's wastewater system:

1. Upgrade the City's Wastewater SCADA system. The City has budgeted $500,000 for this effort, for 2019.

2. Complete a minor programming upgrade to the SCADA system to allow storage and query of Olds Station run-time and flow meter data. The estimated cost of this effort is $3,000, and it is recommended that the project be completed in 2017 to allow confirmation of flows in the area, prior to construction of infrastructure improvements.

3. Add a generator receptacle to the Broadview Lift Station.

4. Complete an infiltration and inflow (I/I) study, focusing on the downtown area where known inflow sources are located. The estimated cost of this study, including flow metering, smoke testing, television inspection, system evaluation, and conceptual design of I/I removal, is $200,000. Removal of I/I in the downtown core is expected to reduce overflows into the Flow Equalization Basin, which are otherwise expected to increase due to increases in base flows with population growth.

5. Continue expansion of the City's collection system inspection/maintenance/source control program. The City has indicated that additional FTEs will be needed if delegated by the Washington State Department of Ecology.

6. Implement an electronic periodic maintenance and work order tracking system for the treatment plant.

7. Implement GIS-based tracking system for inspections, maintenance, and repairs in the collection system.

8. Develop written procedures for inspections and updating sewer maps. The City has already purchased a GRANITENET software package for tracking the inspection of the sewer system.

CHAPTER 9

CAPITAL IMPROVEMENT PROGRAM

INTRODUCTION

This chapter presents the City's Capital Improvement Plan (CIP). Wastewater capital improvements have been identified and prioritized based on the system hydraulic analysis, pump station evaluation, regulatory requirements, component age, condition and reliability, operation and maintenance consideration, system benefit, and cost. For all proposed projects identified in this chapter, detailed preliminary project cost estimates are presented in Appendix I. Basin maps illustrating the conceptual locations of the proposed improvement projects are included in this chapter (see Figures 9-1 through 9-3).

Other capital improvement projects may arise in the future that are not identified as part of the City's CIP presented in this chapter. Such projects may be deemed necessary for remedying an emergency situation, assessing growth in other areas, accommodating improvements proposed by other agencies or land development, or addressing unforeseen problems with the City's wastewater system. Due to budgetary constraints and/or addressing growth scenarios that differ from that which was modeled in this Plan, the construction of these projects may require changes in the proposed completion date for projects in the CIP. When new information becomes available, the Plan should remain flexible to allow rescheduling, addition to, or deletion of proposed projects or to expand or reduce the scope of the projects, as best determined by the City. Additionally, future planning efforts may affect land use zoning and service requirements within the City. Developments may create streets or provide alignments and locations of facilities that are different than shown on the Plan. Each capital improvement project should be reevaluated to consider the most recent planning efforts as the proposed completion date for the project approaches.

PROPOSED SYSTEM IMPROVEMENTS

The proposed system improvements in the CIP are described below. In addition to projects included within the city limits, project costs were also estimated for the proposed infrastructure within the Sunnyslope region as well as unserviced areas within the current City limits. Each project cost estimate includes an 8.4 percent sales tax, a 20 percent construction contingency, and 25 percent for design, engineering, and permitting. The asphalt restoration costs within the estimates include trench repair only. It should be noted that in some cases, an overlay may be required and the cost adjusted accordingly. All project costs are based on 2016 dollars with no adjustments made for inflation in future years.

The recommended CIP projects summarized below are labeled based upon the project being associated with an analysis (STUDY), existing gravity main (G), a future gravity

main (FG), an existing lift station (LS), future lift station and force main (FLS) or the wastewater treatment plant (WWTP) as can be seen in Figures 9-1 through 9-3.

SEWER SYSTEM CAPITAL IMPROVEMENTS

The gravity system improvements identified are generally designed to increase capacity to accommodate existing and future flows, and in some cases repair/replace failing mains. Unless noted otherwise, for budgeting purposes, the cost estimates shown here assume backfill of trenches with 100 percent import gravel and open trench construction in the existing right-of-way with trench repair only (as opposed to a full overlay of the road). The City should verify the method of construction during the predesign or design phase of these projects. It should also be noted that the lineal cost for 8-inch and 12-inch PVC pipe shown in Appendix I includes side sewer installation.

SEWER ANALYSIS

STUDY1 – Inflow and Infiltration Reduction Study

This project includes completion of an Infiltration and Inflow Study, primarily focused on the downtown area, where cross connections and other known areas of inflow exist. The project includes flow metering, smoke testing, TV inspection, preliminary conceptual design of I/I removal, and cost estimates.

Estimated Project Cost: $300,000

STUDY2 – Sunnyslope Basin Analysis

This project includes a detailed analysis of the future Sunnyslope infrastructure including an evaluation of required easements along the intended routes.

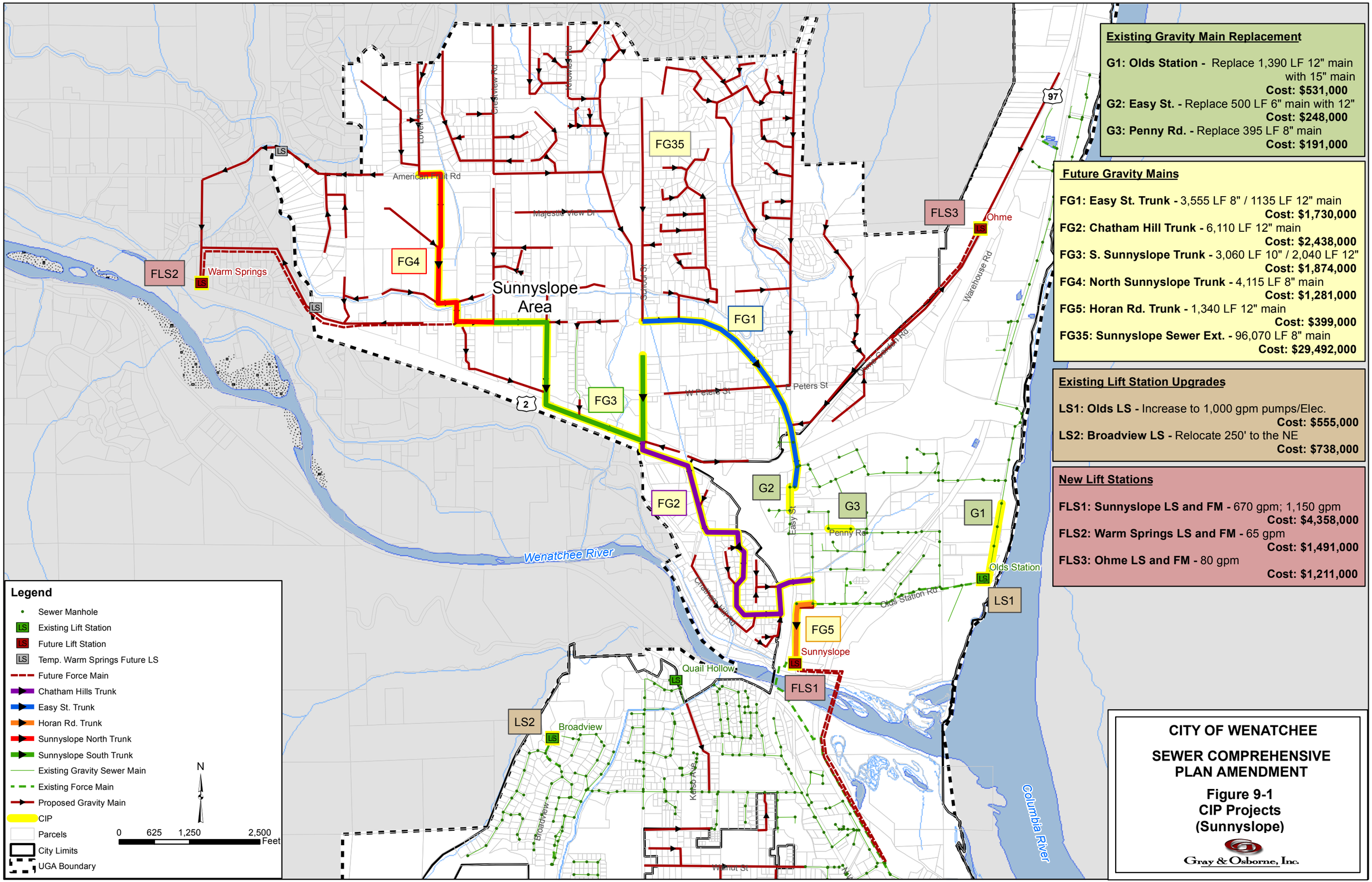
Estimated Project Cost: $50,000

EXISTING GRAVITY MAINS

CIP G1 – Olds Station (East of Euclid Court) Gravity Sewer Replacement

Replace approximately 1,390 LF of existing 12-inch PVC sewer mains east of Eulid Court in the Olds Station region. The pipes are located between SSMH02854 and SSMH02858 and should be replaced with 15-inch PVC diameter pipe at a minimum. Estimates of future flows to this area should be revisited once accurate flow information from the area, including flow from the fruit packing plants, is verified.

Estimated Project Cost: $531,000



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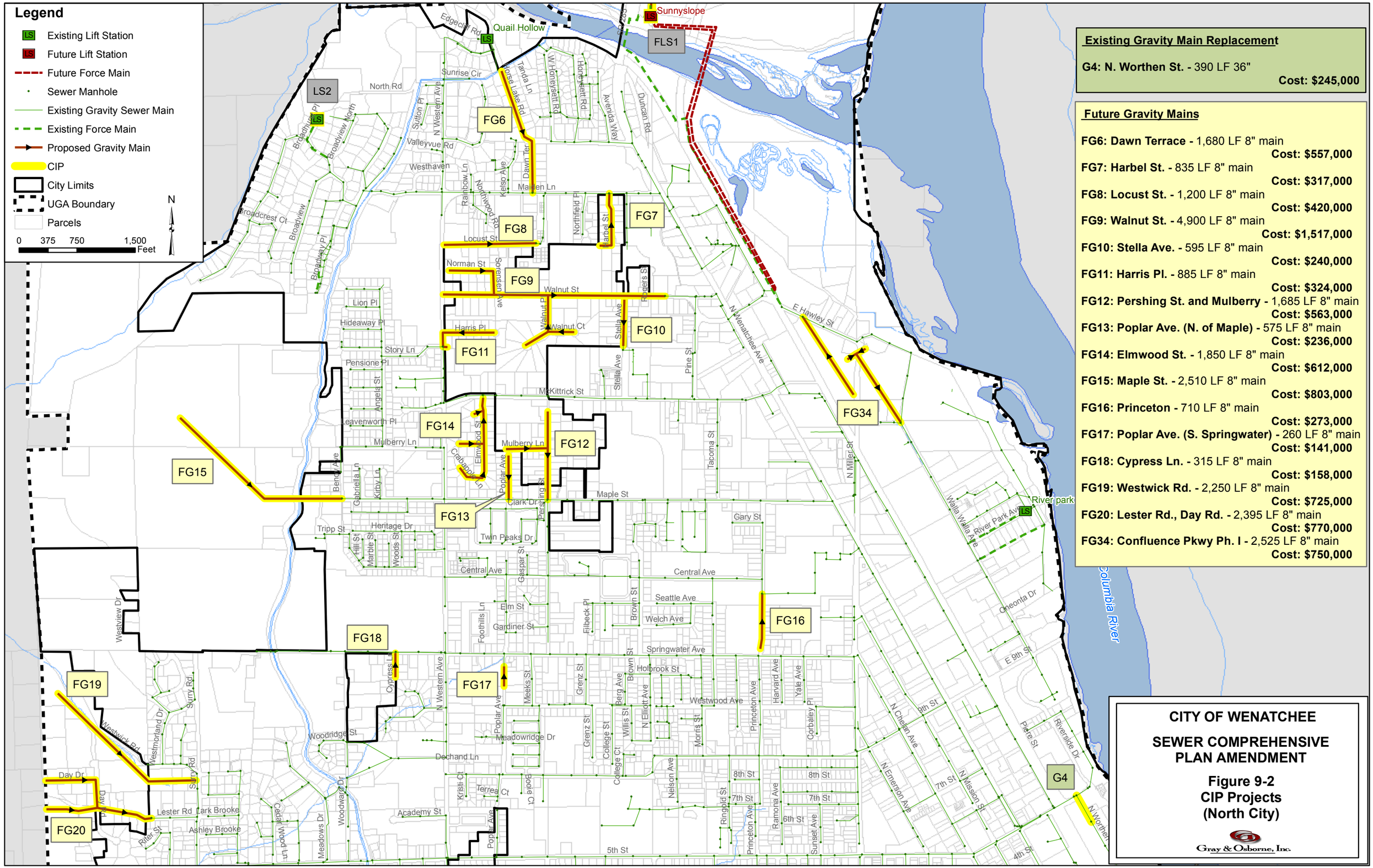

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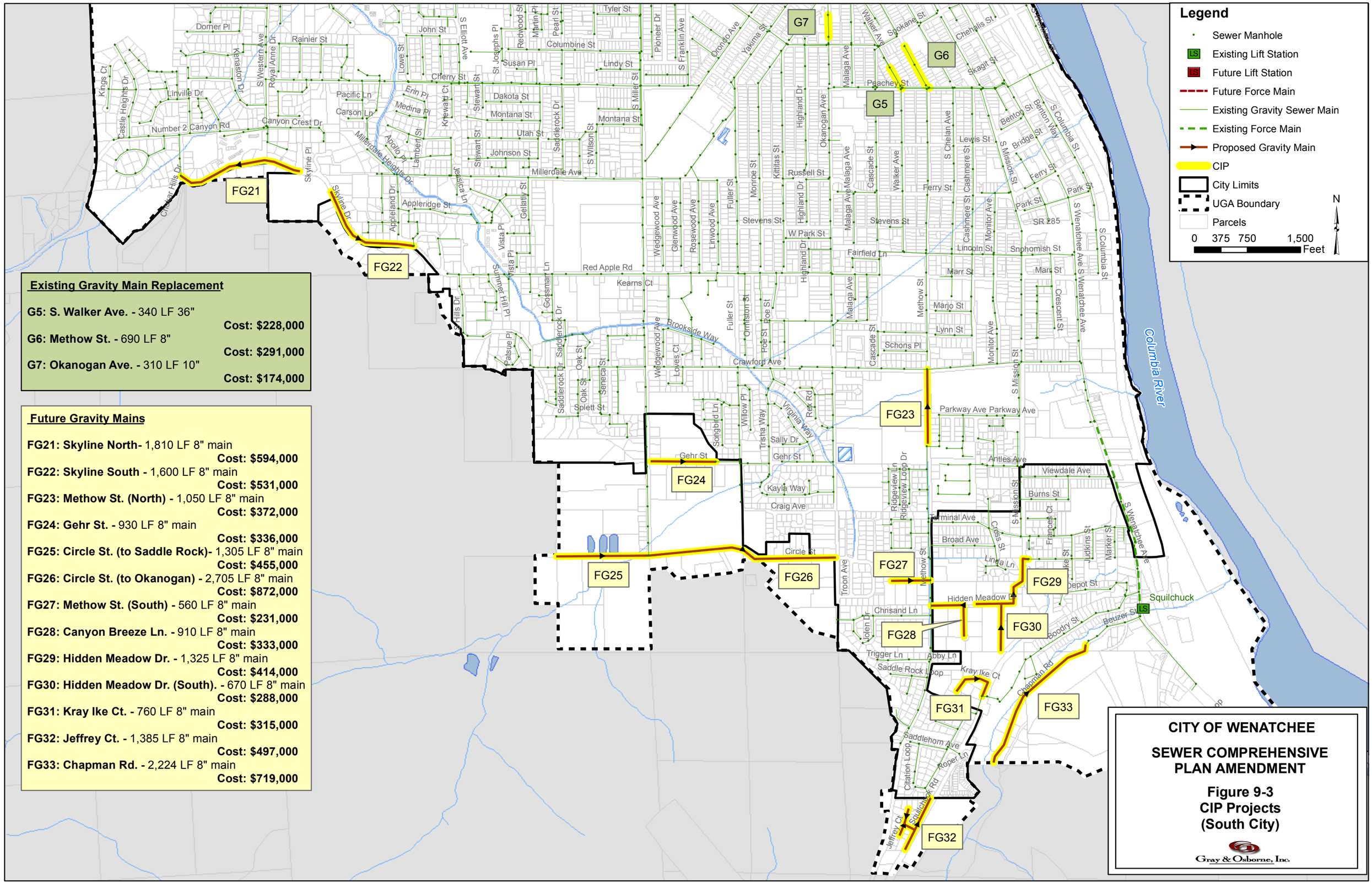

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CIP G2 – Easy Street Gravity Sewer Replacement

Replace approximately 500 LF of existing 6-inch PVC sewer mains near Easy Street, south of SR 2, in the Olds Station region. The pipes are located between SSMH02911 and SSMH02879 and should be replaced with 12-inch-diameter PVC pipes to accommodate 20-year and buildout flows. These pipes have sufficient capacity for current flows.

Estimated Project Cost: $248,000

CIP G3 – Penny Road Gravity Sewer Replacement

Replace approximately 395 LF of existing 8-inch PVC sewer pipe west of Chester Kimm Road. The existing pipe should be replaced with a new 8-inch PVC pipe to eliminate a sag within the existing main. The replacement would be located between SSMH02793 and SSMH02877.

Estimated Project Cost: $191,000

CIP G4 – North Worthen Street Gravity Sewer Replacement

Due to capacity issues with existing flows, replace approximately 390 LF of existing 15-inch concrete sewer main along North Worthen Street, just south of the intersection with East 5th Street between SSMH01960 and SSMH01967 with a 36-inch-diameter ADS SaniTite pipe.

Estimated Project Cost: $245,000

CIP G5 – South Walker Avenue Gravity Sewer Replacement

Due to capacity issues with existing flows, replace approximately 340 LF of existing 8-inch concrete sewer mains along South Walker Avenue, just north of the intersection with Peachey Street between SSMH00328 and SSMH00640 with a 24-inch-diameter PVC pipe.

Estimated Project Cost: $228,000

CIP G6 - Methow Street Gravity Sewer Replacement

Replace approximately 690 LF of existing 8-inch sewer main north of Peachy Street. The existing pipes are deteriorated 8-inch clay pipes located between SSMH01227 and SSMH00635 and would be replaced with new, 8-inch-diameter PVC pipe.

Estimated Project Cost: $291,000

CIP G7 – Okanogan Avenue Gravity Sewer Replacement

Replace approximately 310 LF of existing 10-inch concrete sewer main along Okanogan Avenue, south of Kittitas Street. Due to a break in the existing main and a damaged manhole, the project would involve replacing the existing manholes and main in-kind with PVC pipe and similar sized facilities. The project is located between SSMH00763 and SSMH00762.

Estimated Project Cost: $174,000

CIP G8 – Pipeline Replacement Program

Where available within the financial model, the City has budgeted an amount to cover renewals and replacements of sanitary sewer pipe within its sewer system.

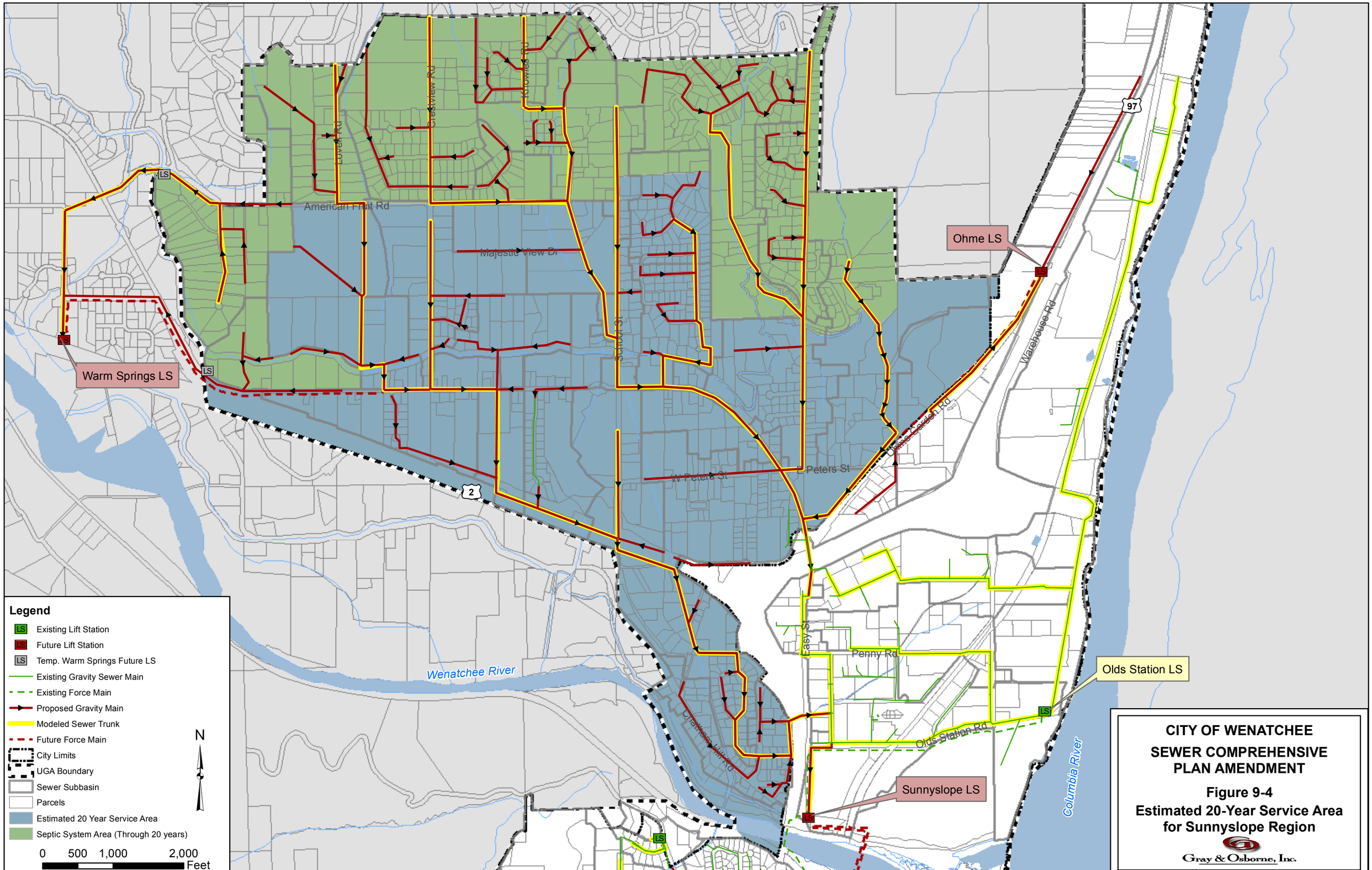
Estimated Project Cost: $200,000 per year (when there is no scheduled pipe replacement project; Total over 20 years: $2,600,000)

FUTURE GRAVITY MAINS

The following section lists specific capital improvement projects intended to facilitate extension of sewer trunklines for the Sunnyslope region. Due to the importance of providing a redundant force main across the Wenatchee River, the Sunnyslope LS project with a corresponding emergency force main for Olds Station LS (CIP FLS1) is intended to be installed first followed by the most upstream section of gravity pipe along Horan Road (CIP No. FG5). With the Sunnyslope LS installed, the Chatham Hill (CIP FG2) and South Sunnyslope Trunks (CIP FG3) would soon follow and then, when development necessitates it, the North Sunnyslope Trunk (CIP FG4) could be installed. Similarly, as driven by development needs, the Easy Street Trunk (CIP FG1) would be established. A cost estimate to provide the infrastructure necessary to serve the remaining portions of the Sunnyslope region through the 20-year forecast is also included (CIP FG35). Figure 9-4 shows the anticipated 20-year growth area for the Sunnyslope region.

In addition, the City anticipates numerous capital improvement projects involving installation of 8-inch sewer mains located in the currently developed portions of the city limits, south of the Sunnyslope area. These projects are listed as CIP FG6 through FG34 and are described in Table 9-1. With the exception of the Chatham Hill (FG2) and Horan Road (FG5) projects, all estimates assume the project will occur entirely within the paved right-of-way.

It should be noted that a short analysis was conducted for the scenario of extending the UGA limits beyond the current Sunnyslope limits to the edge of the currently platted properties within Chelan County. It was assumed that an additional 900 acres of service area would be included, resulting in approximately 620 ERUs. Should this occur, the



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amount of buildout flow at the future Sunnyslope LS is anticipated to increase by 505 gpm (from 1,150 gpm to 1,655 gpm). The Sunnyslope and Chatham Hill trunks were sized to accommodate this future flow. Likewise, the new 12-inch force main for the Sunnyslope LS could also accommodate this flow. It was determined that if the UGA were expanded to the north, new pumps and wet well storage would be necessary at the Sunnyslope LS and downstream improvements would be necessary along East Hawley Street and Walla Walla Avenue where the current 18-inch gravity would main would need to be upsized to a 21-inch main.

CIP FG1 – Easy Street Gravity Sewer Trunkline

Install approximately 3,555 LF of 8-inch PVC sewer main and 1,135 LF of 12-inch PVC sewer main along Easy Street from School Street to the existing sewer main located approximately 300 feet south of the SR 2 right-of-way.

Estimated Project Cost: $1,730,000

CIP FG2 – Chatham Hill Gravity Sewer Trunkline

Install approximately 6,110 LF of 12-inch PVC sewer main from the north side of SR 2, through the Chatham Hill neighborhood following Indy Ln, Lemaister Avenue and Chatham Hill Drive where the sewer main would then turn east, across SR 285 (North Wenatchee Avenue). The new trunkline would terminate downstream at existing manhole SSMH02875 located on Chester Kimm Road. This project would involve two borings including a 190 LF boring across SR 2 and a 200 LF boring across SR 285. The pipes are sized for a possible expanded UGA.

Estimated Project Cost: $2,438,000

CIP FG3 – South Sunnyslope Gravity Sewer Trunkline

Install a total of approximately 3,060 LF of 10-inch and 2,040 LF of 12-inch PVC sewer main. The trunkline main would originate from the intersection of Easy Street and Crestview Street, from where flow would be routed eastward along Easy Street to a point approximately 540 feet west of Sun Valley Drive. From here, the sewer main would convey wastewater south and then east to the upstream end of CIP FG 2 (Chatham Hill trunkline). This project also includes a 1,520 LF 8-inch main along School Street. The pipes are sized for a possible expanded UGA.

Estimated Project Cost: $1,874,000

CIP FG4 – North Sunnyslope Gravity Sewer Trunkline

Install approximately 4,115 LF of 8-inch PVC sewer main which would originate from the intersection of Lovell Road and American Fruit Road. From the intersection, the main would continue along American Fruit Road for 400 feet to the east and then turn south towards the Highline Ditch where it would eventually cross the ditch and flow east along Easy Street to the upstream end of CIP FG3 (South Sunnyslope trunkline).

Estimated Project Cost: $1,281,000

CIP FG5 – Horan Road Gravity Sewer Trunkline

Install approximately 1,340 LF of 12-inch PVC sewer main which would originate from the intersection of Chester Kimm Road and Olds Station Road. From the intersection, the 12-inch main would continue west along Olds Station Road to Horan Road where it would then turn south and terminate at the new Sunnyslope LS (CIP FLS1).

Estimated Project Cost: $399,000

CIP FG35 – Sunnyslope Sewer Extensions

It is estimated that approximately 96,070 LF of 8-inch sewer main would be required to serve the remaining Sunnyslope region outside of the major trunklines. It is anticipated that this infrastructure would be phased throughout the next 20 years or beyond.

Estimated Project Cost: $13,700,000 during 20-year forecast period (Total over 30 years: $29,492,000)

Table 9-1 provides a summary of each gravity system capital improvement project with corresponding years of completion which were developed and prioritized by City staff. It should be noted that this schedule provides an estimated timeline. The years provided could be subject to change due to funding availability or other matters that may affect the schedule of the project.

TABLE 9-1

Gravity System Capital Improvement Project Summary

Project CIP No.	Street Location (Subbasin)	Description	Year to be Completed[3]	Total Estimated Cost[1]
Sewer Analysis				
STUDY1	Inflow/Infiltration Study	Provide analysis of I/I Issues within the City	2019	$300,000
STUDY2	Sunnyside Basin Analysis	Detailed analysis of future Sunnyslope infrastructure	2019	$50,000
Existing Gravity Mains				
G1	East of Euclid Court (Olds3)	Replace 1,390 LF 12" pipe with 15" pipe	2022	$531,000
G2	Easy Street (Olds6)	Replace 500 LF 6" pipe with 12" pipe	2019	$248,000
G3	Penny Road (Olds6)	Replace 395 LF sagging 8" pipe with 8" pipe	2021	$191,000
G4	North Worthen Street (Walla3)	Replace 390 LF 15" pipe with 36" pipe	2030	$245,000
G5	South Walker Avenue (Peach2)	Replace 340 LF 8" pipe with 24" pipe	2027	$228,000
G6	Methow Street (Peach2)	Replace 690 LF deteriorating 8" clay pipes with 8" PVC pipes	2017	$291,000
G7	Okanogan Avenue (Kitt3)	Replace 310 LF broken 10" pipe with new 10" pipe and new manholes	2017	$174,000
G8	Pipe Replacement Program	Repair/Replace sewer pipe as necessary on an annual basis	As Needed[2]	$2,600,000
Future Gravity Mains for Sunnyslope Region				
FG1	Easy Street (Easy 10/11)	New 3,555 LF 8" pipe and 1,135 LF 12" pipe	2019	$1,730,000

TABLE 9-1 – (continued)

Gravity System Capital Improvement Project Summary

Project CIP No.	Street Location (Subbasin)	Description	Year to be Completed[3]	Total Estimated Cost[1]
FG2	Chatham Hill (Chat 1/2)	New 6,110 LF 12" pipe (w/one boring under SR 2 and one under SR 285)	2018	$2,438,000
FG3	Easy Street/Crestview (SR 2 -6,7,8,10)	New 3,060 LF 10" and 2,040 LF of 12" pipe	2018	$1,874,000
FG4	American Fruit Road/ Highline Ditch (SR 2-2,4)	New 4,115 LF 8" pipe	2025	$1,281,000
FG5	Horan Road (Olds5)	New 1,340 LF 12" pipe	2018	$399,000
FG35	Sunnyslope Sewer Extensions	Remaining non-trunk sewer mains in the Sunnyslope region (~101,175 LF new 8" pipe)	2019 and Beyond	$13,700,000[4]
Future Gravity Mains for Infill Areas (Currently Unserved within City Limits)				
FG6	Dawn Terrace (Quail1)	New 1,680 LF 8" pipe	2017	$557,000
FG7	Harbel Street (Maiden4)	New 835 LF 8" pipe	2029	$317,000
FG8	Locust Street (Maiden4)	New 1,200 LF 8" pipe	2028	$420,000
FG9	Walnut Street (Walnut1)	New 4,900 LF 8" pipe	2025	$1,517,000
FG10	Stella Avenue (McKitt4)	New 595 LF 8" pipe	2030	$240,000
FG11	Harris Place (McKitt2)	New 885 LF 8" pipe	2026	$324,000
FG12	Pershing Street/Mulberry (Maple3)	New 1,685 LF 8" pipe	2024	$563,000
FG13	Poplar Avenue – North of Maple (Maple2)	New 575 LF 8" pipe	2020	$236,000
FG14	Elmwood Street (McKitt3)	New 1,850 LF 8" pipe	2017	$612,000
FG15	Maple Street - North (Maple0)	New 2,510 LF 8" pipe	2031	$803,000
FG17	Poplar Avenue (South of Springwater)	New 260 LF 8" pipe	2019	$141,000
FG16	Princeton (Central2)	New 710 LF 8" pipe	2017	$273,000
FG18	Cypress Lane (Spring1)	New 315 LF 8" pipe	2026	$158,000
FG19	Westwick Road (5th-2)	New 2,250 LF 8" pipe	2030	$725,000

TABLE 9-1 – (continued)

Gravity System Capital Improvement Project Summary

Project CIP No.	Street Location (Subbasin)	Description	Year to be Completed(3)	Total Estimated Cost(1)
FG20	Lester Road, Day Road, and Day Drive (5th-2)	New 2,395 LF 8" pipe	2029	$770,000
FG21	Skyline North (Cherry 1/2)	New 2,030 LF 8" pipe	2020	$594,000
FG22	Skyline South (Miller 1/2)	New 2,230 LF 8" pipe	2026	$531,000
FG23	Methow Street - North (Craw3)	New 1,050 LF 8" pipe	2021	$372,000
FG24	Gehr Street (Craw1)	New 930 LF 8" pipe	2030	$336,000
FG25	Circle Street – South Miller Street to Saddle Rock Trailhead (Red2)	New 1,305 LF 8" pipe	2028	$455,000
FG26	Circle Street – South Miller Street to Okanogan (Craw 2/4)	New 3,480 LF 8" pipe	2027	$872,000
FG27	Methow Street -South (Met1)	New 560 LF 8" pipe	2024	$231,000
FG28	Canyon Breeze Lane (Met1)	New 910 LF 8" pipe	2027	$333,000
FG29	Hidden Meadow Drive (Met1)	New 1,325 LF 8" pipe	2030	$414,000
FG30	Hidden Meadow Drive – South (Met1)	New 670 LF 8" pipe	2031	$288,000
FG31	Kray Ike Court (Squil3)	New 760 LF 8" pipe	2030	$315,000
FG32	Jeffrey Court (Squil3)	New 1,385 LF 8" pipe	2021	$497,000
FG33	Chapman Road (Squil5)	New 2, 224 LF 8" pipe	2022	$719,000
FG34	Confluence Parkway Ph. I	New 2,525 LF 8" pipe	2019	$750,000
Total Sewer Analysis, Existing and Future Gravity Main Costs				**$41,243,000**

(1) All project costs in 2016 dollars.
(2) The pipeline replacement program includes $200,000 per year when there is no scheduled pipe replacement project for that particular year. Over the 20-year forecast, this program is estimated to cost a total of $2,600,000. See Chapter 10 for more detail.
(3) Year indicated are estimated and may be subject to change.
(4) During the 20-year forecast, the Sunnyslope Sewer Extension projects are anticipated to cost $13,700,000. In total, over the 30-year forecast, the project is anticipated to cost $29,492,000.

LIFT STATION CAPITAL IMPROVEMENTS

The following lift station projects are designed to improve operation and/or address the future capacity limitations of the existing lift stations.

LS1 – Olds Lift Station

Upgrade the existing pumps to 40 hp to accommodate potential future flows up to 1,000 gpm. Electrical and controls equipment would be replaced as necessary to accommodate the new, larger pumps along with a larger generator. With the increase in pump capacity, the siphon on the existing 12-inch force main located at the Wenatchee River bridge would need to be adjusted by raising the elevation of the air break in order to accommodate a 1,000 gpm capacity (from 800 gpm). The 40-hp pumps would also be sufficient enough to pump flow along an emergency 12-inch force main route that would be constructed parallel to a new 12-inch force main intended for the future Sunnyslope LS (CIP No. FLS1). It is recommended the City reprogram its facilities at the WWTP in order to continually monitor flow from this lift station and to maintain its historical data (see CIP No. WWTP-11).

Estimated Project Cost: $555,000

LS2 – Broadview Lift Station

When future growth necessitates, the Broadview lift station would be replaced by a new submersible, duplex lift station approximately 250 feet northeast of its current location to provide service to additional areas at lower elevations. The newer station would consist of the same 165 gpm capacity (3-hp motors) but would simply be moved to a lower topographical location. Unlike the current station, the new lift station will include an Allen Bradley control system and a generator receptacle. The existing 4-inch force main would be extended 250 linear feet as well. As an operation and maintenance cost, it is recommended the City add a generator receptacle to the existing site until the lift station is relocated.

Estimated Project Cost: $738,000

FLS1 – Sunnyslope Lift Station (New)

A new submersible duplex Sunnyslope Lift Station would be located at the south end of Horan Road, just north of the Wenatchee River. The pumps for the lift station would initially be sized to accommodate 670 gpm for 2035. Under buildout conditions, the lift station would contain 30-hp pumps and be sized for 1,150 gpm. The lift station would also be associated with 4,430 LF of a 12-inch force main that would cross the Wenatchee River pedestrian bridge. At the same time, an emergency redundant parallel 12-inch force main would be installed to accommodate pumped flows from Olds LS should its existing 12-inch force main across the Wenatchee River fail. An allowance should be made during design for future improvements to upsize the pumps to 1,655 gpm and add additional wet well storage volume should the City expand their sewer UGA beyond the current Sunnyslope limits.

Estimated Project Cost: $4,358,000

FLS2 – Warm Springs Lift Station (New)

A new Warm Springs Lift Station is planned to be located west of the Sunnyslope area, south of Lower Monitor Road. The City anticipates that the current UGA may potentially be expanded at some point to accommodate the Warm Springs area. However, until such time, the Warms Springs Lift Station is initially sized to serve only those within the current UGA region. Figure 9-1 shows potential locations of temporary lift stations should the need for sewer service in the Warm Springs region be necessary prior to the UGA expanding. To serve the western portion of the City's currently delineated UGA, it is estimated the Warm Springs LS would need to provide capacity for 65 gpm; however, to maintain flushing velocities through a 4-inch-diameter force main, the submersible duplex pumps were sized for 80 gpm. A predesign report is recommended prior to construction of the project to ensure this flow estimate meets the future land use needs for the area. Construction of this lift station would include a 4-inch force main totaling 5,875 LF in length.

Estimated Project Cost: $1,491,000

FLS3 – Ohme Lift Station (New)

A new Ohme Lift Station is planned to be located along Ohme Garden Road. In order to serve the Ohme2 and US 97A subbasins, it is estimated that the future Ohme LS would be a submersible duplex pump station that needs to provide capacity for 80 gpm; however, the intended land use and estimated flows should be re-evaluated during the predesign phase of the project. Construction of this lift station would include a 4-inch force main 3,010 LF in length.

Estimated Project Cost: $1,211,000

Table 9-2 provides a summary of each lift station capital improvement project and the proposed schedule for implementation.

TABLE 9-2

Lift Station Capital Improvement Project Summary

Project No.	Lift Station Name	Description	Year to be Completed	Total Estimated Cost(1)
LS1	Olds LS	Increase capacity to 1,000 gpm (pumps, electrical, generator, siphon enhancements)	2022	$555,000
LS2	Broadview LS	New 165 gpm lift station (Relocated to the NE) and force main	2022	$738,000
FLS1	Sunnyslope LS and FM	New phased lift station (670 gpm to 1,150 gpm) and force main, redundant force main for Olds Station LS	2018	$4,358,000
FLS2	Warm Springs LS and FM	New 80-gpm lift station and force main	2037+	$1,491,000
FLS3	Ohme LS and FM	New 80-gpm lift station and force main	2020	$1,211,000
Total Existing and Future Lift Station Costs:				**$8,353,000**

(1) All project costs in 2016 dollars.

WASTEWATER TREATMENT PLANT CAPITAL IMPROVEMENTS

The following wastewater treatment plant projects originated from the 2016 *WWTP Facilities Plan* or from discussions with City staff and are designed to improve current operation and/or to help facilitate growth in the future. Where projects expanded over multiple years, the design costs were separated from the construction costs and were included as a separate CIP project.

WWTP1-2 – Grit Removal Improvements/Influent Flow Meter (Design/Construction)

Design and construct additional coarse fraction grit removal upstream of the influent pump station, including the installation of an influent sewer grit collection manhole upstream from the existing screenings building. This manhole would enable removal of heavy fraction grit from the influent sewer with an eductor truck and help avoid accumulation of grit in the treatment plant from the screenings building to the existing vortex grit removal units. In order to maintain grit in suspension between the Screenings Building and the existing vortex grit removal units, construction of a dedicated scour air blower for the Influent Pump Station wet well and a separate dedicated air scour blower for the grit removal inlet channel is also recommended. In addition, an influent flow

meter just outside the headworks building would be installed, including a Parshall flume, ultrasonic level sensor and associated electrical/controls.

Estimated Design Cost (WWTP1): $24,000
Estimated Construction Cost (WWTP2): $270,000

WWTP3 – UV Disinfection System Modifications

Modify the UV disinfection system control system and installation of continuous ultraviolet transmittance (UVT) monitoring to enhance the firm peak flow capacity of the disinfection system.

Estimated Project Cost (WWTP1): $161,000

WWTP4-5 – Digester 4 and Control Building (Design/Construction)

Design and construct a new Anaerobic Digester 4 that matches the capacity of existing Anaerobic Digester 3. A new Digester Control Building expansion will provide an additional hot water boiler, gas, and recirculation pumping systems to support the digester and additional piping modifications to the other digesters on site to enable full redundancy of digester tankage. Installation of gas handling and odor control systems would also be incorporated into the digestion upgrade. Space within the digester control building would be provided to allow installation of a future Waste Activated Sludge (WAS) rotary screen thickener (RST) that would also be able to be used for digester recuperative thickening.

Estimated Design Cost (WWTP4): $541,000
Estimated Construction Cost (WWTP5): $4,151,000

WWTP6-7 – Secondary Clarifier 3 (Design/Construction)

Design and construct Secondary Clarifier 3 including connection to the existing gravity controlled return flow system and RAS pumping station. Construction of the new clarifier would also require installation of a new aeration basin effluent pipeline from the aeration basin effluent junction box to the clarifier and extension of a clarifier effluent pipeline from the clarifier effluent launder to the influent channel of the UV disinfection building. Return flow recirculation and secondary scum piping will be directed to the sludge recirculation pump station via the abandoned chlorine contact channel contiguous with existing Secondary Clarifier 1 and combined with the existing pumping systems. When the existing two RAS pumping units are replaced under regular maintenance upgrades, it is recommended that the replacement pumps be increased in size to provide for full pumping redundancy for the 100 percent return, or recycle, flow condition.

Estimated Design Cost (WWTP6): $309,000
Estimated Construction Cost (WWTP7): $2,366,000

WWTP8 – Rotary Screen Thickener

Design and construct RST to thicken WAS. The RST would also be able to be used for digester recuperative thickening.

Estimated Project Cost: $784,000

WWTP9-10 – Drying Bed Expansion (Design/Construction)

This project includes design and construction of:

- Four additional biosolids drying beds located in a mirrored fashion immediately north of the existing drying beds. This configuration would allow efficient operations for solids handling equipment and will allow the City to avoid comingling of processed and non-processed materials. It has been assumed that the City will not be required to purchase additional property to provide for the added biosolids drying facility capacity.

- Construction of additional finished Class A biosolids storage. Added storage capacity as a result of increased biosolids processing. Additional storage capacity will assure that processed material cannot be comingled with solids undergoing treatment within the facility.

- Construction of a second storm water retention/evaporation facility. The retention facility will be a mirror of the existing facility but will be a separate pond from the existing facility. The existing perimeter fence will be extended around the new facilities and the new access road and drying beds will be paved.

Estimated Design Cost (WWTP9): $330,000
Estimated Construction Cost (WWTP10): $2,208,000

WWTP11 – SCADA Upgrade

Replace the City's existing SCADA System for the WWTP (an older generation system without modern capabilities) with a new modern SCADA system. The cost includes full implementation, including equipment, installation and programming. Included with this project is the ability to develop reports with the SCADA software and to record readings from new (replaced) flow meters at the Olds Station LS.

Estimated Project Cost: $500,000

WWTP12 – Flow Equalization Basin Parking Lot Cap

Design and construct a parking lot over the existing WWTP Flow Equalization Basin (FEB). The FEB takes up a significant amount of valuable space, and is an visual/odor/aesthetic concern, especially during and after overflow events.

Estimated Project Cost: $1,000,000

TABLE 9-3

WWTP Capital Improvement Project Summary

Project No.	Description	Year to be Completed	Total Estimated Cost(1)
WWTP1	Grit Removal Improvements/Influent Flow Meter– Design	2017	$24,000
WWTP2	Grit Removal Improvements/Influent Flow Meter – Construction	2018	$270,000
WWTP3	UV Light Disinfection System Modifications	2021	$161,000
WWTP4	Digester 4 and Control Building – Design	2018	$541,000
WWTP5	Digester 4 and Control Building – Construction	2020	$4,151,000
WWTP6	Secondary Clarifier 3 – Design	2022	$309,000
WWTP7	Secondary Clarifier 3 – Construction	2023	$2,366,000
WWTP8	Rotary Screen Thickener Addition	2032	$784,000
WWTP9	Drying Bed Expansion – Design	2028	$330,000
WWTP10	Drying Bed Expansion – Construction	2028	$2,208,000
WWTP11	SCADA Upgrade	2018	$500,000
WWTP12	Flow Equalization Basin Parking Lot Cap	2018	$1,000,000
Total WWTP Costs:			**$12,644,000**

(1) All project costs in 2016 dollars.

CAPITAL IMPROVEMENTS PLAN SCHEDULE

Table 9-4 provides a summary and schedule of each capital improvement project intended over the next 6 years whereas Table 9-5 lists the remaining projects scheduled within the next 20 years. The City can reschedule its capital improvement projects as needed to accommodate unanticipated projects or financial constraints in the future.

TABLE 9-4

6-Year Capital Improvement Project Summary

Project No.	Location	2017(1)	2018(1)	2019(1)	2020(1)	2021(1)	2022(1)
Inflow/Infiltration Analysis							
STUDY1	I/I Study			$300,000			
STUDY2	Sunnyslope Basin Analysis			$50,000			
Existing Gravity Mains							
G1	Olds Station (East of Euclid) Gravity Sewer Replacement						$531,000
G2	Easy Street Gravity Sewer Replacement			$248,000			
G3	Penny Road Gravity Sewer Replacement					$191,000	
G6	Methow Street Gravity Sewer Replacement	$291,000					
G7	Okanogan Avenue Gravity Sewer Replacement	$174,000					
G8	Pipeline Replacement Program		$200,000		$200,000		
Future Gravity Mains							
FG1	Easy Street Gravity Sewer Trunkline			$1,730,000			
FG2	Chatham Hill Gravity Sewer Trunkline		$2,438,000				
FG3	South Sunnyslope Gravity Sewer Trunkline		$1,874,000				
FG5	Horan Road Gravity Sewer Trunkline		$399,000				
FG6	Horse Lake Road (North)	$557,000					
FG13	Poplar Avenue (North of Maple)				$236,000		
FG14	Elmwood Street	$612,000					
FG16	Princeton	$273,000					
FG17	Poplar Avenue (South of Springwater)			$141,000			
FG21	Skyline North				$594,000		
FG23	Methow Street (North)					$372,000	
FG32	Jeffrey Court					$497,000	
FG33	Chapman Road						$719,000

TABLE 9-4 – (continued)

6-Year Capital Improvement Project Summary

Project No.	Location	2017(1)	2018(1)	2019(1)	2020(1)	2021(1)	2022(1)
FG34	Confluence Parkway, Ph. I			$750,000			
FG35	Sunnyslope Extensions				$400,000	$400,000	$400,000
Existing Lift Stations							
LS1	Olds LS (increase to 1,000 gpm, adjust FM siphon)						$555,000
LS2	Broadview LS (relocate)						$738,000
Future Lift Stations							
FLS1	Sunnyslope LS and FM		$4,358,000				
FLS3	Ohme LS				$1,211,000		
WWTP							
WWTP1	Grit Removal Improvements/ Influent Flow Meter – Design	$24,000					
WWTP2	Grit Removal Improvements/ Influent Flow Meter – Construction		$270,000				
WWTP3	UV Light Disinfection System Modifications					$161,000	
WWTP4	Digester 4 and Control Building – Design		$541,000				
WWTP5	Digester 4 and Control Building – Construction				$4,151,000		
WWTP6	Secondary Clarifier 3 – Design						$309,000
WWTP11	SCADA Upgrade		$500,000				
WWTP12	EQ Basin Parking Lot Cap		$1,000,000				
Total:		**$1,931,000**	**$11,580,000**	**$3,619,000**	**$6,792,000**	**$1,621,000**	**$3,252,000**

(1) All project costs in 2016 dollars.

TABLE 9-5

20-Year Capital Improvement Project Summary

Project No.	Street/Location	Total Estimated Cost[1]	Projected Year
Existing Gravity Main Replacements			
G4	North Worthen Street	$245,000	2030
G5	South Walker Avenue	$228,000	2027
G8	Pipe Replacement Program	$200,000 (As Needed)	2018, 2020, Beyond 2022[2]
Future Gravity Mains			
FG4	North Sunnyslope Gravity Sewer Trunkline	$1,281,000	2025
FG7	Harbel Street	$317,000	2029
FG8	Locust Street	$420,000	2028
FG9	Walnut Street	$1,517,000	2025
FG10	Stella Avenue	$240,000	2030
FG11	Harris Place	$324,000	2026
FG12	Pershing Street/Mulberry	$563,000	2024
FG15	Maple Street	$803,000	2031
FG18	Cypress Lane	$158,000	2026
FG19	Westwick Road	$725,000	2030
FG20	Lester Road, Day Road, and Day Drive	$770,000	2029
FG22	Skyline South	$531,000	2026
FG24	Gehr Street	$336,000	2030
FG25	Circle Street – South Miller Street to Saddle Rock Trailhead	$455,000	2028
FG26	Circle Street (South Miller to Okanogan)	$872,000	2027
FG27	Methow Street (South)	$231,000	2024
FG28	Canyon Breeze Lane	$333,000	2027
FG29	Hidden Meadow Drive	$414,000	2030
FG30	Hidden Meadow Drive (South)	$288,000	2031
FG31	Kray Ike Court	$315,000	2030
FG35	Sunnyslope Sewer Extensions	$13,700,000[3]	2019 and Beyond
Future Lift Stations			
FLS2	Warm Springs LS and FM	$1,491,000	Beyond 20 Years

TABLE 9-5 – (continued)

20-Year Capital Improvement Project Summary

Project No.	Street/Location	Total Estimated Cost(1)	Projected Year
WWTP Projects			
WWTP7	Secondary Clarifier 3 – Construction	$2,366,000	2023
WWTP8	Rotary Screen Thickener Addition	$784,000	2032
WWTP9	Drying Bed Expansion – Design	$330,000	2028
WWTP10	Drying Bed Expansion – Construction	$2,208,000	2028

(1) All project costs in 2016 dollars.

(2) The Annual Pipe Replacement Program occurs in 2018 and in 2020. It them occurs annually beginning in 2023 and continues as the financial model allows. See Chapter 10 for further information.

(3) During the 20-year forecast, the Sunnyslope Sewer Extension projects are anticipated to cost $13,700,000. In total, over the 30-year forecast, the project is anticipated to cost $29,492,000.

CHAPTER 10

FINANCIAL PROGRAM

The purpose of this chapter is to describe a financial program that allows the sewer utility to remain financially viable during execution of the Capital Improvement Program (CIP) identified in this Plan. This viability analysis considers the historical financial condition of the utility, the sufficiency of utility revenues to meet current and future financial and policy obligations, and the financial impact of executing the CIP. Furthermore, this chapter provides a review of the utility's current rate structure.

The discussion and tables in this chapter will assume City adoption of a Sewer Extension Program (SEP) to extend sewer lines to previously unsewered areas of the City and Urban Growth Area (UGA). However, we also provide a comparative view of the financial forecast with and without the SEP at the end of the chapter.

HISTORICAL FINANCIAL CONDITION

REVIEW OF FINANCIAL STATEMENTS

Table 10-1 summarizes the available level of financial detail for 2010 through 2015. These figures were reported by the City in the financial statements for each year.

The City tracks water and sewer financial activity in a combined fund, which is reflected in the financial statements in Table 10-1. Financial statements for sewer-only activity are not available.

For the projections and rate planning contained in the remainder of this financial plan, we developed a theoretical "Sewer Fund," allocating the combined fund balances and relying on costs and revenues that were specific to the sewer function only.

TABLE 10-1

Historical Financial Detail by Year

City of Wenatchee - Combined Water/Sewer Financial Statements (All figures in $)	2010	2011	2012	2013	2014	2015
OPERATING REVENUES:						
Residential Utility Sales	4,042,599	4,325,673	4,563,172	4,605,121	5,715,420	5,933,240
Commercial/Industrial Utility Sales	3,718,161	3,903,685	4,068,510	4,244,118	5,317,516	5,632,036
Connection Fees	60,154	93,138	67,871	176,139	96,450	84,947
Charges for Services	95,273	158,088	159,297	86,700	68,446	13,288
Intergovernmental	-	-	-	-	-	-
Miscellaneous	33,723	37,685	62,163	55,082	67,643	60,525
Total Operating Revenues	**7,949,910**	**8,518,269**	**8,921,013**	**9,167,160**	**11,265,475**	**11,724,036**
OPERATING EXPENSES:						
Operations and Maintenance	3,154,847	3,273,912	3,281,108	3,364,366	3,811,603	3,987,985
Contracted Operations	-	-	-	-	-	-
Payment of Premiums	-	-	-	-	-	-
General Administration	1,950,648	1,782,028	1,807,694	1,365,933	3,746,051	3,403,240
Depreciation/Amortization	1,711,763	1,714,912	1,734,980	1,743,413	1,739,765	1,635,645
Total Operating Expenses	**6,817,258**	**6,770,852**	**6,823,782**	**6,473,712**	**9,297,419**	**9,026,870**
Operating Gain (Loss)	1,132,652	1,747,417	2,097,231	2,693,448	1,968,056	2,697,166
NON-OPERATING REVENUES (EXPENSES)						
Interest Income	20,785	37,648	69,935	51,890	37,616	79,701
Interest Expense and Related Charges	(431,509)	(673,694)	(804,368)	(803,230)	(765,563)	(737,450)
Capital Contributions	-	419,184	15,400	-	-	222,637
Amortization of Debt Issues	-	(55,659)	20,305	26,881	26,881	28,806
Grant Revenue	-	-	-	-	-	-
Insurance Recoveries	-	2,473	7,862	1,387	-	-
Gain (Loss) on Capital Assets	-	501	-	-	-	-
Non-Operating Revenues Net of Expense	**(410,724)**	**(269,547)**	**(690,866)**	**(723,072)**	**(701,066)**	**(406,306)**
Net Income Before Transfers	**721,928**	**1,477,870**	**1,406,365**	**1,970,376**	**1,266,990**	**2,290,860**
Transfers In (Out)	(171,200)	(206,861)	(318,448)	(290,415)	(217,991)	(206,300)
Change in Net Position	**550,728**	**1,271,009**	**1,087,917**	**1,679,961**	**1,048,999**	**2,084,560**
Net Position January 1	**34,574,278**	**35,125,006**	**36,396,015**	**37,483,932**	**38,964,376**	**40,013,375**
Prior Period Adjustment				(199,517)	-	
Net Position December 31	**35,125,006**	**36,396,015**	**37,483,932**	**38,964,376**	**40,013,375**	**42,097,935**

From 2010 to 2015, combined utility sales increased by 47 percent ($3.8 million). This is driven by a 47 percent and 51 percent increase in residential and commercial/industrial revenue, respectively. Total operating expenses increased by 32 percent ($2.2 million). General Administrative costs increased by 74 percent ($1.5 million) while Operations and

Maintenance (O&M) increased by 26 percent ($0.8 million). In total, the net position of the utility increased by 20 percent ($7 million) over this 6-year period. The combined water and sewer utilities appear to be in a stable financial position.

OUTSTANDING DEBT PRINCIPAL

Table 10-2 outlines the City's outstanding debt principal at the beginning of 2016. The sewer utility has five outstanding loans with a principal balance totaling $15.8 million.

TABLE 10-2

Outstanding Sewer Debt Principal, Including 2016

Outstanding Debt Principal		
Debt Description	**Principal Outstanding (Incl. 2016)**	**Maturity Year**
Revenue Bond 2007	$1,516,780	2027
Revenue Bond 2011	$7,615,458	2030
PWTF: Squil	$677,278	2031
PWTF: Head	$1,574,737	2031
SRF Loan	$4,444,126	2026
Total	**$15,828,378**	

AVAILABLE CAPITAL FUNDING RESOURCES

Long-term capital funding sources are needed to ensure that the CIP shown in Chapter 9 of this Sewer Comprehensive Plan can be funded. In addition to the utility's local resources such as accumulated cash reserves, current rate revenue, and system investment fees, capital needs can be met from outside sources such as grants, low-interest loans, and bond financing. Following is a description of various potential capital funding sources.

UTILITY RESOURCES

Capital funding resources for a utility starts with utility rate revenue. This includes capital reserves saved in past years, policy-based annual system reinvestment funding, or additional transfers from any surplus of operating fund balance above the minimum operating reserve. In addition to rate revenue, the City can rely on general connection charges like the System Investment Fee, area-specific connection charges like the proposed Sunnyslope Area Fee, or local facilities charges. These types of resources are discussed below.

Utility Funds and Cash Reserves

User charges (rates) paid by the utility's customers are the primary funding source for all utility activities. The rates ultimately support all annual costs associated with operating and maintaining the sewer system. Rates can pay for capital improvement projects in two ways: either paying for debt service or directly paying for capital projects. Funding capital costs directly through rates avoids the additional interest expense associated with issuing debt. However, relying on rate revenue for capital costs puts a premium on advance planning—the rate contribution toward system reinvestment is best done gradually over time in order to avoid large or volatile rate increases.

System Investment Fees

A System Investment Fee (SIF), as provided for by RCW 35.92.025, refers to a one-time charge imposed on all new customers as a condition of connection to the utility system. The purpose of the System Investment Fee is two-fold: (1) to promote equity between new and existing customers; and (2) to provide a source of revenue to fund capital projects.

- Equity is served by providing a vehicle for new customers to share the cost of infrastructure investment. In the absence of a System Investment Fee, growth-related capital costs would be borne primarily by existing customers. In addition, the net investment in the utility already collected from existing customers, whether through past rates, charges or assessments, would be diluted by the addition of new customers, effectively subsidizing new customers with prior customers' payments. To be equitable, a System Investment Fee should recover a proportionate share of existing and future infrastructure costs from a new customer. By paying the fee, a new customer becomes financially equivalent to an existing customer.

- System Investment Fee revenue is also a source of cash flow to support utility capital needs, since legally, SIF revenue can only be used to fund utility capital projects or pay debt service incurred to finance those projects.

Table 10-3 summarizes the City's existing Sewer System Investment Fee Schedule.

TABLE 10-3

Current Sewer System Investment Fee Schedule

Customer Classification	Charge for First Dwelling Unit or ERU	Charge for Additional Dwelling Unit or ERU
Single-Family Residential	$570	n/a
Multi-Family Residential	$509	$469
Motels/Hotels/Mobile Homes	$570	$530
Commercial/Industrial (Domestic)	$570	$530
Commercial/Industrial (Medium)	$710	$670
Commercial/Industrial (High)	$1,032	$992

The scope of this financial plan did not include reviewing or recommending changes to the *structure* of the SIF—that is, the relationship between the $570 single-family residential SIF and the SIF for larger or non-single family properties. The SIF increases discussed below are assumed to be applied across-the-board to all customer classes.

System Investment Fee Methodology

The City's current SIF has not been updated in many years, and part of our analysis was to prepare an updated SIF calculation. The basic methodology for all connection charges—including the SIF and for the other connection charges discussed later in this chapter—is for eligible capital costs to be divided by the relevant number of equivalent residential units being served. This relationship between the costs (the numerator) and the unit basis (the denominator) is shown in Figure 1.

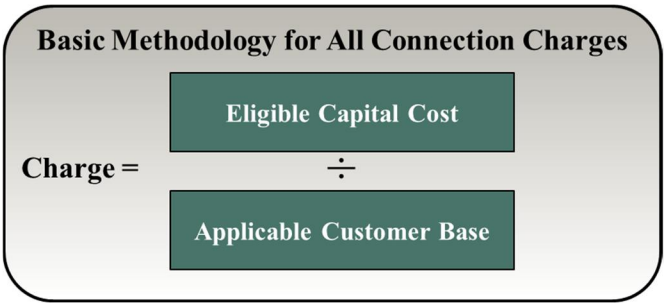


FIGURE 10-1

Basic Methodology for All City Connection Charges

Within that basic methodology, there is more than one reasonable way to assign costs to existing or new ERUs. In this SIF update we use an "integrated approach." The integrated

approach consists of existing plus future capital costs divided by existing plus new customers, as shown in Figure 10-2.

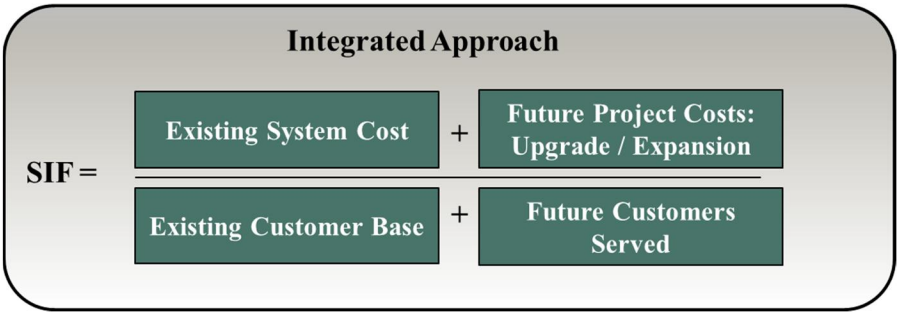


FIGURE 10-2

Integrated Approach to System Investment Fee

The integrated approach is simple and stable over time, and it creates a clear equity between newcomers and old-timers. Since the SIF is proposed to be used to recover capital costs outside of the Sewer Extension Program, the integrated approach generally fits the nature of the City's planned capital program.

Note that another approach that could be taken—which is sometimes used in other cities—would be to take the future capital costs associated with growth and assign them only to the new ERUs. That approach focuses on the goal of ensuring that "growth pays for the cost of growth." In this case, that goal is met through the proposed Sunnyslope Area Fee.

Updated System Investment Fee

The components of the updated SIF calculation is shown in Table 10-4. The cost basis for the System Investment Fee is divided between the existing assets and planned future capital projects. The various adjustments shown in Table 10-4 are designed to ensure equity between existing customers and newly connecting customers.

The City can choose to adopt an SIF that is less than the calculated amount of $3,710, but it cannot legally adopt a greater amount. If the choice is made to adopt an SIF less than $3,710, it means that existing ratepayers would be subsidizing new customers, since those new customers would be allowed to pay less than their proportionate share of the cost of the capital facilities.

TABLE 10-4

Calculation of Updated System Investment Fee

Calculation of System Investment Fee		
Applies to all development that connects to City sewer system		
Future capital figures are in 2016 constant dollars.		
Existing assets are original costs, not replacement costs. Future capital costs are in 2016 constant dollars.		
Existing Assets - Plant in Service:		
Utility Capital Assets		$44,466,263
less: Contributed Capital (Including Interest)		(811,985)
plus: Accumulated Interest on Plant		15,806,299
plus: Construction-Work-in-Progress		522,258
Year-end Estimated Cash Balances	$8,619,834	
less: Debt Principal Outstanding	(14,704,080)	
less: Net Debt Principal Outstanding		(6,084,246)
Total Existing Cost Basis		$53,898,589
Future Cost Basis		
Total Projects		$60,948,341
less: Projects Included in Citywide LFC		(27,313,000)
less; Projects Included in Sunnyslope LF Surcharge		(13,291,000)
less: Replacement/Renovation Projects		(5,108,040)
Cost of Growth Related Projects		$15,236,301
Total Cost Basis		$69,134,890
Future ERUs Served (meter-equivalents)		18,650
Based on projected population growth.		
System Investment Fee		$3,710

Six-Year Schedule for System Investment Fee

Because of the importance of creating an incentive for newly served property owners to connect to the City system, we recommend that the City adopt a multi-year schedule, with annual increases projected to match the Engineering News-Record Construction Cost Index (ENR-CCI).

Table 10-5 shows a 6-year schedule for the System Investment Fee, with three alternative approaches. Option 1 assumes that the initial SIF is the full calculated amount and that it is escalated each year by inflation. Option 2 sets the initial SIF at a reduced level of $1,500 and then escalates it by inflation. Option 3 sets the initial SIF at the $1,500 reduced level but then phases in increases to reach the full calculated amount by the last year of the schedule. We recommend Option 1, but to be conservative, the financial forecast described later in this chapter assumes Option 2.

During 2022, at the end of the 6-year schedule shown here, the SIF should go through a

formal update using the same methodology shown above.

TABLE 10-5

Recommended Schedule of System Investment Fees

Option 1: Schedule of System Investment Fees per ERU **Full Calculated SIF** *Assumes 3 percent Construction Cost Inflation per Year, Rounded to Nearest $10.*					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
$3,710	$3,820	$3,930	$4,050	$4,170	$4,300

Option 2: Schedule of System Investment Fees per ERU **Reduced SIF Set Initially at $1,500** *Assumes 3 percent Construction Cost Inflation per Year, Rounded to Nearest $10.*					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
$1,500	$1,550	$1,600	$1,650	$1,700	$1,750

Option 3: Schedule of System Investment Fees per ERU **Reduced Initial SIF Phased in to Full Calculated SIF Over 5 Years** *Assumes 3 percent Construction Cost Inflation per Year, Rounded to Nearest $10.*					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
$1,500	$2,060	$2,620	$3,180	$3,740	$4,300

Sunnyslope Area Fee

Because significant investment in trunk lines and pump stations is needed to reach the Sunnyslope area, we recommend a Sunnyslope Area Fee that is separate from the System Investment Fee. Whereas the SIF applies everywhere in the City service area, the Sunnyslope Area Fee would apply only to new connections on or upstream of the Horan Road trunk line. The Sunnyslope Area Fee would apply to all new connections, including those with developer-built collector sewers.

The cost basis for this fee is the estimated cost (in 2016 constant dollars) of projects FG1-FG5, FLS 1, and FLS 3. These costs have been excluded from the cost basis for the System Investment Fee and the LFC. The denominator is the potential new ERUs in the Sunnyslope area over the next 20 years. This calculation is shown in Table 10-6.

TABLE 10-6

Calculation of Sunnyslope Area Fee

Calculation of Sunnyslope Area Fee		
	Applies to all development in Sunnyslope, including developer-built collector lines	
	Assumed % discount for connection within 2 years of availability	*30%*
FG1	Easy St. Gravity Sewer Trunkline	1,730,000
FG2	Chatham Hills Gravity Sewer Trunkline	2,438,000
FG3	South Sunnyslope Gravity Sewer Trunkline	1,874,000
FG4	North Sunnyslope Gravity Sewer Trunkline	1,281,000
FG5	Horan Rd. Gravity Sewer Trunkline	399,000
FLS1	Sunnyslope LS	4,358,000
FLS3	Ohme LS	1,211,000
	Total Sunnyslope Area Infrastructure Investment	13,291,000
	Sunnyslope ERUs within 20-year Planning Horizon	3,489
	Sunnyslope Area Fee	$3,810
	Discount for Existing ERUs connecting within 2 years of availability	1,143
	Discounted Sunnyslope Area Fee	$2,667

Table 10-7 shows a 6-year schedule for the Sunnyslope Area Fee. This table assumes annual inflation-based adjustments, estimated at 3 percent per year, which matches our forecast assumptions for the ENR Construction Cost Index.

TABLE 10-7

Recommended Schedule of Sunnyslope Area Fees

Schedule of Sunnyslope Area Fees per ERU *For all connections on or upstream of Horan Road Trunk Line, including those with developer-built collector lines* *Recommended: Assumes 3 percent Construction Cost Inflation per Year, Rounded to Nearest $10.*					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
$3,810	$3,920	$4,040	$4,160	$4,280	$4,410

During 2022, after the SEP has been underway for about 6 years, the Sunnyslope Area Fee should be formally updated at the same time as the updates to the citywide LFC and SIF. At this time the Sunnyslope lift stations and trunk lines will be complete or nearing completion, so actual cost figures can be used in the cost basis. The existing cost basis at that time will consist of original costs (not replacement costs), plus up to 10 years of accrued interest. The methodology for updating the Sunnyslope area fee based on actual costs is the same as the process for updating the other City connection charges.

Recovery of Local Improvement Costs

There is a difference between *general* facilities that serve the entire city or large areas of the city and *local* facilities that mainly serve a given property—the pipes and manholes in the street in front of a particular building. For general facilities, the utility as a whole typically has primary funding responsibility, and then newly connecting property owners pay a proportionate share of the cost through a charge like the System Investment Fee. In contrast, the property owners typically have primary funding responsibility for local facilities. Local facilities are often paid for directly by developers and then donated to the City as part of a new development. Sometimes neighborhoods create utility local improvement districts to construct local facilities and recover the cost from property owner assessments. However, if the utility provides the initial funding for local infrastructure, then that cost is recovered from property owners by way of a Local Facilities Charge (LFC) that is paid at the time the property is connected to the system.

Developer Extensions

Developer extension agreements provide for developers to pay for local facilities directly, often as a requirement of the platting process that makes a piece of property developable. Developer-built infrastructure must be built to City standards. The City is authorized to enter into developer extension agreements under RCW 35.91.020.

Latecomer Charges

The "latecomer charge" is a variation of developer extensions whereby a new customer connecting to a developer-built pipe makes a payment to the City based on their share of the developer's cost (RCW 35.91.020). The City passes on these payments to the developer who installed the facilities. This is part of the developer extension process, which defines the allocation of costs and records the latecomer obligations on the title of affected properties. No interest is allowed on latecomer charges, and the reimbursement agreement is in affect for 20 years, unless a longer duration is approved by the City.

Local Improvement Districts/Utility Local Improvement Districts

A Local Improvement District (LID) or Utility Local Improvement District (ULID) is another mechanism for funding infrastructure that assesses benefited properties based on the special benefit received by the construction of specific facilities (RCW 35.43.042).

Substantial legal and procedural requirements can make this a relatively expensive process, and there are mechanisms by which a ULID can be rejected by a majority of property ownership within the assessment district boundary. If parcels are already served, this mechanism cannot be used for upgrades.

Local Facilities Charges

A Local Facilities Charge (LFC) is a variation of the connection charge authorized in RCW 35.92.025. It is a city-imposed charge to recover the cost incurred by the City for local sewer facilities. An LFC is payable when a structure is connected to the sewer system. Using an LFC allows the City to take the initiative in extending sewers to previously unsewered areas within its service area. The City currently uses area-specific LFCs that are known as front-footage charges because they are based on the length of pipe "fronting" a particular property.

Recommended Citywide Local Facilities Charge

As a cost recovery mechanism, the LFC figures prominently in this financial plan. One of the characteristics of the Sewer Extension Program (SEP) discussed later in this chapter is the creation of a standard citywide LFC that averages together all of the costs related to collector sewers and likewise averages together all of the projected additional ERUs for unsewered areas in the City and UGA. The citywide LFC would take the place of the front-footage charges currently being used by the City in certain areas.

Table 10-8 shows the projected capital costs and future ERUs, which lead to an initial citywide LFC of $6,140 per ERU.

TABLE 10-8

Calculation of Citywide Local Facilities Charge

Calculation of Citywide Local Facilities Charge		
	Applies to connections to City-built collector pipes across the City service area	
	Assumed % discount for connection within 2 years of availability	*30%*
FG35	Sunnyslope Sewer Collectors	$13,700,000
FG6-34	Sewer Extensions in City Infill Areas	13,613,000
	Total Sewer Collectors	27,313,000
	Citywide ERUs (including UGA) within 20-year Planning Horizon	4,449
	Citywide LFC	$6,140
	Discount for Existing ERUs connecting within 2 years of availability	1,842
	Discounted Citywide LFC	$4,298

Updating the Citywide LFC

Like the System Investment Fee, the LFC should be updated annually. At first, the cost basis consists entirely of future costs, so in the first few years, the LFC can simply be updated based on each year's percentage change in the ENR Construction Cost Index. As a simpler substitute, we suggest that the City adopt the multi-year schedule shown in Table 10-9. This is based on projected ENR-CCI inflation of 3 percent per year.

TABLE 10-9

Recommended Schedule of Citywide Local Facilities Charges

Schedule of Citywide Local Facilities Charges per ERU *For connections to City-built collector lines in entire City sewer service area* *Recommended: Assumes 3 percent Construction Cost Inflation per Year, Rounded to Nearest $10.*					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
$6,140	$6,320	$6,510	$6,710	$6,910	$7,120

During 2022, after the SEP has been underway for about six years, the LFC should be updated using the same methodology as an SIF update. By that point, it will be mixture of costs already incurred and costs projected for the future.

Each year, beginning with 2017, as part of the year-end capitalization process, the Finance Department should identify the SEP-related capital costs that have been incurred during the previous year. The SEP capital cost for that year becomes part of the cost basis the next time the charge is updated, along with up to ten years of accrued interest at the average interest rate that the City could obtain if it were to borrow funds that year. Whenever the charge is updated, future cost projections should also be escalated using the ENR-CCI. Any costs assigned to the cost basis for the LFC or the Sunnyslope Area Fee should be excluded from the SIF cost basis. The denominator will probably not change as often as the cost basis, but it should be reviewed every 5 or 6 years, to ensure that the ERU projections still seem realistic in light of recent development. The same tracking of actual costs should occur for the Sunnyslope Area Fee.

GOVERNMENT PROGRAMS AND RESOURCES

Grants and Low Cost Loans Overview

Historically, federal and state grant programs were available to local utilities for capital funding assistance. However, these assistance programs have been mostly eliminated, substantially reduced in scope and amount, or replaced by loan programs. Remaining grant programs are generally lightly funded and heavily subscribed. Nonetheless, even the benefit of low-interest loans makes the effort of applying worthwhile. Grants and low-cost loans for utilities are available from various Washington State Departments, and some options are described in greater detail below.

The following document, developed annually by the State, provides additional funding, eligibility, and contact details for each program:

> http://www.pwb.wa.gov/Documents/10-01-2016-SCI-Water-Funding-Program-Summary.pdf.

Public Works Trust Fund (PWTF)

Cities, counties, special purpose districts, public utility districts, and quasi-municipal governments are eligible to receive loans from the PWTF. Eligible projects include repair, replacement, and construction of infrastructure for domestic water, sanitary wastewater, stormwater, solid waste, road, and bridge projects. Due to current funding restrictions, the Public Works Board has suspended non-Construction Programs. As the economy builds, the Board will attempt to re-institute these programs.

The standard loan offers a 1.66 percent interest rate for terms between 5 and 20 years. All loan terms are subject to negotiation and Board approval. Currently no local match is required and the maximum loan amount is $10 million per jurisdiction per biennium.

The next funding cycle for the PWTF loan process begins in the summer of 2017. Information regarding the application process as well as rates and terms are posted on the PWTF website in early spring. Further detail is available at: http://www.pwb.wa.gov

Community Economic Revitalization Board (CERB)

The CERB, authorized in RCW 43.160, is a federal program administered by the State Department of Community Trade and Economic Development. This program provides grants and loans for infrastructure improvements including utility projects. It prioritizes projects that create or retain jobs for low and moderate-income residents. Because it is need-based and intended to be "last-resort" relative to other funding sources, the City may not qualify for assistance under this program. The board meets every 2 months to consider projects and make funding decisions. The meeting schedule can be found at: https://deptofcommerce.app.box.com/v/cerb1517dates**.**

Infrastructure Assistance Coordinating Council

The Infrastructure Assistance Coordinating Council is comprised of state and local agencies whose function is to provide funding for infrastructure repair and development. Its purpose is to assist local governments in coordinating funding efforts for infrastructure improvements and can be a valuable resource to provide awareness of any new funding opportunities. More information can be found at: http://www.infrafunding.wa.gov/.

Community Development Block Grant (CDBG)

One eligible use of CDBG funds is to assist with final design and construction of wastewater, drinking water, side connections, stormwater and other projects serving economic development. These projects must principally benefit low to moderate income people in non-entitlement cities and counties. Cities or towns must have a population fewer than 50,000 people and counties must have a population fewer than 200,000 people. Applications for the 2017 program are due in June of 2017. More information can be found at www.commerce.wa.gov/cdbg. CDBG funding, if available, can be useful for

helping low-income homeowners with up-front connection costs (including private plumbing costs) that are part of a sewer extension program.

MARKET DEBT FINANCING

General Obligation Bonds

General Obligation (G.O.) bonds are bonds secured by the full faith and credit of the issuing agency, committing all available tax and revenue resources to debt repayment. With this high level of commitment, G.O. bonds have relatively low interest rates. However, the Washington Constitution and statutes limit the amount and use of G.O. bond funds in relation to assessed valuation.
RCW 39.36.020 states:

> (ii) Counties, cities, and towns are limited to an indebtedness amount not exceeding one and one-half percent of the value of the taxable property in such counties, cities, or towns without the assent of three-fifths of the voters therein voting at an election held for that purpose.
>
> (b) In cases requiring such assent counties, cities, towns, and public hospital districts are limited to a total indebtedness of two and one-half percent of the value of the taxable property therein.

While bonding capacity can limit availability of G.O. bonds for utility purposes, if they are available, they can play a useful role in project financing. Rate savings may be realized through two avenues: the lower interest rate and related bond costs; and the extension of repayment obligation to all tax-paying properties (not just developed properties) through the authorization of an ad valorem property tax levy.

Revenue Bonds

Revenue bonds are commonly used to fund utility capital improvements. The debt is secured by the revenues of the issuing utility; the debt obligation does not extend to the City's other revenue sources. With this limited commitment, revenue bonds usually bear higher interest rates than G.O. bonds. They typically require the maintenance of a bond reserve and the achievement of minimum debt service coverage each year. The City agrees by ordinance to meet the applicable bond covenants as a condition of bond sale.

Revenue bonds can be issued in Washington without a public vote. There is no bonding limit, except perhaps the practical limit of the utility's ability to generate sufficient revenue to repay the debt and provide coverage. The City currently has two outstanding revenue bonds related to the sewer utility.

Capital Resource Funding Summary

An optimal funding strategy would include the use of grants and low-cost loans when debt is needed. However, these resources are very limited and competitive in nature and do not provide a reliable source of funding for planning purposes. It is recommended that the City pursue these funding avenues but assume bond financing to meet needs above the utility's available cash resources. G.O. bonds may be useful for special circumstances, but since G.O. bonds require voter approval, revenue bonds are a more realistic financing mechanism for utility needs. The capital financing strategy used in this Financial Plan follows the general funding priorities below:

1. Available grant funds and/or developer contributions.
2. Interest earnings on allocated fund balances.
3. Other miscellaneous capital resources, if any.
4. Annual revenue from system investment fees, local facilities charges, and Sunnyslope Area Fees.
5. Annual transfers of system reinvestment funding or excess cash (above minimum balance targets) from operating accounts.
6. Accumulated capital cash reserves.
7. Revenue bond financing.

Over the next 20 years, this CIP is projected to be funded from roughly 51 percent debt and 49 percent other sources. However, the first ten years of the CIP are projected to be funded about 58 percent debt, 42 percent other sources. About 63 percent of the 20-year CIP costs are projected to be spent in the first 10 years.

CURRENT FINANCIAL STRUCTURE AND POLICIES

FUND STRUCTURE AND FUND BALANCES

The City accounts for its water and sewer finances in a combined Water & Sewer Utility Fund (Fund 401). As part of preparing a financial forecast, we allocated the existing fund balances between the water utility and sewer utility. Within Fund 401, debt service and capital reserves are contained in several subaccounts, which were readily identified by City staff as related to either Sewer or Water based on the purpose of the subaccount. For instance, debt service reserves are generally allocated to Water or Sewer based on the original purpose of the underlying debt. For the remaining unrestricted fund balance (about $1.8 million), we allocated 50 percent to Water and 50 percent to Sewer.

As it turned out, nearly all of the specifically identified capital or debt service reserves were earmarked for Sewer. So out of a combined fund balance of $11.7 million at the end of 2016, about $10.5 million is allocated to Sewer.

FINANCIAL POLICIES

Below is a brief summary of the key financial policies employed by the City as well as those recommended and incorporated into the financial plan.

Reserves

Utility reserves serve two primary functions. Risk reserves provide a cushion against the cost of unexpected adverse events. In addition, planned capital reserves are a type of capital funding tool, used to minimize debt by saving up in advance for planned future capital costs. The reserve thresholds discussed in this section are for risk reserves. Planned capital reserves are the subject of the rate-funded system reinvestment policy discussed in the next section.

Operating Reserve

An operating reserve is designed to provide a liquidity cushion; it protects a utility from the risk of short-term variation in the timing of revenue collection or payment of expenses. Like other types of reserves, operating reserves also serve another purpose: they help smooth rate increases over time. Target funding levels for an operating reserve are generally expressed as a certain number of days of operating and maintenance (O&M) expenses, with the minimum requirement varying with the expected revenue volatility. Industry practice for utility operating reserves ranges from 30 days (8%) to 120 days (33%) of O&M expenses, with the lower end more appropriate for utilities with stable revenue streams and the higher end of the range more appropriate for utilities with significant seasonal or consumption-based fluctuations.

The financial plan incorporates a minimum balance target of 45 days of O&M, with a maximum target of 60 days of O&M. Based on the 2017 budget, this minimum and maximum target is equivalent to an approximate range of $600,000 to $800,000. In the annual forecast, if the operating fund balance would end a year above the maximum policy threshold, we assume that the surplus is “swept” into the capital reserves.

Capital Contingency Reserve

A capital contingency is the minimum forecast balance in the capital fund. Most years in a forecast, the projected fund balance will be comfortably above the minimum, because of the planned capital reserves. However, it is important to have a basic level of cash available for the *unplanned* capital needs, and that is the capital contingency. The unplanned capital needs might be the unexpected failure of a key system asset, or it might be a shortfall in a capital revenue source, or it might be unexpected overruns in the implementation of the CIP. Either way, a capital contingency allows the City to complete the most timely capital improvements or respond to an emergency or stop a project at a logical point, so that past investment won’t be wasted.

Industry practice for the capital contingency ranges from maintaining a balance equal to 1 percent or 2 percent of fixed assets, an amount equal to a multi-year rolling average of CIP costs, or an amount sufficient to fund the repair or replacement of a critical asset. The most common benchmark is 1 percent of the original cost of fixed assets, which is what is assumed in this financial plan. This is approximately $440,000 at the end of 2016.

Debt Reserve

Bond covenants often establish reserve requirements as a means of protecting bondholders against the risk of nonpayment. Some state loans also have a reserve requirement. A debt reserve is typically funded at the time of borrowing as part of the debt principal. A reserve amount equal to annual debt service is used when the forecast assumes issuing revenue bonds. The City currently maintains debt reserves to meet the contractual requirements of its existing debt.

Planned Rate-Funded System Reinvestment

A planned rate-funded system reinvestment policy provides a steady stream of current rate funding toward capital projects. A certain percentage of the City's capital expenditures in any given year are based on a foreseeable need—the deterioration and eventual replacement of existing assets. The purpose of setting aside funds from current rates for capital purposes is to minimize reliance on debt and ensure that there is enough money at least to keep up with known asset replacements. This type of policy is typically characterized as either a flat dollar amount per year or a certain percentage of annual depreciation.

The City does not have a policy regarding planned rate-funded system reinvestment. We recommend an ultimate target of 100 percent of depreciation. This funding target equates to $775,000 per year, based on 2016 asset data. We suggest phasing in that target gradually. In this plan, the initial target percentage of depreciation is assumed at 15 percent in 2017; it then increases gradually until a minimum policy target of 100 percent of depreciation is achieved in 2027.

In addition to this minimum level of policy funding, the forecast assumes that operating surpluses in excess of 60 days of O&M are transferred into the capital fund at year end, and made available for capital spending in subsequent years.

Debt Management

Debt Service Coverage

There are two forms of debt service coverage. One applies to debt service from revenue bonds only, while the other applies to debt service on total debt, including state loans. Revenue bonds typically have a legal minimum coverage requirement of 1.25. State loans usually do not carry a minimum coverage requirement. The legal minimum coverage is

1.25, while the minimum planning target for this chapter assumes 1.50. In the past few years, we have received feedback from municipal bond advisors indicating that bond buyers find a coverage of 2.0 or greater particularly strong security. In this forecast, coverage of 2.0 is targeted over the length of the 20-year study period, and we estimated that it will be achieved by 2030.

The debt service coverage for the City includes SIF revenue as well as rate revenue. Throughout this forecast, the debt service coverage on bonded debt is expected to remain at or above 1.67 through 2035.

Capital Structure

Another useful measurement in assessing the debt burden of a utility is the capital structure, which is calculated with the following formula: Total Outstanding Debt Principal ÷ (Original Cost of Fixed Assets – Accumulated Depreciation). A target capital structure of no more than 60 percent debt is considered appropriately conservative. A percentage lower than this suggests that the utility has the financial capacity to issue more debt if needed.

It is important to note that the City staff has indicated that the utility fixed asset records are incomplete, meaning that some existing sewer related assets are not captured in the fixed asset records. To the extent that there may be additional fixed assets beyond what is already recorded, the capital structure would be lower than shown below. This is a positive result. Additional fixed assets would increase the denominator of the calculation. The City's structure is currently estimated to be at 45 percent and is projected to gradually decline throughout the forecast, resulting in a capital structure of less than 20 percent by 2035.

Debt Service Load

"Debt service load" compares annual debt service against annual rate revenues. Total debt service takes into account revenue bonds as well as state loans. In order to preserve future financial flexibility, we usually recommend that utilities not have annual debt service more than about one-third of annual rate revenues.

The City currently has an estimated debt service load of 26 percent. Because so much of the CIP is "front-loaded"—that is, scheduled for the first ten years—the debt service load is projected to increase to 34 percent in 2018 and to 37 percent in 2022 as $20.2 million of net debt proceeds are projected to be needed over that five-year period. This projected level of debt service load is higher than the 33 percent limit that we typically recommend. However, it is justified in this case because so much of the up-front capital expenditures are designed to bring additional customers into the City sewer system and allow future growth at the appropriate densities. In addition, capital programs are often implemented more slowly than their adopted schedules, so in actual fact, the amount of debt might well grow more slowly than projected here. Given the important growth-related policy goals at

stake, for the projected debt service load to be four points higher than our usual threshold seems like a reasonable amount of risk for a limited number of years. After staying at or near 37 percent from 2022 through 2024, our forecast shows the debt service load gradually declining to 24 percent by 2035.

SEWER EXTENSION PROGRAM

The Sewer Extension Program (SEP) is a proactive program to extend sewers to currently unsewered areas within the City and the UGA. In the CIP presented in Chapter 9, the SEP consists of the following projects. (Costs are expressed in 2016 constant dollars.)

- FG1 through FG5 – Trunk lines serving the Sunnyslope UGA ($1,544,400 from 2018 through 2025).
- FG6 through FG33 – Collector mains serving City infill areas ($13,613,000 from 2017 through 2031).
- FG35 – Collector mains serving the Sunnyslope UGA ($14,300,000 from 2019 through 2035, part of a larger $29,492,000 effort extending over 30 years).
- STUDY2 – Sunnyslope Basin Analysis ($50,000 in 2019).
- FLS 1 and FLS 3 – Sunnyslope and Ohme lift stations ($5,569,000 in 2018 and 2020, which are needed to expand service into Sunnyslope. These projects also provide redundancy in pumping capacity.

In addition, the SEP includes $150,000 per year (in 2017 dollars) of O&M costs for program administration, beginning midway through 2017.

Of those capital projects, the Sunnyslope basin analysis is assumed to be a general system cost responsibility, included in the cost basis of the System Investment Fee. The trunk line and lift stations are included in the cost basis for the Sunnyslope Area Fee. The collector mains for both Sunnyslope and the City infill areas are assumed to be recoverable from the Local Facilities Charge, although a portion of the potential revenue from LFCs and the Sunnyslope Area Fee is assumed to be foregone in order to create an incentive for connection within two years after a sewer line is newly available to a given property. For our purposes, “sewer availability” means that the sewer line is within 200 feet of the nearest point of the property line.

In the SEP, the “Sunnyslope UGA” extension projects are assumed to include the Chatham Hill neighborhood as well as the Sunnyslope neighborhoods north of SR 2. Specifically, Project FG2 would install a trunk line through Chatham Hill and cross SR 2, after which collector lines would be built within Chatham Hill.

SEWER EXTENSIONS – MAJOR TYPES OF COSTS

Table 10-10 shows the main types of costs that need to be addressed in the effort to extend sewers to previously unsewered areas.

TABLE 10-10

Types of Costs for Sewer Extensions

Type of Sewer Extension Costs	Suggested Responsible Party	Cost Recovery Method
Citywide Major Facilities: Treatment, Pumping and Transmission	City, with Proportionate Share Charged to Property Owner	System Investment Fee
Area Facilities: Sunnyslope Trunk Lines and Lift Stations	Sunnyslope Property Owners *	Sunnyslope Area Fee
Local Facilities: Collector Sewers, Side Sewers and Manholes	Property Owner *	Local Facilities Charge (LFC) or Utility Local Improvement District (ULID)
Private Plumbing Costs: Side Sewers on Private Property, Septic Decommissioning	Property Owner	Direct Expenditure by Property Owner
Sewer Extension Program Management	City	Rates

*Discounts May Be Offered by City as an Incentive for Timely Connection

Major Facilities

The first group consists of the cost of *major facilities* that are subject to cost recovery from the System Investment Fee. In our suggested approach to the Sewer Extension Program, we assumed that the incentive discount only applies to the Local Facilities Charge and Sunnyslope Area Fee, not the System Investment Fee. However, that is a judgment call the City can make. Some cities, such as Olympia, waive their equivalent of the System Investment Fee for new customers who are decommissioning septic systems. But our suggestion for Wenatchee is that a 30 percent discount on the other two connection charges would provide sufficient incentive without discounting the SIF also.

Area Facilities

The second group of costs consists of the lift stations and trunk lines into the Sunnyslope area. These costs should be recovered by the Sunnyslope Area Fee, payable by all newly connecting customers in the Sunnyslope area.

Local Infrastructure

The third group is the cost of *local infrastructure*—the sewer pipe and manholes that provide immediate service to the structures. Typically, these costs are either directly funded by a developer, paid for by property assessments in a ULID, or paid up front by the City and then recovered via a Local Facilities Charge. In this plan, we assume that ULIDs would rarely if ever be used. Instead, the plan assumes that local facilities will be paid for up front by the City and then properties pay as they are connected.

As a general rule, if a developer installs the local sewers, then the SIF still applies but not the LFC. If it is in Sunnyslope, then the Sunnyslope Area Fee would also apply. There are still undeveloped tracts in both the Sunnyslope UGA and City infill areas that could accommodate new streets and sewer lines not yet identified in this plan, along with newly built homes or businesses. With one exception, this financial plan does not include the cost of those sewer lines nor any related LFC revenue. Instead, it assumes that sewer lines built in newly subdivided tracts would be paid for directly by private developers. There will also be new development along existing streets, where an LFC would be payable. However, to be conservative, this forecast mostly ignores any potential LFC revenue from new development, since the timing of that development is hard to predict.

The one exception is that we assumed a "5-year surge" of about 27 ERUs per year during the years immediately following the completion of the trunk lines and lift stations into the Sunnyslope area. This assumption is still intended to be conservative; it is equivalent to assuming that about 5 percent of the potential undeveloped land in the Sunnyslope UGA is developed with new construction during that initial five-year period.

Private Plumbing Costs

Private plumbing costs include the cost of building the side sewer on private property, making the physical connection, and decommissioning the septic system. Because these costs are for work done on private property, the cost burden generally falls on the property owner. However, if the City can secure Community Development Block Grant funding, it can offer assistance with these types of costs to qualifying low-income homeowners.

Program Administration

The last type of cost associated with the SEP is the cost of *program administration*. That is a cost to be borne by the sewer system, not recovered from property owners.

REASONS FOR SEWER EXTENSION PROGRAM

General Reasons to Extend Sewers

For the UGA, the City must plan for sewer extension and take steps in that direction in order to comply with Growth Management Act requirements. So eventually all areas in the UGA and the City must be provided with public sewer service. That obligation on the City will only become more costly the longer it is delayed.

In addition, sewer extension in both the UGA and City infill areas provides expansion for future growth of the customer base of the City system. Over time, that growth will bring economies of scale to the City system.

Sewer extension also affects the development of currently undeveloped areas—neighborhoods connected to sewer can accommodate higher densities, because septic systems require space for drain fields.

Finally, extending the sewer system avoids the risk of environmental damage from a concentration of septic systems, which at some point could lead to a mandate to clean up a particular area. By investing in the sewer system extension now and beginning the process of adding new customers, the City is avoiding a potentially more disruptive financial obligation in a future year.

Optimal Timing for Sewer Extension

The timing of sewer extension in relation to development matters a lot. The optimal time to extend sewers is at the time of development, *before* a septic system is built. For typical property owners, the best time to incur major capital costs is when they are buying or developing property, not after moving in. Purchase or development means that the property owner probably is already borrowing money. That is also the point of decision, at which a homebuyer takes the full cost into account in deciding whether he can afford to buy or build. Once the septic system is installed and the home is occupied, it is much more difficult to secure cooperation for the installation of a sewer line.

The Sunnyslope UGA is illustrates a missed opportunity in the timing of sewer extension in relation to development. It would have been easier 10 years ago than it will be now to shape the development of Sunnyslope and scale up the number of sewer customers in that area, because connecting a home when it is first built means that the builder can avoid the cost of a septic system. At the same time, if the City does not take action now to create a Sewer Extension Program, it will be even harder ten years from now than it is now, because more development will have occurred during the intervening time.

But in order for property owners to participate—even willingly—in a sewer extension project, the nearest sewer line must be within a reasonable distance, so the cost to the property owner is not prohibitive. Part of what the proposed Sunnyslope trunk line and

lift station projects accomplish is getting sewer lines into the neighborhood, so that a more typical sewer extension process can realistically take place.

The Piecemeal Problem

Extending a sewer system and connecting to it is expensive for a property owner—it can be as much as $15,000-$30,000 per lot. Building or replacing a septic system is also expensive—it can also be as much as $15,000-$30,000 per lot. Understandably, property owners do not want to have to do both.

For this reason, *every* new septic system within an urban growth area creates or adds to a land use problem. Once septic systems are built, converting those properties to sewers are difficult because of the "piecemeal problem." The problem is this: *to be economical, sewer extension must be done in batches, but septic systems fail one by one.* If the City does not take the initiative to address the problem, it ends up in a negative cycle:

- A single septic system fails.
- The neighbors think their own septic systems are fine, so they do not support a ULID to extend sewers.
- The property owner where the septic system is failing obtains a permit to replace the single septic system, thus incurring a significant new capital cost.
- Having made that new investment, this property owner understandably does not support a ULID in a subsequent year, when another neighbor's septic system fails.

Unlike some other types of problems, this problem is not naturally resolved over time—it is just perpetuated until the City does something to interrupt the cycle.

SEPTIC CONVERSION PROGRAMS

The following comments are drawn from either direct observations or research into the experience of other communities that have at least begun the process of a major sewer extension or new sewer system formation, including the conversion of existing septic systems. These communities include Kirkland, Olympia, Clallam County, Mason County, and Lakewood in Washington; Portland, Gresham, Tigard and Milwaukie in Oregon; and a variety of communities in Indiana, Texas, Iowa, Florida, and California. In some cases, a sewer conversion began many years ago has been successfully completed (Portland and Gresham, Oregon) and in other cases, the process is just beginning (Clallam County creating a new sewer system for the Carlsborg UGA). In other cases, a septic conversion process has been underway for many years, but as costs have risen, the existing program has gotten more difficult, so past procedures are being re-evaluated (Kirkland).

Here are some lessons from other communities, applied to Wenatchee:

- Septic conversion programs can work, but they take a long time—decades.
- Successful sewer extension and septic conversion programs require deliberate City leadership—there must be a certain amount of "seed capital," organizational commitment, and willingness to take criticism.
- There should be an identifiable program with a title and a responsible staff person.
- Septic conversion requires economic effort from both the sewer system as a whole (with an impact on its ratepayers) and from property owners.

For the City, these lessons suggest a two-pronged approach. First, the City should use its regulatory authority to minimize new septic systems and encourage connections, which means sacrifice from property owners. Then there must be ratepayer investment to:

- Get the existing sewer system close enough to be reachable.
- Upgrade pumping and transmission capacity, if needed.
- Offer incentives for connection.
- Create hardship procedures to make any connection requirement manageable for the most economically vulnerable property owners.
- Create and fund the program administration.

INCENTIVES AND OTHER SUPPORT FOR PROPERTY OWNERS

Incentives, hardship procedures, and other forms of support for property owners will be important because of the unusual effort being asked of property owners. Remember that a septic conversion program affects people *after* their home or commercial building is already built and occupied. Think of the perspective of homeowners with a septic system. As far as they know, their septic system is not causing any problem. Then the City initiates a sewer project along their street and then tells them that they should pay many thousands of dollars for something they didn't ask for, and then begin paying monthly sewer rates, in exchange for not having to worry any more about their septic system. For many people, that might not look like a good trade. For others, even if they like the idea of getting rid of their septic system, they just may not have the money—not without help.

Incentives

For the SEP, incentives serve as an acknowledgement—again, borne out by the experience of other communities—that the septic conversion program will be more successful and less controversial if it gives property owners some degree of *choice* about the timing of their connection to the system. Not unlimited choice—for instance, if a septic system fails, then connection should be required immediately. And if it chooses, the City could put a time limit on that choice—such as a limit of 15 years after sewer availability, long enough for property owners to have amortized much of the cost of their septic system. The City does have legal authority to require connection after sewer is

available, but it is wise to give property owners as much control as possible over their major financial commitments, while still pursuing the goal of sewer extension.

The incentive, then, serves to give property owners a reason to willingly connect in the first two years in exchange for a discounted LFC. In this plan, we assume that the discounted LFC would be $4,298, or 70 percent of the standard citywide LFC of $6,140. A discounted Sunnyslope Area Fee would be $2,667, or 70 percent of the standard Sunnyslope Area Fee of $3,810. Those who choose not to connect in the first two years after sewer availability would pay the full LFC at then-current rates when they do connect. The discounted LFC and Sunnyslope Area Fee would be available only for existing ERUs where there is a functioning septic system. Newly developing properties would be charged the full price for the LFC and (if applicable) Sunnyslope Area Fee.

To see how incentives might work, we'll illustrate the decision-making process of a hypothetical homeowner. We are assuming that the sewer line reaches this property at the end of 2017, so the two-year window of opportunity for the discounted LFC expires at the end of 2019. We are also assuming that the homeowner is considering the risk of a septic system failure in about 15 years. So the homeowner faces a choice between connecting in 2019 or in 2034. Which option is more advantageous to him financially?

Figure 10-3 addresses this question. For this example, we assumed that the home is located in Sunnyslope, so the Sunnyslope Area Fee is one of the up-front costs to be considered. We assume that private plumbing costs and the City connection charges all escalate by about 3 percent per year. (For the City, updating the SIF, LFC and Sunnyslope Area Fee annually is an important part of maintaining connection incentives.)

Property Owner Decision-Making Example

Hypothetical: Assume 1 ERU in Sunnyslope, sewer available in 2017; property owner can postpone connection until septic system fails; assume failure at 15 years.

Assumed City charges:	2017	2019	2034
System Investment Fee (no discount allowed)	$ 3,710	$ 3,930	$ 6,120
Citywide Local Facilities Charge (without discount)	6,140	6,510	10,140
Citywide Local Facilities Charge (with discount)	4,298	4,560	7,100
Sunnyslope Area Fee (without discount)	3,810	4,040	6,290
Sunnyslope Area Fee (with discount)	2,667	2,830	4,400

System Investment Fee is assumed at full calculated charge. Assume 30% discount on LFC and Sunnyslope Area Fee if property is connected within 2 years of sewer availability.
Assume 3% cost escalation for all City charges and private plumbing costs.
Private plumbing costs are assumed at $3,000 in 2019.
Assume average monthly sewer charge over 15 years is $47/month, including City tax.

Hypothetical Property Owner Decision: Cost to Property Owner	Connect in 2019	Connect in 2034
System Investment Fee	$ 3,930	$ 6,120
Citywide Local Facilities Charge	4,560	10,140
Sunnyslope Area Fee	2,830	6,290
Private plumbing costs	3,000	4,670
Projected monthly sewer bills 15 years	8,460	-
Total Cost to Property Owner	$ 22,780	$ 27,220
Savings from connecting in 2019	$ 4,440	

Source of Property Owner Savings:	
Locking in 2019 prices, avoiding inflation	$ 9,740
Discount for Connection Within 2 Years	3,160
Offset: Monthly sewer bills	(8,460)
Total Property Owner Savings	$ 4,440

Alternatives:

Reduced Initial SIF:

If the System Investment Fee is set to a reduced rate of $1,500 instead of $3,710, and then increases by 3% per year thereafter, the property owner savings from connecting in 2019 drops from $4,440 to $3,140.

Not Keeping Up with Inflation:

If the SIF and other City charges are not increased with inflation each year, the property owner incentive is reversed. There is no reason to lock in today's prices and begin paying monthly sewer rates if future connection costs are not expected to increase.

FIGURE 10-3

Property Owner Decision-Making Example

In this example, if the homeowner connects now, he gets a $3,160 combined discount on the LFC and Sunnyslope Area Fee. In addition, he "locks in the rate," avoiding the higher charges caused by cost escalation—in this case, that saves him about $9,740. However, if

he connects now, he has to begin paying monthly sewer charges, which over the next 10 years might total about $8,460.

There are also considerations not estimated in Figure 10-3, both pro and con. There is the time value of money—most easily seen if the homeowner has to borrow the up-front charge and pay interest on the loan. On the other hand, there is reduced cost and risk from getting rid of a septic system, which requires maintenance and might fail at any time during the next fifteen years anyway.

If the homeowner tests this approach at 10 or 20 years instead of 15 years, he will see that either way, it pays to connect now. Without the discounted City charges, it is a close call—the value of locking in the rate is about the same as the cost of paying monthly sewer bills. So, what the discounts do is to bring clarity to this decision-making calculus. By providing a strong "known" factor amid a lot of "unknowns," it tips the balance toward connection sooner rather than later. In accepting the $3,160 discount for connecting early, the homeowner can opt for the safer option and be pretty confident that—in spite of the unknowns—this is probably the best option. Looking just at the factors estimated in Figure 10-3, the homeowner would have net savings of $4,440 as a result of connecting now instead of ten years from now.

Note that the analysis in Figure 10-3 assumes that the City adopts the full calculated SIF of $3,930. What if the City adopts a reduced initial SIF of only $1,500? The answer is that it is still to the homeowner's benefit to take the discount and connect sooner, but the advantage is not quite as strong—$3,140 instead of $4,440.

To maintain the incentive, the essential thing for the City to do is to keep updating the SIF, LFC and Sunnyslope by inflation each year. If the homeowner expects that those connection charges will be flat over time or will grow by some artificially low escalation factor (such as 1 percent per year), the property owner incentive is reversed. There is no reason to lock in today's prices and begin paying monthly sewer rates if future connection costs are not expected to rise, or if they are expected to rise sporadically or not by very much.

The City will surely need to increase its sewer rates each year—if for no other reason, just to keep up with inflation and keep paying its operating and maintenance costs. Since potential new customers have to trade off the cost of monthly rates against the cost of connection charges, if the City wants to encourage connections sooner rather than later, it does not make sense to increase one type of charge and not the other.

Softening the Impact

Incentives work when the property owner either has the money or can get the money to take advantage of the discounted connection charges. However, some property owners may not be able to assemble the cash required to connect within two years. For that reason, there should be some "softeners" or hardship procedures that help someone in

that financial position take advantage of the incentives and begin paying monthly rates. In addition to the most severe hardship cases, any property owner might face difficulty obtaining financing or making arrangements for the private plumbing work. What can the City do to soften the impact for people who want to connect?

Providing Financing for Up-front Connection Charges

There are examples from other utilities in Washington for a city or county to either permit payment of connection charges over time or to create a loan pool for property owners to draw on for up-front sewer connection costs, including private plumbing costs. Loan payments on the financed portion of connection charges can be added to the sewer bill. The City should consult with its attorneys to ensure that any loan program set up to help property owners is consistent with the Washington State Constitution and statutes.

Aggregating Bids for Private Plumbing Costs

Along with providing convenient financing, the City can facilitate participation in the SEP by offering to assemble the bids and choose a contractor for the private side sewer construction, physical connection, and decommissioning of the septic system. By aggregating bids, the City might be able to generate savings in these costs.

One example of this approach from 2011 was a new sewer system for the Belfair UGA in Mason County. The County created an opt-in connection program, designed primarily for single family property owners. This program included the ability to take out a low-interest loan (4 percent, 10 years, with the loan payment added to the sewer bill) for up to half of the County connection charges and all of the private plumbing costs. Working with engineers, the County provided an estimate of the private plumbing costs for each eligible property. Participating property owners gave access to their property for County contractors. The County received bids, chose contractors, and secured permits for the side sewer construction and septic decommissioning.

Transition Time for Properties Already with Available Sewer

According to City staff, there are currently 150-180 properties within the City that are on septic and are already within range of City-built sewer lines. These property owners might not be aware of a change in the City's connection charges and procedures, since there has not been a construction project in their neighborhood to raise awareness of the issue. One way to encourage those property owners to connect would be to give them a transition time during which they could pay the current System Investment Fee (only $570 per ERU) plus any front-footage fees, if applicable. For instance, these property owners could be granted 18 months to build the private side sewer, decommission the septic system, and begin paying monthly sewer rates, and still be liable for only the current System Investment Fee plus front-footage fees. This would give the City time for individual outreach to these property owners.

Hardship Grant Funding

Finally, the City could seek Community Development Block Grant (CDBG) funds to assist low-income property owners who meet the CDBG eligibility criteria with the cost of connections, including the private plumbing costs.

Our understanding is that the City does not plan to create a connection requirement tied to a certain number of years after sewer availability, instead relying primarily on financial incentives to motivate property owners to connect soon after sewer is available. If for some reason the City ends up deciding to create a deadline for property owners to connect, it would be important for a hardship threshold to be defined that would allow a low-income property owner to defer connection until the property is sold.

DEVELOPMENT REGULATIONS

Even without a connection deadline, the City should adopt provisions in the City Code that support the effective implementation of a Sewer Extension Program. In general, the purpose of these code provisions is:

- Establish the citywide Local Facilities Charge, the Sunnyslope Area Fee, and an updated System Investment Fee, all with a multi-year schedule.
- Create a connection requirement when a septic system fails and a sewer line is within 200 feet of the nearest point of a given property.
    - Note: the 200-foot threshold is a policy judgment that the City gets to make. Other distances are possible—Olympia goes out to 300 feet, and Mason County goes to 500 feet. But the most common distance for connection requirements is 200 feet, and it is assumed in this plan.
- Minimize the number of new septic systems that are built within the City.
    - So far, our discussion has mostly focused on properties with existing septic systems. However, it is also important to use development regulations to provide sewers to newly developing property and avoid—as much as possible—the construction of new septic systems.

The following suggested code provisions address these purposes. Our suggestions are drawn mainly from the example of Clallam County, which was responsible for creating a new sewer system for the Carlsborg UGA in 2015.

In the Clallam County ordinance, properties with septic systems are required to connect to available sewer not only if the septic system is failing but also when the property is sold. We recommend that approach for the City as well. Purchase of a property—like property development—is a time when the new owner plans to incur large capital costs, often with debt financing. It is also a time when the new owner can take into account the total cost before deciding whether to make the financial commitment. It would not be

disruptive to existing homeowners to require connection when a property changes hands.

Suggested Components of a Sewer Connection Policy

1. For existing structures with septic systems:

   - If sewer service is available (i.e., a sewer pipe is within 200 feet of the nearest point of the property line), connection to sewer is required within 6 weeks of failure of the septic system, and replacements or major repairs to septic systems (defined as repairs costing more than $500) are prohibited.
   - If sewer service is available, connection to sewer is required at the time there is a change in property ownership. This requirement is to be recorded on the deed after sewer becomes available to the property.
   - Property owners who connect to City sewers that were not originally built by private developers are required to pay a Local Facilities Charge (LFC).
   - Owners of all newly connecting properties in the City sewer service area are required to pay the then-current System Investment Fee.
     - Exception: for those properties on septic that are already within 200 feet of a sewer line as of the effective date of the ordinance, the new or revised charges are effective on January 1, 2019, providing that the properties have been connected by that time.
   - Owners of all newly connecting properties in the Sunnyslope area (i.e., on or upstream of the Horan Road trunk line) are required to pay the Sunnyslope Area Fee.
   - If properties with properly functioning septic systems are connected and the septic systems decommissioned within 2 years of sewer availability, the applicable LFC and Sunnyslope Area Fee is 70 percent of the standard amounts.
   - Developer-built Infrastructure:
     - Owners of all newly connecting properties are charged a System Investment Fee.
     - If newly developing properties are within the Sunnyslope area, the property owners are charged a Sunnyslope Area Fee.
     - If the side sewer from a newly connecting property drains into a City-built collector sewer, 100 percent of the standard LFC will be charged.
     - If all local sewers extending from the new development to the City trunk line were built by a private developer, the property is not charged an LFC.

        - If part of the sewer from the new development to the City trunk line was paid for by a different developer, latecomer fees may be charged, which would be collected by the City and forwarded to the original developer. The allocation and administration of latecomer fees is subject to Developer Extension Agreements between the City and the original developer.
    - If part of the local sewer extending from a City trunk line to the new development was built by the City, then an LFC will be charged, but the LFC will be prorated based on the number of lineal feet of City-built sewer lines in relation to the total length of collector sewers from the new development to the City trunk line. For the purpose of this provision, total length is measured from where the side sewer enters the collector sewer from each structure newly connected.
        - Note: a subdivision with multiple houses will have a different proration percentage for each house, since the distance from each house's side sewer to the City-built collector sewer will differ. The LFC is charged for each ERU in the subdivision.

2. For undeveloped lots where land division is not needed:

    - No new septic systems are allowed unless these conditions are met:
        - Sewer extension cost is over 150 percent of an approved septic system cost.
        - The owner signs consent to connect within two years of when sewer is available, with no discount on the LFC. Consent is recorded with the deed.

3. For tracts where land division is needed:

    - Developers are required to extend sewer or (if the distance required is such that extension would be economically infeasible) build dry lines to City specifications.
    - If dry lines are built, new septic systems can be approved, if the owner of properties where septic systems are installed signs a consent to connect within two years of sewer availability, such consent to be recorded with the deed.

Figure 10-4 illustrates the recommended development regulations to support the Sewer Extension Program.

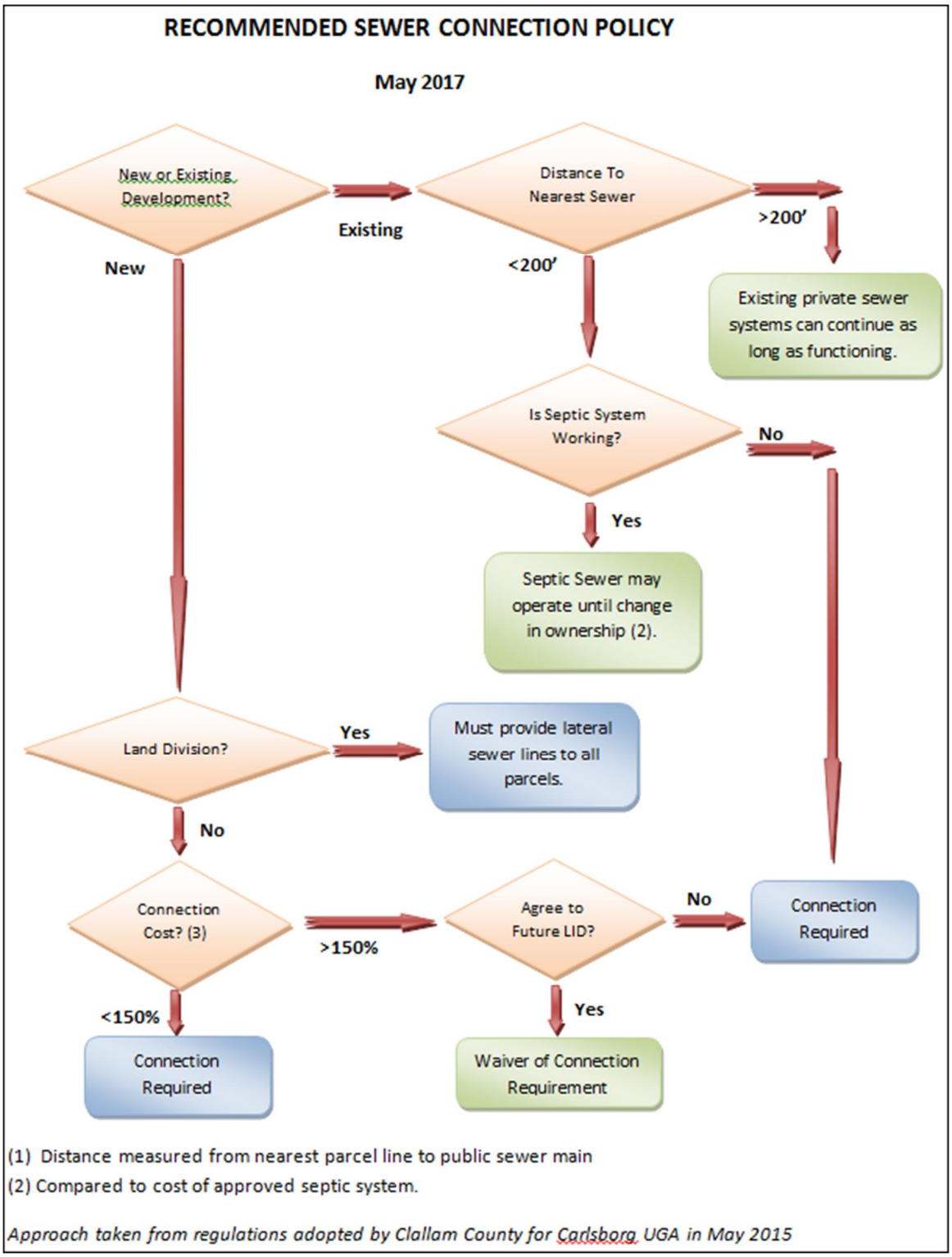


FIGURE 10-4

Recommended Development Regulations to Support Sewer Extension Program

County Choices and Property Owner Response to Incentives

The City can adopt these development regulations for areas within the City limits. For the Sunnyslope UGA, Chelan County is the governing jurisdiction, and the County would need to agree in order for some of these regulations to be put in place throughout the City's sewer service area. That agreement has not been secured, so this financial forecast assumes that the Sunnyslope UGA will have the same development regulations as at present.

However, the City can still create the Local Facilities Charge and apply it within all of its sewer service area, including within the UGA, as a condition of connection to the sewer system. It can still create an incentive for connection within the first two years, which can still "tip the balance" in the decision-making of many property owners. Depending on current County regulations, it is possible that even under existing rules, a failing septic system would not be allowed to be replaced by another septic system if public sewer is available within 200 feet.

So even if the County does not agree to support the SEP, it is possible that property owners in the UGA would not be required to connect when they sell the property. But they would still have an incentive to connect within two years of sewer availability, just to resolve the uncertainty about when their septic system might fail, knowing that at that time would have to connect and pay then-prevailing connection charges with no discount.

In this financial forecast, we assumed that in both the City and the UGA, 40 percent of property owners would take advantage of the incentive LFC. Those who choose not to do so are assumed to connect gradually over the following 23 years, so everyone is connected within 25 years after sewer is extended to their property. These assumptions are intended to be conservative.

The current forecast assumes that extension of trunk lines into the UGA proceeds mostly in 2018 and 2019, with one project (FG4, the North Sunnyslope trunk line) taking place in 2025. It assumes that expenditures on Sunnyslope collector sewers (in constant 2016 dollars) is $400,000 per year beginning in 2019, then $800,000 per year beginning in 2024, then $1.1 million per year from 2029 through 2035, the 20-year point in this forecast. This is clearly a long-term process.

To the degree that the County is willing to match the City's regulatory approach by requiring connection upon sale of the property for those properties with septic systems where sewer is available, it can help the City move even faster to provide sewers in the UGA. Since extending sewer service generally increases property values and therefore the County's property tax base, this type of cooperation is not hard to imagine. But the Sewer Extension Program is a long-term effort, and there is time to work out arrangements with the County.

IMPACT OF SEWER EXTENSION PROGRAM ON PROPERTY OWNERS

Except for the remote potential for outside grants, the cost of the Sewer Extension Program must be ultimately borne by one of two groups of people: either property owners or ratepayers. The rest of this financial chapter is intended to show the balance between the projected economic sacrifice of property owners and that of ratepayers.

Between those two groups, property owners have the largest stake individually, both in dollars and ultimate benefits. Ratepayers do have an interest, but it is more indirect, resulting from long-term economies of scale. Accordingly, the level of economic effort asked of individual ratepayers should be commensurately less than what is asked of individual property owners.

Table 10-11 summarizes how the up-front costs of the Sewer Extension Program would affect property owners, in 2017 dollars. In future years, of course, both costs and incomes tend to rise, so these numbers are not static. In addition, private plumbing costs will vary with the size and shape of the lot. They do show, though, that even with the incentive, a newly connecting property owner would be responsible on average for $13,675 in up-front costs per ERU within Sunnyslope and $11,008 within the City.

TABLE 10-11

Up-front Property Owner Costs from Sewer Extension Program

Projected Existing Property Owner Costs per ERU **Sewer Extension Program** Assuming Incentives Apply at 70 percent if Connect Within 2 Years		
	With Incentive	**Full Cost**
System Investment Fee (Full Allowable Charge)	$3,710	$3,710
Sunnyslope Area Fee	$2,667	$3,810
Local Facilities Charge	$4,298	$6,140
Private Plumbing Costs	$3,000	$3,000
Total Inside Sunnyslope	**$13,675**	**$16,660**
Savings from Incentive	$2,985	
Total Outside Sunnyslope	**$11,008**	**$12,850**
Savings from Incentive	$1,842	

That is a significant cost burden for property owners. As much as ratepayers might be asked to sacrifice in order to get the Sewer Extension Program going, it would be hard to argue that the property owners are getting off easily. In fact, much of the economic effort asked of ratepayers is an attempt to make it manageable for property owners—through the incentive discounts, and through the fact that the City would have to pay capital costs

up front and wait until connection to receive the associated revenue. The ultimate cost burden of the Sewer Extension Program still rests principally with the property owners.

Table 10-12 converts those up-front dollars into ongoing dollars, making some assumptions about financing terms.

TABLE 10-12

Illustration of Ongoing Property Owner Costs

Approximate Monthly Cost for Newly Connecting Property Owner If up-front cost is borrowed against value of home					
		Sunnyslope		**City Infill Areas**	
Up-front Costs Assuming Early Connection Incentive		$13,675		$11,008	
Assumed Loan Term	**Assumed Loan Rate**	**Monthly Loan Payment**	**Total Including Sewer Rates**	**Monthly Loan Payment**	**Total Including Sewer Rates**
15 years	3.00%	$94	$125	$76	$107
30 years	6.00%	$82	$113	$66	$97
Source: Approximate 15 and 30-year mortgage rates from web search 2/9/17. *2017 Projected Monthly Sewer Rate including 16 percent City taxes* *$31.26*					

This table assumes one of many possible financing scenarios—that a property owner obtains long-term financing through a refinanced home mortgage of either 15 or 30 years. It also builds in the projected 2017 monthly sewer rates including City utility taxes.

The result is that if a Sunnyslope property owner converted a $13,675 up-front cost into loan payments at the rates prevailing this past January, and also began paying monthly sewer charges, the added cost would be between $125 per month with a 15-year mortgage and $113 per month with a 30-year mortgage. For a property owner in a City infill area, the comparable figures would be $107 per month and $97 per month.

Offsetting that cost somewhat is the fact that the septic system would no longer be a capital liability carried by the homeowner. But a septic system is an unknown liability, while the connection costs and monthly rates would be a known liability. In fact, a big part of what occurs when a homeowner converts from septic to sewer is the conversion from the unknown to the known. A septic system is a type of cost that is incurred once in a long while, with unknown timing and magnitude. Becoming a sewer customer leads to less risk, regular monthly costs and a clearly defined one-time cost.

IMPACT OF CIP ON RATEPAYERS

The remainder of this chapter describes the impact of the CIP—which includes the Sewer Extension Program—on the ratepayers and the financial viability of the sewer system as a whole.

FUNDING AND FINANCING THE CIP

Summary of Projected Capital Costs

The Capital Improvement Program (CIP) identifies $60.9 million (in constant dollars—$77.7 million in inflated dollars) in project costs over the 20-year planning horizon. Capital expenditures for 2016 come from City staff estimates, and expenditures for 2017-2035 come from costs developed specifically for this Plan. Costs are stated in 2016 dollars and are escalated to the year of planned spending at 3 percent per year. Table 10-13 summarizes the annual costs associated with the 20-year CIP.

TABLE 10-13

20-Year CIP

Sewer CIP: 2016-2035		
Year	**Current $**	**Inflated $**
2016	$799,341	$799,341
2017	$1,931,000	$1,988,930
2018	$11,580,000	$12,285,222
2019	$3,619,000	$3,954,579
2020	$6,792,000	$7,644,456
2021	$1,621,000	$1,879,183
2022	$3,252,000	$3,883,058
Subtotal	**$29,594,341**	**$32,434,769**
2023-2035	$31,354,000	$45,285,212
Grand Total	**$60,948,341**	**$77,719,981**

Capital Funding Strategy

Table 10-14 shows the 20-year capital funding strategy, which determines the total resources available to meet the CIP needs and the degree to which new debt financing is needed.

The capital reserve began 2017 with about $7 million, and those funds are gradually drawn down in the first 3 years of the forecast. LFC revenue is estimated to account for roughly $125,000 per year in the first 10 years and about $300,000 per year in the last

10 years. The Sunnyslope Area Fee is projected to generate just over $100,000 per year in the first 10 years and about $150,000 per year in the second half of the period. System Investment Fee revenue is projected to generate about $110,000 per year in first 10 years and about $150,000 per year in the last 10 years.

Cash resources in total—which includes planned rate-funded system reinvestment, operating surpluses, and interest earnings as well as revenue from the connection charges—are projected to fund about half of the 20-year CIP. The remaining $39.3 million would be funded by revenue bond proceeds.

TABLE 10-14

Capital Financing Strategy

Capital Financing Plan					
Year	**Capital Expenditures**	**Capital Expenditures Inflated**	**Net Revenue Bond Financing**	**Cash Funding**	**Total Financial Resources**
2016	$799,341	$799,341	$-	$799,341	$799,341
2017	$1,931,000	$1,988,930	$-	$1,988,930	$1,988,930
2018	$11,580,000	$12,285,222	$8,000,000	$4,285,222	$12,285,222
2019	$3,619,000	$3,954,579	$-	$3,954,579	$3,954,579
2020	$6,792,000	$7,644,456	$7,200,000	$444,456	$7,644,456
2021	$1,621,000	$1,879,183	$-	$1,879,183	$1,879,183
2022	$3,252,000	$3,883,058	$5,000,000	$(1,116,942)	$3,883,058
Subtotal	**$29,594,341**	**$32,434,769**	**$20,200,000**	**$12,234,769**	**$32,434,769**
2023-2035	$31,354,000	$45,285,212	$19,100,000	$26,185,212	$45,285,212
Grand Total	**$60,948,341**	**$77,719,981**	**$39,300,000**	**$38,419,981**	**$77,719,981**

ERUs from New Development

An important point here is that the connection charge revenue figures are intentionally conservative. The forecast assumes 0.2 percent annual growth in the number of accounts citywide, but for the Sewer Extension Program, it mainly just incorporates the addition of existing properties with septic systems. The only new ERUs projected from new development are an assumed five-year surge after the Sunnyslope trunk lines are built. Those added ERUs represent only 5 percent of the total potential ERUs from new development within the Sunnyslope UGA and only 3 percent of the citywide total potential ERUs.

According to figures from the City staff, within the 20-year planning horizon of this plan, there are 4,449 potential ERUs that could be accommodated in the land to be newly served within the 20-year planning horizon of this plan. Of those 4,449 ERUs, existing

properties with septic systems represent only 1,223 ERUs. The difference is 3,226 ERUs of potential future growth made possible by the Sewer Extension Program. The 5-year surge we are assuming would account for 133 more ERUs shortly after the Sunnyslope trunk lines are installed. But that still leaves 3,093 ERUs of future development not included in the revenue projections of this plan.

No doubt a large portion of those 3,093 ERUs will end up being served by collector sewers built and paid for by developers, so no LFC revenue would be forthcoming. However, some of those ERUs will generate LFC revenue, all of it would generate SIF revenue, and most of it (the part inside Sunnyslope) would generate revenue from the Sunnyslope Area Fee. Furthermore, all of it would spread out the sewer system's fixed costs over a broader base, putting downward pressure on monthly rates.

We excluded those 3,093 ERUs from the forecast not because they are unlikely, but because the *timing* is completely unknown. However, it is worth noting that by investing in the Sewer Extension Program, the City is laying the groundwork for that future growth.

ANNUAL FINANCIAL FORECAST

The annual financial forecast focuses on how much annual revenue the system needs to generate from rate revenue. The analysis incorporates operating revenues, O&M expenses, debt service payments (both for existing debt and for new debt that results from the capital funding strategy), planned system reinvestment funding, and any other identified revenues or expenses related to utility operations, and determines the sufficiency of the current level of rates. Revenue needs are also impacted by revenue bond covenants and the fiscal policies of the utility.

For this analysis, two revenue sufficiency criteria are used: (1) cash needs must be met, included minimum policy reserves; and (2) debt service coverage targets must be achieved, in order to ensure compliance with bond covenants. In order for the projected level of rate revenue to be sufficient, both tests must be met. If the revenue is insufficient, we test higher levels of rates until the criteria are both met.

The forecast is based on the City's adopted 2016 and 2017 budget, the capital funding strategy, and a variety of assumptions. Following is a list of key assumptions:

Revenue Assumptions

- Customer Growth: City-wide growth rate is assumed at 0.20 percent per year. The SEP adds about 0.20 percent to 0.40 percent per year from existing structures newly connected, so combined growth averages 0.4 percent throughout the 20-year forecast.

- As we noted above, SEP growth is a conservative assumption, since it mostly counts only existing structures within newly served areas and very little of the potential new development.

- Miscellaneous revenues are conservatively assumed to stay at budgeted levels, except for customer-related items such as late charges and credit card fees, which are projected to increase with customer growth.
- Interest earnings are assumed at 0.50 percent, based on recent historical Local Government Investment Pool rates.

Expenditures and Other Miscellaneous Assumptions

- General operating expenses are escalated from the budgeted figures at 2.5 percent per year; labor costs increase at 2.5 percent per year; and benefits at 8.0 percent per year.
- Taxes owed are calculated based on prevailing rates:
  - Effective Rate of State Excise Tax: 2.53 percent (weighted average of two different taxes, one on collection services and the other on treatment)
  - City Sewer Utility Tax: 18.55 percent applied as a markup to customer bills (the tax is a 16 percent gross receipts tax).
- Existing debt service schedules were provided by the City. Annual debt service is currently $1.6 million per year.
- Budget Realization Factor: we assume that City will spend 90% of its operating budget. This is based on a 2012-2016 historical analysis provided by City staff.
- Some capital projects in the Wastewater Treatment Facilities Plan will have an impact on annual O&M expenditures. Initial cost estimates and timing are based on information provided in that plan. The SEP also includes ongoing expenses.
  - Additional Digester: $82,000 per year starting in 2021, adjusted for general cost inflation thereafter.
  - Secondary Clarifier: $29,000 per year starting in 2031, adjusted for general cost inflation thereafter.
  - Rotary Screen Thickener: $30,000 per year starting in 2033, adjusted for general cost inflation thereafter.
  - Sewer Extension Program Manager: Salary and benefits starting at $150,000 per year, adjusted for labor and benefits inflation thereafter.
    - Assumes the Sewer Extension Program starts in July of 2017.

Forecast Results

Table 10-15 shows the results of the annual forecast. While it only displays the annual forecast through 2022, a rate increase strategy for the entire 20-year period was

developed. A 20-year forecast was needed in order to ensure that the 20-year CIP is fully funded.

The recommended rate increase strategy consists of 6 percent annual rate increases for six years (2017-2022), a 4.5 percent increase in 2023, and 3 percent annual increases thereafter. The 2017 increase is assumed to be effective July 1, applied to the rates adopted on January 1.

The City should review actual revenue against projected revenue each year to ensure that rates remain adequate. Any significant changes should be incorporated into the financial plan and future rates adjusted as needed. Table 10-15 shows the projected revenue requirement through 2022 based on the forecast of operating revenues, expenditures, fund balances, fiscal policies, and capital funding. Estimated 2017 beginning fund balances were used in order to provide the most up-to-date starting point.

TABLE 10-15

Financial Forecast

Financial Forecast							
Revenue Requirements (in $)	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Assuming Existing Rates:							
Revenue							
Rate Revenues	5,848,400	5,818,200	5,835,505	5,859,238	5,891,040	5,920,590	5,950,116
Non-Rate Revenues	1,156,822	1,139,631	1,131,610	1,139,286	1,145,300	1,153,791	1,159,451
Total Revenue	**7,005,222**	**6,957,831**	**6,967,115**	**6,998,524**	**7,036,340**	**7,074,380**	**7,109,567**
Expenses							
Cash Operating Expenses	4,272,568	4,806,830	4,871,965	4,997,513	5,128,762	5,337,685	5,481,143
Existing Debt Service	1,577,596	1,576,103	1,575,556	1,466,889	1,464,749	1,466,491	1,466,326
New Debt Service	-	-	642,342	642,342	1,220,450	1,220,450	1,621,914
Rate Funded System Reinvestment	77,339	118,407	165,832	268,716	346,186	457,395	672,213
Total Expenses	**5,927,502**	**6,501,340**	**7,255,694**	**7,375,459**	**8,160,147**	**8,482,022**	**9,241,597**
Cash Surplus/(Deficiency) Before Increases	1,077,719	456,490	(288,579)	(376,935)	(1,123,807)	(1,407,641)	(2,132,030)
Annual Rate Adjustment	**0.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**
Cumulative Annual Rate Adjustment	**0.00%**	**6.00%**	**12.36%**	**19.10%**	**26.25%**	**33.82%**	**41.85%**
After Rate Increases:							
Rate Revenues	5,848,400	5,992,746	6,556,774	6,978,447	7,437,302	7,923,084	8,440,354
Non-Rate Revenues	1,156,822	1,139,631	1,131,610	1,139,286	1,145,300	1,153,791	1,159,451
Net Cash Flow	1,077,719	625,791	411,014	708,640	375,989	534,676	283,373
Debt Service Coverage - Bonded Debt	2.85	2.43	1.78	2.11	1.69	1.82	1.67

City Funds and Reserves Balances

Table 10-16 shows a summary of the projected ending City sewer operating, capital and debt reserve balances through 2022.

TABLE 10-16

Cash Balance Summary by Year

Cash Balance Summary (in $)							
Ending Reserves	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Sewer Operating	702,340	790,164	800,871	821,509	843,084	877,428	901,010
Sewer Capital	7,241,988	6,913,420	3,366,001	647,014	1,321,818	839,683	3,298,929
Sewer Debt Service	1,105,040	1,471,841	2,114,183	2,114,183	2,692,291	2,692,291	3,093,755
Total	**9,049,367**	**9,175,425**	**6,281,055**	**3,582,706**	**4,857,193**	**4,409,401**	**7,293,693**

In this forecast, the operating reserve maintains a level equal to 60 days of operating expenditures throughout the forecast. The capital reserve ends at $3.3 million in 2022, which is well above the minimum target of $750,000. The debt reserve ends up at approximately $3 million, roughly equal to the projected annual debt service expected at that time.

Note that Table 10-16 shows the fund balances for funds that do not actually exist, since the City still maintains a combined Water/Sewer Fund. City staff acknowledges that it would be desirable to have separate funds for water and sewer, but it has been difficult to prioritize the time and effort that would inevitably be needed in order to separate them. However, this financial plan (for which we constructed a theoretical separate Sewer Fund) and the prospect of a major new sewer capital program might make it an especially opportune time to go through the separation process starting with the fiscal year 2018.

IMPLICATIONS OF RECOMMENDED RATE INCREASES

CURRENT RATE STRUCTURE AND PROJECTED RATES

Existing Rate Structure

The City's current rate structure consists of a monthly fixed charge that varies by customer class. For commercial customers, the fixed charge increases with the assumed strength of the customer class—there are commercial classes for domestic strength, medium strength, and high strength sewage.

All customer classes except for single family residential and multi-family residential customers also receive a volume charge that is applied to every 100 cubic feet of usage (100 cubic feet = 1 ccf) over a monthly usage allowance of 10 ccf.

Customers outside the city limits pay a policy-based multiplier of 1.5 times inside-city rates. This multiplier is applied to both the monthly fixed charge and the volume charge. The outside-city multiplier serves as an incentive for annexation, and it privileges inside-city customers in recognition of the fact that the City took the risk to build the original system and extend sewer outside the city limits. The Sewer Extension Program is an example of that risk-taking role. The City's ability to apply the outside-City multiplier may be constrained in certain areas by agreements with other local jurisdictions.

Projected Rate Schedule with Sewer Extension Program

Table 10-17 presents a comparison of current and proposed rates. Indicated rate increases are applied "across-the-board" to the rates adopted on January 1, 2017, so that all rate components would see an equal adjustment each year. A City utility tax of 18.55 percent is applied as a markup on customer bills. This tax is on top of the stated rates shown in Table 10-17.

TABLE 10-17

Proposed Rates with Across the Board (ATB) Rate Increases

Annual System-Wide Rate Increase		*1.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*4.50%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*	*3.00%*
Across the Board Rate Schedule	**Actual**	**Adopted**	**Proposed**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**	**ATB**
	2016	**1/2017**	**7/2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Single Family Residential																					
Monthly Minimum Charge																					
Inside City Limits	$24.64	$24.88	$26.37	$27.96	$29.63	$31.41	$33.30	$35.29	$36.88	$37.99	$39.13	$40.30	$41.51	$42.76	$44.04	$45.36	$46.72	$48.12	$49.56	$51.05	$52.58
Outside City Limits	$36.98	$37.35	$39.59	$41.97	$44.48	$47.15	$49.98	$52.98	$55.37	$57.03	$58.74	$60.50	$62.31	$64.18	$66.11	$68.09	$70.14	$72.24	$74.41	$76.64	$78.94
Multi-Family Residential																					
Monthly Fixed Charge																					
Inside City Limits	$21.34	$21.56	$22.85	$24.22	$25.68	$27.22	$28.85	$30.58	$31.96	$32.92	$33.91	$34.92	$35.97	$37.05	$38.16	$39.31	$40.49	$41.70	$42.95	$44.24	$45.57
Outside City Limits	$32.03	$32.35	$34.29	$36.35	$38.53	$40.84	$43.29	$45.89	$47.95	$49.39	$50.87	$52.40	$53.97	$55.59	$57.26	$58.98	$60.75	$62.57	$64.45	$66.38	$68.37
Motels/Hotels/Mobile Homes																					
Monthly Minimum Charge																					
Inside City Limits	$29.65	$29.95	$31.75	$33.65	$35.67	$37.81	$40.08	$42.48	$44.40	$45.73	$47.10	$48.51	$49.97	$51.47	$53.01	$54.60	$56.24	$57.93	$59.67	$61.46	$63.30
Outside City Limits	$44.49	$44.93	$47.63	$50.48	$53.51	$56.72	$60.13	$63.73	$66.60	$68.60	$70.66	$72.78	$74.96	$77.21	$79.53	$81.91	$84.37	$86.90	$89.51	$92.19	$94.96
Variable Charge (per ccf above 10 ccf/mo)																					
Inside City Limits	$2.79	$2.82	$2.99	$3.17	$3.36	$3.56	$3.77	$4.00	$4.18	$4.30	$4.43	$4.57	$4.70	$4.84	$4.99	$5.14	$5.29	$5.45	$5.62	$5.78	$5.96
Outside City Limits	$4.19	$4.23	$4.49	$4.76	$5.04	$5.35	$5.67	$6.01	$6.28	$6.46	$6.66	$6.86	$7.06	$7.28	$7.49	$7.72	$7.95	$8.19	$8.43	$8.69	$8.95
Commercial/Industrial (domestic)																					
Monthly Minimum Charge																					
Inside City Limits	$29.65	$29.95	$31.75	$33.65	$35.67	$37.81	$40.08	$42.48	$44.40	$45.73	$47.10	$48.51	$49.97	$51.47	$53.01	$54.60	$56.24	$57.93	$59.67	$61.46	$63.30
Outside City Limits	$44.49	$44.93	$47.63	$50.48	$53.51	$56.72	$60.13	$63.73	$66.60	$68.60	$70.66	$72.78	$74.96	$77.21	$79.53	$81.91	$84.37	$86.90	$89.51	$92.19	$94.96
Variable Charge (per ccf above 10 ccf/mo)																					
Inside City Limits	$2.79	$2.82	$2.99	$3.17	$3.36	$3.56	$3.77	$4.00	$4.18	$4.30	$4.43	$4.57	$4.70	$4.84	$4.99	$5.14	$5.29	$5.45	$5.62	$5.78	$5.96
Outside City Limits	$4.19	$4.23	$4.49	$4.76	$5.04	$5.35	$5.67	$6.01	$6.28	$6.46	$6.66	$6.86	$7.06	$7.28	$7.49	$7.72	$7.95	$8.19	$8.43	$8.69	$8.95
Commercial/Industrial (medium)																					
Monthly Minimum Charge																					
Inside City Limits	$38.02	$38.40	$40.70	$43.15	$45.74	$48.48	$51.39	$54.47	$56.92	$58.63	$60.39	$62.20	$64.07	$65.99	$67.97	$70.01	$72.11	$74.27	$76.50	$78.79	$81.16
Outside City Limits	$57.05	$57.62	$61.08	$64.74	$68.63	$72.74	$77.11	$81.74	$85.41	$87.98	$90.61	$93.33	$96.13	$99.02	$101.99	$105.05	$108.20	$111.44	$114.79	$118.23	$121.78
Variable Charge (per ccf above 10 ccf/mo)																					
Inside City Limits	$3.65	$3.68	$3.90	$4.14	$4.39	$4.65	$4.93	$5.22	$5.46	$5.62	$5.79	$5.97	$6.14	$6.33	$6.52	$6.71	$6.92	$7.12	$7.34	$7.56	$7.78
Outside City Limits	$5.47	$5.52	$5.86	$6.21	$6.58	$6.97	$7.39	$7.84	$8.19	$8.43	$8.69	$8.95	$9.22	$9.49	$9.78	$10.07	$10.37	$10.68	$11.00	$11.33	$11.67
Commercial/Industrial (high)																					
Monthly Minimum Charge																					
Inside City Limits	$57.26	$57.83	$61.30	$64.98	$68.88	$73.01	$77.39	$82.03	$85.72	$88.30	$90.95	$93.67	$96.48	$99.38	$102.36	$105.43	$108.59	$111.85	$115.21	$118.66	$122.22
Outside City Limits	$85.92	$86.78	$91.99	$97.51	$103.36	$109.56	$116.13	$123.10	$128.64	$132.50	$136.47	$140.57	$144.78	$149.13	$153.60	$158.21	$162.96	$167.84	$172.88	$178.07	$183.41
Variable Charge (per ccf above 10 ccf/mo)																					
Inside City Limits	$5.57	$5.63	$5.97	$6.32	$6.70	$7.11	$7.53	$7.98	$8.34	$8.59	$8.85	$9.12	$9.39	$9.67	$9.96	$10.26	$10.57	$10.89	$11.21	$11.55	$11.89
Outside City Limits	$8.36	$8.45	$8.95	$9.49	$10.06	$10.66	$11.30	$11.98	$12.52	$12.90	$13.28	$13.68	$14.09	$14.52	$14.95	$15.40	$15.86	$16.34	$16.83	$17.33	$17.85

AFFORDABILITY AND SAMPLE BILLS

The Washington State Department of Health and the State Public Works Board have historically used an affordability index to prioritize low-cost loan awards. The typical threshold looks at whether a system's rates exceed 1.5 percent to 2.0 percent of the median household income for the demographic area. If monthly bills are less than 1.5 percent of the median household income for the demographic area, they are generally considered affordable.

The median household income for Wenatchee is estimated to be just over $48,000 in 2016. This is based on a 2015 estimate from the Census Bureau, adjusted for one year of inflation. Median income is forecasted to include a 2.5 percent annual escalation factor.

Table 10-18 presents an average single family bill with the projected annual rate increases for the forecast period, tested against the threshold. These figures include the City utility tax. Applying the 1.5 percent to 2.0 percent test, the City's rates are forecasted to remain within the indicated affordable range through 2035.

TABLE 10-18

Affordability Test

Affordability Table				
Year	**Inflation**	**Median HH Income(1)**	**Projected Monthly Bill(2)**	**% of Median HH Income**
2016	2.50%	$48,037	$29.21	0.73%
2017	2.50%	$49,238		
Adopted			$29.50	0.72%
With Increase			$31.26	0.76%
2018	2.50%	$50,468	$33.14	0.79%
2019	2.50%	$51,730	$35.13	0.81%
2020	2.50%	$53,023	$37.24	0.84%
2021	2.50%	$54,349	$39.47	0.87%
2022	2.50%	$55,708	$41.84	0.90%
2023	2.50%	$57,100	$43.72	0.92%
2024	2.50%	$58,528	$45.03	0.92%
2025	2.50%	$59,991	$46.39	0.93%
2026	2.50%	$61,491	$47.78	0.93%
2027	2.50%	$63,028	$49.21	0.94%
2028	2.50%	$64,604	$50.69	0.94%
2029	2.50%	$66,219	$52.21	0.95%
2030	2.50%	$67,874	$53.77	0.95%

TABLE 10-18 – (continued)

Affordability Test

Affordability Table				
Year	**Inflation**	**Median HH Income(1)**	**Projected Monthly Bill(2)**	**% of Median HH Income**
2031	2.50%	$69,571	$55.39	0.96%
2032	2.50%	$71,311	$57.05	0.96%
2033	2.50%	$73,093	$58.76	0.96%
2034	2.50%	$74,921	$60.52	0.97%
2035	2.50%	$76,794	$62.34	0.97%

(1) Median Income Data: US Census Bureau, 2015 ACS 5-year estimate.
(2) Calculated with Gross Receipts Tax: 18.55 percent.

IMPACT OF RATE INCREASES ON COMPARISON WITH OTHER UTILITIES

Figure 10-5 shows a comparison of City single family sewer rates against those of other sewer agencies. The left bars show the 2017 rates. Some cities embed their city utility tax in their rates, while others (like Wenatchee) separately itemize the tax on customer bills above the stated rates. We did not have data on the billing practices of the other cities, so there may or may not be city utility taxes embedded in the rates of other utilities. Either way, the Wenatchee rates in 2017 are the lowest in this comparison pool.

The bars on the right show what would happen if the recommended rate increases take effect in Wenatchee over a ten-year period, and the other utilities only increase their rates by 3 percent per year. Again, that is a comparison that does not favor the City, because in reality, utilities periodically need to make capital investments that lead to higher-than-inflationary rate increases for several years. But even with that unfavorable premise, the City's sewer rates would end up being below the median for this comparison group after ten years of the recommended rate increases.

Even a high percentage increase on a low base can be quite moderate in its actual dollar impact. For instance, a 6 percent increase for Wenatchee means less in real dollars than a 2 percent increase for Cashmere. The 6 percent annual increases in Wenatchee equate to roughly a $2 per month increase each year for a single-family customer. With such a low starting point, it would take 6 years of above-inflation rate increases for Wenatchee sewer rates to catch up with the rates of Moses Lake (which currently has the second lowest rates in this survey), even if Moses Lake had only 3 percent annual increases.

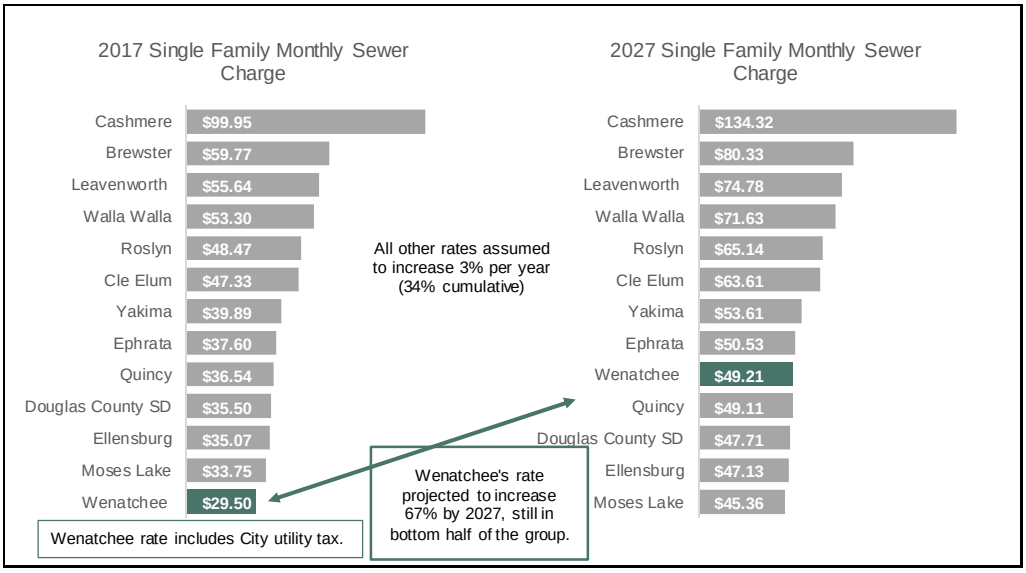


FIGURE 10-5

Sewer Rate Comparison Over 10 Years

IMPACT OF RATE INCREASES ON LARGE CUSTOMERS

Table 10-19 shows the impact on selected large customers—the largest in each category. For these customers, the percentage increases would be the same as for single-family customers—a cumulative increase of 42 percent over 6 years—but the dollar impact would be higher because their water usage is greater.

TABLE 10-19

Impact of Recommended Rate Increases on Large Customers

Projected Monthly Sewer Rates: Large Customers			
Sample Businesses	**Average 2016 Monthly Bill**	**Projected 2022 Monthly Bill**	**6-Year Increase**
Fresh Fruit Packing	$18,048	$25,844	$7,797
Medical	$4,720	$6,759	$2,039
Multi-Family-Senior	$3,795	$5,434	$1,639
Multi-Family	$2,707	$3,876	$1,169
Hotel	$2,413	$3,456	$1,043
Assisted Living	$1,882	$2,695	$813
Restaurant	$663	$949	$286

Includes base fee, consumption charge, and City utility tax.

SCENARIO WITHOUT SEWER EXTENSION PROGRAM

Most of this chapter assumes that the City adopts the Sewer Extension Program. Table 10-20 shows key financial results through 2022, with and without the SEP.

TABLE 10-20

Results With and Without Sewer Extension Program

Summary of Scenarios	2016	2017	2018	2019	2020	2021	2022	2017-2022 Total
Base Case: With Sewer Extension Program								
Single-Family Monthly Rate Incl. City Tax at 16%	$29.21	$31.26	$33.14	$35.13	$37.24	$39.47	$41.84	
Year-to-Year Increase in Monthly Rate		$2.05	$1.88	$1.99	$2.11	$2.23	$2.37	
Percentage Increase in Monthly Rate		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Cumulative Percentage Increase at 2022							41.9%	
New Bond Issues	-	-	8,000,000	-	7,200,000	-	5,000,000	20,200,000
Debt Service Load (DS as % of Rate Revenues)	27%	26%	34%	30%	36%	34%	37%	
Debt Service Coverage on Bonded Debt	2.85	2.43	1.78	2.11	1.69	1.82	1.67	
Without Sewer Extension Program								
Single-Family Monthly Rate Incl. City Tax at 16%	$29.21	$30.38	$31.29	$32.23	$33.20	$34.19	$35.22	
Year-to-Year Increase in Monthly Rate		$1.17	$0.91	$0.94	$0.97	$1.00	$1.03	
Percentage Increase in Monthly Rate		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Cumulative Percentage Increase at 2022							19.4%	
New Bond Issues	-	-	-	-	4,500,000	-	3,200,000	7,700,000
Debt Service Load (DS as % of Rate Revenues)	27%	27%	25%	23%	28%	27%	30%	
Debt Service Coverage (Target > 1.5)	2.85	2.42	2.70	3.09	2.26	2.26	1.93	

TABLE 10-20 – (continued)

Results With and Without Sewer Extension Program

Summary of Scenarios	2016	2017	2018	2019	2020	2021	2022	2017-2022 Total
Difference from Base Case								
Difference in Single-Family Monthly Rates		$0.88	$1.85	$2.90	$4.04	$5.28	$6.62	
Difference in Cumulative % Increase at 2022							18.8%	
Difference in New Debt Proceeds through 2022								(12,500,000)

Without the capital and operating costs associated with the SEP, annual rate increases of only 3 percent would be needed for 2017 through 2025, followed by 1.5 percent per year increases.

With the SEP, the rate increase strategy has a cumulative increase of 42 percent by 2022, compared to a cumulative increase of 19 percent without the SEP. By 2022, the difference in the single family rate equates to about $6.62 per month per single family customer. With the SEP, the City would also be incurring about $12.5 million more in debt compared with the "no SEP" scenario.

CONCLUSION

The results of this analysis indicate that rate increases of 6 percent per year are needed through 2022 to fund and finance the CIP if the Sewer Extension Program is undertaken. The future years of the forecast show that a 4.5 percent increase would be needed in 2023, and after that the annual increases would be 3 percent per year—about the level of inflation. So for ratepayers, the Sewer Extension Program is mainly an up-front effort, with additional borrowing and higher-than-inflation increases for about 7 years. The recommended rate increases would provide continued financial viability for the City sewer system.

If the Sewer Extension Program is excluded, only 3 percent annual increases would be needed from ratepayers, but the City would be unable to address the issue of unsewered areas—particularly the Sunnyslope UGA. We have seen already that once septic systems have been installed in areas designated for urban growth, the problem won't go away by itself. It will be harder now than it would have been ten years ago, but it would be even harder to solve if the City waits another ten years.

Because of its low existing rates, the City has a realistic opportunity to address that issue through a proactive Sewer Extension Program. If adopted, the SEP will require sacrifice

from both property owners and ratepayers, and it would require time and commitment from City leaders, because septic conversion programs are never easy to start. Experience in other communities, however, suggests that septic conversion programs are not always as controversial as they are at first. Once established, a septic conversion and sewer extension program can effectively chip away at a backlog of unsewered areas, leading eventually to a sewer system with stronger future growth potential, while minimizing the future construction of septic systems in areas designated for urban growth.

It is possible that the program outlined here might need to be modified—the balance of pain between ratepayers and property owners might need to be adjusted in one direction or another. But we believe that the basic principles described here are sound:

- A standard citywide LFC that is established and kept up to date;
- A Sunnyslope Area Fee that is established and kept up to date;
- A System Investment Fee that is updated and kept up to date;
- A serious funding commitment from ratepayers;
- An identifiable program with a name and assigned staffing;
- Changes to the City Code that support the goal of preventing and eliminating septic systems within areas designated for urban development;
- A strong incentive built into the LFC and Sunnyslope Area Fee, to allow property owners some choice but give them reason to connect earlier rather than later;
- Realistic efforts to address hardship cases and make the process smooth and manageable for the people the City wants to be its new customers;
- Building sewer trunk lines into the Sunnyslope neighborhood, so that the few remaining large undeveloped tracts can develop with sewer service rather than having to build septic systems; and
- Continuing with more detailed planning of the Sunnyslope basins, so that discrete and logical project segments can be identified, prioritized, and put on a schedule.

RECOMMENDED NEXT STEPS

We recommend that the City create a Sunnyslope Area Fee and a citywide Local Facilities Charge, following the 6-year schedules shown on Table 10-7 and Table 10-9. Both of those tables show the charge per ERU. For these two new connection charges, we assume that the relationship between the per-ERU charge and the charge for larger or non-single-family customers would be the same as for the System Investment Fee.

We also recommend adopting one of the six-year schedules of System Investment Fees shown in Table 10-5. Among the three options, Option 1 would be the most appropriate and advantageous to the sewer utility. However, if the City chooses one of the other options, it will not disrupt the financial forecast in this financial plan.

In between formal updates of the SIF, LFC, and Sunnyslope Area Fee, we strongly recommend escalating them by the ENR-CCI. Adopting the 6-year schedules will accomplish that. For those charges, keeping up with inflation will maintain their effectiveness as incentives for property owners to connect.

We recommend that the City adopt City Code language to support the future connection of properties to the City sewer system, as described above. Discussions with the County should continue but should not prevent the City from moving ahead.

We recommend that the City adopt a schedule of sewer rates consisting of the first six years (2017-2022) in Table 10-17. During 2022, the rates should be evaluated again. Adopting a multi-year schedule of rates reassures bond investors that the rate increases needed to pay for increased debt are already in place. This forecast assumes that the initial proposed rate increase of 6 percent is effective on July 1, 2017, and that this increase is based on the rates adopted in January 2017. Subsequent increases are assumed to be effective January 1st of each year.

APPENDIX A

SEPA CHECKLIST

SEPA ENVIRONMENTAL CHECKLIST

UPDATED 2014

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

***Instructions for applicants*:** [help]

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:
Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals: [help]

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. background [help]

1. Name of proposed project, if applicable: [help]

RESPONSE: Wenatchee Sewer Comprehensive Plan Amendment

2. Name of applicant: [help]

RESPONSE: City of Wenatchee

3. Address and phone number of applicant and contact person: [help]

RESPONSE:
City of Wenatchee
Contact Person: Matt Leonard
1350 McKittrick Street
Wenatchee, WA 98801
(509) 888-3200

4. Date checklist prepared: [help]

RESPONSE: December 21, 2016

5. Agency requesting checklist: [help]

RESPONSE: City of Wenatchee

6. Proposed timing or schedule (including phasing, if applicable): [help]

RESPONSE: The Wenatchee Sewer Comprehensive Plan Amendment is designed to be used as a guide for a 20-year planning period within the Urban Growth Area (UGA).

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [help]

RESPONSE: Yes.
The purpose of the report is to provide a plan for that activity. Projects by the City are oriented toward providing trunk sewer service and wastewater treatment; smaller pipelines are typically done by others but may be done by the City. The City periodically reviews the plan to update, expand, and define what projects will be needed in the future to accommodate the growing population within the Urban Growth Area. The Plan considers the impact of growth in the service area on the capacity of the treatment plant. The 20-year population projections do not exceed the capacity of the existing treatment plant.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [help]

RESPONSE:
Various environmental documents will need to be prepared for individual construction projects. The exact documents required will vary with the type, size and location of each project.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [help]

RESPONSE: No

10. List any government approvals or permits that will be needed for your proposal, if known. [help]

.

RESPONSE:

Any construction projects that develop out of the Comprehensive Sewer Plan will require approval by Chelan County and the City of Wenatchee. Other regional, state or federal agency approvals may also be necessary depending on the project.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [help]

RESPONSE: The construction projects proposed in this Sewer Plan would construct new trunk sewer lines, lift stations and associated facilities to service areas within the City of Wenatchee UGA. Sewer lines would convey wastewater to the City of Wenatchee wastewater treatment plant on Worthen Street. Trunk sewer would be constructed to service the Urban Growth Area. A new line would need to be installed across the Wenatchee River Bridge. Because most of the proposed projects are expected to occur with accompanying residential commercial, or industrial development, the final sizes and locations of these projects will depend on where development actually occurs. See the Comprehensive Sewer Plan for a discussion of capital improvement projects.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [help]

RESPONSE: The proposed projects would occur within the Wenatchee Urban Growth Area shown on the attached map.

B. ENVIRONMENTAL ELEMENTS [help]

1. Earth

a. General description of the site [help]
(circle one): Flat, rolling, **hilly**, steep slopes, mountainous,
other _____

RESPONSE: The area is generally hill, but slopes range from flat to steep. Most of the area within the city limits slopes gently toward the Columbia River.

b. What is the steepest slope on the site (approximate percent slope)? [help]

RESPONSE: The area includes all degrees of slope, from flat to vertical cliffs east of Ohme Gardens. The steepest slopes are typically adjacent to the Wenatchee River and Columbia River.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [help]

RESPONSE: Typically, the soil in the Wenatchee Valley consists of silty sand with interbedded gravel, sand and cobbles. USDA Soil Conservation Service soil descriptions for the Wenatchee Area are listed as Burch-Cashmont association and the Bjork-Zen association.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [help]

RESPONSE: The Sunnyslope area has areas of unstable soils. The City's planning department has maps indicating those areas.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [help]

RESPONSE: There will be sewer line and lift station trenching, excavation and backfill. The amount will vary greatly with the project. Naturally existing soils will be used to backfill excavations as appropriate and feasible.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [help]

RESPONSE: The erosion potential due to water is light to moderate in these soils. The potential for wind-blown erosion is high in each soil category and will be kept to a minimum during construction through watering or other dust control measures.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [help]

RESPONSE: Not applicable, in general. Most sewer lines will be constructed as part of street improvement or other construction projects and therefore would not add impervious surface. Lift stations would add a minor amount of impervious surface, which is needed for all weather access and equipment.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [help]

RESPONSE: Appropriate measures will be taken during construction to minimize erosion and to stabilize disturbed areas by seeding and/or landscaping. There is no anticipated need for erosion protection after construction of sewer lines or lift stations.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [help]

RESPONSE: Possible airborne dust could occur during the construction phase and prior to reseeding of the disturbed area. As discussed above, watering or other methods will be used to minimize airborne and windblown dust. Excavator/backhoe exhaust emissions may be present during the construction phase. Some odor may be emitted after construction; these are sewers.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [help]

RESPONSE: None are known

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [help]

RESPONSE: The contractor's equipment will be required to meet applicable emissions standards. The contractor will be required to control dust during construction. The construction sites will be watered or other measures used as necessary to minimize windblown erosion. System design will incorporate odor control as necessary. No other measures are expected to be necessary.

3. **Water**

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [help]

RESPONSE: Yes. The Wenatchee River and the Columbia River are in the vicinity of the project site. The Wenatchee River flows into the Columbia.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [help]

RESPONSE: The sewer plan proposes that one or more new sewer force mains be constructed over the Wenatchee River within the 20-year planning period; one of the pipes is proposed to be constructed adjacent to an existing sewer line under the highway (or pedestrian) bridge over the Wenatchee River.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [help]

RESPONSE: Not Applicable

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [help]

RESPONSE: Not Applicable

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [help]

RESPONSE: Not applicable, except for the proposed project to construct the pipes across the Wenatchee River. Appropriate environmental documents and permits will be prepared as part of the design process.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [help]

RESPONSE: The new sewer discussed in the Comprehensive Sewer Plan will carry wastewater flows to the

WWTP that will be in addition to existing flows. These additional flow swill result in an increase of treated wastewater (WWTP effluent) discharge to the Columbia River.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [help]

RESPONSE: It is not expected that groundwater will be encountered during construction of any of the proposed alternative because the groundwater table is most always below the level of the sewer in the City. There may be underground springs or perched groundwater; if it is encountered it will be dealt with in accordance with regulations. Following construction, none of the proposed sewer lines or lift stations will require use of, or discharge to, groundwater.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

RESPONSE: Waste material will not be discharged into the ground. It should be noted that one of the purposes of the projects proposed in the Plan is to provide sewers and thus avoid construction of additional septic tank systems.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [help]

RESPONSE: Runoff will originate primarily from seasonal rain storms and will collect in depressions, seep into permeable soil or flow overland into existing drain systems. The existing routing of stormwater will not change as a result of this project, except for during the short construction period (if it rains during that period).

2) Could waste materials enter ground or surface waters? If so, generally describe. [help]

RESPONSE: No, unless as the result of unexpected damage.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

RESPONSE: The drainage patterns will stay the same. Runoff will originate primarily from seasonal rain storms and will collect in depressions, seep into permeable soil or flow overland into existing drain systems. The existing routing of stormwater will not change as a result of this project, except for during the short construction period (if it rains during that period).

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

RESPONSE: The construction contractor will be required to provide proper runoff control in accordance with state and local regulations.

4. **Plants** [help]

a. Check the types of vegetation found on the site: [help]

_X_deciduous tree: alder, √**maple**, aspen, √**apple,** √**peach,** √**cherry, and** √**other fruit and** √**deciduous trees**
__X evergreen tree**:** √**fir,** √**cedar,** √**pine,** √**other**
__X_√**shrubs**
__X_√**grass**
__X_√**pasture**
____crop or grain
__X √**Orchards**, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
__X other types of vegetation, √**sagebrush,** √**native rangeland vegetation,** √**weeds**

b. What kind and amount of vegetation will be removed or altered? [help]

RESPONSE: Where appropriate, sod and trees will be replaced and open land will be reseeded with native grasses. Most of the proposed trunk sewer, however, will be constructed under existing streets.

Consequently, it is not likely that construction of the sewers and lift stations proposed in this plan will directly be the cause of significant vegetation removal or alteration.

c. List threatened and endangered species known to be on or near the site. [help]

RESPONSE: There are no threatened or endangered plant species are known to be on or near the site. The Ute's Lady's Tresses Orchid, a threatened species, has potential to be in riparian areas and Gray's Cyrpthana, a state sensitive species, exists in Chelan County.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [help]

RESPONSE: Vegetated areas that are disturbed by construction will be landscaped or reseeded with native vegetation as appropriate to the individual project.

e. List all noxious weeds and invasive species known to be on or near the site.

RESPONSE: Noxious weeds in Chelan County:

http://www.co.chelan.wa.us/noxious-weed/pages/weed-list?parent=All%20About%20Weeds

5. **Animals**

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [help]

RESPONSE: _X__birds: √**hawk,** √**heron,** √**eagle,** √**songbirds,** other: √**Chukar,** √**Quail,** √**Pheasant, typical urban birds (**√**crows,** √**pigeons, etc…), several species of** √**waterbirds frequent the Columbia and Wenatchee River**
_X__mammals: √**deer, bear, elk, beaver,** other: √**Rabbits,** √**Racoon,** √**Coyote,** √**Rodents,** √**Groundhog**
_X__ fish: bass, √**salmon,** √**trout,** herring, shellfish, other

b. List any threatened and endangered species known to be on or near the site. [help]

RESPONSE: Bald Eagles are occasionally seen along the Columbia River. At times, during spawning season, Bull Trout, Upper Columbia River Steelhead, and Upper Columbia River spring run of Chinook salmon.

c. Is the site part of a migration route? If so, explain. [help]

RESPONSE: The Columbia River and Wenatchee River are salmon and trout migration routes. Mule deer move into and out of the UGA as part of their winter/summer movements.

d. Proposed measures to preserve or enhance wildlife, if any: [help]

RESPONSE: Typically, none will be needed. For major projects, the potential effects(s) on wildlife will be reviewed with natural resources agencies responsible for the area and appropriate measures determined in conjunction with their personnel.

e. List any invasive animal species known to be on or near the site.

None known.

RESPONSE: None known of.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [help]

RESPONSE: The system will primarily be run by gravity. Energy will be needed only for lift stations, the wastewater treatment plant, and associated equipment. Electricity will be the most widely used energy source.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [help]

RESPONSE: No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [help]

RESPONSE: The system is designed to use gravity where feasible. Lift station pumps will be sized for operation at high efficiency. Structures, if any, will meet energy conservation codes.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [help]

RESPONSE: Sanitary sewer piping, manholes, and wet wells will be leak tested before being put into service. Facility designs will meet applicable safety codes.

1) Describe any known or possible contamination at the site from present or past uses.

RESPONSE: Leaking pipes can contaminate the ground around them and so thorough maintenance, inspection and repairs should continue to be carried on to verify that existing pipes are in good operating order.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

RESPONSE: None known

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

RESPONSE: Toxic and explosive gasses can potentially build up in sewer pipes that are not vented properly. Therefore maintenance procedures and schedules must and will be fulfilled in proper order.

4) Describe special emergency services that might be required.

RESPONSE: Although slight, the potential exists for a sewage spill or equipment fluid spill during construction. The construction contractor will be responsible for having an emergency plan in place to contain and clean up any spills.

5) Proposed measures to reduce or control environmental health hazards, if any:

RESPONSE: The construction contractor will need to have a plan in place prior to construction.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [help]

RESPONSE: There is no known noise that will affect this project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [help]

RESPONSE: Some short term construction-related noise will occur during normal working hours. Long-term noise will be limited to noise from pumps, which will operate as needed. Pumps will be below and so noise effects will be minimal. Under emergency (power failure) operating conditions, a generator will be used at lift station. Such generator operation will be limited to the minimum required to complete repairs to the station or until power is returned. Standby generators at lift stations need to be exercised regularly to ensure that they will operate when called upon.

3) Proposed measures to reduce or control noise impacts, if any: [help]

RESPONSE: Noise-generating equipment will be housed in small structures as best feasible. Any emergency generators will have noise-control housing.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [help]

RESPONSE: The current land use is primarily residential however commercial and industrial exist within the City limits as well. Land use will not expect to change as a result of this planning document. Any future sewer infrastructure was planned based on the projected future land use from the City's current Comprehensive Plan.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [help]

RESPONSE: The project area used to be primarily orchards. Most has been converted to residential and commercial use. Orchards do remain in the project area. The Resource Lands and Critical Area Development Ordinance that Wenatchee adopted does not designate agricultural lands of long-term significance but assures the continued use of farm lands for agricultural purposes.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

RESPONSE: No.

c. Describe any structures on the site. [help]

RESPONSE: The UGA includes the entire City of Wenatchee, which contains a large variety of structures.

d. Will any structures be demolished? If so, what? [help]

RESPONSE: It is not expected at this time that any structures will be demolished as a result of the Plan.

e. What is the current zoning classification of the site? [help]

RESPONSE: Current zoning varies from low density residential to high density residential, commercial and industrial.

f. What is the current comprehensive plan designation of the site? [help]

RESPONSE: A wide range of designations exist within the UGA. The Plan references the City's current Comprehensive Plan.

g. If applicable, what is the current shoreline master program designation of the site? [help]

RESPONSE: The County is beginning its process of updating its shoreline master program. Current shoreline designations are Natural, Rural, Conservancy and Residential.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [help]

RESPONSE: Some areas of the UGA have been classified as environmentally sensitive. The City of Wenatchee and Chelan County maintain maps indicating those areas.

i. Approximately how many people would reside or work in the completed project? [help]

RESPONSE: The 2015 population for the City of Wenatchee was 33,260. The UGA population is 38,921.

j. Approximately how many people would the completed project displace? [help]

RESPONSE: It is not likely that anyone would be displaced.

k. Proposed measures to avoid or reduce displacement impacts, if any: [help]

RESPONSE: No impacts are anticipated.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [help]

RESPONSE: The City of Wenatchee and Chelan County consulted throughout the process. The Sunnyslope subarea plan was used when determining future land use in that area. Future land and densities were used in planning and calculations. This Plan will be issued to Chelan County, Tribes and other organizations who may have an interest.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

RESPONSE: None needed

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [help]

RESPONSE: Not applicable

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [help]

RESPONSE: Not applicable

c. Proposed measures to reduce or control housing impacts, if any: [help]

RESPONSE: Not applicable

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [help]

RESPONSE: All sewer facilities, including pipelines and lift stations will be underground facilities, except for electrical panels for lift stations, which will be 4 to 5 feet high. It may be necessary or desirable to provide a small shed sized structure at a lift station which would reach no higher than about 15 feet.

b. What views in the immediate vicinity would be altered or obstructed? [help]

RESPONSE: None anticipatted.

c. Proposed measures to reduce or control aesthetic impacts, if any: [help]

RESPONSE: A minimal footprint will be considered in design. No such measures are expected to be be needed. If necessary, a lift station structure can be shaped and oriented to minimize obstruction.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [help]

RESPONSE: It is not expected that the proposed projects will alter the amount of light or glare in the area. Lift stations will have area lighting for safety and operation.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [help]

RESPONSE: Not likely. Lift station electrical panels will be small and will be galvanized, stainless steel, or be painted with non-glare paint.

c. What existing off-site sources of light or glare may affect your proposal? [help]

RESPONSE: None known.

d. Proposed measures to reduce or control light and glare impacts, if any: [help]

RESPONSE: Outdoor lighting could be installed with motion sensors to reduce the amount of time they are on. The lights can be shielded to prevent shining in particular directions.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity? [help]

RESPONSE: Informal recreational uses are primarily walking and biking.

b. Would the proposed project displace any existing recreational uses? If so, describe. [help]

RESPONSE: No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [help]

RESPONSE: None are needed

13. **Historic and cultural preservation**

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [help]

RESPONSE: The project area (UGA) includes the City of Wenatchee, which has several buildings on one or more preservation registers. The City will contact the State Historic Preservation Office before proceeding with any project that may affect potentially historic structures.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [help]

RESPONSE: The confluence of the Wenatchee River and Columbia River was the site of an important Native American fishery. The higher terraces above the river were likely used as natural travel corridors.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [help]

RESPONSE: None needed/ not applicable for this planning document.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

RESPONSE: Areas currently undeveloped but slated for sewers will be reviewed for possible cultural and archaeological investigation as part of the design process. During construction in

areas with high risk for encountering artifacts (e.g. along the waterfront) measures developed in concert with the tribes having jurisdiction will be used.

14. **Transportation**

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [help]

RESPONSE: Numerous streets serve the city limits.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [help]

RESPONSE: Yes, the Link Transit bus system serves the area. There is also an Amtrak station located within the City.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [help]

RESPONSE: Not applicable.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [help]

RESPONSE: Some of the new sewers will be in undeveloped land or right-of-way. Access roads will be needed for maintenance purposes. Most of the proposed projects are within existing roadways, which will be patched or overlaid as required by the County or City depending upon the location.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [help]

RESPONSE: No.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [help]

RESPONSE: The projects are necessary to provide sewer service to a growing population and commercial base. Vehicles trips will be generated by those land uses and not directly by the proposed projects.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

RESPONSE: No

h. Proposed measures to reduce or control transportation impacts, if any: [help]

RESPONSE: None will be required as a direct result of the sewer projects.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [help]

RESPONSE: The sewer system is a public service. The projects are necessary to provide sewer service to a growing population and commercial base.

b. Proposed measures to reduce or control direct impacts on public services, if any. [help]

RESPONSE: Does not apply, the proposed projects are a public service.

16. **Utilities**

a. Circle utilities currently available at the site: [help]

RESPONSE: √electricity, √natural gas, √water, √refuse service, √telephone, √sanitary sewer, septic system, √ Fiber Optic, √Irrigation Water, √Cellular Phone, √other

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help]

RESPONSE: The Comprehensive Sewer Plan proposes sewer system capital improvements projects, including pipes and lift stations. The system will provide sanitary sewer service to the City of Wenatchee Urban Growth Area and to convey wastewater to the City of Wenatchee wastewater treatment facility. On-site excavation , pipe-laying and hauling activities, occurring during the construction phase, may require additional temporary utilities or services.

C. Signature [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Stacey Clear

Position and Agency/Organization Engineer / Gray & Osborne, Inc.

Date Submitted: Jan. 23, 2017

D. supplemental sheet for nonproject actions [help]

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general
terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

RESPONSE: Once constructed and the planning area is serviced with sanitary sewer, there will be an increased discharge of treated wastewater to the Columbia River. All wastewater will be treated at the City of Wenatchee wastewater treatment facility and will meet required treatment levels consistent with Washington Department of Ecology NPDES permit requirements.

Proposed measures to avoid or reduce such increases are:

RESPONSE: All discharges of treated wastewater are authorized and regulated under state and federal permitting requirements and subject to regular review and approval.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

RESPONSE: Some existing vegetation may be disturbed or eliminated due to grading and construction activities associated with recommendations resulting from the proposal.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

RESPONSE: Revegetation of disturbed areas will minimize any adverse impacts associated with the implementation of the recommended improvements. Adherence to regulations regarding, for example, storm water runoff will minimize any effects on plants and fish.

3. How would the proposal be likely to deplete energy or natural resources?

RESPONSE: The lift stations will require a small amount of electrical energy to run pumps and lights. However, they use a relatively small amount of energy.

Proposed measures to protect or conserve energy and natural resources are:

RESPONSE: Design of the system incorporates use of gravity where feasible. Lift station pumps will be designed for maximum efficiency.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

RESPONSE: Sewers and/or lift stations may be proposed for the vicinity of cultural sites because Native Americans frequented tis area throughout history. Areas currently undeveloped are more likely to contained as-yet-undiscovered artifacts than developed areas are. For projects in currently undeveloped areas the potential for artifacts will be given due consideration and evaluation, in concert with local tribes as needed.

There are no national parks, wilderness areas, wild and scenic rivers or designated prime farmlands within the UGA. The Wenatchee River and Columbia River contain threatened and endangered fish species. There are very few wetlands in the area, most of which are in very close proximity to the Columbia River. There are areas which are subject to flooding from ephemeral streams during sever storm events.

The possible existence of threatened or endangered species habitat, wetlands, and floodplains is slight, but will be reviewed on a case-specific basis for each project.

Proposed measures to protect such resources or to avoid or reduce impacts are:

RESPONSE: The Comprehensive Sewer Plan and future construction plans will be reviewed and approved in accordance with applicable local, state, and federal regulations.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

RESPONSE: Both the City of Wenatchee and Chelan County consulted during preparation of this Comprehensive Sewer Plan. The Plan is consistent with the existing shoreline master plan and development regulations.

Proposed measures to avoid or reduce shoreline and land use impacts are:

RESPONSE: The projects proposed are based on input from the local planning agencies (Chelan County and City of Wenatchee).

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

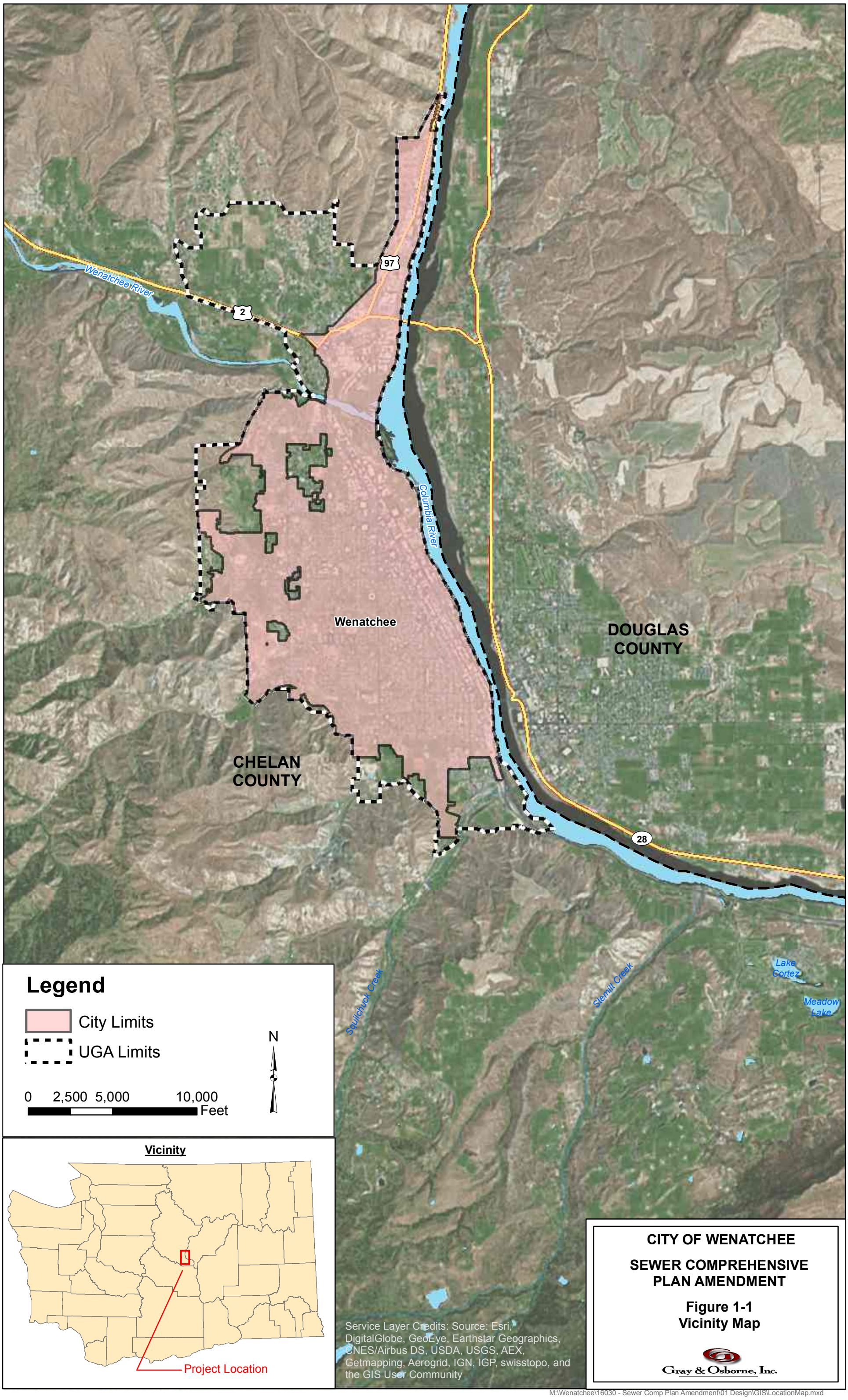
RESPONSE: The proposed projects are a public service. The sewers and lift stations proposed are part of accommodating future growth.

Proposed measures to reduce or respond to such demand(s) are:

RESPONSE: Does not apply.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

RESPONSE: The Comprehensive Sewer Plan will be reviewed and approved in accordance with local, state and federal laws and requirements for the protection of the environment. The projects proposed in the Comprehensive Sewer Plan will improve protection of the environment from sewage by reducing the number of septic systems, including systems that may be old and not functioning properly, are poorly designed, or are poorly maintained.



CITY OF WENATCHEE

SEWER COMPREHENSIVE PLAN AMENDMENT

Figure 1-1
Vicinity Map

Gray & Osborne, Inc.

M:\Wenatchee\16030 - Sewer Comp Plan Amendment\01 Design\GIS\LocationMap.mxd

APPENDIX B

NPDES PERMIT AND FACT SHEET

FACT SHEET FOR NPDES PERMIT
NO. WA-002394-9

CITY OF WENATCHEE
PUBLICLY-OWNED TREATMENT WORKS

MAY 3, 2010

PURPOSE OF THIS FACT SHEET

This fact sheet explains and documents the decisions Ecology made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for the City of Wenatchee.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for the City of Wenatchee NPDES Permit Number WA-002394-9, are available for public review and comment from **June 9, 2010** until **July 9, 2010**. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

The City of Wenatchee (City), reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this Fact Sheet as **Appendix D - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

Richard Marcley prepared the permit and this fact sheet.

SUMMARY

The Wenatchee publicly owned treatment works (POTW) consists of a treatment plant and an extensive sanitary collection system. Located on North Worthen Street, the treatment plant is, adjacent to Riverfront Park. The collection system provides service to residential, commercial and industrial customers within the City of Wenatchee, small areas of Chelan County, as well as the Port of Chelan/Olds Station industrial park.

Ecology approved the City of Wenatchee's 2008 Facilities Plan on April 17, 2009 and the City plans to complete the upgrades as time and money allows. The City retained most of the existing treatment processes, although it refurbished some units to improve reliability and replaced the chlorination system with an ultraviolet (UV) disinfection system. During the upgrade the City:

- Replaced the original influent gates.
- Replaced the influent pump drives and motors.
- Modified the aeration basins extensively.
- Replaced the secondary clarifier mechanisms.
- Installed the UV disinfection system.
- Installed a new programmable logic controller system with a personal computer-based Supervisory Control and Data Acquisition (SCADA) system to better control the liquid treatment processes (The activated sludge management received a SCADA upgrade in 1992.)
- Replaced the return activated sludge pumps.

Ecology approved the City of Wenatchee Wastewater Treatment Facilities Plan Amendment on January 6, 2010. The Amendment describes planned improvements to the POTW for visual mitigation and odor control.

The City of Wenatchee has complied substantially with the effluent limits and permit conditions throughout the duration of the permit issued on April 15, 2005**.** Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections conducted by Ecology.

WET testing indicates some toxicity is present in the effluent at certain times of the years in the acute mixing zone. Therefore the proposed permit establishes acute WET limits. All other limits contained in the proposed permit remain unchanged from the current permit.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the State of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to municipal NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Technical criteria for discharges from municipal wastewater treatment facilities (chapter 173-221 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of Plans and Reports for Construction of Wastewater Facilities (Chapter 173-240 WAC)

These rules require any treatment facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A—*Public Involvement*** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D.**

BACKGROUND INFORMATION

TABLE 1 - GENERAL FACILITY INFORMATION

Applicant	City of Wenatchee
Facility Name and Address	City of Wenatchee POTW 201 North Worthen Street Wenatchee, WA 98807
Type of Treatment:	Class III: Activated Sludge Plant with Ultraviolet (UV) Disinfection
Discharge Location	Columbia River Latitude: 47.4306 N Longitude: -120.3089 W.

Figure 1: Facility Location Map

FACILITY DESCRIPTION

The City's publicly owned treatment works (POTW) consists of a treatment plant and an extensive sanitary collection system. Located on North Worthen Street, the treatment plant is, adjacent to Riverfront Park. The collection system provides service to residential, commercial and industrial customers within the City of Wenatchee, small areas of Chelan County, as well as the Port of Chelan/Olds Station industrial park. The PUD once owned and operated the

collection system, which is connected to the City's system at the Olds Station lift station; however, the City assumed ownership of the PUD collection system in 2004.

History

The City originally constructed the wastewater treatment plant (POTW) in 1958 as a primary treatment facility. In 1975, it added secondary treatment, which included aeration basins, secondary clarification and return activated sludge pumping. A diffuser was also installed at that time for dispersing the effluent into a wide area of the Columbia River. The City increased the capacity of the plant in 1984 by adding activated sludge aeration basin capacity.

In 1992-1993, the City completed other POTW upgrades which allowed for an increase in the overall design capacity of the facility. The upgrades included a headworks, a second primary clarifier, heat exchangers for the anaerobic digesters, and a waste-gas burning boiler for heating the digesters as well as some new buildings. The plant's solid waste handling processes were updated in 1992.

According to the April 20, 2009 Ecology approved *October 2008 Comprehensive Sewer Plan* (the Sewer Plan) prepared by the Wenatchee Department of Public Works and Hammond Collier Wade Livingstone Consultants, the 2005 POTW upgrade included the following improvements:

- Construction of a 1.7MG flow equalization basin for peak flow above 11MGD
- Replacement of influent gates
- Replacement of raw sewage pumps and drives
- Replacement of the course bubble diffusers in the aeration basins with fine bubble diffusers
- Installation of baffles in the aeration basins to create four aeration zones in each basin
- Modification of the influent and effluent channels on the aeration basins to facilitate operations in either plug flow or step-feed
- Installation of mixers and pumps in the aeration chambers to create anoxic conditions in the first aeration zone
- Replacement of secondary clarifier mechanisms
- Modification of return activated sludge (RAS) pumping controls
- Replacement of chlorine disinfection system with ultraviolet (UV) disinfection
- Modification of the stormwater collection piping on the treatment plant site to discharge into the influent pump station for treatment, rather than the Columbia River
- Changed the control system for the liquid treatment stream to programmable logic control (PLC) and supervisory control and data acquisition (SCADA) based systems

Ecology approved the City's 2008 Facilities Plan on April 17, 2009. The City prepared the plan to comply with the Ecology Consent Order DE 02WQCR-4450. The plan was prepared for the City by CH2MHill Consultants. The document plans for wastewater needs for the planning period from 2005 to 2025. Upgrades will be conducted as time and money allows. The primary purpose of the Facilities Plan is to show that adequate POTW capacity exists for the next ten years and to develop a capital improvement program based on possible improvements needed to provide capacity for future wastewater loads. The Facilities Plan:

- Estimates that the capacity of the existing wastewater treatment plant will meet the City's needs until 2028 with the recent completed improvements.
- Developed costs for increasing the capacity of the existing POTW including:
    a. Adding secondary treatment capacity
    b. Improving the performance and capacity of the anaerobic digesters
    c. Expanding the existing sludge drying beds
    d. Improving the POTW to improve visual aesthetics and reduce odors
    e. Adding treatment to meet reclaimed water standards so the City can reuse it at Riverfront Park and for other irrigation purposes
- Prepared rough cost estimates for constructing a new POTW at another location for purposes of comparison.
- Recommends a series of studies and POTW improvements on a schedule to maintain POTW capacity.

Ecology approved the City of Wenatchee Wastewater Treatment Facilities Plan Amendment on January 6, 2010. The Amendment describes planned improvements to the POTW for visual aesthetics mitigation and odor control. The facility plan amendment meets additional requirements for the evaluation of specific alternatives and development of the recommended alternative to meet requirements for a wastewater facilities plan and engineering report as required under chapter 173-240 WAC. There are two sections to this facilities plan amendment in Chapter 6 that are described in the facilities plan recommendations as the "visual mitigation study" (slated for 2012) (Section 6.6) and "odor control plan" (slated for 2011) (Section 6.7).

Collection System Status

Wastewater is conveyed from the point of generation to the point of treatment by gravity, pumping or a combination thereof. The present sanitary collection system is composed of over 140 miles of concrete, PVC, clay and ductile iron pipe ranging in diameter from 6 inches to 42 inches. Seventy percent of the City sewer collection system is composed of 8-inch diameter pipe. Of that, 58% is concrete pipe installed between the 1940's and 1980's The collection system serves the City, a small portion of Chelan County, and a small industrial area, Olds Station, previously under control of the PUD, which discharges approximately 0.4 MGD of wastewater.

The gravity sewer system is composed of collector, or main, sewers that collect wastewater from various sources. These main sewers convey the wastewater to larger trunk sewers, which in turn discharge to larger interceptor sewers that convey the wastewater to the POTW. In general, sewers far upstream in the collection system have plenty of capacity and pose a greater risk of minimum slope and higher maintenance, while sewers farther downstream are at risk of limited capacity due to growth in the tributary areas.

Areas of the sewer collection system that, due to topography, cannot convey sewage by gravity to the point of treatment must rely on lift stations and pressurized mains (force mains). The pressure system may consist of large-diameter, high pressure mains or small diameter low pressure lines with grinder pumps.

The City's collection system includes 5 sewage lift stations. Four of the lift stations are submersible type lift stations where the pumps are submerged in the wastewater and the valving and controls are located near the ground surface. One station, Squilchuck, is a vacuum prime lift station. The City recently developed lift station standards to standardize lift stations for developers. Lift station standards require a wet well, overflow protection (either in the form of an overflow structure for additional storage or an emergency generator), a valve vault, flow meter, and electronic telemetry controls.

The City monitors the status of lift stations with a radio telemetry system. The operator can observe the operation of each lift station from the POTW operations office. The telemetry system can record pump run times so the City can analyze trends. System capabilities include:

- Alarms bells for high wet well condition
- Low wet well condition
- Pump failure
- Intrusion (at some stations)
- Cumulative pump runs time and number of run cycles

Major Improvements to the collection system are slated for 2010 and 2011. They include replacing the sewer main along the Burlington Northern Santa Fe Railway tracks, installing a new Squilchuck lift station in 2010. In addition, the City may participate in the extension and improvement of the Easy Street and Chatham Hill sewer lines based on developer and community needs.

Treatment Processes

The upgraded plant retains most of the preexisting treatment processes, although the City refurbished some units to improve reliability, and replaced the chlorination system with an ultraviolet (UV) disinfection system. Upgraded treatment processes and equipment include

replacement of the original influent gates, replacement of the influent pump drives and motors, extensive modification of the aeration basins, replacement of the secondary clarifier mechanisms, and installation of the UV disinfection system. The City installed a new programmable logic controller system with a personal computer-based Supervisory Control and Data Acquisition (SCADA) system to better control the liquid treatment processes, (The activated sludge management received a SCADA upgrade in 1992.) In addition, the return activated sludge pumps were replaced.

One of the primary shortcomings of the old plant was the lack of operational flexibility; operators could not incrementally vary control of the treatment processes. This upgrade gave operators the ability to incrementally change process controls, with the addition of such improvements as variable speed drive pump controls and the SCADA system.

While many elements of the upgrade were fairly straightforward, involving removal and replacement of old equipment with a similar but newer version, modification and operation of the aeration basins warrants more explanation because it is the primary biological treatment process in this facility. The old aeration basins were designed to operate in a complete mix mode only, which limited the operators' process control options. The treatment plant has two aerations basins. During the upgrade, the City partitioned each basin into four aeration zones by installing baffles. The first zone of each basin retained the existing coarse-bubble diffusers with the addition of submersible mixers. The City installed fine-bubble diffusers in the remaining zones. These changes allow operation of the basins in plug flow, plug flow with anoxic zone, or step-feed modes.

During plug flow operation, biological treatment occurs incrementally, as wastewater is treated in each succeeding aeration zone. Treated wastewater from the first zone is moved to the second zone, then the third, and finally the fourth. Removal of ammonia is expected to be excellent in this mode.

Plug flow with anoxic zone operates similarly to plug flow, except the first zone provides anoxic treatment of ammonia. Plug flow with anoxic zone provides effective treatment except during the coldest portions of the year. The anoxic zone facilitates the nitrification process, control of filamentous bacteria, and recovery of alkalinity. Bacteria in the anoxic zone convert nitrate to nitrogen gas to remove nitrogen from the wastewater. The anoxic zone is equipped with coarse-bubble diffusers to provide added treatment capacity during cold weather operations.

The step-feed mode of operation is intended for use during periods of cold weather. In this mode, the coarse-bubble diffusers in the first aeration basin zone are utilized. To compensate for the reduced bacterial activity during cold weather, step-feed operation is designed to increase the average concentration of mixed liquor suspended solids in the aeration basins, while keeping solids to the secondary clarifiers at a minimum. In addition to the wastewater received from the preceding zone, each zone also receives some wastewater directly from the primary clarifiers.

While effluent ammonia concentrations were expected to increase slightly in this mode, due to cold-weather inhibition of nitrifying bacteria, the data does not support that conclusion. The overall effluent quality is well within permit limits regardless of season.

As part of the settlement agreement with the environmental groups, the City agreed to replace its chlorine disinfection system with an ultraviolet (UV) system. After evaluating several designs, the City installed a low-pressure/high-intensity UV system.

During high-intensity precipitation events, flows to the treatment plant can exceed 15 million gallons per day (MGD) During the period from 1998 through 2002, the City experienced five stormwater events that resulted in flows to the treatment plant exceeding 10 MGD. The source of this inflow is believed to be roof drains in downtown Wenatchee and the City has found it very difficult to remove this source. In response to this problem, the City purchased an unused industrial wastewater treatment facility next to the treatment plant that serves as an equalization basin. The City refurbished the existing earthen basin by installing a 60-mil Hypalon liner. In the event influent flows exceed 11 MGD, the operator will pump excessive flows to the equalization basin.

Discharge Outfall

Secondary treated and disinfected effluent is discharged to the Columbia River at River Mile 466.6 via a 36-inch diameter outfall line that terminates in a 60-ft long diffuser, which has six 10-inch diameter ports along the top of its length. The diffuser is placed perpendicular to the river flow and is located approximately 200 feet off-shore, below 20 feet of water during critical (low-flow) river conditions. The river is approximately 1,200 feet wide in the vicinity of the outfall and has a 7Q10 flow of 51,557 cfs.

Solid Wastes

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local landfill.

Primary and waste-activated solids are anaerobically digested to meet Class B pathogen requirements, as defined by the Code of Federal Regulations (CFR), Title 40, Part 503. The Class B biosolids are dewatered using a belt-filter press and hauled to drying beds located off-site, near Malaga, about 10 miles south of the City of Wenatchee. The City is in the process of applying for Class A Biosolids equivalency with EPA and Ecology.

PERMIT STATUS

Ecology issued the previous permit for this facility on April 15, 2005. The previous permit placed effluent limits on $CBOD_5$, TSS, fecal coliform bacteria, total ammonia, and pH.

The City of Wenatchee submitted an application for permit renewal on May 28, 2009. Ecology accepted it as complete on May 29, 2009.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

Ecology staff conducted a compliance inspection on June 9, 2010.

The City of Wenatchee has complied substantially with the effluent limits and permit conditions throughout the duration of the permit issued on April 15, 2005**.** Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections conducted by Ecology. The facility violated its permit four times during the past permit period as shown in Table 2 below.

Table 2: Permit Violations

Monitoring Period Begin Date	Parameter	Units	Statistical Base	Value	Limit Max
12/1/2007	Total suspended (TSS)	Mg/L	Weekly Average	58	45
7/1/2006	Coliform, Fecal	#/100ml	7 Day Geometric Mean	692	400
5/1/2007	Coliform, Fecal	#/100ml	7 Day Geometric Mean	552	400
8/1/2009	Coliform, Fecal	#/100ml	7 Day Geometric Mean	430	400

WASTEWATER CHARACTERIZATION

Influent

Loadings to the POTW, from June 2005 through November 2009, were reported in DMRs submitted to the Department and are compared with the applicable design loadings in the table below. Design loadings were taken from Table 3-1 of the Ecology approved 2003 Facility Plan.

Table 3: 2005-2009 Influent Characterization

Parameter	4-year Characterization		Design Loadings	
	4-year Average	Highest Reported Monthly Average	Post-Upgrade Maximum Monthly Average	Percent of Upgrade Design Criteria [a]
BOD_5, in lbs/day	7424	8635	13,006	66
TSS, in lbs/day	7301	9646	13,111	72
Total Kjeldahl Nitrogen, in lbs/Day	995 [b]	1993 [c]	1,800	111

[a] Percent value is based on the highest reported monthly average.
[b] Values are based on one sample per month.
[c] This high value occurred in September of 2005 the next highest value is 1296 lbs/Day. With the September value removed, the average becomes 976 lbs/Day with a standard deviation of 113 lbs/Day when the high value is included the standard deviation grows to 177 lbs/Day.

Effluent

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The tabulated data represents the quality of the effluent discharged from June 2005 through November 2009. The effluent is characterized as follows:

Table 4: 2005-2009 Effluent Characterization

Parameter	Average Monthly Concentration	Maximum Daily Concentration
Flow, MGD	3.2	6.0
$CBOD_5$, in mg/L	5.5	33
TSS in mg/L	8.8	58
Fecal coliform bacteria, #/100 mls	49.2	692 [a]
Total ammonia, in mg/L	5.8	24
Dissolved oxygen, in mg/L	3.6	2.4 (min)
pH, in standard units	7.6 maximum and 6.4 minimum	
Summer Temp, in C°	22.1	24.6
Alkalinity, in mg/L	91.8	152
Hardness, in mg/L	96.9	232

[a] Permit violation average weekly July 2006

Priority Pollutants

Influent

Due to its status as a major municipal discharger, the previous permit required the City to conduct testing of its influent, effluent and sludge for priority pollutants. Samples were taken in September 2001 and September 2003. The current permit required another set of analyses in 2007. The results are summarized in the tables below. Only those pollutants present at one of the sample points and above the analytical method detection limit are reported.

Table 5: Priority Pollutant Concentrations in Influent

Parameter	Influent (µg/L)			
	2001	2003	10/08/07	10/18/07
gamma-BHC (Lindane)	ND [a]	ND	.018 [b]	ND
4,4'-DDT	ND	0.16	ND	ND
Total Phenolics	35	12	Not analyzed	Not analyzed
Chloroform	5.6	ND	ND	ND
Tetrachloroethene	ND	25	ND	ND
bis(2-ethylhexyl)-phthalate	35	12	15	12
Phenol	79	22	25	45
Arsenic	ND	ND	1.4	1.3
Cadmium	ND	ND	0.29	0.26
Chromium	6	ND	2.3	2.5
Copper	72	58.6	117	91.5
Lead	8	2.8	5.57	4.58
Mercury	0.2	ND	ND	ND
Nickel	ND	ND	3.4	3.0
Silver	14	ND	0.04	1.6
Zinc	187	117	198	172
Antimony	--	--	0.3	1.23
Thallium	--	--	ND	172
Oil and Grease (HEM)			43,000	18,000

[a] ND means non-detect.
[b] The confirmation criteria for this compound were exceeded but the relative percent of the analytical results between duplicate samples was greater than 25% for pesticides.

The presence of the above priority pollutants is typical of a large treatment plant with a diverse base of industrial and commercial dischargers, and residential customers. The presence of DDT and its metabolites, banned more than 30 years ago, is a testament to its pervasive and refractory characteristics. It is still found in many treatment plants located in agricultural areas.

Effluent

The City did not measure detectable concentrations of priority pollutant volatile, semi-volatile or pesticide compounds in the effluent samples it collected in 2001, 2003, and 2007. Therefore Ecology did not tabulate values for these compounds.

Table 6 tabulates the metals detected in the effluent and compares the results of analysis conducted over the course of two permit cycles.

Table 6: Metallic Pollutant Concentrations in Effluent

Parameter	Metals Concentrations in Effluent (µg/L)			
	2001	2003	10/08/07	10/18/07
Antimony	--	--	0.49	0.81
Arsenic	ND	ND	1.1	0.9
Cadmium	ND	ND	0.07	ND
Chromium	ND	ND	0.7	.07
Copper	17	24.6	38.5	51.5
Lead	ND	ND	0.61	0.55
Mercury [a]	ND	ND	ND	ND
Nickel	ND	ND	2.0	ND
Selenium	ND	ND	ND	0.18
Silver	ND	ND	0.21	ND
Zinc	65	76.1	77.5	73.9

[a] Mercury analysis conducted using EPA method 1631E detected 3.9 nanograms per liter (0.0039 µg/L) of mercury in a final effluent sample collected 10/09/2007.

Biosolids

Sewage sludge is the solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids are produced by treating sewage sludge to meet certain quality standards that allow it to be applied to the land for beneficial use. Biosolids do not classify as solid waste. The state of Washington recognizes biosolids as a valuable commodity.

Table 7 sets the maximum allowable concentration (ceiling limit) of pollutants in biosolids that are applied to the land. Sewage sludge that contains any pollutant listed in Table 7 of this section at a concentration greater than the allowable ceiling limit is not biosolids, but is classified a solid waste, and may not be applied to the land.

Table 7: Biosolids Ceiling Concentration Limits

Pollutant	CEILING CONCENTRATION [a] milligrams per kilogram (dry weight basis)
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

[a] WAC 173-308-160

Table 8 tabulates the pollutants detected in the biosolids and compares the results of analysis conducted over the course of two permit cycles. With the exception of molybdenum, which was not analyzed, the metal concentrations contained in the biosolids are well below the biosolids ceiling for a biosolids classification.

Table 8: Pollutant Concentrations in Biosolids (µg/Kg)

Parameter	Pollutants in Biosolids (µg/Kg)			
	2001	2003	10/08/07	10/18/07
gamma-BHC (Lindane)	69	ND	ND	ND
gamma-Chlordane	180	ND	11[a]	21 [a]
4,4'-DDD	ND	34	11 [a]	20 [a]
4,4'-DDE	84	69	34	32
4,4'-DDT	41	ND	ND	28 [a]
Dieldrin	ND	35	ND	11 [a]
Endrin	180	ND	ND	ND
PCBs	--	--	ND	ND
Total Phenolics	22	25		
Carbon Disulfide	12	ND	--	ND
2-Butanone	130	ND	150	110
Acetone	--	--	770	510

[a] The confirmation criteria for this compound were exceeded, but the relative percent of the analytical results between duplicate samples was greater than 25% for pesticides.

Table 9: Pollutant Concentrations in Biosolids(mg/Kg)

Parameter	Pollutants in Biosolids (mg/Kg)			
	2001	2003	10/08/07	10/18/07
bis (2-ethylhexyl)-phthalate	22	25	31	22.0
Antimony	--	--	2.04	2.47
Arsenic	5	ND	4.8	4.6
Cadmium	3	1.5	18.6	1.76
Chromium	68	35.7	46.6	40.2
Copper	752	578	661	625
Lead	178	78.9	60	59.9
Mercury	3.4	2.18	0.27	1.3
Nickel	22	19.9	22.7	19.9
Selenium	5	5.7	5.6	6.2
Silver	135	58.2	19	18.2
Zinc	1510	1020	1190	1100
Cyanide	6.5	4.1	5.7	8.8
Thallium	--	--	0.13	0.15
Total Phenolics	--	--	2.75	3.37
Beryllium	--	--	0.25	0.23
Oil and Grease (HEM)	--	--	18,000	19,000

WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. In addition, toxics that individually do not present toxic concentrations can in combination with other low level toxics present synergistic toxic effects on living organisms. Laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Prior to the 2000-2005 permit period, Ecology's WET Coordinator determined that an acute WET limit was necessary based on acute toxicity observed in the mid to late 1990's. However, Ecology chose not to include an acute WET limit in the permit because, chronic and sometimes severe treatment plant upsets were occurring frequently. Ecology determined that the treatment plant needed an upgrade, so it only included minimal WET testing and no WET limit in the permit.

Because the treatment plant upgrade was scheduled for completion in April 2006, the current permit required WET testing to begin in July 2007, to allow for any construction delays that may occur and to allow the City additional time to implement its pretreatment program. The City conducted effluent characterization from July 2007 to July 2008. The Wenatchee POTW still exhibits some acute toxicity to daphnids, commonly known as the water flea, and occasionally has had less than 65% survival in 100% effluent. The toxicity seems to occur in the summer and fall. Most municipal effluents are harmless to daphnids. An acute WET limit is required pursuant to WAC 173-205-050(2)(a)(i). No chronic WET limit is needed. The chronic toxicity which did occur only affected daphnids.

DESCRIPTION OF THE RECEIVING WATER

The City of Wenatchee POTW discharges to the Columbia River. Other nearby point source outfalls include those of Tree Top, Inc. and Keyes Fiber Company, located approximately 3.5 miles upstream, and East Wenatchee's POTW outfall, located approximately 1 mile downstream on the opposite bank. Significant nearby non-point sources of pollutants include storm water runoff from agricultural lands and urbanized areas. In addition, the Wenatchee River discharges into the Columbia River approximately 2 miles upstream of the Permittee's outfall.

In 1997, the City completed a *Mixing Zone Study* that estimated the applicable dilution factors for both the acute and chronic mixing zones at varying receiving water flows. The study was conducted by Gray & Osborne, Inc., using the CORMIX 2 (version 3.20) computer flow model.

The following parameters were used in the model to describe receiving water conditions:

Table 10: Receiving Water Characteristics Used in Mixing Zone Study

Characteristic	Value
Width of receiving water channel	366 m (1,200 ft)
Ambient flow rate	1,460 m^3/s (51,557 cfs)
Average depth	7.62 m (25 ft)
Depth at 7Q10	6.71 m (22 ft)
Mannings *n*	0.030
Temperature	15.6ºC (60ºF)

The basis of the 7Q10 flow used in the mixing zone study was not well documented, but appears low. A summary of river flows downloaded from the U. S. Geological Survey National Stream Water Quality Accounting Network (NASQAN) webpage, for water years 1996-2000, shows a minimum recorded flow of 44,900 cfs and a fifth percentile flow of 72,900 cfs. These flows were measured at the Vernita Bridge, near Priest Rapids Dam. The apparently low 7Q10 value may be explained by a previous comprehensive river flow regime used by the Federal agencies

that manage the Columbia River. Flow management is occasionally revised in response to several factors, such as the needs of irrigators, power generators or endangered species.

SEPA COMPLIANCE

The facility filed a SEPA checklist with the City of Wenatchee, and the City of Wenatchee issued a determination of non-significance for the improvement project on December 31 2008.

PROPOSED PERMIT LIMITS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. If significant changes occur in any constituent of the effluent discharge, the City of Wenatchee is required to notify Ecology (40 CFR 122.42(a)). Wenatchee may be in violation of the permit until Ecology modifies the permit to reflect additional discharge of pollutants.

DESIGN CRITERIA

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Ecology-approved design criteria for this facility's treatment plant were obtained from the Final Facility Plan Amendment, dated January 2003, prepared by CH2MHILL.

Table 11: Design Criteria for Wenatchee POTW

Parameter	Design Quantity
Monthly average flow (max. month)	5.5 MGD
BOD_5 influent loading	13,006 lbs/day
TSS influent loading	13,111 lbs/day
TKN influent loading	1,800 lbs/day

TECHNOLOGY-BASED EFFLUENT LIMITS

Federal and state regulations define technology-based effluent limits for municipal wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for municipal wastewater.

Chapter 173-221 WAC lists the following technology-based limits for pH, fecal coliform, BOD_5, and TSS:

Table 12: Technology-based Limits

Parameter	Limit
pH	The pH must measure within the range of 6.0 to 9.0 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

$CBOD_5$ Effluent Limits

The City requested, during the 2005-2010 permit development period, that Ecology substitute $CBOD_5$ effluent limits for the BOD_5 limits that appeared in the previous permit. The City's position is that the partial nitrification required to comply with the ammonia effluent limits interferes with the laboratory analysis for BOD_5, producing inaccurately high BOD_5 test results. During either complete nitrification or no nitrification, the CBOD tests appear unaffected. These observations are in line with guidance contained in Section 3.6.1 of Ecology's Permit Writers Manual.

As explained in the Permit Writers Manual, Ecology determined that, unless it has identified the receiving water as impaired for nitrogen, a facility has no obligation to remove nitrogenous oxygen-demanding substances from its wastewater. The BOD limit is intended to address oxygen demand of the discharge, rather than the nutrient loading or toxicity characteristics. The nitrogen portion of BOD is more appropriately addressed by either a total nitrogen limit, if the receiving water is nutrient-limited, or an ammonia limit, if toxicity is a concern. At this time, the Columbia River is not considered water quality-impaired for nutrients, and Ecology has determined that the effluent limits for ammonia in the proposed permit will prevent toxicity to aquatic life. Therefore, this permit maintains the $CBOD_5$ concentration limits as recommended in the State and Federal regulations, without further analysis.

$CBOD_5$ Mass Loadings

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (5.5 MGD) x Concentration limit (25 mg/L) x conversion factor (8.34) = 1,147 lbs/day.

The weekly average mass loadings were calculated as the maximum monthly design flow (5.5 MGD) x Concentration limit (40 mg/L) x conversion factor (8.34) = 1,835 lbs/day.

TSS Mass Loadings

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (5.5 MGD) x Concentration limit (30 mg/L) x conversion factor (8.34) = 1,376 lbs/day.

The weekly average mass loadings are calculated as 1.5 x monthly loading = 2,064 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA 1992). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other disease, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the State of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Ecology’s analysis described in this section of the fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may

exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and use no more than 25% of the available width of the water body for dilution. Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's *Permit Writer's Manual*). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent is 10% and the receiving water is 90% of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk

assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

This permit authorizes a small acute mixing zone, surrounded by a chronic mixing zone around the point of discharge (WAC 173-201A-400). The water quality standards impose certain conditions before allowing the discharger a mixing zone:

1. Ecology must specify both the allowed size and location in a permit.

The proposed permit specifies the size and location of the allowed mixing zone.

2. The facility must fully apply "all known, available, and reasonable methods of prevention, control and treatment" (AKART) to its discharge.

Ecology has determined that the treatment provided the Wenatchee POTW meets the requirements of AKART (see "Technology based Limits").

3. Ecology must consider critical discharge conditions.

Surface water quality-based limits are derived for the waterbody's critical condition (the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or designated waterbody uses). The critical discharge condition is often pollutant-specific or waterbody-specific.

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology's *Permit Writer's Manual* describes additional guidance on criteria/design conditions for determining dilution factors. The manual can be obtained from Ecology's website at: http://www.ecy.wa.gov/biblio/92109.html.

4. Supporting information must clearly indicate the mixing zone would not:

- **Have a reasonable potential to cause the loss of sensitive or important habitat.**
- **Substantially interfere with the existing or characteristic uses.**
- **Result in damage to the ecosystem.**
- **Adversely affect public health.**

Ecology established Washington State water quality criteria for toxic chemicals using EPA criteria. EPA developed the criteria using toxicity tests with numerous organisms and set the criteria to generally protect the species tested and to fully protect all commercially and recreationally important species.

EPA sets acute criteria for toxic chemicals assuming organisms are exposed to the pollutant at the criteria concentration for one hour. They set chronic standards assuming organisms are exposed to the pollutant at the criteria concentration for four days. Dilution modeling under critical conditions generally shows that both acute and chronic criteria concentrations are reached within minutes of being discharged.

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the water column. Ecology has additionally determined that the effluent will not exceed 33 degrees C for more than two seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

Ecology evaluates the cumulative toxicity of an effluent by testing the discharge with whole effluent toxicity (WET) testing.

Ecology reviewed the above information, the specific information on the characteristics of the discharge, the receiving water characteristics and the discharge location. Based on this review, Ecology concluded that the discharge does not have a reasonable potential to cause the loss of sensitive or important habitat, substantially interfere with existing or characteristics uses, result in damage to the ecosystem, or adversely affect public health if the permit limits are met.

5. The discharge/receiving water mixture must not exceed water quality criteria outside the boundary of a mixing zone.

Ecology conducted a reasonable potential analysis, using procedures established by the EPA and by Ecology, for each pollutant and concluded the discharge/receiving water mixture will

not violate water quality criteria outside the boundary of the mixing zone if permit limits are met.

6. The size of the mixing zone and the concentrations of the pollutants must be minimized.

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. The plume rises through the water column as it mixes, therefore much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

Ecology minimizes the size of mixing zones by requiring dischargers to install diffusers when they are appropriate to the discharge and the specific receiving waterbody. When a diffuser is installed, the discharge is more completely mixed with the receiving water in a shorter time. Ecology also minimizes the size of the mixing zone (in the form of the dilution factor) using design criteria with a low probability of occurrence. For example, Ecology uses the expected 95th percentile pollutant concentration, the 90th percentile background concentration, the centerline dilution factor, and the lowest flow occurring once in every ten years to perform the reasonable potential analysis.

Because of the above reasons, Ecology has effectively minimized the size of the mixing zone authorized in the proposed permit.

7. Maximum size of mixing zone.

The authorized mixing zone does not exceed the maximum size restriction.

8. Acute Mixing Zone.

- **The discharge/receiving water mixture must comply with acute criteria as near to the point of discharge as practicably attainable.**

  Ecology determined the acute criteria will be met at 10% of the of the chronic mixing zone at the ten year low flow.

- **The pollutant concentration, duration, and frequency of exposure to the discharge will not create a barrier to migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.**

As described above, the toxicity of any pollutant depends upon the exposure, the pollutant concentration, and the time the organism is exposed to that concentration. Authorizing a limited acute mixing zone for this discharge assures that it will not create a barrier to migration. The effluent from this discharge will rise as it enters the receiving water, assuring that the rising effluent will not cause translocation of indigenous organisms near the point of discharge (below the rising effluent).

- **Comply with size restrictions.**

  The mixing zone authorized for this discharge complies with the size restrictions published in chapter 173-201A WAC.

9. Overlap of Mixing Zones.

This mixing zone does not overlap another mixing zone.

DESIGNATED USES AND SURFACE WATER QUALITY CRITERIA

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). Criteria applicable to this facility's discharge are summarized below in Table 5.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for, the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 13: Aquatic Life Uses & Associated Criteria

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 1 DAY MAX	20°C (68°F) Columbia River Special Criterion
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	Shall exceed 90 percent of saturation
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU
Total Dissolved Gas Criteria	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection
pH Criteria	pH shall be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units

- The recreational uses are extraordinary primary contact recreation, primary contact recreation, and secondary contact recreation. The recreational uses for this receiving water are identified below.

Table 14: Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL

- The **water supply uses** are domestic, agricultural, industrial, and stock watering.
- The **miscellaneous freshwater uses** are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC.

Determination of Dilution Factors

In 1997, the City completed a *Mixing Zone Study* that estimated the applicable dilution factors for both the acute and chronic mixing zones at varying receiving water flows. The study was conducted by Gray & Osborne, Inc., using the CORMIX 2 (version 3.20) computer flow model.

The following parameters were used in the model to describe receiving water conditions:

Table 15: Receiving Water Characteristics Used in Mixing Zone Study

Characteristic	Value
Width of receiving water channel	366 m (1,200 ft)
Ambient flow rate	1,460 m^3/s (51,557 cfs)
Average depth	7.62 m (25 ft)
Depth at 7Q10	6.71 m (22 ft)
Mannings *n*	0.030
Temperature	15.6ºC (60ºF)

The following diffuser and discharge parameters were used in the model:

Table 16: Diffuser Characteristics Used in Mixing Zone Study

Characteristic	Value
Diffuser type	Unidirectional perpendicular
Diffuser length	15.2 m (50 ft)
Diffuser endpoints	Start 30.5 m (100 ft)
(from right bank)	End 45.7 m (150 ft)
Number of ports	6
Spacing between ports	3.04 m (10 ft)
Port nozzle diameter	0.254 m (10 in)
Discharge port height	0.3 m (1 ft)
Discharge temperature	22.2ºC (72ºF)

The 1997 study assumed an effluent volume of 6 MGD. The reason for using this flow value, rather than the approved maximum monthly flow criterion of 5.5 MGD is unknown, but it adds a conservative influence into the calculations by decreasing the dilution factors.

The acute and chronic dilution factors calculated by the study at the 7Q10 low flow (51,557 cfs) of the Columbia River were as follows:

Table 17: Applicable Dilution Factors

Mixing Zone Type	Acute	Chronic
Aquatic Life	139	244

The basis of the 7Q10 flow used in the mixing zone study was not well documented, but appears low. A summary of river flows downloaded from the U. S. Geological Survey National Stream Water Quality Accounting Network (NASQAN) webpage, for water years 1996-2000, shows a minimum recorded flow of 44,900 cfs and a fifth percentile flow of 72,900 cfs. These flows were measured at the Vernita Bridge, near Priest Rapids Dam. The apparently low 7Q10 value may be explained by a previous comprehensive river flow regime used by the Federal agencies

that manage the Columbia River. Flow management is occasionally revised in response to several factors, such as the needs of irrigators, power generators or endangered species.

Although the organic design loadings of the treatment plant were revised in the approved 2003 Facility Plan, the hydraulic design loadings remain unchanged. Therefore, Ecology retained the existing dilution factors from the existing permit. However, in light of the high effluent flow value and the apparent low 7Q10 flow on which the dilution factors are based, the City may want to consider conducting a revised mixing study in the future to update the dilution factors.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

Ecology determined the impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, ammonia, metals, and other toxics as described below, using the dilution factors in the above table. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

CBOD$_5$--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Furthermore, the current upgrade has significantly improved treatment of carbonaceous BOD in the wastewater. Oxygen demand of nitrogenous BOD is regulated by the ammonia limits in the permit. A more detailed discussion of the BOD/CBOD issue is contained in the Technology-based Effluent Limitations section of this fact sheet. Ecology anticipates that technology-based limitations will protect dissolved oxygen criteria in the receiving water.

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

- Annual summer maximum and supplementary spawning/rearing criteria

  Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1)(c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

  Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

  The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- Incremental warming criteria

  The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

  At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

  At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

  When Ecology has not yet completed a TMDL, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25% or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- Temperature Acute Effects

Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C; unless a dilution analysis indicates ambient temperatures will not exceed 33°C Two-seconds after discharge.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Annual summer maximum and incremental warming criteria: Ecology calculated the reasonable potential for the discharge to exceed the annual summer maximum, and the incremental warming criteria at the edge of the chronic mixing zone during critical condition.

The Columbia River at the outfall of the Wenatchee POTW has a special maximum temperature criterion of 20º C. Ecology required the Wenatchee POTW to collect receiving water data on the pH and summer temperatures of the Columbia River in the vicinity of the outfall Table 14 contains the results of that monitoring, which is used in the calculation of temperature, ammonia and pH reasonable potential to exceed the criteria.

Table 18: Recent Ambient pH and Temperature Data

Date	pH, su	pH, su	Temperature ºC
	Maximum	Minimum	Maximum
1-Jul-05	7.9	7.3	18.5
1-Aug-05	7.6	7.5	19.5
1-Sep-05	7.9	7.6	20.2
1-Jul-06	8.0	7.2	20.1
1-Aug-06	8.0	8.0	21.3
1-Sep-06	8.1	8.1	20.4
1-Jul-07	8.3	8.1	19.5
1-Aug-07	8.2	8.2	20.9
1-Sep-07	8.4	8.2	20.2
1-Jul-08	8.3	7.7	18.9
1-Aug-08	8.3	8.2	20.8
1-Sep-08	8.4	8.3	20.0
1-Jul-09	8.3	8.1	18.4
1-Aug-09	8.3	8.2	19.8
1-Sep-09	8.3	8.0	18.5
Maximum	8.4	--	21.3
Minimum	--	7.2	18.4

Given the large chronic dilution factor (244: 1), no reasonable potential exists to exceed the temperature criterion (see appendix C calculations).

The mass balance equation predicts a 0.013 ºC increase. Therefore, the proposed permit does not include a temperature limit.

Ecology will reevaluate the reasonable potential during the next permit renewal.

pH--Ecology modeled the impact of the effluent pH on the receiving water using the calculations from EPA, 1988, and the chronic dilution factor of 244. The receiving water input variables used are listed above in Table 18. The effluent input variables used are included in Table 4.

Fecal Coliform--Ecology modeled the numbers of fecal coliform by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 244:1.

Under critical conditions, modeling predicts no violation of the water quality criterion for fecal coliform. Therefore, the proposed permit includes the technology-based effluent limit for fecal coliform bacteria.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge: ammonia, copper, zinc, lead, arsenic, chromium, antimony, selenium and mercury. Ecology conducted a reasonable potential analysis (See Appendix C) on these parameters to determine whether it would require effluent limits in this permit.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature and pH in the receiving freshwater. To evaluate ammonia toxicity, Ecology used the available receiving water information for Ecology’s Environmental Assessment Program ambient station 36A070 - Columbia R near the Vernita Bridge and Ecology spreadsheet tools.

Ecology determined that ammonia, copper, zinc, lead, arsenic, chromium, antimony, selenium and mercury pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (Appendix C) and as described above. Ecology’s determination assumes that this facility meets the other effluent limits of this permit.

WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater using acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- *Chronic toxicity tests measure various sublethal toxic responses,* such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

Ecology-accredited WET testing laboratories use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff knows how to calculate an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. Ecology gives all accredited labs the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (http://www.ecy.wa.gov/biblio/9580.html), which is referenced in the permit. Ecology recommends that each regulated facility send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

WET testing conducted during the previous permit term showed the facility's effluent has a reasonable potential to cause acute toxicity in the receiving water. The proposed permit will impose an acute toxicity limit. **The effluent limit for acute toxicity is: No acute toxicity detected in a test sample representing the acute critical effluent concentration (ACEC).** The acute critical effluent concentration (ACEC) is the concentration of effluent at the boundary of the acute mixing zone during critical conditions. **The ACEC equals 0.72% effluent.**

Compliance with an acute toxicity limit is measured by an acute toxicity test comparing test organism survival in the ACEC (using a sample of effluent diluted to equal the ACEC) to survival in nontoxic control water. Wenatchee is in compliance with the acute toxicity limit if there is no statistically significant difference in test organism survival between the ACEC sample and the control sample.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water chronic toxicity. The proposed permit will not

impose a chronic WET limit. Wenatchee must retest the effluent before submitting an application for permit renewal.

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization
- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. Wenatchee may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the effluent may contain chemicals of concern for human health, based on data or information indicating a regulated chemical. Bis(2-ethylhexyl)-phthalate may occur in the discharge. This determination is based on the presence of this compound in the biosolids but not in the effluent. Ecology conducted a reasonable potential analysis based on the maximum concentration found in the biosolids. At that concentration, no reasonable potential exists and therefore no limit would be required if the concentration of bis(2-ethylhexyl)-phthalate were to be found in the effluent.

Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's *Permit Writer's Manual* to make a reasonable potential determination. The evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed.

SEDIMENT QUALITY

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website.
http://www.ecy.wa.gov/programs/tcp/smu/sediment.html

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the sediment management standards.

GROUND WATER QUALITY LIMITS

The ground water quality standards (chapter 173-200 WAC) protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

The Wenatchee POTW does not discharge wastewater to the ground. No permit limits are required to protect ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT ISSUED ON APRIL 15, 2005

The effluent limits in the proposed permit are unchanged from the current permit.

Table 19: Comparison of Effluent Limits

Parameter	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
		Average Monthly	Average Weekly	Average Monthly	Average Weekly
Carbonaceous Biochemical Oxygen Demand (5-day), in mg/L	Technology	25	40	25	40
Carbonaceous Biochemical Oxygen Demand (5-day), in lbs/Day	Technology	1,147	1,835	1,147	1,835
Total Suspended Solids, in mg/L	Technology	30	45	30	45
Total Suspended Solids, in lbs/ Day	Technology	1,376	2,064	1,376	2,064
Fecal Coliform Bacteria	Technology	200	400	200	400
pH	Technology	Between 6.0 and 9.0 at all times		Between 6.0 and 9.0 at all times	
Parameter	**Basis of Limit**	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Ammonia, in mg/L	Water Quality	25	47	25	47
Ammonia, in lbs/Day	Water Quality	1,147	2,156	1,147	2,156

MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (Publication Number 92-09) for Activated Sludge Plant with Ultraviolet (UV) Disinfection.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Biosolids monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

As a pretreatment publicly owned treatment works (POTW), the City of Wenatchee is required to sample influent, primary clarifier effluent, final effluent, and sludge for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass-through the plant to the sludge or the receiving water. The City of Wenatchee will use the monitoring data to develop local limits which commercial and industrial users must meet.

The proposed permit requires The City of Wenatchee to monitor for BOD_5, $CBOD_5$, TSS, total Kjeldahl nitrogen, total ammonia, flow, dissolved oxygen, total hardness, fecal coliform bacteria, temperature, pH, and conduct WET testing to further characterize the effluent. These pollutant(s) could have a significant impact on the quality of the surface water.

Additional monitoring is required in the proposed permit to support the reissuance of the next permit. The Permittee is required to monitor on a quarterly basis: TDS, oil and grease, total phosphorus, alkalinity, and nitrate/nitrite.

The current and previous permits required influent monitoring for ammonia. Since effluent ammonia is monitored at the UV building, Ecology is suspending the influent ammonia monitoring requirement.

LAB ACCREDITATION

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories* to prepare all monitoring data (with the exception of certain parameters). Ecology accredited the laboratory at this facility for:

Table 20: Accredited Test Parameters

General Chemistry		
parameter name	method	matrix *
Alkalinity	SM 2320 B	N
Alkalinity as CaCO3	SM 2320 B	N
Ammonia as N	SM 18 4500-NH3 F	N
Biochemical Oxygen Demand	SM 5210 B	N
Hardness, Total (as CaCO3)	SM 2340 C	N
Oxygen, dissolved	SM 4500-O G	N
pH	SM 4500-H	N
Residue-nonfilterable (TSS)	SM 2540 D	N
Solids, Total Suspended	SM 2540 D	N
Total hardness as CaCO3	SM 2340 C	N
Microbiology		
parameter name	method	matrix *
Fecal coliforms	SM 9222 D	N
Physical		
parameter name	method	matrix *
pH	SM 4500-H	N
* Matrix key: D = drinking water; N = non-potable water; S = solids/chem materials; A = air		

OTHER PERMIT CONDITIONS

REPORTING AND RECORD KEEPING

Ecology based permit condition S3 on our authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Wenatchee POTW to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S5. as authorized under RCW 90.48.110, WAC 173-220-150, chapter 173-230 WAC, and WAC 173-240-080. Ecology included it to ensure proper operation and regular maintenance of equipment, and to ensure that the Wenatchee POTW takes adequate safeguards so that it uses constructed facilities to their optimum potential in terms of pollutant capture and treatment.

PRETREATMENT

Duty to Enforce Discharge Prohibitions

This provision prohibits the publicly owned treatment works (POTW) from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer.

- The first section of the pretreatment requirements prohibits the POTW from accepting pollutants which causes "Pass-through" or "Interference". This general prohibition is from 40 CFR §403.5(a). Appendix B of this fact sheet defines these terms.

- The second section reinforces a number of specific State and Federal pretreatment prohibitions found in WAC 173-216-060 and 40 CFR §403.5(b). These reinforce that the POTW may not accept certain wastes, which:

    - Are prohibited due to dangerous waste rules.
    - Are explosive or flammable.
    - Have too high or low of a pH (too corrosive, acidic or basic).
    - May cause a blockage such as grease, sand, rocks, or viscous materials.
    - Are hot enough to cause a problem.
    - Are of sufficient strength or volume to interfere with treatment.
    - Contain too much petroleum-based oils, mineral oil, or cutting fluid.
    - Create noxious or toxic gases at any point.

    40 CFR Part 403 contains the regulatory basis for these prohibitions , with the exception of the pH provisions which are based on WAC 173-216-060.

- The third section of pretreatment conditions reflects state prohibitions on the POTW accepting certain types of discharges unless the discharge has received prior written authorization from Ecology. These discharges include:

    - Cooling water in significant volumes.
    - Stormwater and other direct inflow sources.
    - Wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Federal and State Pretreatment Program Requirements

Ecology administers the Pretreatment Program under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986) and 40 CFR, part 403. Under this delegation of authority, Ecology issues wastewater discharge permits for significant industrial users (SIUs) discharging to POTWs which have not been delegated authority to issue wastewater

discharge permits. Ecology must approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) (40 CFR 403.8 (f)(1)(i) and(iii)).

Industrial dischargers must obtain a permit from Ecology before discharging waste to the Wenatchee POTW (WAC 173-216-110(5)). Industries discharging wastewater that is similar in character to domestic wastewater do not require a permit.

Routine Identification and Reporting of Industrial Users

The permit requires non-delegated POTWs to take "continuous, routine measures to identify all existing, new, and proposed significant industrial users (SIUs) and potential significant industrial users (PSIUs)" discharging to their sewer system. Examples of such routine measures include regular review of water and sewer billing records, business license and building permit applications, advertisements, and personal reconnaissance. System maintenance personnel should be trained on what to look for so they can identify and report new industrial dischargers in the course of performing their jobs. The POTW may not allow SIUs to discharge prior to receiving a permit, and must notify all industrial dischargers (significant or not) in writing of their responsibility to apply for a State Waste Discharge Permit. The POTW must send a copy of this notification to Ecology.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users and must conduct an Industrial User (IU) Survey. The purpose of the IU Survey is to identify all facilities that may be subject to pretreatment standards or requirements so that Ecology can take appropriate measures to control these discharges. The POTW should identify each such user, and require them to apply for a permit before allowing their discharge to the POTW to commence. For SIUs, the POTW must require they actually are issued a permit prior to accepting their discharge. The steps the POTW must document in their IU Survey submittal include:

1. The POTW must develop a master list of businesses that may be subject to pretreatment standards and requirements and show their disposition. This list must be based on several sources of information including business licenses, and water and sewer billing records.

2. The POTW must canvas all the potential sources, having them either complete a survey form or ruling them out by confirming they only generate domestic wastewater.

3. The POTW must develop a list of the SIUs and potential SIUs in all areas served by the POTW. The list must contain sufficient information on each to allow Ecology to

decide which discharges merit further controls such as a state waste discharge permit.

Ecology describes the information needed in IU Survey submittals to allow Ecology to make permitting decision in the manual "Performing an Industrial User Survey". Properly completing an Industrial User Survey helps Ecology control discharges that may otherwise harm the POTW including its collection system, processes, and receiving waters. Where surveys are incomplete, Ecology may take such enforcement as appropriate and/or require the POTW to develop a fully delegated pretreatment program.

The proposed permit requires the City of Wenatchee to conduct an industrial user survey to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (chapter 90.48 RCW and chapter 173-216 WAC), and with local ordinances.

Support by Ecology for Developing Partial Pretreatment Program by POTW

The City of Wenatchee has developed a partial pretreatment program to provide more direct and effective control of pollutants discharged to the sanitary sewer, as required under 40 CFR Part 403 . The program is designed to detect and enforce against violations of categorical pretreatment standards promulgated under the federal Clean Water Act.

Ecology will provide technical assistance to the City of Wenatchee in fulfilling these joint obligations. In particular, it will assist with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

SOLID WASTE CONTROL

To prevent water quality problems the facility is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under chapter 70.95J RCW, chapter 173-308 WAC "Biosolids Management," and chapter 173-350 WAC "Solid Waste Handling Standards." The disposal of other solid waste is under the jurisdiction of the Chelan County Health Department.

Requirements for monitoring sewage sludge and record keeping are included in this permit. This information will be used by Ecology to develop or update local limits and is also required under 40 CFR 503.

GENERAL CONDITIONS

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual municipal NPDES permits issued by Ecology.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, based on new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

PROPOSED PERMIT ISSUANCE

This proposed permit meets all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. *National Toxics Rule.* Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA/505/2-90-001.

1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling.* USEPA Office of Water, Washington, D.C.

1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.

1983. *Water Quality Standards Handbook.* USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

2006. *Permit Writer's Manual.* Publication Number 92-109 (http://www.ecy.wa.gov/biblio/92109.html)

Laws and Regulations (http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html)

Water Pollution Control Federation.

1976. *Chlorination of Wastewater*.

Wright, R.M., and A.J. McDonnell.

1979. *In-stream Deoxygenation Rate Prediction.* Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to the Wenatchee POTW. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on June 9, 2010 in the Wenatchee World to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice –

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

NOTICE: ANNOUNCEMENT OF AVAILABILITY OF DRAFT PERMITS

Draft Permits have been completed for the following permittees for a National Pollutant Discharge Elimination System (NPDES) Permit in accordance with the provisions of Chapter 90.48 Revised Code of Washington (RCW), Chapter 173-220 Washington Administrative Code (WAC), and the Federal Clean Water Act.

Following evaluation of the applications and other available information, draft permits have been developed for:

Permittee: City of Leavenworth, Permit No. WA-002097-4 which would allow the discharge of treated municipal wastewater up to a maximum of 840,000 gallons per day to the Wenatchee River at River Mile 24 from its facility located at 1402 Commercial Street, Leavenworth.

Permittee: City of Wenatchee, Permit No. WA-002394-9 which would allow the discharge of municipal wastewater to a maximum of 5.5 million gallons per day to the Columbia River at River Mile 466.6 from its facility located at 201 North Worthen Street, Wenatchee.

All discharges to be in compliance with the Department of Ecology's Water Quality Standards for a permit to be issued.

A tentative determination has been made to issue these permits based on the effluent limitations and special permit conditions that will prevent and control pollution. A final determination will not be made until all timely comments received in response to this notice have been evaluated.

PUBLIC COMMENT AND INFORMATION
The draft permits and fact sheets may be viewed at the Department of Ecology (Department) website: http://www.ecy.wa.gov/programs/wq/permits/central_permits.html. The applications, fact sheets, proposed permits, and other related documents are also available at the Department's Central Regional Office for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m., weekdays. To obtain a copy or to arrange to view copies at the Central Regional Office, please call Cindy Huwe at 509/457-7105, e-mail cynthia.huwe@ecy.wa.gov, or write to the address below.

Interested persons are invited to submit written comments regarding the proposed permits. All comments must be submitted by July 9, 2010 (within 30 days of the final date of publication of this notice) to be considered for the final determination. Comments should be sent to: Department of Ecology, Central Regional Office, 15 West Yakima Avenue, Suite 200, Yakima, WA 98902, Attention: Cindy Huwe. E-mail comments should be sent to Cindy Huwe at cynthia.huwe@ecy.wa.gov.

Any interested party may request a public hearing on the proposed permits within 30 days of the publication date of this notice. The request for a hearing shall state the interest of the party and the reasons why a hearing is necessary. The request should be sent to the above address. The Department will hold a hearing if it determines that there is significant public interest. If a hearing is to be held, public notice will be published at least 30 days in advance of the hearing date. Any party responding to this notice with comments will be mailed a copy of a hearing public notice. Please bring this public notice to the attention of persons who you know would be interested in this matter. The Department is an equal opportunity agency. If you have a special accommodation needs, please contact Cindy Huwe at 509/457-7105 or TTY (for the speech and hearing impaired) at 1-800-833-6388.

Publication date of this Notice is June 9, 2010.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at http://www.ecy.wa.gov/biblio/0307023.html. You may obtain further information from Ecology by telephone, 509 457 7105, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

The primary author of this permit and fact sheet is Richard Marcley.

APPENDIX B—GLOSSARY

1-DMax or **1-day maximum temperature -** The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or **7-day average of the daily maximum temperatures -** The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute Toxicity—The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART – The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Ambient Water Quality—The existing environmental condition of the water in a receiving water body.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF)—The average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly Discharge Limit—The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite Sample—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring—Uninterrupted, unless otherwise noted in the permit.

Critical Condition—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor (DF)—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limit—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum Day Design Flow (MDDF)—The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum Month Design Flow (MMDF)— The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum Week Design Flow (MWDF)— The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method Detection Level (MDL)—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone—An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable

waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH—The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Peak Hour Design Flow (PHDF)—The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak Instantaneous Design Flow (PIDF)—The maximum anticipated instantaneous flow.

Quantitation Level (QL)— The smallest detectable concentration of analyte greater than the Method Detection Limit (MDL) where the accuracy (precision &bias) achieves the objectives of the intended purpose.

Reasonable Potential — A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer—A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)—Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Solid waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit—A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C—TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on Ecology's homepage at http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    CORMIX: CORNELL MIXING ZONE EXPERT SYSTEM
                        CORMIX v.3.20      September 1996
SITE NAME/LABEL:                    Wenatchee-WWTF
  DESIGN CASE:                      Multi-port-dffuser-run1   5 mgd
  FILE NAME:                        cmx2run1
Using subsystem CORMIX2:            Submerged Multiport Diffuser Discharges
  Start of session:                 06/26/97--15:48:19
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                                = bounded
  Width                             BS         =          366 m
  Channel regularity                ICHREG     = 1
  Ambient flowrate                  QA         =         1460 m^3/s
  Average depth                     HA         =         7.62 m
  Depth at discharge                HD         =         6.71 m
  Ambient velocity                  UA         =       0.5235 m/s
  Darcy-Weisbach friction factor    F          =       0.0359
    Calculated from Manning's n                =         .030
  Wind velocity                     UW         =            2 m/s
Stratification Type                 STRCND     = U
  Surface temperature                          =         15.6 degC
  Bottom temperature                           =         15.6 degC
  Calculated FRESH-WATER DENSITY values:
  Surface density                   RHOAS      =     999.0084 kg/m^3
  Bottom density                    RHOAB      =     999.0084 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:               Submerged Multiport Diffuser Discharge
  Diffuser type                     DITYPE     = unidirectional perpendicular
  Diffuser length                   LD         = 15.2 m
  Nearest bank                                 = right
  Diffuser endpoints                YB1        =    30.5 m;     YB2 =     45.7 m
  Number of openings                NOPEN      =          6
  Spacing between risers/openings   SPAC       =         3.04 m
  Port/Nozzle diameter              D0         =         .254 m
    with contraction ratio                     = 1
  Equivalent slot width             B0         =       0.0200 m
  Total area of openings            A0         =       0.0506 m^2
  Discharge velocity                U0         =         0.72 m/s
  Total discharge flowrate          Q0         =         .219 m^3/s
  Discharge port height             H0         =           .3 m
  Nozzle arrangement                BETYPE     = unidirectional without fanning
  Diffuser alignment angle          GAMMA      =           90 deg
  Vertical discharge angle          THETA      =            0 deg
  Horizontal discharge angle        SIGMA      =            0 deg
  Relative orientation angle        BETA       =           90 deg
  Discharge density                 RHO0       =     997.7258 kg/m^3
  Density difference                DRHO       =       1.2826 kg/m^3
  Buoyant acceleration              GP0        =        .0126 m/s^2
  Discharge concentration           C0         =           .5 mg-per-liter
  Surface heat exchange coeff.      KS         =            0 m/s
  Coefficient of decay              KD         =            0 /s
-----------------------------------------------------------------------------
FLUX VARIABLES PER UNIT DIFFUSER LENGTH:
  Discharge (volume flux)           q0         =     0.014408 m^2/s
  Momentum flux                     m0         =     0.010379 m^3/s^2
  Buoyancy flux                     j0         =     0.000181 m^3/s^3


  Plume becomes vertically fully mixed ALREADY IN NEAR-FIELD at        7.60 m
  downstream and continues as vertically mixed into the far-field.
************************ TOXIC DILUTION ZONE SUMMARY ************************
No TDZ was specified for this simulation.
********************** REGULATORY MIXING ZONE SUMMARY ***********************
The plume conditions at the boundary of the specified RMZ are as follows:
  Pollutant concentration                      =        .001821 mg-per-liter
  Corresponding dilution                       =         292.6
  Plume location:                            x =         98.10 m
    (centerline coordinates)                 y =           .00 m
                                             z =          6.71 m
  Plume dimensions:                half-width =          9.12 m
                                    thickness =          6.71 m
At this position, the plume is NOT IN CONTACT with any bank.
Furthermore, the specified water quality standard has indeed been met
  within the RMZ. In particular:
The ambient water quality standard was encountered at the following
  plume position:
  Water quality standard                       =            .019 mg-per-liter
  Corresponding dilution                       =         26.3
  Plume location:                            x =           .74 m
    (centerline coordinates)                 y =           .00 m
                                             z =           .59 m
  Plume dimensions:                half-width =          7.59 m
                                    thickness =           .65 m
```

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    CORMIX: CORNELL MIXING ZONE EXPERT SYSTEM
                        CORMIX v.3.20      September 1996
  TE NAME/LABEL:                    Wenatchee-WWTF
  DESIGN CASE:                      Multi-port-diffuser-run2-6mgd
  FILE NAME:                        cmx2run2
Using subsystem CORMIX2:            Submerged Multiport Diffuser Discharges
  Start of session:                 07/05/97--15:34:45
 ****************************************************************************
UMMARY OF INPUT DATA:
----------------------------------------------------------------------------
MBIENT PARAMETERS:
  Cross-section                                = bounded
  Width                              BS        =          366 m
  Channel regularity                 ICHREG    = 1
  Ambient flowrate                   QA        =         1460 m^3/s
  Average depth                      HA        =         7.62 m
  Depth at discharge                 HD        =         6.71 m
  Ambient velocity                   UA        =       0.5235 m/s
  Darcy-Weisbach friction factor     F         =       0.0359
    Calculated from Manning's n                 =         .030
  Wind velocity                      UW        =            2 m/s
 tratification Type                  STRCND    = U
  Surface temperature                          =         15.6 degC
  Bottom temperature                           =         15.6 degC
  Calculated FRESH-WATER DENSITY values:
  Surface density                    RHOAS     =     999.0084 kg/m^3
  Bottom density                     RHOAB     =     999.0084 kg/m^3
----------------------------------------------------------------------------
ISCHARGE PARAMETERS:                 Submerged Multiport Diffuser Discharge
  Diffuser type                      DITYPE    = unidirectional perpendicular
  Diffuser length                    LD        = 15.2 m
  Nearest bank                                 = right
  Diffuser endpoints                 YB1       =    30.5 m;     YB2 =     45.7 m
  Number of openings                 NOPEN     =            6
  Spacing between risers/openings    SPAC      =         3.04 m
  Port/Nozzle diameter               D0        =         .254 m
    with contraction ratio                     = 1
  Equivalent slot width              B0        =       0.0200 m
  Total area of openings             A0        =       0.0506 m^2
  Discharge velocity                 U0        =         0.86 m/s
  Total discharge flowrate           Q0        =         .263 m^3/s
  Discharge port height              H0        =           .3 m
  Nozzle arrangement                 BETYPE    = unidirectional without fanning
  Diffuser alignment angle           GAMMA     =           90 deg
  Vertical discharge angle           THETA     =            0 deg
  Horizontal discharge angle         SIGMA     =            0 deg
  Relative orientation angle         BETA      =           90 deg
  Discharge temperature (freshwater)           =         22.2 degC
    Corresponding density            RHO0      =     997.7258 kg/m^3
  Density difference                 DRHO      =       1.2826 kg/m^3
  Buoyant acceleration               GP0       =        .0126 m/s^2
  Discharge concentration            C0        =                .5 mg-per-liter
  Surface heat exchange coeff.       KS        =            0 m/s

AR-FIELD MIXING SUMMARY:
  Plume becomes vertically fully mixed ALREADY IN NEAR-FIELD at        7.60 m
  downstream and continues as vertically mixed into the far-field.
********************** TOXIC DILUTION ZONE SUMMARY **********************
 TDZ was specified for this simulation.
******************** REGULATORY MIXING ZONE SUMMARY **********************
he plume conditions at the boundary of the specified RMZ are as follows:
  Pollutant concentration                      =        .002184 mg-per-liter
  Corresponding dilution                       =         243.9
  Plume location:                            x =         98.10 m
    (centerline coordinates)                 y =           .00 m
                                             z =          6.71 m
  Plume dimensions:                half-width =          9.12 m
                                    thickness =          6.71 m
At this position, the plume is NOT IN CONTACT with any bank.
Furthermore, the specified water quality standard has indeed been met
  within the RMZ. In particular:
he ambient water quality standard was encountered at the following
  plume position:
  Water quality standard                       =             .019 mg-per-liter
  Corresponding dilution                       =         26.3
  Plume location:                            x =           .74 m
    (centerline coordinates)                 y =           .00 m
                                             z =           .59 m
  Plume dimensions:                half-width =          7.59 m
                                    thickness =           .65 m
******************** FINAL DESIGN ADVICE AND COMMENTS **********************
```

Based on Lotus File PHMIX2.WK1 Revised 19-Oct-93

INPUT				
1. DILUTION FACTOR AT CHRONIC MIXING ZONE BOUNDARY	244.00	244.00	244.00	244.00
1. UPSTREAM/BACKGROUND CHARACTERISTICS	Ambient at Max pH		Ambient at Min pH	
Temperature (deg C):	21.30	20.30	20.30	20.30
pH: MAX	8.40	8.40	7.20	7.20
Alkalinity (mg CaCO3/L):	28.00	28.00	28.00	28.00
	Effluent @ Max pH	Effluent @ Min pH	Effluent @ Max pH	Effluent @ Min pH
2. EFFLUENT CHARACTERISTICS				
Temperature (deg C): Maximum report temperature	24.60	24.60	24.60	24.60
pH:	7.60	6.40	7.60	6.40
Alkalinity (mg CaCO3/L): Average	91.80	91.80	91.80	91.80
OUTPUT				
1. IONIZATION CONSTANTS				
Upstream/Background pKa:	6.37	6.38	6.38	6.38
Effluent pKa:	6.35	6.35	6.35	6.35
2. IONIZATION FRACTIONS				
Upstream/Background Ionization Fraction:	0.99	0.99	0.87	0.87
Effluent Ionization Fraction:	0.95	0.53	0.95	0.53
3. TOTAL INORGANIC CARBON				
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	28.26	28.27	32.24	32.24
Effluent Total Inorganic Carbon (mg CaCO3/L):	96.99	174.06	96.99	174.06
4. CONDITIONS AT MIXING ZONE BOUNDARY				
Temperature (deg C):	21.31	20.32	20.32	20.32
Alkalinity (mg CaCO3/L):	28.26	28.26	28.26	28.26
Total Inorganic Carbon (mg CaCO3/L):	28.54	28.86	32.50	32.82
pKa:	6.37	6.38	6.38	6.38
pH at Mixing Zone Boundary:	8.37	8.05	7.20	7.17

Columbia Temperature Mass Balance Model for Wenatchee POTW Effluent

dilution valuator	effluent temp	dilution valuator	ambient temp	final temp	dil factor *
0.613	24.60	149	21.30	21.314	**244.1**

Temperature Increase Limit 0.3 C **Predicted Increase 0.013 °C < 0.300**

* Dilution Factor based on the regulatory limit using 25% of the 7Q10 flow.

Bacteriological Mass Balance Model
Wenatchee POTW to the Columbia River

CHRONIC DILUTION 244 :1

Dilution Calculator	Effluent colonies per ml	Dilution Calculator	Ambient colonies per ml	Final conc	Dilution factor
			maximum		
41.1	400	10000	110	111	244
			95th %tile		
41.1	200	10000	7.4	8	244

Calculation Of Ammonia Concentration and Criteria for fresh water. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

	Predicted pH edge of chronic mixing zone	
INPUT	pH @Max eff.	pH @Min eff
1. Ambient Temperature (deg C; 0<T<30)	21.3	21.3
2. Ambient pH (6.5<pH<9.0) at edge	8.40	7.20
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	15
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.00	1.00
Chronic FT	1.41	1.41
FPH	1.00	2.07
RATIO	14	25
pKa	9.36	9.36
Fraction Of Total Ammonia Present As Un-ionized	9.8842%	0.6873%
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	260.0	125.7
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0	11.1
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	2.6	18.3
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	0.4	1.6
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	**2.2**	15.0
Chronic Ammonia Criterion as N	**0.35**	1.32

REASONABLE POTENTIAL **CALCULATIONS**

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

Parameter	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Conc (metals as dissolved)	State Water Quality Standard Acute	State Water Quality Standard Chronic	Max concentration at edge of... Acute Mixing Zone	Max concentration at edge of... Chronic Mixing Zone	LIMIT REQ'D?	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samp	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
AMMONIA Max Day Limit	0.95	0.95	10.00	2200.00	350.00	177.40	105.36	NO	0.95	0.95	24000.00	0.60	0.55	54.00	1.02	139.00	244.00
AMMONIA Max Day	0.95	0.95	10.00	2200.00	350.00	177.40	105.36	NO	0.95	0.95	24000.00	0.60	0.55	54.00	1.02	139.00	244.00
Zinc	0.95	0.95	1.84	91.60	83.70	3.84	2.98	NO	0.95	0.22	77.50	0.60	0.55	2.00	3.79	139.00	244.00
Copper	1.00	1.00	0.72	13.30	9.07	2.28	1.61	NO	0.95	0.22	57.50	0.60	0.55	2.00	3.79	139.00	244.00
Lead	0.47	0.47	0.10	48.50	1.90	0.11	0.10	NO	0.95	0.22	0.60	0.60	0.55	2.00	3.79	139.00	244.00
Chromium (HEX)	0.30	0.96	0.880	15.00	10.00	0.88	0.887	NO	0.95	0.22	0.70	0.60	0.55	2.00	3.79	139.00	244.00
Mercury	0.85	0.57	0.000	2.10	0.01	0.00	0.000	NO	0.95	0.22	0.001	0.60	0.55	2.00	3.79	139.00	244.00

Revised 3/00	Ambient Concentration (Geometric Mean)	Water Quality Criteria for Protection of Human Health	Max concentration at edge of chronic mixing zone.	LIMIT REQ'D?	Expected Number of Compliance Samples per Month	AVERAGE MONTHLY EFFLUENT LIMIT	MAXIMUM DAILY EFFLUENT LIMIT	Estimated Percentile at 95% Confidence		Max effluent conc. measured	Coeff Variation		# of samples from which # in col. K was taken	Multiplier	AVG USED INSTEAD of Calculated 50th percentile Effluent Conc. (When n>10)	Dilution Factor
		REASONABLE POTENTIAL TO VIOLATE HUMAN HEALTH WATER QUALITY CRITERIA														
BIS(2-ETHYLHEXYL) PHTHALATE 117817 13B	0.0	1.80	0.13	NO	0.03	NONE	NONE	0.50	0.47	31.00	0.60	0.6	4	1.04		244.0

Ambient Data Used in Reasonable Potential Analysis 36A070 - Columbia R nr Vernita

Parameter	Value used
Total Ammonia-N	0.01 mg/L

APPENDIX D—RESPONSE TO COMMENTS

City of Wenatchee

DEPARTMENT OF PUBLIC WORKS
Public Services Center
1350 McKitrick Street, Suite A
P.O. Box 519
Wenatchee, WA 98807-0519
(509) 888-3200
Fax (509) 888-3201

July 7, 2010

The City of Wenatchee respectfully submits the following comments regarding the draft permit:

Page 10, Footnote b.

To clarify that it is acceptable for samples to be analyzed on weekends and holidays, the city recommends adding the following language: "If the Permittee collects samples on weekends and holidays, the samples will count toward the minimum sampling frequency requirement."

Page 10, Footnote h.

Same comment as Footnote b.

Page 10, Footnote i.

Same comment as Footnote b.

Ecology Response to Comments:

Ecology agrees with the comments above and the requested changes have been made to the permit.

Wenatchee Comments:

Page 13, E. Reporting Permit Violations, 1. Immediate Reporting

City staff would like to request a clarification of "failure" in regards to the disinfection system. We would like to recommend the following change: "The Permittee must report any failure of the disinfection system that results in a permit violation immediately to the Department of Ecology's Regional Office 24-hr. number listed below:

Central Regional Office 509-575-2490

Ecology Response to Comments:

Ecology agrees with the comment above and the requested change have been made to the permit.

Wenatchee Comments:

Page 24, C. Wastewater Discharge Permit Required, 1st sentence

The concern with the first sentence is that while the City sewer code requires pretreatment for some non-domestic dischargers, such as restaurants and car washes, these types of businesses are not significant industrial users and would not need to apply for a permit. So the City would like to recommend the following edit: "The Permittee must require all ~~non-domestic discharges~~ significant industrial users (SIUs) to apply for a permit, and may not allow any ~~significant industrial users (~~SIUs~~)~~ to discharge wastewater to the Permittee's sewer system until such user..."

Ecology Response to Comments:

Ecology agrees with the comment above and the requested change have been made to the permit.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM WASTE DISCHARGE PERMIT NO. WA-002394-9

State of Washington
DEPARTMENT OF ECOLOGY
Yakima, Washington 98902

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1342 et seq.

CITY OF WENATCHEE
PUBLICLY-OWNED TREATMENT WORKS
PO BOX 519
WENATCHEE, WASHINGTON 98807-0519

is authorized to discharge in accordance with the Special and General Conditions that follow.

Plant Location: 201 North Worthen Street Wenatchee, WA 98807	Receiving Water: Columbia River, River Mile 466.6
Plant Type: Class III: Activated Sludge Plant with Ultraviolet (UV) Disinfection	Discharge Location: Latitude: 47.4306 Longitude: 120.3089 W

Charles McKinney
Section Manager
Water Quality Program
Central Regional Office
Washington State Department of Ecology

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APPENDIX A 40

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements. The following table is for quick reference only. Enforceable submittal requirements are contained in the permit narrative.

Permit Section	Submittal	Frequency	First Submittal Date
S3A.	Discharge Monitoring Report	Monthly	**October 15, 2010**
S3.E.	Reporting Permit Violations	As necessary	
S4.B.	Plans for Maintaining Adequate Capacity	As necessary	
S4.D.	Notification of New or Altered Sources	As necessary	
S4.E.3.	Infiltration and Inflow Evaluation	1/permit cycle	**August 31, 2014**
S4.F.1.	Wasteload Assessment	1/permit cycle	**August 31, 2014**
S5.G.1.	Operations and Maintenance Manual Review	Annually	
S5.G.2.	Operations and Maintenance Manual Update	As necessary	
S8.	Application for Permit Renewal	1/permit cycle	**August 31, 2014**
S9.C.2.	WET Compliance Testing for Acute Toxicity Report	Quarterly	**January 1, 2011**
S10.A.	WET Compliance Testing for Chronic Toxicity Report	2/permit cycle	**December 31, 2013**
S11.	Additional Chemical Analysis of Influent, Effluent and Sludge Report	1/permit cycle	**August 31, 2014**
G1.	Signatory Requirement	As necessary	
G4.	Reporting Planned Changes	As necessary	
G5.	Plan Review Required	As necessary	
G7.	Notice of Permit Transfer	As necessary	
G10.	Duty to Provide Information	As necessary	
G20.	Compliance Schedule	As necessary	
G21.	Contract Review	As necessary	

SPECIAL CONDITIONS

In this permit, the word "must" denotes an action that is mandatory and is equivalent to the word "shall" used in previous permits.

S1. DISCHARGE LIMITS

A. Effluent Limits

All discharges and activities authorized by this permit must comply with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a level in excess of, that identified and authorized by this permit violates the terms and conditions of this permit.

Beginning on **September 1, 2010** and lasting through **August 31, 2015**, the Permittee may discharge municipal wastewater to the Columbia River at the permitted location subject to compliance with the following limits:

EFFLUENT LIMITS: OUTFALL # 001		
Parameter	**Average Monthly** [a]	**Average Weekly** [b]
Carbonaceous Biochemical Oxygen Demand (5-day)	25 mg/L, 1,147 lbs/day 85% removal of influent BOD	40 mg/L, 1,835 lbs/day
Total Suspended Solids	30 mg/L, 1,376 lbs/day 85% removal of influent TSS	45 mg/L, 2,064 lbs/day
Fecal Coliform Bacteria [c]	200/100 mL	400/100 mL
pH [d], in Standard Units	Daily Minimum is equal to or greater than 6.0 and the Daily Maximum is less than or equal to 9.0.	
Parameter	**Average Monthly**	**Maximum Daily** [e]
Total Ammonia	25 mg/L; 1,147 lbs/Day	47 mg/L; 2,156 lbs/Day
Parameter	**Test Conditions**	
Acute WET Limit [f]	The acute toxicity limit shall be no statistically significant difference in test organism response between the chronic critical effluent concentration (ACEC), 0.72 % of the effluent, and the control. (See Special Condition S10. for further information.)	

a	Average monthly effluent limit means the highest allowable average of daily discharges over a calendar month. To calculate the discharge value to compare to the limit, you add the value of each daily discharge measured during a calendar month and divide this sum by the total number of daily discharges measured. See footnote c for fecal coliform calculations.
b	Average weekly discharge limitation means the highest allowable average of "daily discharges "over a calendar week, calculated as the sum of all ``daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week. See footnote [c] for fecal coliform calculations.
c	To calculate the average monthly and average weekly values for fecal coliforms you must use the geometric mean. Ecology gives directions to calculate this value in publication No. 04-10-020, *Information Manual for Treatment Plant Operators* available at: http://www.ecy.wa.gov/pubs/0410020.pdf

d	Indicates the range of permitted values. The Permittee must report the instantaneous maximum and minimum pH monthly. Do not average pH values.
e	Maximum daily effluent limit means the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day. This does not apply to pH.
f	The acute WET Limit refers to the response of a test organism placed in effluent at a concentration equivalent to the concentration found at the edge of the acute mixing zone.

B. Mixing Zone Authorization

The maximum boundaries of the mixing zones are defined as follows:

The length of the chronic and acute mixing zones shall extend downstream no greater than 317 feet and 32 feet, respectively. The width of the chronic and acute mixing zones shall be no more than 300 feet wide. **The dilution factors for the chronic and acute mixing zones for aquatic life were determined to be 244 and 139, respectively.**

S2. MONITORING REQUIREMENTS

A. Monitoring Schedule

The Permittee must monitor in accordance with the following schedule and must use the laboratory method, detection level (DL), and quantitation level (QL) specified in Appendix A. The Permittee may use alternative methods included in 40 CFR Part 136 if the DL and QL are equivalent to those specified in Appendix A or if the alternative method's DL and QL are low enough to detect the parameter.

Parameter	Units	Minimum Sampling Frequency	Sample Type
(1) Wastewater Influent			
Wastewater Influent means the raw sewage flow. Sample the wastewater entering the headworks of the treatment plant excluding any side-stream returns from inside the plant.			
BOD_5	mg/L	3/week [a]	24-hour composite [b]
BOD_5	lbs/Day	3/week	Calculation [d]
TSS	mg/L	3/week	24-hour composite
TSS	lbs/Day	3/week	Calculation
Total Kjeldahl Nitrogen	mg/L	1/month [c]	24-hour composite
Total Kjeldahl Nitrogen	lbs/Day	1/month	Calculation

(2) Final Wastewater Effluent			
Final Wastewater Effluent means wastewater, which is exiting, or has exited, the last treatment process or operation. Typically, this is after or at the exit from the chlorine contact chamber or other disinfection process. The Permittee may take effluent samples for the $CBOD_5$ analysis before or after the disinfection process. If taken after, dechlorinate and reseed the sample.			
Parameter	**Units**	**Minimum Sampling Frequency**	**Sample Type**
Flow	MGD	Continuous [e]	Measurement
$CBOD_5$	mg/L	3/week	24-hour Composite
$CBOD_5$	lbs/day	3/week	Calculation
BOD_5	% removal	1/month	Calculation [f]
TSS	mg/L	3/week	24-hour Composite
TSS	lbs/day	3/week	Calculation
TSS	% removal	1/month	Calculation
Fecal Coliform	Organisms /100 ml	3/week	Grab [g]
Total Ammonia	mg/L	2/week [h]	24-hour Composite
Total Ammonia	lbs/day	2/week	Calculation
pH	Standard Units	5/week [i]	Grab
Dissolved Oxygen	mg/L	3/week	Grab
Total Hardness	mg/L	1/month	24-hour Composite
Temperature	°C	5/week	Grab
Temperature grab sampling must occur when the effluent is at or near its daily maximum temperature which is usually in the late afternoon. If temperature is measured continuously, the Permittee must determine and report a daily maximum from half-hour measurements in a 24-hour period. To determine the daily average, use the temperature on the half-hour from the chart for the twenty-four (24) hour period and calculate the average of the values. Continuous monitoring instruments must achieve an accuracy of 0.2 degrees C and the Permittee must verify accuracy annually.			

(3) Permit Application Requirements – Final Wastewater Effluent			
Parameter	**Units**	**Minimum Sampling Frequency**	**Sample Type**
Total Kjeldahl Nitrogen	mg/L	Quarterly	24-hour Composite
Nitrate plus Nitrite	mg/L	Quarterly	24-hour Composite
Oil and Grease	mg/L	Quarterly	24-hour Composite
Phosphorus (Total)	mg/L	Quarterly	24-hour Composite
Total Dissolved Solids	mg/L	Quarterly	24-hour Composite
Total Nitrogen	mg/L	Quarterly	24-hour Composite
Alkalinity	mg/L	Quarterly	24-hour Composite

Parameter	Units	Minimum Sampling Frequency	Sample Type
Acute Toxicity Testing	As specified in Special Condition S9.		
Chronic Toxicity Testing	As specified in Special Condition S10.		
Additional Chemical Analysis of Influent and Effluent	As specified in Special Condition S11.		

a	3/week means three (3) times during each calendar week and on a rotational basis throughout the days of the week, except weekends and holidays. If the Permittee elects to sample on holidays or weekends those samples shall count toward the minimum sampling frequency requirement.
b	24-hour composite means a series of individual samples collected over a 24-hour period into a single container, and analyzed as one sample.3/week means three (3) times during each calendar week and on a rotational basis throughout the days of the week, except weekends and holidays. If the Permittee elects to sample on holidays or weekends those samples shall count toward the minimum sampling frequency requirement.
c	1/month means once every calendar month during alternate weeks.
d	Calculation means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in MGD) X Conversion Factor (8.34) = lbs/day
e	Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. The Permittee must sample and describe the sampling frequency when continuous monitoring is not possible.
f	Calculate the Percent (%) removal of BOD (CBOD) and TSS using the following algorithm (concentrations in mg/L): (Average Monthly Influent Concentration - Average Monthly Effluent Concentration)/Average Monthly Influent Concentration.
g	Grab means an individual sample collected over a fifteen (15) minute, or less, period.
h	2/week means 2 non-consecutive days during each calendar week, except weekends and holidays. If the Permittee elects to sample on holidays or weekends those samples shall count toward the minimum sampling frequency requirement.
i	5/week means 5 days during each calendar week, except weekends and holidays. If the Permittee elects to sample on holidays or weekends those samples shall count toward the minimum sampling frequency requirement.

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit must represent the volume and nature of the monitored parameters. The Permittee must conduct representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions that may affect effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136.

C. Flow Measurement, Field Measurement and Continuous Monitoring Devices

The Permittee must:

1. Select and use appropriate flow measurement, field measurement, and continuous monitoring devices and methods consistent with accepted scientific practices.
2. Install, calibrate, and maintain these devices to ensure the accuracy of the measurements is consistent with the accepted industry standard and the manufacturer's recommendation for that type of device.
3. If the Permittee uses micro-recording temperature devices known as thermistors it must calibrate the devices using protocols from Ecology's Quality Assurance Project Plan Development Tool (*Continuous Temperature Sampling Protocols for the Environmental Monitoring and Trends*). This document is available online at http://www.ecy.wa.gov/programs/eap/qa/docs/QAPPtool/Mod6%20Ecology%20SOPs/Protocols/ContinuousTemperatureSampling.pdf . Calibration as specified in this document is not required if the Permittee uses recording devices which are certified by the manufacturer.
4. Use field measurement devices as directed by the manufacturer and do not use reagents beyond their expiration dates.
5. Calibrate these devices at the frequency recommended by the manufacturer.
6. Calibrate flow monitoring devices at a minimum frequency of at least one calibration per year.
7. Maintain calibration records for at least three years.

D. Laboratory Accreditation

The Permittee must ensure that all monitoring data required by Ecology are prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. The Permittee must obtain accreditation for conductivity and pH if it must receive accreditation or registration for other parameters.

E. Request for Reduction in Monitoring

The Permittee may request a reduction of the sampling frequency after twelve (12) months of monitoring. Ecology will review each request and at its discretion grant the request through a permit modification or when it reissues the permit.

The Permittee must:

1. Provide a written request.
2. Clearly state the parameters for which it is requesting reduced monitoring.

3. Clearly state the justification for the reduction.

S3. REPORTING AND RECORDING REQUIREMENTS

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on **September 1, 2010** of the permit. The Permittee must:

1. Submit monitoring results each month.
2. Summarize, report, and submit monitoring data obtained during each monitoring period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology.
3. Submit DMR forms monthly whether or not the facility was discharging. If the facility did not discharge during a given monitoring period, submit the form as required with the words "NO DISCHARGE" entered in place of the monitoring results.
4. Ensure that DMR forms are **postmarked or received by** Ecology no later than the 15th day of the month following the completed monitoring period, unless otherwise specified in this permit.
5. Submit priority pollutant analysis data no later than forty-five (45) days following the monitoring.
6. Send report(s) to Ecology at:

Water Quality Permit Coordinator
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must include information on the chain of custody, the analytical method, QA/QC results, and documentation of accreditation for the parameter.

B. Records Retention

The Permittee must retain records of all monitoring information for a minimum of three (3) years. Such information must include all calibration and maintenance records and all original 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. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.
2. The individual who performed the sampling or measurement.
3. The dates the analyses were performed.
4. The individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

a. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
b. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

1. Immediate Reporting

The Permittee must report any failure of the disinfection system that results in a permit violation <u>immediately</u> to the Department of Ecology's Regional Office 24-hr. number listed below:

Central Regional Office	509-575-2490

The Permittee must report any failure of the disinfection system that results in a permit violation, any collection system overflows, or any plant bypass discharging to a waterbody used as a source of drinking water immediately to the Department of Ecology and the Department of Health, Drinking Water Program at the numbers listed below:

Central Regional Office	509-575-2490
Department of Health,	1-800-521-0323 (business hours)
Drinking Water Program	1-877-481-4901 (after business hours)
Chelan Douglas Health	509-886-6400 (M-F, 8-5)
District	509-886-6499 (after business hours)

2. Twenty-four-hour Reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at the telephone numbers listed above, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

a. Any noncompliance that may endanger health or the environment, unless previously reported under subpart 1, above.
b. Any unanticipated **bypass** that exceeds any effluent limitation in the permit (See Part S4.B., "Bypass Procedures").
c. Any **upset** that exceeds any effluent limitation in the permit (See G.15, "Upset").
d. Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Section S1.A of this permit.
e. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

3. Report Within Five Days

The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subparts 1 or 2, above. The written submission must 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 recurrence of the noncompliance.
e. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

4. Waiver of Written Reports

Ecology may waive the written report required in subpart 3, above, on a case-by-case basis upon request if a timely oral report has been received.

5. All Other Permit Violation Reporting

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in paragraph E.3, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

6. Report Submittal

The Permittee must submit reports to the address listed in S3.

F. Other Reporting

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and chapter 173-303-145. You can obtain further instructions at the following website:
http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm .

Where 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 in any report to Ecology, it must submit such facts or information promptly.

G. Maintaining a Copy of This Permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Ecology inspectors.

S4. FACILITY LOADING

A. Design Criteria

The flows or waste loads for the permitted facility must not exceed the following design criteria:

Parameter	Criteria
Monthly average flow (max. month)	5.5 MGD
BOD_5 influent loading	13,006 lbs/day
TSS influent loading	13,111 lbs/day
TKN influent loading	1,800 lbs/day

B. Plans for Maintaining Adequate Capacity

The Permittee must submit a plan and a schedule for continuing to maintain capacity to Ecology when:

1. The actual flow or waste load reaches 85 percent of any one of the design criteria in S4.A for three consecutive months.

2. The projected increase would reach design capacity within five years.

The plan and schedule for continuing to maintain capacity must be sufficient to achieve the effluent limits and other conditions of this permit. This plan must identify any of the following actions or any other actions necessary to meet the objective of maintaining capacity.

a. Analysis of the present design, including the introduction of any process modifications that would establish the ability of the existing facility to achieve the effluent limits and other requirements of this permit at specific levels in excess of the existing design criteria specified in paragraph A, above.
b. Reduction or elimination of excessive infiltration and inflow of uncontaminated ground and surface water into the sewer system.
c. Limitation on future sewer extensions or connections or additional waste loads.
d. Modification or expansion of facilities necessary to accommodate increased flow or waste load.
e. Reduction of industrial or commercial flows or waste loads to allow for increasing sanitary flow or waste load.

Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any construction.

If the Permittee intends to apply for state or federal funding for the design or construction of a facility project, the plan may also need to meet the environmental review requirements as described in 40 CFR 35.3040 and 40 CFR 35.3045 and it may also need to demonstrate cost effectiveness as required by WAC 173-95-730. The plan must specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective.

C. Duty to Mitigate

The Permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

D. Notification of New or Altered Sources

1. The Permittee must submit written notice to Ecology whenever any new discharge or a substantial change in volume or character of an existing discharge into the POTW is proposed which:

   a. Would interfere with the operation of, or exceed the design capacity of, any portion of the POTW;
   b. Is not part of an approved general sewer plan or approved plans and specifications; or
   c. Would be subject to pretreatment standards under 40 CFR Part 403 and Section 307(b) of the Clean Water Act.

2. This notice must include an evaluation of the POTW's ability to adequately transport and treat the added flow and/or waste load, the quality and volume of effluent to be discharged to the POTW, and the anticipated impact on the Permittee's effluent [40 CFR 122.42(b)].

E. Infiltration and Inflow Evaluation

1. The Permittee must conduct an infiltration and inflow evaluation. Refer to the U.S. EPA publication, *I/I Analysis and Project Certification*, available as Publication No. 97-03 at:

   Publications Office
   Department of Ecology
   P.O. Box 47600
   Olympia, WA, 98504-7600

   or at

http://www.ecy.wa.gov/programs/wq/permits/guidance.html .

The Permittee may use plant monitoring records to assess measurable infiltration and inflow.

2. The Permittee must prepare a report which summarizes any measurable infiltration and inflow. If infiltration and inflow have increased by more than 15 percent from that found in the previous report based on equivalent rainfall, the report must contain a plan and a schedule for:

   a. Locating the sources of infiltration and inflow; and
   b. Correcting the problem.

3. The Permittee must submit a report summarizing the results of the evaluation and any recommendations for corrective actions by **August 31, 2014**.

F. Wasteload Assessment

1. The Permittee must conduct an assessment of its influent flow and waste load and submit a report to Ecology by **August 31, 2014**.

2. The report must contain the following: an indication of compliance or noncompliance with the permit effluent limits; a comparison between the existing and design monthly average dry weather and wet weather flows, peak flows, BOD, and total suspended solids loadings; and (except for the first report) the percentage change in these parameters since the previous report.

3. The report must also state the present and design population or population equivalent, projected population growth rate, and the estimated date upon which the design capacity is projected to be reached, according to the most restrictive of the parameters above.

4. Ecology may modify the interval for review and reporting if it determines that a different frequency is sufficient.

S5. OPERATION AND MAINTENANCE

The Permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes keeping a daily operation logbook (paper or electronic), adequate laboratory controls, and appropriate quality assurance procedures. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Certified Operator

This permitted facility must be operated by an operator certified by the state of Washington for at least a Class III plant. This operator must be in responsible charge of the day-to-day operation of the wastewater treatment plant. An operator certified for at least a Class II plant must be in charge during all regularly scheduled shifts.

B. O & M Program

The Permittee must:

1. Institute an adequate operation and maintenance program for the entire sewage system.

2. Keep maintenance records on all major electrical and mechanical components of the treatment plant, as well as the sewage system and pumping stations. Such records must clearly specify the frequency and type of maintenance recommended by the manufacturer and must show the frequency and type of maintenance performed.

3. Make maintenance records available for inspection at all times.

C. Short-term Reduction

The Permittee must schedule any facility maintenance, which might require interruption of wastewater treatment and degrade effluent quality, during non-critical water quality periods and carry this maintenance out in a manner approved by Ecology.

If a Permittee contemplates a reduction in the level of treatment that would cause a violation of permit discharge limits on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee must:

1. Give written notification to Ecology, if possible, thirty (30) days prior to such activities.

2. Detail the reasons for, length of time of, and the potential effects of the reduced level of treatment.

This notification does not relieve the Permittee of its obligations under this permit.

D. Electrical Power Failure

The Permittee must ensure that adequate safeguards prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during

electrical power failure at the treatment plant and/or sewage lift stations. Adequate safeguards include, but are not limited to: alternate power sources, standby generator(s), or retention of inadequately treated wastes.

The Permittee must maintain Reliability Class II (EPA 430/9-74-001) at the wastewater treatment plant, Reliability Class II requires a backup power source sufficient to operate all vital components and critical lighting and ventilation during peak wastewater flow conditions. Vital components used to support the secondary processes (i.e., mechanical aerators or aeration basin air compressors) need not be operable to full levels of treatment, but must be sufficient to maintain the biota.

E. Prevent Connection of Inflow

The Permittee must strictly enforce its sewer ordinances and not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system.

F. Bypass Procedures

This permit prohibits a bypass which is the intentional diversion of waste streams from any portion of a treatment facility. Ecology may take enforcement action against a Permittee for a bypass unless one of the following circumstances (1, 2, or 3) applies.

1. Bypass for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limits or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee must submit prior notice, if possible, at least ten (10) days before the date of the bypass.

2. Bypass which is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. No feasible alternatives to the bypass exist, such as:

- The use of auxiliary treatment facilities.
- Retention of untreated wastes.
- Stopping production.
- Maintenance during normal periods of equipment downtime, but not if the Permittee should have installed adequate backup equipment in the exercise of reasonable engineering judgment to prevent a bypass.
- Transport of untreated wastes to another treatment facility or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. Ecology is properly notified of the bypass as required in condition S3E of this permit.

3. If bypass is anticipated and has the potential to result in noncompliance of this permit.

   a. The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

      - A description of the bypass and its cause.
      - An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.
      - A cost-effectiveness analysis of alternatives including comparative resource damage assessment.
      - The minimum and maximum duration of bypass under each alternative.
      - A recommendation as to the preferred alternative for conducting the bypass.
      - The projected date of bypass initiation.
      - A statement of compliance with SEPA.
      - A request for modification of water quality standards as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated.
      - Details of the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

   b. For probable construction bypasses, the Permittee must notify Ecology of the need to bypass as early in the planning process as possible. The Permittee must consider the analysis required above during preparation of the engineering report or facilities plan and plans and specifications and must include these to the extent practical. In cases where the Permittee determines the probable need to bypass early, the Permittee must continue to analyze conditions up to and including the construction period in an effort to minimize or eliminate the bypass.

c. Ecology will consider the following prior to issuing an administrative order for this type of bypass:

- If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
- If feasible alternatives to bypass exist, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.
- If the Permittee planned and scheduled the bypass to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. Ecology will give the public an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Ecology will approve a request to bypass by issuing an administrative order under RCW 90.48.120.

G. Operations and Maintenance Manual

The Permittee must:

1. Review the O&M Manual at least annually.
2. Submit to Ecology for review and approval substantial changes or updates to the O&M Manual whenever it incorporates them into the manual.
3. Keep the approved O&M Manual at the permitted facility.
4. Follow the instructions and procedures of this manual.

In addition to the requirements of WAC 173-240-080 (1) through (5), the O&M Manual must include:

1. Emergency procedures for cleanup in the event of wastewater system upset or failure.
2. Wastewater system maintenance procedures that contribute to the generation of process wastewater.
3. Any directions to maintenance staff when cleaning or maintaining other equipment or performing other tasks which are necessary to protect the operation of the wastewater system (for example, defining maximum allowable discharge rate for draining a tank, blocking all floor drains before beginning the overhaul of a stationary engine).
4. The treatment plant process control monitoring schedule.
5. Minimum staffing adequate to operate and maintain the treatment processes and carry out compliance monitoring required by the permit.

S6. PRETREATMENT

A. General Requirements

The Permittee must work with Ecology to ensure that all commercial and industrial users of the publicly owned treatment works (POTW) comply with the pretreatment regulations in 40 CFR Part 403 and any additional regulations that the Environmental Protection Agency (U.S. EPA) may promulgate under Section 307(b) (pretreatment) and 308 (reporting) of the Federal Clean Water Act.

B. Duty to Enforce Discharge Prohibitions

1. Under 40 CFR 403.5(a), the Permittee must not authorize or knowingly allow the discharge of any pollutants into its POTW which may be reasonably expected to cause pass through or interference, or which otherwise violate general or specific discharge prohibitions contained in 40 CFR Part 403.5 or WAC-173-216-060.

2. The Permittee must not authorize or knowingly allow the introduction of any of the following into their treatment works:

    a. Pollutants which create a fire or explosion hazard in the POTW (including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21).
    b. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, or greater than 11.0 standard units, unless the works are specifically designed to accommodate such discharges.
    c. Solid or viscous pollutants in amounts that could cause obstruction to the flow in sewers or otherwise interfere with the operation of the POTW.
    d. Any pollutant, including oxygen demanding pollutants, (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.
    e. Petroleum oil, non-biodegradable cutting oil, or products of mineral origin in amounts that will cause interference or pass through.
    f. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity which may cause acute worker health and safety problems.
    g. Heat in amounts that will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities such that the temperature at the POTW headworks exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless Ecology, upon request of the Permittee, approves, in writing, alternate temperature limits.

h. Any trucked or hauled pollutants, except at discharge points designated by the Permittee.
i. Wastewaters prohibited to be discharged to the POTW by the Dangerous Waste Regulations (chapter 173-303 WAC), unless authorized under the Domestic Sewage Exclusion (WAC 173-303-071).

3. The Permittee must also not allow the following discharges to the POTW unless approved in writing by Ecology:

   a. Noncontact cooling water in significant volumes.
   b. Stormwater and other direct inflow sources.
   c. Wastewaters significantly affecting system hydraulic loading, which do not require treatment, or would not be afforded a significant degree of treatment by the system.
4. The Permittee must notify Ecology if any industrial user violates the prohibitions listed in this section (S6.B), and initiate enforcement action to promptly curtail any such discharge.

C. Wastewater Discharge Permit Required

The Permittee must require all significant industrial users (SIUs) to apply for a permit, and may not allow any SIUs to discharge wastewater to the Permittee's sewer system until such user has received a wastewater discharge permit from Ecology in accordance with chapter 90.48 RCW and chapter 173-216 WAC.

D. Identification and Reporting of Existing, New, and Proposed Industrial Users

1. The Permittee must take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging or proposing to discharge to the Permittee's sewer system (see Appendix B of the Fact Sheet for definitions).

2. Within 30 days of becoming aware of an unpermitted existing, new, or proposed industrial user who may be an SIU, the Permittee must notify such user by registered mail that, if classified as an SIU, they must apply to Ecology and obtain a State Waste Discharge Permit. The Permittee must send a copy of this notification letter to Ecology within this same 30-day period.

3. The Permittee must also notify all Potential SIUs (PSIUs), as they are identified, that if their classification should change to an SIU, they must apply to Ecology for a State Waste Discharge Permit within 30 days of such change.

S7. SOLID WASTES

A. Solid Waste Handling

The Permittee must handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water.

The final use and disposal of biosolids shall be done in accordance with Chapter 173-308 WAC ("Biosolids Management"), 40 CFR Part 503, and under coverage of the State general permit for biosolids management, as applicable.

B. Leachate

The Permittee must not allow leachate from its solid waste material to enter state waters without providing all known, available and reasonable methods of treatment, nor allow such leachate to cause violations of the State Surface Water Quality Standards, Chapter 173-201A WAC, or the State Ground Water Quality Standards, Chapter 173-200 WAC. The Permittee must apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

S8. APPLICATION FOR PERMIT RENEWAL

The Permittee must submit an application for renewal of this permit by **August 31, 2014**.

S9. ACUTE TOXICITY

A. Effluent Limit for Acute Toxicity

The effluent limit for acute toxicity is:

No acute toxicity detected in a test concentration representing the acute critical effluent concentration (ACEC).

The ACEC means the maximum concentration of effluent during critical conditions at the boundary of the acute mixing zone, defined in Section S1.B. of this permit. The ACEC equals 0.72% effluent.

B. Compliance With the Effluent Limit for Acute Toxicity

Compliance with the effluent limit for acute toxicity means the results of the testing specified in Subsection C show no statistically significant difference in survival between the control and the ACEC.

If the test results show a statistically significant difference in survival between the control and the ACEC, the test does not comply with the effluent limit for acute toxicity. The Permittee must then immediately conduct the additional testing described in Subsection D. The Permittee will comply with the requirements of this section by meeting the requirements of Subsection D.

The Permittee must determine the statistical significance by conducting a hypothesis test at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in survival between the control and the ACEC is less than 10%, the Permittee must conduct the hypothesis test at the 0.01 level of significance.

C. Compliance Testing for Acute Toxicity

The Permittee must:

1. Begin compliance testing by **November 1, 2010**. **Perform the acute toxicity tests with 100% effluent, the ACEC, and a control, or with a full dilution series.**

2. Submit a written report of all test results to Ecology within sixty (60) days after each sample date.

The Permittee must perform compliance tests quarterly using the species and protocol listed below:

Acute Toxicity Tests	Species	Method
Daphnid 48-hour static test	*Ceriodaphnia dubia*, *Daphnia pulex*, or *Daphnia magna*	EPA-821-R-02-012

D. Response to Noncompliance With the Effluent Limit for Acute Toxicity

If a toxicity test conducted under Subsection C determines a statistically significant difference in response between the ACEC and the control, using the statistical test described in Subsection B, the Permittee must begin additional testing within one week from the time of receiving the test results. The Permittee must:

1. Conduct one additional test each week for four consecutive weeks, using the same test and species as the failed compliance test.

2. Test at least five effluent concentrations and a control to determine appropriate point estimates. One of these effluent concentrations must equal the ACEC. The results

of the test at the ACEC will determine compliance with the effluent limit for acute toxicity as described in Subsection A.

3. Return to the original monitoring frequency in Subsection C after completion of the additional compliance monitoring.

Anomalous test results: If a toxicity test conducted under Subsection C indicates noncompliance with the acute toxicity limit and the Permittee believes that the test result is anomalous, the Permittee may notify Ecology that the compliance test result may be anomalous. The Permittee may take one additional sample for toxicity testing and wait for notification from Ecology before completing the additional testing. The Permittee must submit the notification with the report of the compliance test result and identify the reason for considering the compliance test result to be anomalous.

If Ecology determines that the test result was <u>not</u> anomalous, the Permittee must complete all of the additional monitoring required in this subsection. Or,

If the one additional sample fails to comply with the effluent limit for acute toxicity, then the Permittee must complete all of the additional monitoring required in this subsection. Or,

If Ecology determines that the test result <u>was</u> anomalous, the one additional test result will replace the anomalous test result.

If all of the additional testing complies with the permit limit, the Permittee must submit a report to Ecology on possible causes and preventive measures for the transient toxicity event, which triggered the additional compliance monitoring. This report must include a search of all pertinent and recent facility records, including:

1. Operating records
2. Monitoring results
3. Inspection records
4. Spill reports
5. Weather records
6. Production records
7. Raw material purchases
8. Pretreatment records, etc.

If the additional testing shows violation of the acute toxicity limit, the Permittee must submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to Ecology within sixty (60) days after the sample date (WAC 173-205-100(2)).

E. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.

2. The Permittee must collect 24-hour composite effluent samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.

3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.

5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Subsection C or pristine natural water of sufficient quality for good control performance.

6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.

7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the acute critical effluent concentration (ACEC). The ACEC equals 0.72% effluent.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing must comply with the acute statistical power standard of 29% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

9. **Reports of compliance test results must be submitted to Ecology within sixty (60) days after each sample date.**

S10. CHRONIC TOXICITY

A. Testing When There Is No Permit Limit for Chronic Toxicity

The Permittee must:

1. Conduct chronic toxicity testing on final effluent during **(once in September 2013 and once in January 2014**. S**ubmit each test result within 60 days of the test and a summary report by August 31, 2014).**

2. Conduct chronic toxicity testing on a series of at least five concentrations of effluent and a control. This series of dilutions must include the acute critical effluent concentration (ACEC). The ACEC equals 0.72% effluent.

3. Compare the ACEC to the control using hypothesis testing at the 0.05 level of significance as described in Appendix H, EPA/600/4-89/001.

4. Perform chronic toxicity tests with all of the following species and the most recent version of the following protocols:

Freshwater Chronic Test	Species	Method
Fathead minnow	*Pimephales promelas*	EPA-821-R-02-013
Water flea	*Ceriodaphnia dubia*	EPA-821-R-02-013

B. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry

into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.

2. The Permittee must collect 24-hour composite effluent samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.

3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in subsection A and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.

5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in subsection A or pristine natural water of sufficient quality for good control performance.

6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.

7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the CCEC and the ACEC. The CCEC and the ACEC may either substitute for the effluent concentrations that are closest to them in the dilution series or be extra effluent concentrations. The CCEC equals 0.41% effluent. The ACEC equals 0.79% effluent.

8. All whole effluent toxicity tests that involve hypothesis testing must comply with the chronic statistical power standard of 39% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

9. **Reports of test results must be submitted to Ecology within 60 days after each sample date. (See S10.A.1.)**

S11. ADDITIONAL CHEMICAL ANALYSIS OF INFLUENT AND EFFLUENT

A. General Requirements

The Permittee shall conduct two priority pollutants scans of influent, sludge, and effluent samples collected from the wastewater treatment system in accordance with protocols, monitoring requirements, and QA/QC procedures specified in this section.

Influent, sludge and effluent sampling shall be timed to coincide with sampling of the effluent chronic toxicity. **A written report shall be submitted to Ecology by August 31, 2014.**

B. Monitoring Requirements

1. The following samples **shall be collected once in September 2013 and again in January 2014** for analyses: 1) one sample of influent to wastewater treatment; and 2) one sample of effluent from wastewater treatment; and 3) one sample of sludge, collected at such time that the results are in conjunction with acute and chronic WET testing. Influent analyses results may be used to estimate constituent removal efficiencies across the treatment system.

2. Each sample of the influent and effluent shall be representative composite consisting of continuous sampling or 6 grab samples equally spaced over a 24-hour period.

C. Analysis Requirements

1. A complete priority pollutant scan shall consist of all of the analyses listed in Table II and Table III under 40 CFR Part 122, Appendix D.

2. Samples for the analysis of acid and base/neutral extractable compounds and metals shall be 24-hour composites. Samples for the analysis of volatile organic compounds shall be collected using grab sampling techniques at equal intervals for the total of 4 grab samples per day.

3. Cyanide, phenols and fats, oil and grease (FOG) shall be taken as grab samples. FOG shall be hexane soluble or equivalent.

4. In addition to all priority pollutants, a reasonable attempt should be made to identify all other substances and quantify all pollutants shown to be present by gas chromatograph/mass spectrometer (GC/MS) analysis per 40 CFR 136,

Appendix A, Methods 624 and 625. Determinations of pollutants should be attempted for each fraction which produces identifiable spectra on total ion plots (reconstructed gas chromatograms). Determinations should be attempted from all peaks with responses of 5 percent or greater than the nearest internal standard. The 5 percent value is based on internal standard concentrations of 30 μg/l, and must be adjusted downward if higher internal standard concentrations are used or adjusted upward if lower internal standard concentrations are used. Non-substituted aliphatic compounds may be expressed as total hydrocarbon content. Identification shall be attempted by a laboratory whose computer data processing programs are capable of comparing sample mass spectra to a computerized library of mass spectra, with visual confirmation by an experienced analyst. For all detected substances which are determined to be pollutants, additional sampling and appropriate testing shall be conducted to determine concentration and variability, and to evaluate trends.

D. Protocols

The Permittee shall have all final effluent samples handled, prepared, and analyzed by GC/MS in accordance with the EPA Methods 624 and 625 (October 26, 1984). All other tests not applicable to analysis by GC/MS shall be analyzed in accordance with the applicable protocols of 40 CFR Part 136.

E. Quality Assurance/Quality Control Procedures

The Permittee shall follow the quality assurance procedures of 40 CFR Part 136.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

A. All applications, reports, or information submitted to Ecology must be signed and certified.

1. In the case of corporations, by a responsible corporate officer.

For the purpose of this section, a responsible corporate officer means:

(i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or

(ii) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. In the case of a partnership, by a general partner.

3. In the case of sole proprietorship, by the proprietor.

4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

Applications for permits for domestic wastewater facilities that are either owned or operated by, or under contract to, a public entity shall be submitted by the public entity.

B. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2, above, is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2, above, must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.

C. To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 40 CFR 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.

2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.

3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination.

5. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit.

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. When cause exists for termination for reasons listed in A1 through A7 of this section, and Ecology determines that modification or revocation and reissuance is appropriate.

2. When Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:
1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b);
2) a significant change in the nature or an increase in quantity of pollutants discharged; or
3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit must be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology.

A. <u>Transfers by Modification</u>

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR

122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies Ecology at least thirty (30) days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PAYMENT OF FEES

The Permittee must submit payment of fees associated with this permit as assessed by Ecology.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof must be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit will incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

G15. UPSET

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limits if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence

that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset;
2) the permitted facility was being properly operated at the time of the upset;
3) the Permittee submitted notice of the upset as required in Condition S3.E; and
4) the Permittee complied with any remedial measures required under S4.C of this permit.

In any enforcement action the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with 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 this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR 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 must, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two (2) years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment must be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G20. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen (14) days following each schedule date.

G21. CONTRACT REVIEW

The Permittee must submit to Ecology any proposed contract for the operation of any wastewater treatment facility covered by this permit. The review is to ensure consistency with chapters 90.46 and 90.48 RCW. In the event that Ecology does not comment within a thirty (30)-day period, the Permittee may assume consistency and proceed with the contract.

APPENDIX A

EFFLUENT CHARACTERIZATION FOR POLLUTANTS

THIS LIST INCLUDES EPA REQUIRED POLLUTANTS (PRIORITY POLLUTANTS) AND SOME ECOLOGY PRIORITY TOXIC CHEMICALS (PBTs)

The following table specifies analytical methods and levels to be used for effluent characterization in NPDES and State waste discharge permits. This appendix specifies effluent characterization requirements of the Department of Ecology unless other methods are specified in the body of this permit.

This permit specifies the compounds and groups of compounds to be analyzed. Ecology may require additional pollutants to be analyzed within a group. The objective of this appendix is to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost. If a Permittee knows that an alternate, less sensitive method (higher DL and QL) from 40 CFR Part 136 is sufficient to produce measurable results in their effluent, that method may be used for analysis.

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
CONVENTIONALS			
Biochemical Oxygen Demand	SM5210-B		2 mg/L
Chemical Oxygen Demand	SM5220-D		10 mg/L
Total Organic Carbon	SM5310-B/C/D		1 mg/L
Total Suspended Solids	SM2540-D		5 mg/L
Total Ammonia (as N)	SM4500-NH3- GH		0.3 mg/L
Flow	Calibrated device		
Dissolved oxygen	4500-OC/OG		0.2 mg/L
Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2º C
pH	SM4500-H^+ B	N/A	N/A
NONCONVENTIONALS			
Total Alkalinity	SM2320-B		5 mg/L as CaCo3
Chlorine, Total Residual	4500 Cl G		50.0
Color	SM2120 B/C/E		10 color unit
Fecal Coliform	SM 9221D/E,9222	N/A	N/A
Fluoride (16984-48-8)	SM4500-F E	25	100
Nitrate-Nitrite (as N)	4500-NO3- E/F/H		100

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Nitrogen, Total Kjeldahl (as N)	4500-NH3-C/E/FG		300
Ortho-Phosphate (PO_4 as P)	4500- PE/PF	3	10
Phosphorus, Total (as P)	4500-PE/PF	3	10
Oil and Grease (HEM)	1664A	1,400	5,000
Salinity	SM2520-B		3 PSS
Settleable Solids	SM2540 -F		100
Sulfate (as mg/L SO_4)	SM4110-B		200
Sulfide (as mg/L S)	4500-S[2]F/D/E/G		200
Sulfite (as mg/L SO_3)	SM4500-SO3B		2000
Total dissolved solids	SM2540 C		20 mg/L
Total Hardness	2340B		200 as CaCO3
Aluminum, Total (7429-90-5)	200.8	2.0	10
Barium Total (7440-39-3)	200.8	0.5	2.0
Boron Total (7440-42-8)	200.8	2.0	10.0
Cobalt, Total (7440-48-4)	200.8	0.05	0.25
Iron, Total (7439-89-6)	200.7	12.5	50
Magnesium, Total (7439-95-4)	200.7	10	50
Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
Manganese, Total (7439-96-5)	200.8	0.1	0.5
Tin, Total (7440-31-5)	200.8	0.3	1.5
METALS, CYANIDE & TOTAL PHENOLS			
Antimony, Total (7440-36-0)	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	200.8	0.05	0.25
Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
Chromium, Total (7440-47-3)	200.8	0.2	1.0
Copper, Total (7440-50-8)	200.8	0.4	2.0
Lead, Total (7439-92-1)	200.8	0.1	0.5
Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	200.8	0.1	0.5
Selenium, Total (7782-49-2)	200.8	1.0	1.0
Silver, Total (7440-22-4)	200.8	0.04	0.2
Thallium, Total (7440-28-0)	200.8	0.09	0.36
Zinc, Total (7440-66-6)	200.8	0.5	2.5
Cyanide, Total (57-12-5)	335.4	2	10
Cyanide, Weak Acid Dissociable	SM4500-CN I	2	10
Phenols, Total	EPA 420.1		50

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
DIOXIN			
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16)	1613B	1.3 pg/L	5 pg/L
VOLATILE COMPOUNDS			
Acrolein (107-02-8)	624	5	10
Acrylonitrile (107-13-1)	624	1.0	2.0
Benzene (71-43-2)	624	1.0	2.0
Bromoform (75-25-2)	624	1.0	2.0
Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
Chlorobenzene (108-90-7)	624	1.0	2.0
Chloroethane (75-00-3)	624/601	1.0	2.0
2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
Dibromochloromethane (124-48-1)	624	1.0	2.0
1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6
1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
Dichlorobromomethane (75-27-4)	624	1.0	2.0
1,1-Dichloroethane (75-34-3)	624	1.0	2.0
1,2-Dichloroethane (107-06-2)	624	1.0	2.0
1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
1,2-Dichloropropane (78-87-5)	624	1.0	2.0
1,3-dichloropropylene (mixed isomers) (542-75-6)	624	1.0	2.0
Ethylbenzene (100-41-4)	624	1.0	2.0
Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
Methylene chloride (75-09-2)	624	5.0	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
Tetrachloroethylene (127-18-4)	624	1.0	2.0
Toulene (108-88-3)	624	1.0	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
Trichloroethylene (79-01-6)	624	1.0	2.0
Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
ACID COMPOUNDS			
2-Chlorophenol (95-57-8)	625	1.0	2.0
2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
2,4-Dimethylphenol (105-67-9)	625	0.5	1.0

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
2,4 dinitrophenol (51-28-5)	625	1.0	2.0
2-Nitrophenol (88-75-5)	625	0.5	1.0
4-nitrophenol (100-02-7)	625	0.5	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
Pentachlorophenol (87-86-5)	625	0.5	1.0
Phenol (108-95-2)	625	2.0	4.0
2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene (83-32-9)	625	0.2	0.4
Acenaphthylene (208-96-8)	625	0.3	0.6
Anthracene (120-12-7)	625	0.3	0.6
Benzidine (92-87-5)	625	12	24
Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
Benzo(*a*)anthracene (56-55-3)	625	0.3	0.6
Benzo(j)fluoranthene (205-82-3)	625	0.5	1.0
Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
Benzo(*a*)pyrene (50-32-8)	610/625	0.5	1.0
3,4-benzofluoranthene (Benzo(b)fluoranthene) (205-99-2)	610/625	0.8	1.6
11,12-benzofluoranthene (Benzo(k)fluoranthene) (207-08-9)	610/625	0.8	1.6
Benzo(*ghi*)Perylene (191-24-2)	610/625	0.5	1.0
Bis(*2-chloroethoxy)*methane (111-91-1)	625	5.3	21.2
Bis(*2-chloroethyl*)ether (111-44-4)	611/625	0.3	1.0
Bis(*2-chloroisopropyl*)ether (39638-32-9)	625	0.3	0.6
Bis(*2-ethylhexyl*)phthalate (117-81-7)	625	0.1	0.5
4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4
2-Chloronaphthalene (91-58-7)	625	0.3	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
Chrysene (218-01-9)	610/625	0.3	0.6
Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
Dibenzo(a-*h*)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0
Diethyl phthalate (84-66-2)	625	1.9	7.6
Dimethyl phthalate (131-11-3)	625	1.6	6.4
Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	1625B	5.0	20
Fluoranthene (206-44-0)	625	0.3	0.6
Fluorene (86-73-7)	625	0.3	0.6
Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
Hexachlorobutadiene (87-68-3)	625	0.5	1.0
Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
Hexachloroethane (67-72-1)	625	0.5	1.0
Indeno(*1,2,3-cd*)Pyrene (193-39-5)	610/625	0.5	1.0
Isophorone (78-59-1)	625	0.5	1.0
3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
Naphthalene (91-20-3)	625	0.3	0.6
Nitrobenzene (98-95-3)	625	0.5	1.0
N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
Perylene (198-55-0)	625	1.9	7.6
Phenanthrene (85-01-8)	625	0.3	0.6
Pyrene (129-00-0)	625	0.3	0.6
1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
PESTICIDES/PCBs			
Aldrin (309-00-2)	608	0.025	0.05
alpha-BHC (319-84-6)	608	0.025	0.05
beta-BHC (319-85-7)	608	0.025	0.05
gamma-BHC (58-89-9)	608	0.025	0.05
delta-BHC (319-86-8)	608	0.025	0.05
Chlordane (57-74-9)	608	0.025	0.05
4,4'-DDT (50-29-3)	608	0.025	0.05
4,4'-DDE (72-55-9)	608	0.025	0.05[10]
4,4' DDD (72-54-8)	608	0.025	0.05
Dieldrin (60-57-1)	608	0.025	0.05
alpha-Endosulfan (959-98-8)	608	0.025	0.05
beta-Endosulfan (33213-65-9)	608	0.025	0.05

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
Endrin (72-20-8)	608	0.025	0.05
Endrin Aldehyde (7421-93-4)	608	0.025	0.05
Heptachlor (76-44-8)	608	0.025	0.05
Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
PCB-1242 (53469-21-9)	608	0.25	0.5
PCB-1254 (11097-69-1)	608	0.25	0.5
PCB-1221 (11104-28-2)	608	0.25	0.5
PCB-1232 (11141-16-5)	608	0.25	0.5
PCB-1248 (12672-29-6)	608	0.25	0.5
PCB-1260 (11096-82-5)	608	0.13	0.5
PCB-1016 (12674-11-2)	608	0.13	0.5
Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.
2. Quantitation Level (QL) is equivalent to EPA's Minimum Level (ML) which is defined in 40 CFR Part 136 as the minimum level at which the entire GC/MS system must give recognizable mass spectra (background corrected) and acceptable calibration points. These levels were published as proposed in the Federal Register on March 28, 1997.

APPENDIX C

MUNICIPAL CODE

Chapter 4.08
SEWERS – RATES AND CHARGES [1]

Sections:

4.08.010 Definitions.

4.08.020 Use of public sewers required.

4.08.030 Building sewers and connections.

4.08.035 Sewer service rates.

4.08.036 Connection fees.

4.08.037 System investment fee.

4.08.038 Annual CPI adjustment.

4.08.040 Customer classification.

4.08.050 Billings.

4.08.060 Special provisions.

4.08.070 Water/sewer utility fund.

4.08.080 Prohibited discharges.

4.08.090 Regulation of waste received from contributing jurisdictions.

4.08.100 Pretreatment.

4.08.110 Inspections, monitoring and record keeping.

4.08.120 Administrative enforcement remedies.

4.08.130 Judicial enforcement remedies.

4.08.010 Definitions.

Unless the context specifically indicates otherwise, the following terms and phrases, as used in this chapter, shall have the meanings hereinafter designated:

(1) “AKART” shall mean an acronym for “all known, available, and reasonable methods (prevention, control, and treatment) to prevent and control pollution of the waters of the state of Washington.” (Chapter 90.48 RCW.) AKART shall represent the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge. AKART may be required by the director for any discharge to the POTW.

(2) “Applicable pretreatment standards” shall mean for any specified pollutant: the more stringent of city prohibitive standards, city specific pretreatment standards (local limits), state of Washington pretreatment standards, or applicable national categorical pretreatment standards.

(3) “Application for temporary discharge” shall mean the city of Wenatchee application form which must be completed by any person requesting to discharge wastewater from a temporary process or cleanup project that is not directly tied to the collection system.

(4) “Biochemical oxygen demand (BOD)” shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five days at 20 degrees centigrade, expressed in milligrams per liter (mg/l).

(5) “Biosolids” shall mean municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process and meets all requirements of Chapter 70.95J RCW.

(6) “Building” shall mean any structure used for human habitation or a place of business, recreation, or other purpose requiring wastewater disposal services.

(7) “Building drain” shall mean that part of the lowest piping of a drainage system which receives the discharge from piping inside the walls of a structure or building to a point two feet outside the outer face of a structure, wall, or foundation and conveys it to the sewer or an on-site sewage disposal system. The property owner is responsible for the maintenance of this sewer.

(8) “Categorical pretreatment standards or categorical standards” shall mean any regulation containing pollutant discharge limits promulgated by the U.S. EPA in accordance with Sections 307(b) and (c) of the Federal Water Pollution Control Act (33 U.S.C. 1317) which apply to a specific category of users and which appear in 40 CFR Chapter 1, Subchapter N, Parts 405 through 471.

(9) “City” shall mean the city of Wenatchee, Washington, a municipal corporation of the state of Washington, acting by and through its city council, unless such authority shall be lawfully delegated to other persons.

(10) “Collection system” shall mean the system of sewers, manholes, pump stations, and appurtenances receiving liquid wastes from buildings and premises for transmission to the wastewater treatment plant.

(11) “Color” shall be defined by the percent transmittance, which is affected by the presence of dissolved substances and suspended matter including but not limited to natural metallic ions,

humus and peat materials, planktons, weeds and industrial wastes. Distilled water would have 100 percent transmittance.

(12) “Commercial/industrial customer” shall mean any person discharging water-carried waste and wastewater including but not limited to wastewater from any producing, manufacturing, processing, institutional, commercial, nonprofit, or agricultural operation.

(13) “Contributing jurisdiction” shall be defined as a municipality or sanitary district located outside the city limits and contributing wastewater to the POTW.

(14) “Cooling water” shall mean water used for cooling purposes generated from any use, such as air conditioning, heat exchangers, cooling or refrigeration. For purposes of this chapter, such waters are further divided into two subcategories: (a) uncontaminated – water to which the only pollutant added is heat, which has no direct contact with any raw material, waste, intermediate or final product, and which does not contain levels of contaminants detectably higher than that of the intake water; (b) contaminated – water likely to contain pollutants detectably higher than intake water. This includes water contaminated through any means, including chemicals added for water treatment, corrosion inhibition, or biocides, or by direct contact with any process materials, products, and/or wastewater.

(15) “Customer” shall mean the person in whose name service is rendered as evidenced by the person’s signature on the application or contract for that service, or in the absence of a signed instrument, by the receipt and payment of bills regularly issued in the person’s name regardless of the identity of the actual user of the service.

(16) “Customer service lateral” shall mean the lateral from the building clean out to the city mainline, which shall be owned and maintained by the customer.

(17) “Department (Ecology)” shall mean the Washington State Department of Ecology or authorized representatives thereof.

(18) “Director” shall mean the city of Wenatchee director of public works who is charged with certain duties and responsibilities by this chapter, or any other person the director may appoint.

(19) “Domestic wastewater” shall mean the water carrying human waste and the water from activities such as dishwashing, bathing and laundry in residential buildings.

(20) “EPA” shall mean the U.S. Environmental Protection Agency, or other duly authorized official of said agency.

(21) “Equivalent residential unit (ERU)” shall mean the unit of measure of daily water consumption for establishing the system investment fee to be paid to the city. One ERU is defined by the size of water meter required to meet the daily water consumption of a single-family residence. Nonresidential and multifamily residences are assigned one or more ERUs based on the size of the water meter needed to meet daily water consumption requirements.

(22) “Fats, oils and greases (FOG)” shall mean organic compounds which are generally insoluble in water, although they can be emulsified; FOG may be subdivided into polar (typically of animal or vegetable origin) and nonpolar (typically derived from petroleum) subcategories.

(23) “Floatable oil” shall mean fat or grease in a physical condition such that it will separate by gravity from wastewater by treatment in an approved pretreatment facility.

(24) “Hauled wastes” shall mean wastes conveyed to the city by other than a direct connection to the sewer; also called “trucked wastes.”

(25) “Industrial user survey” shall mean a survey form developed by the POTW to be completed by any industrial user at the request of the director. The survey information includes, but is not limited to, types and amounts of wastewater generated, treatment and disposal methods, and chemical storage.

(26) “Inflow” shall mean water not requiring treatment, which enters the sanitary sewer system as a result of precipitation events.

(27) “Interference” shall mean a discharge which, alone or in conjunction with a discharge or discharges from other sources, either: (a) inhibits or disrupts the POTW, its treatment processes or operations; (b) inhibits or disrupts its sludge or biosolids processes, use or disposal; or (c) is a cause of a violation of any requirement of the POTW’s NPDES permit including an increase in the magnitude or duration of a violation or any increase in the cost of treatment of sewage or in the cost of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Federal Water Pollution Control Act (33 U.S.C. 1345 et seq.); the Solid Waste Disposal Act (SWDA), including Title II commonly referred to as the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.); any state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA; the Clean Air Act (42 U.S.C. 7401 et seq.); the Toxic Substances Control Act (TSCA) (15 U.S.C. 2601 et seq.); and the Marine Protection, Research and Sanctuaries Act (33 U.S.C. 1401 et seq.).

(28) “May” is permissive.

(29) “Medical wastes” shall mean isolation wastes, infectious agents, pathological wastes, sharps, body parts, fomites, etiologic agents, contaminated bedding, surgical wastes, potentially contaminated laboratory wastes and dialysis waste.

(30) “Metered service” is a service for which charges are computed on the basis of measured quantities of water or wastewater.

(31) “Mg/l” means milligrams per liter.

(32) “Noncontact cooling water” shall mean water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

(33) “NPDES” shall mean the National Pollutant Discharge Elimination System permit program as administered by the U.S. EPA or State of Washington Department of Ecology.

(34) “Operation and maintenance” shall mean those functions that result in expenditures during the useful life of the treatment works for materials, labor, utilities, and other items which are necessary for managing and maintaining the sewage works to achieve the capacity and performance for which such works were designed and constructed. The term “operation and maintenance” includes replacement.

(35) “Pass through” shall mean a discharge or pollutant which enters and subsequently exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the city’s NPDES permit (including an increase in the magnitude or duration of a violation).

(36) “Percent transmittance” shall be defined as the percentage of UV light at a wavelength of 254 nm not absorbed after passing through a one-centimeter water sample using a spectrophotometer.

(37) “Person” shall mean any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity, or any other legal entity, or their legal representatives, agents or assigns. This definition includes all federal, state or local governmental entities.

(38) “pH” shall mean the logarithm of the reciprocal of the hydrogen ion concentration.

(39) “Pollutant” shall mean any substance discharged to a POTW which, if discharged directly, would alter the chemical, physical, thermal, biological, or radiological integrity of the waters of the state, or would be likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare, or to any legitimate beneficial use, or to any animal life, either terrestrial or aquatic. Pollutants include the following: dredged spoil, solid waste, incinerator residue, sewage, garbage, sludges, screenings, residues from pretreatment of wastes, munitions, medical wastes, chemical wastes, industrial wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, agricultural wastes, including stems, pits, leaves or fruit, and the characteristics of the wastewater (i.e., pH, temperature, suspended solids, turbidity, color, BOD, chemical oxygen demand (COD), toxicity, and odor).

(40) “POTW” or “publicly owned treatment works” shall mean a treatment works, as defined by Section 212 of the Federal Water Pollution Control Act (33 U.S.C. 1292), which is owned by the city. In this chapter, POTW refers to the city of Wenatchee as the entity owning and having responsibility for the operation and maintenance of the treatment works, and includes any devices or systems owned by the city and used in the collection, storage, treatment, recycling and reclamation of sewage, industrial wastes and sewage sludge and any sewers, pipes, and other conveyances owned by the city of Wenatchee which collect and convey wastewater to the city of Wenatchee wastewater treatment plant.

(41) “Pretreatment” shall mean the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. This reduction or alteration can be obtained by physical, chemical or biological processes, by process changes, or by other means, except by diluting the concentration of the pollutants unless specifically allowed by an applicable pretreatment standard.

(42) “Pretreatment requirement” shall mean any substantive or procedural local, state, or federal requirement related to pretreatment developed under Chapter 90.48 RCW and/or Sections 307 and 402 of the Federal Water Pollution Control Act.

(43) “Pretreatment standard” shall mean any pollutant discharge limitations including categorical standards, state standards, and limits of WCC 4.08.080 applicable to the discharge of nondomestic wastes to the POTW. The term shall also include the prohibited discharge standards of this chapter (WCC 4.08.080), WAC 173-216-060, and 40 CFR Part 403.5.

(44) “Public sewer” shall mean a sewer lying within a public highway, road, street, avenue, alleyway, public place, public easement, or right-of-way and which is controlled by or under the jurisdiction of the city. This does not include the side sewer in a public right-of-way.

(45) “Replacement” shall mean expenditures for obtaining and installing equipment, accessories, or appurtenances, which are necessary during the useful life of the treatment works to maintain the capacity and performance for which such works were designed and constructed.

(46) “Residential customer” shall mean any contributor to the POTW whose lot, parcel, real estate, or building is used primarily for domestic dwelling purposes including houses, apartment complexes and recreational vehicle and mobile home parks.

(47) “Sanitary sewer” shall mean a drain or sewer that carries liquid- and water-carried wastes from residences, commercial buildings, industrial plants, and institutions together with minor quantities of ground, storm, and surface waters that are not admitted intentionally.

(48) “Sewage” means water-carried human wastes or a combination of water-carried wastes from residences, business buildings, institutions and industrial establishments, together with such ground, surface, storm, or other waters as may be present (the preferred term is “wastewater”).

(49) “Sewage sludge” means a semisolid substance consisting of settled sewage solids combined with varying amounts of water and dissolved materials generated from a publicly owned wastewater treatment plant.

(50) “Sewer” shall mean any pipe, conduit, ditch, or other device used to collect and transport sewage.

(51) “Shall” defines a mandatory requirement.

(52) “Side sewer” or “sewer lateral” shall mean the sewer, not directly controlled or maintained by a public authority, which begins two feet outside the outer face of a structure, wall, or foundation conveying wastewater from the building drain to a public sewer or private sewer.

(53) “Significant industrial user (SIU)” shall mean any user of the POTW who: (a) is subject to a categorical pretreatment standard; or (b) discharges an average of 25,000 gallons per day (gpd) or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blowdown wastewater); or (c) contributes a process wastestream which makes up five percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or (d) is designated as such by the director on the basis that it has a reasonable potential for adversely affecting the POTW’s operation or for violating any pretreatment standard or requirement. Upon finding that a user meeting the criteria of subsection (b), (c), or (d) of this definition has no reasonable potential for adversely affecting the POTW’s operation or for violating any pretreatment standard or requirement, the director may at any time, on his or her own initiative or in response to a petition received from an industrial user, and in accordance with procedures in 40 CFR 403.8(f)(6), determine that such user should not be considered a significant industrial user.

(54) “Slugload” or “slug” shall mean any discharge at a flow, rate, or concentration which could cause a violation of the prohibited discharge standards (WCC 4.08.080), or any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a noncustomary batch discharge.

(55) “State” shall mean the state of Washington.

(56) “Storm sewer” (sometimes termed “storm drain”) shall mean a drain or sewer which carries storm and surface waters and drainage, but from which domestic wastewater, industrial wastewater and process wastewater are intentionally excluded.

(57) “Storm water” shall mean any flow occurring during or following any form of natural precipitation, and resulting therefrom, including snowmelt.

(58) “Suspended solids” shall mean total suspended matter that either floats on the surface of or is in suspension in water, sewage, or other liquids, and which is removable by laboratory filtering.

(59) “Toxic pollutants” shall mean those substances listed in the federal priority pollutant list and any other pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the U.S. Environmental Protection Agency under Section 307 (33 U.S.C. 1317) of the Federal Water Pollution Control Act.

(60) “User” shall mean any person discharging wastewater to the POTW.

(61) “WAC” shall mean the Washington Administrative Code.

(62) “Wastewater” shall mean the liquid- or water-carried industrial wastewater or domestic wastewater or any modification thereof, or any other water-carried waste, including that which may be combined with any groundwater, surface water, or storm water, that is or may be discharged to the POTW.

(63) “Wastewater discharge permit” shall mean a state waste discharge permit or a general permit issued by the Washington State Department of Ecology in accordance with Chapter 173-216 WAC.

(64) “Wastewater treatment plant” shall mean that portion of the POTW designated to provide treatment of wastewater.

(65) “Water meter” shall mean a water volume measuring and recording device, owned and approved by the city. (Ord. 2016-17 § 1; Ord. 2007-02 § 1; Ord. 2004-27 § 1)

4.08.020 Use of public sewers required. SHARE

(1) The owner or occupant of any house, building, or properties used for human occupancy, employment, recreation, or other purposes, situated within the city sewer service boundaries and abutting on any street, alley, or right-of-way in which there is now located a public sanitary sewer within 200 feet of the property line, is hereby required at his or her expense to connect to the public sewer in accordance with the provisions of this chapter. When a property is served by an existing private wastewater disposal system, connection to the public sanitary sewer system will be required to ensure protection of the environment and/or public health and safety when any of the following occurs:

(a) The private wastewater disposal system is found to be in failing condition as determined by the Chelan-Douglas health district; or

(b) The private wastewater disposal system is found to be inadequate for the proposed or existing use of the property as determined by the Chelan-Douglas health district.

(c) The owner of a property served by a private wastewater disposal system denied a permit application to repair or replace the existing septic system on the grounds set forth in subsections (1)(a) and (b) of this section shall have the right to file an appeal with the city clerk within 14 calendar days after the decision by the Chelan-Douglas Health District which shall be heard by the city’s hearing examiner in accordance with WCC 13.11.030 for review of such determination, which review shall be in accordance with RCW 35A.21.390. Appeals shall be subject to an administrative appeal fee in accordance with WCC 1.99.010. Pursuant to RCW 35A.21.390(5), a final determination by the city’s hearing examiner shall not be subject to further appeal.

(2) All new divisions of land and construction of residential, commercial and industrial facilities shall be reviewed by the city engineer to determine if public sewer shall be extended to the site. It shall be the policy of the city to have public sewer extended to all new development unless special circumstances exist. All new subdivisions and construction of residential, commercial

and industrial facilities and short plats approved with interim on-site sewage disposal facilities shall be required to install sanitary sewage collection systems and provide a connection from each lot. Sanitary sewage collection systems shall be installed to service all lots interior to the subdivision.

(3) If any such connection shall not be made within 60 days after written notice to the occupant or owner of such lot or parcel of property, building or structure by the director, the city is hereby authorized and directed to cause such connection to be made and to file a statement of the cost thereof with the city clerk, and thereupon a warrant in the amount of such cost payable to the city shall be issued by the city treasurer under the direction of the city council. The amount of such warrant, plus interest at the rate of 12 percent per annum upon the total amount of such cost and penalty shall be assessed against the property upon which the said building or structure is situated, and shall become a lien thereon as herein provided. Such total amount, when collected, shall be paid into said water/sewer utility fund. (Ord. 2016-17 § 1; Ord. 2007-02 § 2; Ord. 2004-27 § 2)

4.08.030 Building sewers and connections.

SHARE

(1) The connection of the building sewer into the public sewer shall conform to the requirements of the most recent editions of the International Building Code, Uniform Plumbing Code and Washington State Standard Specifications for Road, Bridge and Municipal Construction.

(2) No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the city. Property owners must apply in writing at the department of public works for new services and when a change of use occurs on the property including but not limited to changes in the number of dwelling units, the number of water meters, the size of the water meter or the sewer customer classification.

(3) All costs and expenses incidental to the installation and connection of the building drain shall be borne by the owner. The owner or applicant of the premises in question shall indemnify the city against any loss or damage that may directly or indirectly be occasioned by the installation of the building drain.

(4) A single sewer lateral shall be installed to serve each building lot. Multiple connections to a single sewer lateral shall not be allowed except at the discretion of the city engineer when all of the following conditions apply:

(a) The site topography prohibits the installation of a lateral for each building lot.

(b) The capacity of the sewer lateral is sufficient for multiple connections.

(c) The topography of the site is such that damage is not caused to any of the interconnected customers should the sewer lateral become plugged.

(5) Old building sewers may be used in connection with new buildings only when they are found on examination by the director at the owner's expense to be in good repair, to be suitable for this purpose, and to meet all requirements of this chapter. A change in use of a building may require the installation of oil/water separators, grit removal or other pretreatment or monitoring facilities prior to commencing a wastewater discharge, as specified in WCC 4.08.100.

(6) The city assumes no responsibility for the maintenance of any customer service lateral, or any building sewer lines on private property or in easements or street rights-of-way.

(7) Repealed by Ord. 2016-17.

(8) Any building or portion of a building with sewer piping located below the elevation of the next upstream manhole cover of the public sewer serving such drainage piping shall be protected with a check valve or backflow prevention device on the building drain or service lateral. The customer shall be responsible for the maintenance of this check valve. The city shall not be responsible for any backflow resulting from failure of this system.

(9) No person shall connect roof downspouts, foundation drains, areaway drains, irrigation, or other sources of surface runoff or groundwater to a side sewer or building drain, which in turn is connected directly or indirectly to a public sanitary sewer, or maintain such a connection. The property owner shall be required to disconnect the aforementioned connection by a method approved by the director at the owner's expense. (Ord. 2016-17 § 1; Ord. 2007-02 § 3; Ord. 2004-27 § 3)

4.08.035 Sewer service rates. SHARE

The sewer service rates shall be a monthly fixed amount for single-family residential and multifamily residential classifications. All other classifications, excluding special permit dischargers, shall be billed a fixed minimum monthly charge plus a charge per 100 cubic feet of water use in excess of the first 1,000 cubic feet of water use in the billing period. The sewer service rates established for each customer classification shall be as follows:

Customer Class	Existing 2010 Rate			Effective Jan. 1, 2011			Effective Jan. 1, 2012			Effective Jan. 1, 2013			Effective Jan. 1, 2014		
	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet
Single-family residential															
Inside city limits	$18.94	N/A	N/A	$20.36	N/A	N/A	$21.89	N/A	N/A	$22.54	N/A	N/A	$23.22	N/A	N/A
Outside city limits	$28.43	N/A	N/A	$30.56	N/A	N/A	$32.85	N/A	N/A	$33.84	N/A	N/A	$34.86	N/A	N/A
Multifamily residential/mobile homes															
Inside city limits	N/A	$16.41	N/A	N/A	$17.64	N/A	N/A	$18.96	N/A	N/A	$19.53	N/A	N/A	$20.12	N/A
Outside city limits	N/A	$24.63	N/A	N/A	$26.48	N/A	N/A	$28.46	N/A	N/A	$29.32	N/A	N/A	$30.20	N/A
Motels/hotels															
Inside city	$22.80	N/A	$2.149	$24.51	N/A	$2.31	$26.35	N/A	$2.48	$27.14	N/A	$2.56	$27.95	N/A	$2.63

Customer Class	Existing 2010 Rate			Effective Jan. 1, 2011			Effective Jan. 1, 2012			Effective Jan. 1, 2013			Effective Jan. 1, 2014		
	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet
limits															
Outside city limits	$34.20	N/A	$3.225	$36.77	N/A	$3.47	$39.52	N/A	$3.73	$40.71	N/A	$3.84	$41.93	N/A	$3.95
Commercial/industrial (domestic)															
Inside city limits	$22.80	N/A	$2.149	$24.51	N/A	$2.31	$26.35	N/A	$2.48	$27.14	N/A	$2.56	$27.95	N/A	$2.63
Outside city limits	$34.20	N/A	$3.225	$36.77	N/A	$3.47	$39.52	N/A	$3.73	$40.71	N/A	$3.84	$41.93	N/A	$3.95
Volume only	N/A	N/A	$2.149	N/A	N/A	$2.31	N/A	N/A	$2.48	N/A	N/A	$2.56	N/A	N/A	$2.63
Commercial/industrial (medium)															
Inside city limits	$29.23	N/A	$2.802	$31.42	N/A	$3.01	$33.78	N/A	$3.24	$34.79	N/A	$3.34	$35.84	N/A	$3.44
Outside city limits	$43.86	N/A	$4.202	$47.15	N/A	$4.52	$50.69	N/A	$4.86	$52.21	N/A	$5.00	$53.77	N/A	$5.15
Volume	N/A	N/A	$2.80	N/A	N/A	$3.01	N/A	N/A	$3.24	N/A	N/A	$3.34	N/A	N/A	$3.44

Customer Class	Existing 2010 Rate			Effective Jan. 1, 2011			Effective Jan. 1, 2012			Effective Jan. 1, 2013			Effective Jan. 1, 2014		
	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet
only			2												
Commercial/industrial (high)															
Inside city limits	$44.02	N/A	$4.288	$47.32	N/A	$4.61	$50.87	N/A	$4.96	$52.40	N/A	$5.10	$53.97	N/A	$5.26
Outside city limits	$66.06	N/A	$6.431	$71.01	N/A	$6.91	$76.34	N/A	$7.43	$78.63	N/A	$7.65	$80.99	N/A	$7.88
Volume only	N/A	N/A	$4.288	N/A	N/A	$4.61	N/A	N/A	$4.96	N/A	N/A	$5.10	N/A	N/A	$5.26

Customer Class	Effective Jan. 1, 2015			Effective Jan. 1, 2016		
	Monthly Fixed Minimum Charge	**Monthly Fixed Charge per Unit**	**Charge per 100 Cubic Feet Over 1,000 Cubic Feet**	**Monthly Fixed Minimum Charge**	**Monthly Fixed Charge per Unit**	**Charge per 100 Cubic Feet Over 1,000 Cubic Feet**
Single-family residential						
Inside city limits	$23.92	N/A	N/A	$24.63	N/A	N/A
Outside city limits	$35.90	N/A	N/A	$36.98	N/A	N/A
Multifamily residential/mobile homes						
Inside city limits	N/A	$20.72	N/A	N/A	$21.34	N/A
Outside city limits	N/A	$31.10	N/A	N/A	$32.04	N/A
Motels/hotels						
Inside city limits	$28.79	N/A	$2.71	$29.66	N/A	$2.80
Outside city limits	$43.19	N/A	$4.07	$44.48	N/A	$4.19
Commercial/industrial (domestic)						
Inside city limits	$28.79	N/A	$2.71	$29.66	N/A	$2.80
Outside city limits	$43.19	N/A	$4.07	$44.48	N/A	$4.19
Volume only	N/A	N/A	$2.71	N/A	N/A	$2.80
Commercial/industrial (medium)						
Inside city limits	$36.91	N/A	$3.54	$38.02	N/A	$3.64
Outside city limits	$55.39	N/A	$5.31	$57.05	N/A	$5.47
Volume only	N/A	N/A	$3.54	N/A	N/A	$3.64
Commercial/industrial (high)						
Inside city limits	$55.59	N/A	$5.41	$57.26	N/A	$5.58

Customer Class	Effective Jan. 1, 2015			Effective Jan. 1, 2016		
	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet	Monthly Fixed Minimum Charge	Monthly Fixed Charge per Unit	Charge per 100 Cubic Feet Over 1,000 Cubic Feet
Outside city limits	$83.42	N/A	$8.12	$85.92	N/A	$8.36
Volume only	N/A	N/A	$5.41	N/A	N/A	$5.58

Residential rates for qualifying senior citizens and disabled low income customers may be discounted per WCC 9.02.010. (Ord. 2016-17 § 1; Ord. 2010-39 § 1; Ord. 2007-02 § 4; Ord. 2003-23 § 1)

4.08.036 Connection fees. SHARE

(1) Property owners seeking to connect to the sewer system of the city shall pay an inspection fee of $40.00 per connection and, in addition, pay a connection (frontage) charge to pay their equitable share of the cost of such system as enumerated in RCW 35.92.025 benefiting their property. The equitable share shall include interest charges applied from the date of construction of the sewer system until the connection, or for a period not to exceed 10 years, at a rate commensurate with the rate of interest applicable to the city at the time of construction or major rehabilitation of the sewer system, or at the time of installation of the sewer line to which the property owner is seeking to connect, not to exceed 10 percent per year. The aggregate amount of interest shall not exceed the equitable share of the cost of the system allocated to such property owners.

(2) Upon completion or acceptance by the city of a new sewer line with necessary appurtenances, the director shall compute the equitable share to be paid in the future by property owners connecting to the sewer line. Where feasible, the unit cost for each property owner shall be established on the basis of the distance or frontage of the lot abutting the sewer line benefiting the property. For purposes of this section, the frontage for a corner lot shall be based on the average distance of the two sides. The director, in computing the equitable share to be paid in the future by abutting property owners, will base the calculation on the minimum service size established by the city of Wenatchee to serve the property. The equitable share to be paid in the future by abutting property owners benefiting from the system shall be in addition to other charges provided.

(3) In the case of irregular-shaped lots, multiple frontages or unusual circumstances, the director may establish the equitable share on another unit basis rather than the standard frontage

calculation. In the event a property owner considers the equitable share established by the director to be unfair, the property owner may appeal the director's decision in writing to the Wenatchee city council. The city council will make a decision within 30 days upon receipt of such written appeal and its decision shall be final.

(4) Frontage fee refunds may be issued for a new connection when both of the following two conditions are satisfied:

(a) The property owner paid frontage fees that included the installation cost of the existing sewer lateral; and

(b) The existing sewer lateral was damaged, does not exist as shown in the city records, or is not within 10 feet of the location shown in the city records.

Refunds will not be issued in the case where laterals have been damaged by franchise utilities. Property owners not paying frontage fees on new connections are solely responsible for existing and new laterals regardless of condition and location shown in the city records.

(5) A credit against the system investment fee shall be allowed in an amount equal to the amount of sewage disposal payments actually made or 36 monthly payments, whichever amount is less, at the time property is connected to the sewage disposal system for those properties previously charged the sanitary sewer service fee because the property was located within 200 feet of the sewage disposal system, even though the property was not connected to the system.

(6) If a sewer service remains disconnected resulting from disconnection of domestic water for four years or more, the property owner will be required to pay the sewer system investment fees at the time their water service is reconnected unless the property owner can provide proof that the applicable system investment fees were previously paid. If a change of use occurs on the property, including but not limited to a change in the classification from a lower classification to a higher classification as set forth in WCC 4.08.040, a change in the number of dwelling units, addition of a new water meter or an increase in the size of the existing water meter, the property owner shall be required to pay the difference in the sewer system investment fees. Sewer system investment fees shall not be refunded for decreases in meter size, removal of a water meter, a decrease in the number of dwelling units or decrease in sewer classification. (Ord. 2016-17 § 1; Ord. 2007-02 § 5; Ord. 2003-23 § 2)

4.08.037 System investment fee. SHARE

Each new connection to the city's sewer system shall pay to the city a "system investment fee." The system investment fee will represent a recovery by the city of its net investment in the sewer utility to be used by the customer connecting to the sewer system. The system investment fee shall be a flat charge per dwelling unit for single-family residential and multifamily residential customer classifications. For domestic, medium, and high-strength commercial and industrial customer classifications, the equivalent residential unit based on the water meter size serving these classifications shall be used to calculate the system investment fee. Where a commercial or residential customer includes more than one activity, the system investment fee shall be based on

that fee applicable to the activity with the highest wastewater strength classification. The system investment fee shall be payable when making application for connection to the city's sewer system for residential or commercial establishment. The system investment fee for each customer classification is as follows:

Customer Classification	Charge for First Dwelling Unit or Equivalent Residential Unit	Charge for Additional Dwelling Unit or Equivalent Residential Unit
Single-family residential	$570.00	N/A
Multifamily residential	$509.00	$469.00
Commercial/industrial (domestic)	$570.00	$530.00
Commercial/industrial (medium)	$710.00	$670.00
Commercial/industrial (high)	$1,032	$992.00
The determination of equivalent residential units for commercial/industrial customers shall be in accordance with the following table based on the water meter size serving the sewer customers.		

Water Meter Size	ERU
5/8″ x 1″	1
1″	2.5
1-1/2″	5
2″	8
3″	16
4″	25
6″	50
8″	80

(Ord. 2016-17 § 1; Ord. 2007-02 § 6; Ord. 2003-23 § 3)

4.08.038 Annual CPI adjustment.

In addition to such other charges as may be approved by the city council, commencing January 1, 2017, and on January 1st of each successive year thereafter, the rates addressed herein shall be automatically increased based upon 80 percent of the Consumer Price Index, Pacific Cities and U.S. City Average, All Items Indexes, for the period July to July, All Urban Consumers, West B/C as published by the Bureau of Labor Statistics. In no event shall the rates be increased by an amount less than one percent nor greater than five percent without prior approval by the city council. However, these fees and charges shall not, in any case, decrease. (Ord. 2016-17 § 1; Ord. 2010-039 § 2; Ord. 2007-02 § 7; Ord. 2003-23 § 4)

4.08.040 Customer classification.

Each customer connected to the city's sewer system shall be classified based on the type of business or residential activity to be conducted or being conducted on the premises and/or the specific characteristics of the wastewater being discharged. Wastewater discharges shall be characterized by the strength of the wastewater based on BOD and suspended solids, the concentration of metals, and/or other organic chemicals that may affect the treatability of the discharge. These customer classifications shall include residential, commercial/industrial, and special permit dischargers as defined below. The ranges of BOD and suspended solids given for each classification are from the Washington State Department of Ecology Publication Number 98-37 entitled "Criteria for Sewage Works Design" and may not represent the actual strength discharged by a specific customer.

(1) Residential. Residential customers include single-family residential and multifamily residential which discharge to the sewer system wastewater of a domestic nature and with an average strength of less than 240 mg/l of BOD and 260 mg/l of suspended solids. The two classifications of residential are further defined as follows:

(a) Single-Family Residential. A single-family residential customer shall be deemed to mean a separate dwelling occupied by one family with a single connection to the city's sewer system. A single-family residence may be site-built or manufactured.

(b) Multifamily Residential. This classification shall include a residential building or buildings containing two or more dwelling units each with separate kitchen facilities, cottage housing and mobile or manufactured home parks connected to the city's sewer system by one or more connecting sewers.

(2) Commercial/Industrial. Commercial/industrial customer classifications are distinguished based on type of business and/or their wastewater characteristics. The three classifications include domestic, medium strength wastewater, and high-strength wastewater. The types of commercial, institutional, and industrial in each of the three categories, and the average strength of the wastewater based on these activities, is identified below:

(a) Commercial/Industrial – Domestic. Customers in this classification will typically have a wastewater strength that is primarily domestic in character and on an average basis does not

exceed 240 mg/l of BOD and 260 mg/l of suspended solids. Commercial and industrial activities included in this classification are as follows:

(i) Professional offices;

(ii) Retail sales;

(iii) Auto service and repair;

(iv) Motels and hotels (rooms only).

(b) Commercial/Industrial – Medium. Customers in this classification will have an average wastewater strength that is greater than that of the commercial/industrial – domestic classification but on a daily average will not exceed 410 mg/l of BOD and 425 mg/l of suspended solids and will not exceed a five-day average of 240 mg/l of BOD and 260 mg/l of suspended solids. Commercial and industrial activities included in this classification are:

(i) Grocery stores without food grinders;

(ii) Hospitals and convalescent centers;

(iii) Manufacturers;

(iv) Food processors.

(c) Commercial/Industrial – High. Customers in this classification will have an average wastewater strength that is greater than that of the commercial/industrial – medium classification but on the average does not exceed a daily average of 1,150 mg/l of BOD and 1,200 of mg/l suspended solids and will not exceed a five-day average of 450 mg/l of BOD and 460 mg/l of suspended solids. The types of business included in this classification are restaurants, hotels with dining facilities, bakeries, auto steam cleaning, grocery stores with food grinders, mortuaries, commercial laundries and special industrial manufacturing or processing activities.

(3) Special Permit Dischargers. This classification of customer includes commercial or municipal operators who, through a separate license, permit, or contract, are authorized to discharge at a designated point in the city POTW wastes collected from other sources such as wastewater from cleanup projects, or other hauled wastewater. The city shall establish administratively the requirements for licensing each firm, person or municipality wishing to discharge waste to the city POTW. See WCC 4.08.080, 4.08.100 and 4.08.110 for additional requirements.

(4) Dual Classification. Where a customer connected to or connecting to the city's sewer system includes activities and wastewater strengths falling in more than one of the classifications defined above, the customer shall be classified based on the highest strength of wastewater from the activities carried on in the premises. If the water service to each type of activity in the building can be separated and a separate meter installed to each activity, then each activity would be classified as a separate customer under the applicable classification.

(5) Home Occupation. Customers with approved home occupations shall be classified based on the highest strength of wastewater from the activities carried on in the premises. Customers whose home occupation meets the criteria of the commercial/industrial-domestic category shall be billed as a residential customer. All other customers operating home occupations shall be billed as a commercial/industrial customer under the appropriate commercial/industrial category. (Ord. 2016-17 § 1; Ord. 2007-02 § 8; Ord. 2004-27 § 4)

4.08.050 Billings. SHARE

Billings and collections for sewage disposal service shall be prescribed in Chapter 9.02 WCC. (Ord. 2016-17 § 1; Ord. 2007-02 § 9; Ord. 2004-27 § 5)

4.08.060 Special provisions. SHARE

(1) All sanitary sewage disposal service furnished to a customer outside the city limits shall be charged at the rate of 150 percent of the schedule for rates and charges set forth in WCC 4.08.035 through 4.08.038; however, the city, with respect to commercial and industrial customers situated outside the city limits, may enter into contracts for furnishing sanitary sewage disposal service on such terms as the city may determine to be equitable in each instance. Such agreements shall be approved by the city council.

(2) Where the use of water is such that a portion of all the water used does not flow into the city sewer but is lost by evaporation, irrigation, sprinkling or any other cause, or is used in manufactured products such as ice, canned goods, beverages and the like, and the person in control provides proof of this fact to the city of Wenatchee, and installs a meter or other measuring device approved by the director to measure the amount of water so used or lost, fees may be adjusted based on measured flow.

(3) In the event a developer is requested by the city to install a sewer system and/or sewer lines larger than required for serving the development, the city will pay the additional cost of the oversized system and/or lines.

(4) Special Agreement. The city reserves the right to enter into special agreements or contracts with customers setting out special terms under which they may discharge to the POTW with the terms of such special agreements to govern in the event of conflict with this chapter; provided, however, in no case will a special agreement waive compliance with a pretreatment standard or requirement.

(5) Credits for Commercial/Industrial Customers. When a customer classified as commercial/industrial under WCC 4.08.040(2) requests a credit due to a water leak, the customer must complete a credit request form and provide evidence to the city finance department that there has been a water leak in the customer's water line that did not reach the sewer system and that the leak has been repaired. Commercial/industrial customers requesting a credit due to a wastewater flow metering issue must also complete a credit request form and provide evidence of the problem and that the problem has been repaired. The director will make a factual determination of the leak or wastewater flow metering problem and its repair and make a

recommendation to the finance department as to whether a credit shall be given. When a commercial/industrial customer demonstrates to the satisfaction of the director that the water leak or wastewater flow metering problem occurred and was repaired within 30 days or in accordance with an alternate timeline approved by the director, the city may allow a sewer credit of up to one-half of the sewer consumption above the customer's average sewer consumption for the same period or the average of the customer's available history when less than 12 months of consumption history is not available. Adjustments to a specific account at the request of the customer may not be made more than once in a two-year period unless approved by the director and credits shall not be given for consumption that is less than 50 percent over the average consumption for the same period. (Ord. 2016-17 § 1; Ord. 2007-02 § 10; Ord. 2004-27 § 6)

4.08.070 Water/sewer utility fund. SHARE

There is hereby created a special fund of the city to be known as the "water/sewer utility fund." Any and all revenues received for the use of sewers as set forth herein for sewage disposal service from the sale of by-products from the wastewater treatment plant and/or from any other source of rental, use or services rendered by such utility shall be credited to and paid into such fund. All engineering expenses incurred by the engineering department in planning, designing, supervising and administering any work on the Wenatchee municipal sewer system, and all expenses of maintenance and operation of the sewer system and wastewater treatment plant including but not limited to all improvements, additions, betterment, extensions, repairs, replacements and revenue bond debt service, shall be paid out of said fund. (Ord. 2016-17 § 1; Ord. 2007-02 § 11; Ord. 2004-27 § 7)

4.08.080 Prohibited discharges. SHARE

(1) General Provisions. No user shall introduce or cause to be introduced into the POTW any pollutant or wastewater which causes pass through or interference. These general prohibitions and the specific prohibitions in subsection (2) of this section apply to all users of the POTW and customers of the contributing jurisdictions whether or not they are subject to categorical pretreatment standards or any other national, state, or local pretreatment standards or requirements.

(2) Specific Prohibitions. No user shall introduce or cause to be introduced into the POTW the following pollutants in any form (solid, liquid, or gaseous):

(a) Any pollutant which either alone or by interaction may create a fire or explosive hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit (60 degrees Celsius) using the test methods specified in 40 CFR 261.21. At no time shall a wastestream cause two successive readings on a combustible gas meter to be more than five percent nor any single reading over 10 percent of the lower explosive limit (LEL) of the meter at any point in the collection system or treatment plant. Prohibited materials include, but are not limited to, gasoline, fuel oil, diesel, kerosene, naptha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, sulfides, and any other substances which are a fire hazard or hazard to the POTW;

(b) Any pollutant which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0 or more than 11.0;

(c) Any solid or viscous substances including fats, oils and greases in amounts which may cause obstruction of the flow in the POTW or interference;

(d) Any discharge of pollutants, including oxygen demanding pollutants (BOD, etc.), released at a flow rate and/or pollutant concentration which, either singly or by interaction with other pollutants, is sufficient to cause interference with the POTW;

(e) Any wastestream having a temperature which will inhibit biological activity in the treatment plant resulting in interference, but in no case wastewater which would cause the temperature at the introduction into the treatment plant to exceed 104 degrees Fahrenheit (40 degrees Celsius);

(f) Any wastewater having an animal/vegetable (polar) based floatable oil, fat waste, oil, or grease, or a mineral/petroleum (nonpolar) based oil or grease (whether or not emulsified), hexane or ether-soluble matter content in excess of 100 mg/l, or any petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

(g) Any pollutants which singly or by interaction with other wastes result in the presence of noxious or malodorous gases or fumes in a quantity that may cause acute worker health and safety problems, or are capable of creating a public nuisance or are sufficient to prevent the entry into sewers for maintenance and repair;

(h) Any trucked or hauled wastes except at discharge points designated by the city pursuant to WCC 4.08.060 or 4.08.090;

(i) Any inflow from sources which do not require treatment or would not be afforded a significant degree of treatment by the POTW including storm water and wastewaters affecting system hydraulic loading, unless specifically authorized by the director;

(j) Any cooling water or boiler water containing chemicals other than chlorine and/or sulfuric acid except as approved by the director;

(k) Any dangerous wastes or hazardous wastes as defined in Chapter 173-303 WAC, as amended, except as allowed in compliance with that regulation;

(l) Any water added for the purpose of diluting wastes which would otherwise exceed applicable pretreatment standards;

(m) Any sludges, screenings, or other residues from the pretreatment of industrial wastewater discharges;

(n) Any discharge which imparts color which cannot be removed by the POTW's treatment process including but not limited to dye wastes, vegetable tanning solutions, and pear float,

which consequently imparts color to the treatment plant's effluent and interferes with the ultraviolet disinfection process;

(o) Any discharge containing radioactive wastes or isotopes except as specifically approved by the director in compliance with the applicable state or federal regulations including WAC 246-221-190, "Disposal by Release into Sanitary Sewerage Systems"; and meeting the concentration limits of WAC 246-221-290, Appendix A, Table I, Column 2; and WAC 246-221-300, Appendix B;

(p) Any substances which may cause the POTW's effluent or treatment residues, sludges, or scums to be unsuitable for reclamation and reuse or would interfere with the reclamation process or cause the POTW to be in noncompliance with sludge use or disposal criteria, guidelines or regulations developed pursuant to the federal, state, or local statutes or regulations applicable to the sludge management method being used;

(q) Persistent pesticides and/or substances regulated by the Federal Insecticide Fungicide Rodenticide Act (FIFRA) except as approved by the director;

(r) Any detergents, surface-active agents, or other substances in amounts which may cause excessive foaming in the POTW;

(s) Any substance, alone or in conjunction with other sources, which will cause the POTW to violate its NPDES permit.

(3) Local Limits. The following pollutant levels are established to protect against pass through and interference with the operation of the treatment plant. No person shall discharge wastewater containing in excess of the following instantaneous maximum allowable discharge limits:

Copper	0.68 parts per million (ppm)
Lead	0.5 ppm
Zinc	1.48 ppm
Total Phenols	0.10 ppm

The above limits apply at the point where the wastewater is discharged to the POTW. All concentrations of metallic substances are for "total" metals unless indicated otherwise. The department or the city may impose mass limitations in addition to, or in place of, the concentration-based limitations above. The city may also revise or modify the local limits as required, or if deemed necessary to avoid violations to the NPDES permit.

(4) Federal Categorical Pretreatment Standards. All users in the regulated industrial categories shall meet national categorical pretreatment standards as adopted and hereafter amended by the EPA pursuant to the Federal Water Pollution Control Act. These standards, found in 40 CFR Chapter 1, Subchapter N, Parts 405 – 471, are hereby incorporated by reference.

(5) State Requirements. State requirements and limitations on discharges to the POTW as incorporated into Washington State law by Chapter 90.48 RCW and implemented in Chapters 173-201A, 173-216 and 173-240 WAC shall be met by all users which are subject to such standards in any instance in which they are more stringent than federal requirements and limitations, or those in this or other applicable ordinances. This includes the requirement to meet AKART as defined herein whenever applicable and more stringent than local limits, and to comply with the requirements of WCC 4.08.100. (Ord. 2016-17 § 1; Ord. 2007-02 § 12; Ord. 2004-27 § 8)

4.08.090 Regulation of waste received from contributing jurisdictions.

(1) If another municipality or sanitary district located outside the city limits desires to contribute wastewater to the POTW, the director may enter into a multi-jurisdictional agreement with the contributing jurisdiction.

(2) Prior to entering into an agreement provided by subsection (1) of this section, the contributing jurisdiction shall provide the following information to the city:

(a) A description of the quality and volume of wastewater discharged to the POTW by the contributing jurisdiction including analytical testing results which may include FOG, BOD, suspended solids, priority pollutants, metals and other analytes;

(b) A list of all customers discharging within the contributing jurisdiction;

(c) A legal description of the area to be served; and

(d) Such other information related to wastewater discharge as the director may deem necessary.

(3) A multi-jurisdictional agreement, as allowed by subsection (1) of this section, shall contain the following conditions:

(a) A requirement for the contributing jurisdiction to adopt or adopt by reference a sewer use ordinance which is at least as stringent as the ordinance codified in this chapter and local limits which are at least as stringent as those adopted by the city's ordinance. The requirement shall specify that such ordinance and limits must be revised as necessary to reflect changes made to the city's ordinance or local limits;

(b) A requirement for the contributing jurisdiction to submit a revised user inventory on at least an annual basis;

(c) A provision specifying which pretreatment implementation activities, including wastewater discharge permit issuance, inspection and sampling, and enforcement, will be conducted by the contributing jurisdiction; which of those activities will be conducted by the director; and which of these activities will be conducted jointly by the contributing jurisdiction and the director;

(d) A requirement for the contributing jurisdiction to provide the director with access to all information related to wastewater discharge that the contributing jurisdiction obtains as part of its pretreatment activities;

(e) Limits on the nature, quality and volume of the contributing jurisdiction's wastewater at the designated monitoring point before it discharges to the POTW;

(f) Requirements for monitoring the contributing jurisdiction's discharge including analytes and testing frequency;

(g) A provision ensuring director access to the facilities of customers located within the contributing jurisdictional boundaries for the purpose of inspection, sampling and collection of any other information related to the wastewater discharge and duties deemed necessary by the director; and

(h) A provision specifying remedies available for breach of the terms of the multi-jurisdictional agreement. (Ord. 2016-17 § 1; Ord. 2007-02 § 13; Ord. 2004-27 § 9)

4.08.100 Pretreatment. SHARE

(1) Industrial User Surveys. The director shall periodically notify new, existing, and potential users of the requirement to complete an industrial user survey form. Upon notification, users shall fully and accurately complete the survey form, and return the completed form to the director within 30 days of receipt. Each user shall maintain a copy of the latest completed survey form at their place of business. Failure to fully or accurately complete a survey form or to maintain the latest survey form on the premises where a wastewater discharge is occurring shall be a violation of this chapter.

(2) Wastewater Discharge Permit. Any user meeting the definition of a significant industrial user shall file an application for a state waste discharge permit with the Department in accordance with the requirements of WAC 173-216-070. Proof of acceptance of the application and payment of permit fees shall be kept at the user's facilities, and produced upon request by the director. Failure to submit the application or rejection of the application by the Department may be considered sufficient grounds to terminate or refuse to provide sewer service. Any violation of the terms and conditions of the wastewater discharge permit shall be deemed a violation of this chapter and subjects the user to the sanctions set out in this chapter. Obtaining authorization from the Department and the POTW does not relieve a user of its obligation to comply with all federal and state pretreatment standards or requirements or with any other requirements of federal, state and local law.

(3) Commercial/industrial customers shall properly install, operate, and maintain the wastewater facilities which, combined with appropriate practices, are necessary to achieve AKART as defined herein. Such pretreatment facilities shall be designed to achieve compliance with all applicable pretreatment standards and requirements within the time limitations specified by the EPA, state or the city, whichever is more stringent. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the Department for review and approval

in accordance with the procedures of Chapter 173-240 WAC, and shall be disclosed to the city before construction of the facility. The review of such plans and operating procedures will in no way relieve the user from the responsibility of modifying its facility as necessary to produce a discharge acceptable to the city and/or the Department and meet discharge limitations under the provisions of this chapter. Such facilities shall be provided, operated, and maintained at the user's expense.

(4) Significant industrial users shall comply with approved engineering reports, plans and specifications, and operations and maintenance manuals, and shall modify such documents to reflect any proposed modifications of industrial wastewater (pretreatment) facilities. SIUs shall submit proposals to modify pretreatment facilities to the Department before implementation in accordance with Chapter 173-240 WAC. SIUs shall submit a copy of such revised plans and the Department's acceptance to the director before implementing changes to approved pretreatment facilities. The director may audit the compliance of any SIU, and require changes in operating procedures deemed necessary by the director to ensure continued compliance with applicable pretreatment standards and requirements.

(5) If monitoring of a commercial/industrial customer indicates noncompliance with the requirements of this chapter, the customer will be required to take corrective measures at the customer's expense. Such measures may include: restricting a discharge during peak flow or low flow periods; designating that certain wastewater be discharged only into specific sewers; requiring relocation and/or consolidation of discharge points; installing a sampling site as specified by the city; and/or separating sewage or storm water wastestreams from industrial wastestreams.

(6) Commercial/industrial customers who operate restaurants, cafes, lunch counters, cafeterias, bars or clubs, or hotel, hospital, factory or school kitchens, butcher shops, grocery stores or any other establishment where grease may be introduced into the sewer system shall have a gravity grease interceptor to prevent the discharge of fat, oil, and grease waste. Such pretreatment facilities shall be located outside the building and installed in the wastewater line leading from the sinks, drains or other fixtures where grease may be discharged. New grease interceptors shall be in accordance with the most recent edition of the Uniform Plumbing Code and any other requirements by the city as set forth in this chapter. Grease interceptors that include dishwasher effluent shall be sized to allow sufficient detention time to allow for cooling of the effluent. Sanitary facilities will not be allowed to connect upstream of any grease interceptor. Hydromechanical grease interceptors inside the building shall only be allowed upon written approval by the director under special circumstances which may include but are not limited to insufficient space to install an outside interceptor, cost of retrofitting existing facilities, and single service businesses with limited menus.

(7) Commercial/industrial customers who operate automobile and truck repair facilities, car washes, steam cleaning or pressure washing facilities, or any other establishment where grit, sand, and petroleum-based grease and oil may be introduced into the sewer system shall have an oil/water separator, settling tanks or grit trap. These oil/water separators, settling tanks and grit traps must be in accordance with the city and Department of Ecology standards.

(8) All grease interceptors, oil/water separators, settling tanks, and grit traps shall be properly installed, maintained and operated by the user at the user's expense. The pretreatment facilities shall be kept in continuous operation at all times, and shall be maintained to provide efficient operation. Cleaning must be performed by a service contractor qualified to perform such cleaning, or in a manner approved by the director. All material removed shall be disposed of in accordance with all state and federal regulations. Oil and grease waste and grit removed from such facilities shall not be disposed of in the sanitary or storm sewer. Furthermore, the use of hot water, enzymes, bacteria, chemicals or other agents or devices that cause the contents of a pretreatment device to be discharged into the sanitary sewer system is prohibited. Records of maintenance shall be made readily available on-site to the director for review and inspection, and must be maintained for a minimum of five years. The director will require that all maintenance records be submitted on a routine basis for businesses whose operations are known to generate high levels of oil and grease or who have failed in the past to properly maintain their pretreatment facilities and fail to produce a discharge quality in compliance with the parameters set forth in this chapter.

(9) Commercial/industrial customers with the potential to discharge flammable substances may be required to install and maintain an approved combustible gas detection meter.

(10) Report of Changed Conditions. Each commercial/industrial customer must notify the city of any planned significant changes to the user's operations or system which might alter the nature, quality, or volume of its wastewater at least 30 days before the change. These significant changes include, but are not limited to, flow changes of 20 percent or greater, changes in the strength of wastewater being discharged, and the discharge of previously unreported pollutants. The director may require the user to submit information as may be deemed necessary to evaluate the changed condition. No user shall implement the planned changed condition(s) until and unless the director has responded to the user's notice.

(11) Slug Discharge Control Plans. If it is determined that the commercial/industrial customer's discharge is occurring in slugloads, the user may be required to install, properly operate, and maintain, at the user's expense, facilities to prevent slugloads or accidental discharges of pollutants to the POTW. Such users will be required to implement spill plans developed in compliance with applicable OSHA, health, fire, and Department regulations applicable to discharges to POTWs. When such plans are required, they shall contain at least the following elements:

(a) Description of wastewater discharge practices;

(b) Description of any and all stored chemicals including material safety data sheets;

(c) Procedures for immediately notifying the POTW of any accidental or slug discharges, with procedures for follow-up written notification within five days; and

(d) Procedures to prevent any accidental slug discharge. Such procedures include, but are not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site runoff, worker training, building or

containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response.

(12) Accidental Spill Notification. Users shall verbally notify the POTW immediately upon the occurrence of a slugload or accidental discharge of substances regulated by this chapter or discharge permit and take immediate actions to correct the situation. Such notification shall include the following information: (a) the location of the discharge, (b) the date and time thereof, (c) the type of waste, (d) the waste concentration and volume, and (e) the corrective actions taken and planned. The user shall follow up with a written notification to the director containing the same. Any user who discharges an accidental discharge or slugload shall be liable for: (a) recovery of any resultant expenses, losses, and damages to the POTW; (b) recovery of any fines or settlements levied upon the city by any government agency or court of competent jurisdiction attributable to the discharge; and (c) applicable fines and penalties assessed upon the user by the city for noncompliance with this chapter.

(13) Commercial/industrial customers may be required to retrofit facilities which were constructed prior to the adoption of this chapter. The requirement to retrofit shall be on a case-by-case basis as determined by the director for compliance with city, state and federal regulations. The director may require installation of grease interceptors, grease traps or other pretreatment facilities for those facilities that violate discharge prohibitions. In deciding whether to require a user to retrofit their facilities, the director shall take into account all relevant circumstances including but not limited to the extent of potential harm caused by the discharge, the magnitude and duration of the discharge, economic detriment to the user, corrective actions by the user, and the compliance history of the user. All costs incurred in retrofitting a user's facility shall be the sole responsibility of the user.

(14) Commercial/industrial customers installing and maintaining pretreatment facilities in accordance with this chapter may qualify for incentives. Incentive programs must be approved by city council and will be awarded according to the criteria set forth in the program. Incentive programs may be discontinued without prior notice. (Ord. 2016-17 § 1; Ord. 2007-02 § 14; Ord. 2004-27 § 10)

4.08.110 Inspections, monitoring and record keeping. SHARE

(1) Inspection and Sampling. The director shall have the right to enter the facilities of any user to ascertain compliance with this chapter and any wastewater discharge permit. Persons or occupants of premises where wastewater is created or discharged shall allow the director ready access at all reasonable times to all parts of the premises for the purposes of inspection, sampling, records examination or in the performance of any of their duties. The director and/or Department shall have the right to set up on the user's property such devices as are necessary to conduct sampling inspections, compliance monitoring and/or metering operations. Where a user has security measures in place which would require proper identification and clearance before entry into their premises, the user shall make necessary arrangements with their security guards so that, upon presentation of suitable identification, personnel from the POTW or Department will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.

(2) Search Warrants. If the director has been refused access to a building, structure or property, or any part thereof, and is able to demonstrate probable cause to believe that there may be a violation of this chapter, or that there is a need to inspect as part of a routine inspection program of the POTW designed to verify compliance with this chapter or any wastewater discharge permit, or to protect the overall public health, safety and welfare of the community, then the director shall seek issuance of a search and/or seizure warrant from the superior court of Chelan County.

(3) Wastewater Monitoring. Any user subject to sampling requirements shall collect, analyze samples and report results as specified in the user's wastewater discharge permit or contract. The director may require sampling, analysis and reporting of results by users who are not required to have a wastewater discharge permit if information or data are needed to establish a sewer charge, determine the treatability of the effluent, determine compliance with this chapter or determine any other factor which is related to the operation and maintenance of the sewer system.

(4) Analyses. All wastewater analyses shall be performed either by a state certified laboratory, by a laboratory of a commercial/industrial customer approved by the director or, at the discretion of the director, by personnel of the POTW. If performed by POTW personnel, the user requesting the analyses shall pay an appropriate charge. Data developed in the laboratory of a user shall be verified by a responsible administrative official of the industrial discharger under penalty of perjury and certify to its being accurate and correct. All wastewater analyses shall be conducted in accordance with U.S. Environmental Protection Agency approved analytical methods (40 CFR Part 136). If no appropriate procedure is contained therein, the standard procedure of the industry or a procedure judged satisfactory by the director shall be used to measure wastewater constituents. Any independent laboratory or discharger performing tests shall furnish any required test data or information on the test methods or equipment used, if requested to do so by the director.

(5) Monitoring Facilities. All wastewater dischargers required by the director or discharge permit by the Department of Ecology to make continuous or periodic measurements shall furnish, install and maintain a monitoring facility or station of a design or configuration approved by the director. The monitoring facility shall be located in an accessible location approved by the director and shall be provided in accordance with the city's requirements and all applicable local construction requirements. Plans for all monitoring facilities, including flow measurement and sampling systems, judged by the director to require engineering design, shall be prepared and signed by an engineer of suitable discipline licensed by the state of Washington.

(6) Record Keeping. Users shall retain, and make available for inspection and copying, all records of information obtained pursuant to any monitoring activities required by this chapter and any additional records of information obtained pursuant to monitoring activities undertaken by the user independent of such requirements. Records shall include the date, exact place, method, and time of sampling and the name of the person(s) taking the samples; the date analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses. These records shall remain available for a period of at least five years.

(7) Confidential Information. Records kept by the director with respect to the nature and frequency of discharges from any user shall be available to the public without restriction, unless the user specifically requests, and is able to demonstrate to the satisfaction of the director, that the release of such information would divulge information, processes or methods of production entitled to confidentiality under the law. Users shall clearly mark “confidential” on all areas of correspondence they wish to be held confidential from the public, and feel is afforded such protection. The director shall determine if such information is legally afforded this protection under the law upon receipt of a request for such information. Only information marked “confidential” and determined by the director to legally qualify as such shall be withheld from the public. The city can provide no assurance that such information will not ultimately be determined to be a public record subject to release if ordered by the court, and the city undertakes no obligation to defend the nondisclosure of such information in court. No correspondence claimed as “confidential” shall be withheld from any state or federal agency responsible for oversight of the POTW’s NPDES permit or authority to implement the NPDES, or state or federal pretreatment programs. Wastewater constituents and characteristics, and other “effluent data” as defined in 40 CFR 2.302, will not be recognized as confidential information and will be made available to the public without restriction. (Ord. 2016-17 § 1; Ord. 2007-02 § 15; Ord. 2004-27 § 11)

4.08.120 Administrative enforcement remedies. SHARE

(1) State Responsibility. The Department is charged with permitting and regulating commercial/industrial customers discharging to the POTW. Except for emergency actions, it shall be the policy of the director to coordinate actions in regard to control of such users with the Department until such time as a local pretreatment program for the city may be authorized by the state. Failure to conduct such coordination, however, shall not invalidate any action of the city authorized by this chapter.

(2) Notice of Violation. Whenever the director finds that any user has violated or is continuing to violate a contract, any provision of this chapter, or an order issued hereunder, the director may serve upon such user written notice of the violation. Within 10 days of receipt of such notice of violation, the user shall submit to the director an explanation of the violation and a plan to satisfactorily correct and prevent the reoccurrence of such violation(s). The plan shall include specific actions the user will take, and the completion dates of each. Submission of this plan in no way relieves the user of liability for any violations occurring before or after receipt of the notice of violation. Nothing in this section shall limit the authority of the city to take any action, including emergency actions or any other enforcement action, without first issuing a notice of violation.

(3) Compliance Orders. Whenever the director finds that a user has violated, or continues to violate, any provision of this chapter, or order issued hereunder, the director may issue a compliance order to the user responsible for the violation. This order shall direct that adequate pretreatment facilities, devices, or other related appurtenances be installed and properly operated and maintained. The order shall specify that wastewater services, including collection and treatment, shall be discontinued and/or applicable penalties imposed unless, following a specified time period, the directed actions are taken. Compliance orders may also contain such

other requirements as might be reasonably necessary and appropriate to address the violation or noncompliance, including, but not limited to, the installation of pretreatment technology, additional self-monitoring, and management practices designed to minimize the amount of pollutants discharged to the POTW. A compliance order may not extend the deadline for compliance beyond any applicable state or federal deadlines, nor does a compliance order release the user from liability from any past, present, or continuing violation(s). Issuance of a compliance order shall not be a prerequisite to taking any other action against the user. Failure to comply with any terms or requirements of a compliance order by a user shall be an additional and independent basis for termination of water and wastewater services, including collection and treatment, or any other enforcement action authorized under this chapter and deemed appropriate by the director.

(4) Cease and Desist Orders. The director may issue a cease and desist order upon finding a user has or is violating either: this chapter, a wastewater discharge permit or order issued by the Department, or any other pretreatment standard or requirement. The decision to issue a cease and desist order shall consider the likelihood that a user's violations in conjunction with other discharges could cause a threat to the POTW, POTW workers, or the public, or cause pass through, interference, or a violation of the POTW's NPDES permit. The order issued by the director will direct the user to cease and desist all such violations and to: (a) immediately cease such actions or discharges described; (b) comply with all applicable pretreatment standards and requirements; (c) take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and/or terminating the discharge. Issuance of a cease and desist order shall not be a bar against, or prerequisite for, taking any other action against the user.

(5) Recovery of Costs Incurred by the City. Any discharger violating any of the provisions of this chapter who discharges or causes a discharge producing a deposit or obstruction or causes damage to or impairs the city's POTW shall be liable to the city for any expense, loss, fines, or damage caused by such violation or discharge. The city will bill the discharger for the cost incurred by the city for any cleaning, repair, replacement work, or other damages caused by the violation or discharge. Refusal to pay the assessed costs shall constitute a violation of this chapter enforceable under the provisions of this section and WCC 4.08.130.

(6) Noncompliance Fines. Notwithstanding any other section of this chapter, any user who is found by the director to have violated any provision of this chapter, or orders issued hereunder, shall be fined in the amount not to exceed $1,000 per violation. Each day on which noncompliance shall occur or continue shall be deemed a separate and distinct violation. Such assessments may be added to the user's next scheduled sewer service charge or billed separately. Unpaid charges, fines, and penalties shall constitute a lien against the individual user's property. Issuance of an administrative fine shall not be a prerequisite for taking any other action against the user.

(7) Termination of Treatment Services. The director shall have authority to terminate water and wastewater services, including collection and treatment, through the issuance of a termination order to any user upon determining that such user has: (a) refused access allowed by this chapter thereby preventing the implementation of any purpose of this chapter; (b) violated any provision

of this chapter including the discharge prohibitions and standards of WCC 4.08.080; or (c) violated any lawful order of the city issued with respect to this chapter. For users holding permits to discharge to the POTW, violation of the following conditions is also grounds for terminating discharge services: (a) failure to accurately report wastewater constituents or characteristics; (b) failure to report significant changes in operations or wastewater constituents or characteristics; or (c) violation of any term or condition of the user's waste discharge permit. Tenants and property owners shall be notified at least 10 days prior to services being terminated. Service will be restored after the customer has made arrangements to come into compliance and paid or made payment arrangements acceptable to the finance department for the water disconnect/connect charge under WCC 1.99.060 or for sewer disconnect/connect all costs associated with the installation of a shut-off valve including permits, labor, equipment and materials. If a customer makes arrangements for compliance and payment after 4:30 p.m., the services will not be reconnected until the next business day. If a customer wishes to have their services reconnected after 4:30 p.m., they will be charged after hours rates per WCC 1.99.060.

(8) Administrative Hearing. A user shall be afforded the opportunity to an administrative hearing to contest the director's determination to suspend services, terminate wastewater services, impose penalties, recover costs, or establish compliance schedules. Any hearing pursuant to this section must be requested by the user in writing within 10 days after the user receives notice of the city's determination. The user's written request for hearing shall be filed with the director. Failure to submit a timely notice shall be deemed to be a failure to exhaust administrative remedies and shall preclude any further review. The city will conduct the hearing within 20 days of the receipt of the request (or within five days if the user is contesting suspension or termination of wastewater services). The administrative hearing will be held before the director. Formal rules of evidence will not apply; provided, however, that the director will review the existing record, and only the user and the city will be allowed to present oral testimony and documentary evidence to the director. The director will issue a written decision within 10 days of the conclusion of the hearing. Except as otherwise provided, all decisions by the director shall be final and conclusive on all parties unless appealed to the hearing examiner under subsection (9) of this section. The director's decision, action, or determination shall remain in effect during such period of appeal.

(9) Appeal to the Hearings Examiner. Any decision of the director rendered pursuant to subsection (8) of this section may be reviewed by open record appeal to the hearings examiner. The user must file written notice of appeal with the city clerk within 10 days following notification of such decision or action. Such notice of appeal shall set forth in reasonable detail the action or decision appealed and the user's grounds for reversal or modification thereof. Failure to submit a timely notice shall be deemed to be a failure to exhaust administrative remedies and shall preclude any further review. Following receipt of such notice, the city clerk will schedule a date for a public hearing with hearings examiner at which time the hearings examiner shall consider the appeal. The date of the public hearing should be no later than 20 days following the date the clerk received notice of the appeal. The clerk will mail written notice to all parties of record to apprise them of the hearing date. The hearing shall be an open record hearing at which the user and the city may present witness testimony and documentary evidence. At the conclusion of the public hearing the hearings examiner may adopt, amend and adopt, reverse, amend and reverse the findings, conclusions, and decision of the director.

(10) Judicial Review. The decision of the hearings examiner on appeal of the decision of the director shall be final and conclusive unless, within 20 days from the date of final action, the user files a petition for review with the superior court of Chelan County in the manner prescribed by law. Judicial review shall be a closed record appeal based upon the record created before the hearings examiner. (Ord. 2016-17 § 1; Ord. 2007-02 § 16; Ord. 2004-27 § 12)

4.08.130 Judicial enforcement remedies.

(1) Injunctive Relief. When the director finds that a user has violated (or continues to violate) any provision of this chapter, a wastewater discharge permit, or order issued hereunder, or any other pretreatment standard or requirement, he/she may petition the superior court of Chelan County through the city attorney for the issuance of a temporary or permanent injunction, as appropriate. Such injunction shall restrain or compel specific compliance with an applicable wastewater discharge permit, order, or other requirement imposed by this chapter on activities of the user. The city may also seek such other action as is appropriate for legal and/or equitable relief, including a requirement for the user to conduct environmental remediation. A petition for injunctive relief shall not be a bar against, or a prerequisite for, taking any other action against a user.

(2) Civil Penalties. A user who has violated or continues to violate any provision of this chapter, an order issued hereunder, a wastewater discharge permit, or any other pretreatment standard or requirement not reserved by a permit by the Department shall be liable to the city for a civil penalty of at least $1,000 per violation but not more than $10,000 per violation. Each day upon which a violation occurs or continues shall constitute a separate violation. In the case of noncompliance with a monthly or other long-term average discharge limits, penalties shall accrue for each day during the period of such noncompliance. In addition to the penalty amounts assessable above, the director may recover reasonable attorneys' fees, court costs, and other expenses associated with compliance and enforcement activities authorized under this chapter. This shall include recovery of costs for sampling and monitoring, and the cost of any actual damages incurred by the city including penalties for noncompliance with the city NPDES permit to the extent attributable to the user. The city shall petition the superior court of Chelan County to impose, assess, and recover such sums. In recommending the amount of civil liability, the director shall consider all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration, any economic benefit gained through the user's violation, corrective actions by the user, the compliance history of the user, and any other factor as justice requires, and shall present this analysis as evidence in support of the recommended penalty. Filing a suit for civil penalties shall not be a bar against, or a prerequisite for, taking any other action against a user.

(3) Criminal Prosecution. A user who willfully violates any provision of this chapter, or order issued hereunder, or any other pretreatment standard or requirement shall, upon conviction, be guilty of a misdemeanor, punishable by a fine of not more than $1,000 per violation or imprisonment in the county jail not to exceed 90 days, or by both fine and imprisonment, at the discretion of the district court of Chelan County. The above provision applies to any user who knowingly makes any false statements, representations, or certifications in any application, record, report, plan, or other documentation filed, or required to be maintained, pursuant to this

chapter, wastewater discharge permit, or order issued hereunder, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required under this chapter. Where willful or negligent introduction of a substance into the POTW causes personal injury or property damage, this action shall be in addition to any other civil or criminal action for personal injury or property damage available under the law.

(4) Remedies Nonexclusive. The provisions in WCC 4.08.120 and this section are not exclusive remedies. The city reserves the right to take any, all, or any combination of these actions concurrently or sequentially against a noncompliant user or to take other actions as warranted by the circumstances. (Ord. 2016-17 § 1; Ord. 2007-02 § 17; Ord. 2004-27 § 13)

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Cross-reference: For provisions regarding late charges for delinquent accounts, see Ch. 9.02.

Chapter 9.15
WATER/SEWER SYSTEM EXTENSIONS

Sections:

9.15.010 Purpose.
9.15.020 Application.
9.15.030 Property development.
9.15.040 Disconnection of service.

9.15.010 Purpose.

The city of Wenatchee and the areas surrounding it have expanded in industry, business, housing and population in the past few years during which time it has been the policy of the city of Wenatchee to encourage such growth in an orderly and responsible manner so as to ensure the public health, safety, and welfare and to protect to the greatest degree possible, the quality of life of the citizens affected. Many areas outside of the city limits of Wenatchee are not now being served with sewers, although there is a demonstrated need for public sewer service. There is also a demonstrated need for water service outside the city limits of Wenatchee. Such public sewer service or water service is hereinafter referred to individually or collectively as “service.” The prior policy of the city of Wenatchee and the present policy of the city of Wenatchee is to require that new connections outside the limits of the city of Wenatchee to the service be extended only upon the applicants thereof executing certain documents to ensure that the applicant’s property be immediately annexed if lawful and feasible, or in the future when the property becomes lawfully annexable by the city of Wenatchee and the city so desires the annexation.

The area within which the city may extend service pursuant to the terms of this chapter is that area outside the city limits of the city of Wenatchee and within the urban growth boundary as set forth in Wenatchee Urban Area Comprehensive Plan as established by Resolution No. 1934. (Ord. 3058 § 2, 1994)

9.15.020 Application.

The water resources department and the sewer department of the city of Wenatchee each shall require each prospective customer (herein “applicant”) to sign an application for service. The application must be made in writing on a standard form at the office of the public works department. The application shall set forth the legal description of the property served, an address to which billings shall be mailed or delivered and such other information as the department of public works may reasonably require. The application must be signed by the lawful owner of the property to be served. The application is merely a written request for services and does not bind the department of public works to extend the service.

The department of public works, in addition to the application for services set out above, shall require applicants, as a condition precedent to the receipt of service, to immediately annex to the city, if lawful and feasible, and to take all steps necessary to do so. In the alternative, applicants shall be required to sign a contractual agreement constituting a covenant running with the land to the effect that a petition to annex to the city will be signed by the applicant binding the property served if and when the applicant is requested by the city of Wenatchee. Additionally, the applicant shall be required to waive any and all right to protest an annexation of the served property by the city of Wenatchee. Said contractual agreement is attached hereto as Exhibit A.[1] In addition to executing said contractual agreement, applicant shall be required to execute a nonrevocable special power of attorney for annexation, attached hereto as Exhibit B.[1] (Ord. 2000-14 § 1; Ord. 3058 § 3, 1994)

9.15.030 Property development.

Property requesting connection to the water and/or sewer system outside the city limits shall be submitted for approval to the director of community development and approved only by the mayor of the city of Wenatchee, and shall be subject to the conditions imposed by this chapter. All recording fees and out-of-pocket costs shall be paid by applicant prior to the submission to the mayor. (Ord. 2000-14 § 2; Ord. 3058 § 4, 1994)

9.15.040 Disconnection of service.

In the event of a breach of the contract, Exhibit A,[1] by applicant, then the city of Wenatchee's lawful remedy shall, among all other lawful remedies, include the right to disconnect the service. (Ord. 2000-14 § 3; Ord. 3058 § 5, 1994)

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[1] Code reviser's note: Exhibits A and B are attached to Ord. 2000-14 which is on file in the city clerk's office.

Mobile Version

APPENDIX D

SUMMARY OF MONTHLY WWTP OPERATING REPORTS

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
2010																																				
Friday	01/01/10	62	16.7			7.9	3		6,689	351	325	93%	7,318	4.1	1.2	2.5	60.3	15.7	7.1	4	109			120	12	96.6%	250									
Saturday	01/02/10	62	16.7			7.8	3		7,492	415	376	91%	9,691	4.4	1.1	2.8	60.1	15.6	7.0	3.8	95			134	12	97.1%	280									
Sunday	01/03/10	61	16.1			7.8	2		7,492	329	299	91%	7,683	3.9	1.0	2.8	60.1	15.6	6.9	3.7	104			134	12	96.4%	280									
Monday	01/04/10	60	15.6		26	8.0	3		9,097	304	263	87%	8,620	4.8	1.1	3.4	59.9	15.5	7.0	3.7	101			163	11	96.4%	312		10.3	0.7	4.6					
Tuesday	01/05/10	57	13.9	39		8.2	5	300	8,507	309	269	87%	8,762	5.5	1.4	3.4	59.2	15.1	7.0	3.9	107	6	98.0%	170	11	96.4%	312					4.8	66	98		
Wednesday	01/06/10	61	16.1		37	8.3	4	203	4,910	280	120	43%	6,772	4.0	1.2	2.9	58.5	14.7	7.0	4.1	99	6	97.0%	145	9	96.8%	218		9.8	0.8	5.0	5.8	66	136	Y	01/06/10
Thursday	01/07/10	61	16.1			8.2	4	342	8,272	388	351	90%	9,384	4.1	1.1	2.9	58.8	14.9	6.9	4.3	95	6	98.2%	145	10	97.4%	242					6.5	66	106		
Friday	01/08/10	61	16.1			8.2	4		7,492	384	354	92%	8,967	3.9	1.1	2.8	59.2	15.1	7.1	4	82			134	11	97.1%	257	89								
Saturday	01/09/10	61	16.1			7.9	4		7,224	373	344	92%	8,399	4.3	1.1	2.7	59.0	15	7.0	4	82			129	8	97.9%	180									
Sunday	01/10/10	60	15.6			8.0	3		7,492	332	304	92%	7,753	4.2	1.0	2.8	59.5	15.3	6.9	4	87			134	8	97.6%	187									
Monday	01/11/10	60	15.6		29	8.0	4		8,027	339	308	91%	8,482	4.3	1.3	3.0	59.9	15.5	7.0	4	95	6		150	10	97.1%	250		8.1	0.5	5.4					
Tuesday	01/12/10	61	16.1			8.1	4	375	9,695	367	336	92%	9,488	4.0	1.1	3.1	59.9	15.5	6.9	4	101	6	98.4%	155	11	97.0%	284						66	15		
Wednesday	01/13/10	60	15.6		27	8.0	4	336	9,247	344	310	90%	9,468	5.7	1.2	3.3	60.1	15.6	6.9	3.8	98	7	97.9%	193	8	97.7%	220		8.6	0.6	5.6	4.4	66	22		
Thursday	01/14/10	61	16.1			8.3	4		7,759	486	444	91%	11,754	4.0	1.3	2.9	60.1	15.6	6.9	3.8	90			139	10	97.9%	242					3.7	66	22		
Friday	01/15/10	61	16.1			8.1	3		7,759	350	325	93%	8,465	3.9	1.2	2.9	60.3	15.7	6.9	4	89			139	4	98.9%	97									
Saturday	01/16/10	61	16.1			8.0	3		8,027	329	300	91%	8,232	4.3	1.1	3.0	60.4	15.8	6.9	3.8	81			144	13	96.0%	325									
Sunday	01/17/10	60	15.6			8.0	3		9,365	321	280	87%	9,370	7.2	1.5	3.5	59.9	15.5	6.9	3.7	81			168	8	97.5%	234									
Monday	01/18/10	60	15.6			8.1	4		8,294	317	282	89%	8,196	4.4	1.1	3.1	56.8	13.8	6.8	3.9	78			149	9	97.2%	233									
Tuesday	01/19/10	60	15.6		30	8.2	4	341	8,247	353	322	91%	8,538	4.1	1.1	2.9	58.8	14.9	7.0	4.1	78	5	98.5%	121	9	97.5%	218		9.0	0.5	6.1					
Wednesday	01/20/10	60	15.6			8.2	4	329	9,329	327	284	87%	9,272	5.4	1.1	3.4	59.9	15.5	7.1	4	101	6	98.2%	170	9	97.2%	255					4.1	67	12	Y	01/20/10
Thursday	01/21/10	60	15.6		30	8.1	4	312	7,806	358	323	90%	8,957	4.2	1.4	3.0	59.9	15.5	7.0	4	105	5	98.4%	125	7	98.0%	175		7.9	0.5	7.5	2.3	66	9	Y	01/21/10
Friday	01/22/10	60	15.6			8.2	3		7,759	345	317	92%	8,344	4.1	1.2	2.9	59.9	15.5	7.0	3.1	80			139	7	98.0%	169					3.6	65	5	Y	01/22/10
Saturday	01/23/10	60	15.6			8.1	3		7,492	359	328	91%	8,383	4.5	1.1	2.8	59.7	15.4	6.9	4	80			134	7	98.1%	163									
Sunday	01/24/10	60	15.6			8.0	3		7,759	297	272	92%	7,183	4.2	1.0	2.9	59.2	15.1	6.9	3.9	85			139	8	97.3%	193									
Monday	01/25/10	54	12.2		25	8.2	6	310	9,049	333	286	86%	9,720	6.9	1.4	3.5	59.2	15.1	6.9	3.3	86	6	98.1%	175	8	97.6%	234		7.8	0.4	3.8	3.8	69	76		
Tuesday	01/26/10	60	15.6			8.2	5	328	8,207	315	285	90%	7,881	4.2	1.2	3.0	58.1	14.5	6.9	4.1	81	5	98.5%	125	7	97.8%	175					2.5	70	112		
Wednesday	01/27/10	60	15.6		32	8.2	4	353	8,832	380	347	91%	9,508	4.2	1.3	3.0	59.2	15.1	6.9	4	85	5	98.6%	125	7	98.2%	175		8.2	0.6	7.6	3.4	66	128	Y	01/27/10
Thursday	01/28/10	60	15.6			8.1	4		7,492	403	374	93%	9,411	4.2	1.2	2.8	59.9	15.5	6.8	4	86			134	8	98.0%	187									
Friday	01/29/10	60	15.6			8.1	3		7,492	391	363	93%	9,131	4.2	1.2	2.8	60.1	15.6	6.8	4.2	77			134	6	98.5%	140									
Saturday	01/30/10	61	16.1			7.8	3		7,224	375	348	93%	8,444	4.4	1.3	2.7	60.3	15.7	6.9	3.9	84			129	7	98.1%	158									
Sunday	01/31/10	61	16.1			8.0	3		7,224	339	311	92%	7,634	4.3	1.0	2.7	60.3	15.7	6.9	4	83			129	7	97.9%	158									
Monday	02/01/10	60	15.6		31	8.2	3		8,195	339	302	89%	8,199	4.2	1.0	2.9	59.9	15.5	6.9	4	84			121	8	97.6%	193		6.9	0.5	5.6	3.5	68	74		
Tuesday	02/02/10	60	15.6			8.2	4	380	9,191	325	297	91%	7,860	4.0	1.1	2.9	60.1	15.6	6.9	4.2	92	5	98.7%	121	9	97.2%	218					4.9	66	38		
Wednesday	02/03/10	61	16.1		32	8.1	4	328	8,207	394	355	90%	9,858	4.5	1.0	3.0	60.3	15.7	6.9	4.2	79	5	98.5%	125	8	98.0%	200		7.1	0.7	9.1	4.6	65	31		
Thursday	02/04/10	60	15.6			8.2	4	216	6,125	311	274	88%	8,819	4.2	1.1	3.4	60.3	15.7	6.8	4	74	3	98.6%	85	8	97.4%	227									
Friday	02/05/10	60	15.6			8.2	5		8,195	581	544	94%	14,052	6.0	2.1	2.9	59.9	15.5	6.8	4.1	72			121	8	98.6%	193									
Saturday	02/06/10	61	16.1			7.9	4		7,630	497	467	94%	11,191	4.3	1.1	2.7	59.2	15.1	6.9	4.3	68			113	10	98.0%	225									
Sunday	02/07/10	60	15.6			7.9	3		7,630	324	296	91%	7,296	4.2	1.0	2.7	59.5	15.3	6.9	4.2	81			113	8	97.5%	180									
Monday	02/08/10	60	15.6		31	8.1	4	367	8,876	361	330	91%	8,731	4.2	1.0	2.9	60.4	15.8	6.8	4.1	79	5	98.6%	121	8	97.8%	193		6.9	0.7	7.4					
Tuesday	02/09/10	61	16.1	44		8.2	4	344	8,320	390	360	92%	9,433	4.0	1.0	2.9	60.6	15.9	6.9	4.1	91	6	98.3%	145	10	97.4%	242									
Wednesday	02/10/10	61	16.1		31	8.2	4	386	9,336	419	387	92%	10,134	4.0	1.0	2.9	60.4	15.8	6.9	4.1	85	7	98.2%	170	9	97.9%	218		7.0	0.8	9.6	4.3	64	31		
Thursday	02/11/10	61	16.1			8.2	4	303	7,581	325	295	91%	8,132	3.8	1.2	3.0	60.6	15.9	6.9	4.1	80	7	97.7%	175	10	96.9%	250					5.6	63	15		
Friday	02/12/10	61	16.1			8.2	3		7,913	423	391	92%	9,878	4.1	1.2	2.8	60.1	15.6	6.9	3.8	75			117	8	98.1%	187					3.9	65	11	Y	02/12/10
Saturday	02/13/10	61	16.1			7.9	3		7,630	429	398	93%	9,660	4.3	1.1	2.7	60.3	15.7	6.9	3.9	75			113	9	97.9%	203									
Sunday	02/14/10	58	14.4			7.9	5		7,348	428	403	94%	9,281	4.6	1.1	2.6	60.3	15.7	6.8	3.9	82			108	9	97.9%	195									
Monday	02/15/10	59	15.0			7.8	3		8,478	492	463	94%	12,310	4.6	0.9	3.0	60.3	15.7	6.9	3.9	78			125	8	98.4%	200									
Tuesday	02/16/10	60	15.6		30	8.2	3		8,478	346	311	90%	8,657	4.1	1.1	3.0	60.8	16	6.8	4	84			125	8	97.7%	200		4.7	0.7	8.0	3.7	66	146	Y	02/16/10
Wednesday	02/17/10	61	16.1			8.2	4	334	8,078	319	287	90%	7,715	4.2	1.0	2.9	60.8	16	6.8	3.9	78	4	98.8%	97	8	97.5%	193					4.6	66	96		
Thursday	02/18/10	61	16.1		32	8.3	3	371	8,973	332	298	90%	8,030	4.2	1.0	2.9	60.8	16	6.8	3.9	70	4	98.9%	97	7	97.9%	169	97	5.2	0.8	8.9	4	66	46		
Friday	02/19/10	60	15.6			8.2	4	377	9,433	455	415	91%	11,384	4.2	1.0	3.0	60.6	15.9	6.9	4.1	73	4	98.9%	100	7	98.5%	175									
Saturday	02/20/10	61	16.1			8.0	4		7,348	356	324	91%	7,720	4.5	1.1	2.6	60.4	15.8	6.9	4.1	74			108	4	98.9%	87									
Sunday	02/21/10	60	15.6			7.9	3		6,782	442	411	93%	8,847	4.2	1.0	2.4	60.4	15.8	7.0	3.9	90			100	6	98.6%	120									
Monday	02/22/10	60	15.6		30	8.3	4	324	7,836	356	321	90%	8,610	4.6	0.9	2.9	60.1	15.6	6.9	4	76	4	98.8%	97	6	98.3%	145		5.2	0.8	11.6	5.4	68	24		
Tuesday	02/23/10	61	16.1			8.2	4	322	8,056	316	286	91%	7,906	4.2	4.0	3.0	59.7	15.4	7.2	3.7	136	6	98.1%	150	9	97.2%	225					6.6	61	800	Y	02/23/10
Wednesday	02/24/10	60	15.6		32	8.1	3	353	8,832	395	361	91%	9,883	4.3	1.2	3.0	60.4	15.8	6.9	3.9	71	5	98.6%	125	9	97.7%	225		4.2	1.0	11.7	4.1	66	14		
Thursday	02/25/10	61	16.1			8.2	4		8,195	329	298	91%	7,957	4.3	1.2	2.9	61.0	16.1	6.7	3.8	54			121	8	97.6%	193									
Friday	02/26/10	56	13.3			8.1	6		14,695	248	204	82%	10,755	7.3	1.2	5.2	60.4	15.8	6.8	3.3	64			217	9	96.4%	390									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	02/27/10	60	15.6			8.3	4		7,630	450	425	94%	10,133	4.5	1.4	2.7	54.3	12.4	6.7	4.6	47			113	8	98.2%	180									
Sunday	02/28/10	58	14.4			8.0	3		7,630	340	314	92%	7,656	4.2	1.0	2.7	57.0	13.9	6.8	4.3	70			113	8	97.6%	180									
Monday	03/01/10	60	15.6		30	8.2	4	346	8,368	374	345	92%	9,046	4.5	1.0	2.9	60.3	15.7	6.9	3.9	82	4	98.8%	97	9	97.6%	218		2.4	0.8	8.4					
Tuesday	03/02/10	61	16.1			8.1	4	352	8,220	342	303	89%	7,986	4.0	1.0	2.8	60.8	16	6.8	4	62	5	98.6%	117	9	97.4%	210					2.7	67	7	Est.Y	03/02/10
Wednesday	03/03/10	60	15.6		28	8.1	4	297	7,679	327	290	89%	8,454	6.7	1.2	3.1	61.2	16.2	6.7	3.9	56	5	98.3%	129	10	96.9%	259	93	0.9	0.7	11.5	3.8	65	18		
Thursday	03/04/10	61	16.1			8.3	4		8,639	304	272	89%	7,353	4.1	1.0	2.9	61.0	16.1	6.6	4.1	44			131	11	96.4%	266					5.4	66	16		
Friday	03/05/10	61	16.1			8.2	4		8,341	416	390	94%	9,714	4.1	1.1	2.8	61.0	16.1	6.9	4.1	72			126	8	98.1%	187									
Saturday	03/06/10	61	16.1			7.9	2		8,341	373	343	92%	8,710	4.5	1.1	2.8	61.0	16.1	6.9	4.2	68			126	10	97.3%	234									
Sunday	03/07/10	60	15.6			8.1	3		8,043	370	342	92%	8,332	4.5	1.1	2.7	61.2	16.2	6.8	3.5	64			122	9	97.6%	203									
Monday	03/08/10	61	16.1		28	8.3	4		8,937	358	318	89%	8,957	4.6	1.0	3.0	61.5	16.4	6.8	3.9	56			135	10	97.2%	250		2.2	0.8	13.2	5.7	6.6	27		
Tuesday	03/09/10	61	16.1			8.3	4	364	8,804	406	356	88%	9,820	4.4	1.1	2.9	60.6	15.9	6.7	4	50	5	98.6%	121	11	97.3%	266					4.1	66	80		
Wednesday	03/10/10	61	16.1	48	32	8.3	4	353	8,243	349	316	91%	8,150	4.1	1.1	2.8	60.6	15.9	6.8	4	54	5	98.6%	117	9	97.4%	210		0.1	0.3	8.6	4.1	65	66		
Thursday	03/11/10	61	16.1			8.2	3	419	10,134	332	300	90%	8,030	4.2	1.1	2.9	60.6	15.9	7.0	4	77	5	98.8%	121	10	97.0%	242									
Friday	03/12/10	61	16.1			8.2	3		8,043	440	407	93%	9,908	4.0	1.1	2.7	60.8	16	6.8	4	54			122	12	97.3%	270									
Saturday	03/13/10	61	16.1			7.9	2		8,043	397	366	92%	8,940	4.4	1.1	2.7	60.6	15.9	6.9	4.2	66			122	10	97.5%	225									
Sunday	03/14/10	60	15.6			7.8	2		8,043	372	341	92%	8,377	4.4	1.0	2.7	60.3	15.7	6.6	3.8	51			122	12	96.8%	270									
Monday	03/15/10	60	15.6		29	8.2	3	358	8,659	383	347	91%	9,263	4.3	0.9	2.9	61.3	16.3	6.7	3.9	46	5	98.6%	121	12	96.9%	290		1.7	1.0	12.8					
Tuesday	03/16/10	61	16.1			8.1	3	362	8,755	381	349	92%	9,215	4.0	1.1	2.9	61.5	16.4	6.7	4.1	48	6	98.3%	145	12	96.9%	290									
Wednesday	03/17/10	61	16.1		29	8.2	3	356	8,610	378	344	91%	9,142	4.3	1.1	2.9	61.2	16.2	6.7	3.7	52	5	98.6%	121	10	97.4%	242		1.6	0.9	13.5	4.4	66	37		
Thursday	03/18/10	61	16.1			8.2	4		8,639	483	445	92%	11,682	4.1	1.0	2.9	60.6	15.9	6.7	3.9	53			131	14	97.1%	339					4.8	65	26		
Friday	03/19/10	61	16.1			8.2	3		8,341	568	540	95%	13,264	4.2	1.1	2.8	60.8	16	6.8	3.9	56			126	12	97.9%	280					3.1	66	11		
Saturday	03/20/10	61	16.1			7.9	3		8,043	566	534	94%	12,745	4.3	1.1	2.7	60.8	16	7.0	3.9	68			122	13	97.7%	293									
Sunday	03/21/10	61	16.1			7.9	3		8,043	460	406	88%	10,358	5.5	1.0	2.7	61.2	16.2	6.8	3.8	69			122	14	97.0%	315									
Monday	03/22/10	61	16.1		25	8.2	4		8,937	391	360	92%	9,783	4.5	1.0	3.0	61.5	16.4	6.9	2.9	67			135	14	96.4%	350		2.7	0.9	8.2					
Tuesday	03/23/10	61	16.1			8.1	4	338	8,457	374	341	91%	9,357	4.2	1.1	3.0	61.3	16.3	6.8	3.8	63	7	97.9%	175	14	96.3%	350					3	67	176	Y	03/23/10
Wednesday	03/24/10	61	16.1		28	8.0	4	341	8,532	346	310	90%	8,657	4.4	1.0	3.0	61.9	16.6	6.7	3.7	63	7	97.9%	175	16	95.4%	400		2.4	0.8	9.6	3.3	66	4	Y	03/24/10
Thursday	03/25/10	62	16.7			7.9	3	409	10,233	553	505	91%	13,836	4.3	1.1	3.0	62.2	16.8	6.8	3.9	60	3	99.3%	75	11	98.0%	275					3.4	67	9	Y	03/25/10
Friday	03/26/10	61	16.1			8.2	3		8,639	517	478	92%	12,504	4.7	1.1	2.9	62.1	16.7	6.8	3.8	63			131	8	98.5%	193									
Saturday	03/27/10	62	16.7			8.0	2		8,043	369	337	91%	8,309	4.2	1.2	2.7	61.7	16.5	7.0	4	75			122	8	97.8%	180									
Sunday	03/28/10	63	17.2			7.9	2		7,746	368	331	90%	7,980	4.1	0.9	2.6	62.2	16.8	6.9	3.9	79			117	9	97.6%	195									
Monday	03/29/10	61	16.1		28	7.8	3	334	8,078	363	325	90%	8,780	4.6	1.0	2.9	62.1	16.7	6.9	3.9	73	5	98.5%	121	10	97.2%	242		3.5	1.0	10.6	5.3	66	8	Y	03/29/10
Tuesday	03/30/10	61	16.1			7.9	3	369	8,617	404	366	91%	9,434	4.4	1.0	2.8	62.1	16.7	6.8	3.8	55	7	98.1%	164	13	96.8%	304					6.1	63	21		
Wednesday	03/31/10	62	16.7		28	7.9	3	360	8,407	420	381	91%	9,808	4.2	1.1	2.8	62.1	16.7	6.7	3.9	51	7	98.1%	164	16	96.2%	374		2.2	1.2	11.4	8.6	62	398	Y	03/31/10
Thursday	04/01/10	62	16.7			8.0	3		8,661	389	349	90%	10,057	4.6	1.1	3.1	62.1	16.7	6.8	3.8	58			175	13	96.7%	336									
Friday	04/02/10	59	15.0			7.9	4		8,661	431	389	90%	11,143	6.9	1.2	3.1	61.5	16.4	7.0	3.7	78			175	10	97.7%	259	90								
Saturday	04/03/10	62	16.7			8.1	3		7,264	429	402	94%	9,302	4.2	0.9	2.6	62.1	16.7	6.9	3.9	67			146	12	97.2%	260									
Sunday	04/04/10	62	16.7			8.0	3		8,940	343	299	87%	9,154	4.1	0.9	3.2	61.2	16.2	6.9	3.8	76			180	13	96.2%	347									
Monday	04/05/10	60	15.6		27	8.0	4	323	8,620	304	272	89%	8,113	7.9	1.2	3.2	60.1	15.6	6.9	3.8	83	7	97.8%	187	12	96.1%	320		7.2	1.2	8.9					
Tuesday	04/06/10	62	16.7			8.2	4	356	8,907	357	327	92%	8,932	4.3	1.1	3.0	60.8	16	6.8	3.8	64	7	98.0%	175	13	96.4%	325					9.4	64	222	Y	04/06/10
Wednesday	04/07/10	62	16.7		29	8.1	3	361	8,731	370	336	91%	8,949	4.3	1.1	2.9	61.9	16.6	6.8	3.7	71	8	97.8%	194	14	96.2%	339		4.4	1.0	11.2	7.5	64	80		
Thursday	04/08/10	61	16.1			8.2	4		8,382	394	357	91%	9,858	4.4	1.2	3.0	62.2	16.8	6.8	3.6	62			169	14	96.4%	350					8	6.2	25		
Friday	04/09/10	62	16.7			8.2	3		7,823	398	368	92%	9,294	4.2	1.2	2.8	61.7	16.5	6.8	3.7	59			158	14	96.5%	327									
Saturday	04/10/10	62	16.7			7.8	3		8,102	315	292	93%	7,619	4.3	1.1	2.9	62.2	16.8	6.8	3.7	62			163	13	95.9%	314									
Sunday	04/11/10	61	16.1			8.0	3		7,823	356	329	92%	8,313	4.5	1.0	2.8	61.7	16.5	6.8	3.7	72			158	12	96.6%	280									
Monday	04/12/10	62	16.7		30	8.1	3		8,102	400	366	92%	9,674	4.3	0.9	2.9	62.6	17	6.8	3.6	66			163	13	96.8%	314		4.6	1.1	11.9					
Tuesday	04/13/10	62	16.7			8.3	3	373	9,021	399	362	91%	9,650	4.4	1.1	2.9	63.0	17.2	6.9	3.6	80	6	98.4%	145	10	97.5%	242									
Wednesday	04/14/10	62	16.7		29	8.3	3	370	8,640	346	316	91%	8,080	4.3	1.1	2.8	63.3	17.4	7.1	3.5	106	6	98.4%	140	11	96.8%	257		4.0	0.9	12.8	10.1	62	70		
Thursday	04/15/10	63	17.2			8.3	3	356	8,610	392	358	91%	9,481	4.1	1.1	2.9	63.0	17.2	7.0	3.8	111	7	98.0%	170	11	97.2%	266					8.4	61	61		
Friday	04/16/10	62	16.7			8.2	3		8,102	343	313	91%	8,296	4.1	1.2	2.9	63.7	17.6	6.9	3.6	90			163	12	96.5%	290					7.3	62	49		
Saturday	04/17/10	63	17.2			8.0	3		7,544	282	259	92%	6,350	4.2	1.1	2.7	64.0	17.8	6.9	3.6	80			152	9	96.8%	203									
Sunday	04/18/10	62	16.7			7.8	2		7,544	275	246	89%	6,192	4.3	0.8	2.7	63.5	17.5	6.8	3.6	78			152	11	96.0%	248									
Monday	04/19/10	62	16.7	46	31	8.2	3		8,382	326	288	88%	8,157	4.6	1.1	3.0	64.4	18	6.9	3.5	81			169	10	96.9%	250		6.6	0.9	7.9	6.7	65	52		
Tuesday	04/20/10	63	17.2			8.1	3	329	8,232	295	261	88%	7,381	4.4	1.2	3.0	64.2	17.9	6.9	3.6	79	6	98.2%	150	11	96.3%	275					6.4	64	44		
Wednesday	04/21/10	63	17.2		30	8.3	3	349	8,732	298	263	88%	7,456	4.3	1.2	3.0	63.9	17.7	7.0	3.8	113	7	98.0%	175	10	96.6%	250		14.4	0.9	7.8	6.4	64	230	Y	04/21/10
Thursday	04/22/10	63	17.2			8.2	3	310	7,498	264	231	88%	6,385	4.5	1.2	2.9	63.7	17.6	7.1	3.8	132	6	98.1%	145	9	96.6%	218									
Friday	04/23/10	63	17.2			8.3	3		7,544	279	253	91%	6,283	4.0	1.1	2.7	63.9	17.7	7.1	3.1	127			152	9	96.8%	203									
Saturday	04/24/10	64	17.8			8.3	2		7,544	266	239	90%	5,990	4.5	1.0	2.7	63.7	17.6	7.1	3.6	111			152	11	95.9%	248									
Sunday	04/25/10	63	17.2			7.9	2		7,544	260	232	89%	5,855	4.3	1.0	2.7	63.3	17.4	7.0	3.6	121			152	12	95.4%	270									
Monday	04/26/10	63	17.2		27	8.1	2	287	7,420	319	286	90%	8,247	4.5	1.0	3.1	64.0	17.8	7.0	3.5	112	7	97.6%	181	13	95.9%	336		15.7	1.0	6.8					

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Tuesday	04/27/10	63	17.2			8.0	3	310	8,015	309	269	87%	7,989	4.5	1.3	3.1	64.0	17.8	7.2	3.7	145	8	97.4%	207	11	96.4%	284					8.8	61	20		
Wednesday	04/28/10	64	17.8		33	8.1	3	296	7,406	265	231	87%	6,630	4.3	1.2	3.0	63.9	17.7	7.1	3.7	154	6	98.0%	150	8	97.0%	200		20.8	0.9	4.7	6.2	63	152	Y	04/28/10
Thursday	04/29/10	64	17.8			8.1	3		8,102	292	261	89%	7,062	4.1	1.1	2.9	63.1	17.3	7.2	3.7	168			163	8	97.3%	193					4.5	65	29		
Friday	04/30/10	64	17.8			8.1	2		7,544	267	240	90%	6,012	4.3	1.2	2.7	63.5	17.5	7.2	3.7	155			152	8	97.0%	180									
Saturday	5/1/2010	64	17.778			7.8	1.6		7,455	303	277	91%	6,823	4.8	1.1	2.7	64.0	17.8	7.3	3.7	159			104	6	98.0%	135									
Sunday	5/2/2010	62	16.667			7.7	1.8		8,008	294	263	89%	7,111	4.5	1.1	2.9	63.7	17.6	7.2	3.8	168			112	6	98.0%	145									
Monday	5/3/2010	64	17.778		27.5	7.9	3.7		10,493	395	244	62%	12,518	8.2	1.2	3.8	64.2	17.9	7.3	3.7	166			147	7	98.2%	222		23.8	0.82	3.0	4.6	68	4	Y	5/3/10
Tuesday	5/4/2010	63	17.222			8.3	2.1	344	8,607	381	327	86%	9,533	4.7	1.2	3.0	62.8	17.1	7.2	3.6	155	4	98.8%	100	7	98.2%	175					2.9	64	35		
Wednesday	5/5/2010	63	17.222		35.6	8.1	3.3	374	9,669	334	298	89%	8,635	4.4	1.2	3.1	63.3	17.4	7.2	3.8	166	5	98.7%	129	6	98.2%	155		16.6	0.73	5.8	3.6	67	15		
Thursday	5/6/2010	64	17.778			8.1	2.9	320	7,740	297	267	90%	7,183	4.3	1.3	2.9	64.2	17.9	7.1	3.7	138	4	98.8%	97	7	97.6%	169	92								
Friday	5/7/2010	64	17.778			8.2	2.3		7,455	281	249	89%	6,328	3.9	1.1	2.7	64.0	17.8	7.1	3.5	159			104	6	97.9%	135									
Saturday	5/8/2010	64	17.778			7.9	1.4		6,903	328	291	89%	6,839	4.1	1.1	2.5	64.8	18.2	7.1	3.6	135			97	8	97.6%	167									
Sunday	5/9/2010	64	17.778			8.2	2.1		6,903	299	267	89%	6,234	4.2	0.9	2.5	64.2	17.9	7.0	3.5	115			97	10	96.7%	209									
Monday	5/10/2010	64	17.778	47.9	32.5	8.1	2.1	316	7,379	292	261	89%	6,819	4.3	1.0	2.8	65.1	18.4	7.0	3.5	107			108	12	95.9%	280		7.2	0.25	5.4					
Tuesday	5/11/2010	64	17.778			8.2	2.3	347	8,103	326	284	87%	7,613	4.2	1.1	2.8	65.1	18.4	7.1	3.6	111	4	98.8%	94	6	98.2%	140					4.2	64	34		
Wednesday	5/12/2010	65	18.333		30.9	8.2	2.2	317	7,138	295	261	88%	6,643	4.2	1.0	2.7	65.7	18.7	7.0	3.7	104	4	98.7%	90	6	98.0%	135		7.69	0.79	10.8	4.6	66	13		
Thursday	5/13/2010	65	18.333			8.1	2.1		7,179	300	266	89%	6,505	3.9	1.1	2.6	66.0	18.9	6.9	3.7	71			101	5	98.3%	108					3.3	66	13		
Friday	5/14/2010	65	18.333			8.2	1.7		7,179	319	296	93%	6,917	4.0	1.0	2.6	66.0	18.9	6.9	3.9	69			101	3	99.1%	65									
Saturday	5/15/2010	65	18.333			8.0	1.0		6,903	316	287	91%	6,589	4.0	1.0	2.5	66.2	19.0	6.8		67			97	4	98.7%	83									
Sunday	5/16/2010	63	17.222			7.7	1.5		7,179	340	297	87%	7,373	3.9	1.0	2.6	66.4	19.1	6.8	3.9	72			101	4	98.8%	87									
Monday	5/17/2010	65	18.333		29.6	8.1	2.3		8,284	328	290	88%	8,207	5.7	1.1	3.0	66.4	19.1	7.0	3.9	76			116	6	98.2%	150		5.72	0.93	10.9	2.3	68	5	Y	5/17/10
Tuesday	5/18/2010	64	17.778			8.1	3.7	293	7,820	310	266	86%	8,273	7.6	1.0	3.2	65.8	18.8	6.8	3.6	62	4	98.6%	107	6	98.1%	160					3.6	63	23		
Wednesday	5/19/2010	65	18.333		27.1	8.1	2.2	409	10,233	382	335	88%	9,558	4.1	1.0	3.0	66.2	19.0	6.8	3.9	49	4	99.0%	100	7	98.2%	175		5.68	1.08	12.4	3.3	66	32		
Thursday	5/20/2010	65	18.333			8.2	3.1	346	8,080	302	270	89%	7,052	8.1	1.0	2.8	65.7	18.7	6.8	3.8	54	4	98.8%	94	6	98.0%	140									
Friday	5/21/2010	65	18.333			8.1	2.0		7,179	356	319	90%	7,720	3.9	1.0	2.6	65.7	18.7	6.8	3.9	59			101	6	98.3%	130									
Saturday	5/22/2010	65	18.333			8.0	1.4		7,179	375	338	90%	8,132	4.0	1.0	2.6	65.8	18.8	6.9	3.8	66			101	7	98.1%	152									
Sunday	5/23/2010	64	17.778			7.8	1.1		7,455	318	285	90%	7,161	4.1	1.0	2.7	65.3	18.5	7.0	3.8	70			104	5	98.4%	113									
Monday	5/24/2010	65	18.333		32.0	8.2	1.9	303	7,076	338	309	91%	7,893	4.2	1.0	2.8	66.2	19.0	6.9	3.8	73	5	98.3%	117	7	97.9%	163		4.75	1.21	12.1					
Tuesday	5/25/2010	65	18.333			8.2	1.9	328	7,933	307	278	91%	7,425	4.2	1.0	2.9	66.4	19.1	6.8	3.6	63	6	98.2%	145	10	96.7%	242									
Wednesday	5/26/2010	63	17.222		23.9	8.0	4.5	276	8,977	262	217	83%	8,522	7.8	1.1	3.9	65.8	18.8	6.8	2.8	66	7	97.5%	228	10	96.2%	325		7.41	1.23	11.3	6.4	64	76		
Thursday	5/27/2010	65	18.333			8.0	2.0		8,284	285	257	90%	7,131	4.1	1.2	3.0	65.7	18.7	6.9	3.6	69			116	8	97.2%	200					5.4	62	56		
Friday	5/28/2010	65	18.333			8.2	2.0		6,903	326	299	92%	6,797	4.1	1.4	2.5	66.0	18.9	7.1	3.7	100			97	6	98.2%	125					5.9	66	41		
Saturday	5/29/2010	66	18.889			7.8	1.8		6,903	333	302	91%	6,943	3.8	1.0	2.5	66.2	19.0	6.9	3.7	76			97	10	97.0%	209									
Sunday	5/30/2010	65	18.333			7.8	1.1		6,627	354	324	92%	7,086	3.9	0.9	2.4	66.0	18.9	6.9	3.9	88			93	9	97.5%	180									
Monday	5/31/2010	65	18.333			7.7	1.3		7,455	336	307	91%	7,566	4.4	0.9	2.7	66.7	19.3	6.9	3.7	91			104	9	97.3%	203									
Tuesday	6/1/2010	66	18.889		27.5	8.1	0.7		7,432	354	325	92%	8,562	4.1	0.9	2.9	66.9	19.4	6.9	3.4	94			150	10	97.2%	242		9.03	0.76	5.0	6.5	64	69		
Wednesday	6/2/2010	66	18.889			7.9	1.8	306	8,167	311	257	83%	8,300	4.3	1.2	3.2	66.9	19.4	7.0	3.5	113	6	98.0%	160	11	96.5%	294					5.3	65	53		
Thursday	6/3/2010	66	18.889		28.8	8.3	2.0	301	7,280	325	294	90%	7,860	4.1	1.0	2.9	66.9	19.4	7.2	3.7	130	5	98.3%	121	8	97.5%	193		10.7	1.03	6.2	5.2	64	44		
Friday	6/4/2010	66	18.889			7.9	2.5	347	8,393	290	261	90%	7,014	6.8	1.2	2.9	67.1	19.5	7.0	3.8	120	5	98.6%	121	9	96.9%	218									
Saturday	6/5/2010	66	18.889			8.0	1.5		6,407	346	321	93%	7,214	4.1	1.0	2.5	67.1	19.5	7.0	3.8	90			129	8	97.7%	167									
Sunday	6/6/2010	66	18.889			7.7	1.7		7,432	330	296	90%	7,981	7.9	0.9	2.9	67.3	19.6	7.0	3.7	101			150	11	96.7%	266									
Monday	6/7/2010	67	19.444		30.9	8.1	1.8		6,919	283	264	93%	6,373	4.1	0.9	2.7	67.8	19.9	7.1	3.7	104			140	8	97.2%	180	97.8	14.1	0.81	4.1					
Tuesday	6/8/2010	66	18.889			8.1	1.9	286	8,348	302	251	83%	8,815	4.1	1.0	3.5	68.0	20.0	7.2	3.7	143	6	97.9%	175	10	96.7%	292					4.7	66	80		
Wednesday	6/9/2010	67	19.444		30.5	8.1	2.2	320	7,473	276	251	91%	6,445	8.6	1.2	2.8	67.6	19.8	7.3	3.9	148	5	98.4%	117	7	97.5%	163		15.1	0.89	4.9	5.1	64	190	Y	6/9/10
Thursday	6/10/2010	66	18.889			8.2	2.4	321	7,496	297	267	90%	6,936	3.9	1.0	2.8	68.2	20.1	7.1	3.6	130	4	98.8%	94	8	97.3%	187					4.2	66	48		
Friday	6/11/2010	67	19.444			8.2	1.8		6,919	329	294	89%	7,408	3.8	1.1	2.7	68.2	20.1	7.1	3.7	113			140	8	97.6%	180									
Saturday	6/12/2010	67	19.444			7.8	1.4		6,663	325	295	91%	7,047	4.0	1.2	2.6	68.5	20.3	7.1	3.6	98			134	8	97.5%	173									
Sunday	6/13/2010	69	20.556			7.6	0.7		7,175	309	279	90%	7,216	4.1	1.0	2.8	68.7	20.4	7.0	3.8	106			145	6	98.1%	140									
Monday	6/14/2010	67	19.444		31.2	8.1	1.4	314	7,333	293	267	91%	6,842	4.0	1.1	2.8	68.4	20.2	7.1	3.5	104	6	98.1%	140	8	97.3%	187		7.37	1	4.2	4	66	35		
Tuesday	6/15/2010	67	19.444			8.0	2.1	315	7,356	345	312	90%	8,056	4.0	1.0	2.8	67.1	19.5	7.2	3.6	134	7	97.8%	164	8	97.7%	187					5	64	48		
Wednesday	6/16/2010	67	19.444	48.6	31.4	8.1	2.0	326	8,157	292	258	88%	7,306	4.0	1.1	3.0	67.1	19.5	7.2	3.7	156	8	97.5%	200	8	97.3%	200		20	1.35	5.4	4.6	66	222	Y	6/16/10
Thursday	6/17/2010	67	19.444			8.1	1.9		7,688	301	279	93%	7,531	4.1	1.1	3.0	67.3	19.6	7.2	3.6	167			155	8	97.3%	200									
Friday	6/18/2010	67	19.444			8.1	1.4		7,432	274	251	92%	6,627	4.2	1.2	2.9	67.5	19.7	7.2	3.6	160			150	6	97.8%	145									
Saturday	6/19/2010	67	19.444			8.0	1.1		7,944	321	288	90%	8,299	4.0	1.1	3.1	67.8	19.9	7.1	3.4	112			160	8	97.5%	207									
Sunday	6/20/2010	65	18.333			7.7	2.1		7,432	270	245	91%	6,530	4.4	1.3	2.9	67.6	19.8	7.1	3.6	107			150	11	95.9%	266									
Monday	6/21/2010	66	18.889		28.4	8.0	1.9		7,688	301	271	90%	7,531	4.3	1.0	3.0	68.0	20.0	7.1	3.6	98			155	12	96.0%	300		5.88	0.96	4.7					
Tuesday	6/22/2010	66	18.889			8.2	2.2	299	7,481	307	272	89%	7,681	4.1	1.2	3.0	68.0	20.0	7.1	3.6	117	7	97.7%	175	13	95.8%	325					5.5	64	52		
Wednesday	6/23/2010	67	19.444		27.3	8.0	1.6	284	7,106	303	273	90%	7,581	3.8	1.2	3.0	68.9	20.5	7.3	3.7	139	7	97.5%	175	10	96.7%	250		11.4	1.17	6.6					
Thursday	6/24/2010	68	20			7.9	1.6	295	7,381	286	253	88%	7,156	4.3	1.3	3.0	68.9	20.5	7.1	3.7	115	7	97.6%	175	9	96.9%	225					4.5	66	21		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	6/25/2010	66	18.889			7.7	2.5		7,175	279	250	90%	6,515	4.5	1.2	2.8	68.7	20.4	7.1	3.6	108			145	10	96.4%	234					4.4	67	12	Y	6/25/10
Saturday	6/26/2010	68	20			7.7	1.8		7,688	270	243	90%	6,755	4.5	1.2	3.0	68.7	20.4	7.1	3.9	93			155	8	97.0%	200									
Sunday	6/27/2010	69	20.556			7.8	1.0		7,432	273	246	90%	6,603	4.0	1.1	2.9	68.5	20.3	6.9	4	92			150	10	96.3%	242									
Monday	6/28/2010	66	18.889		25.5	7.9	2.4	292	7,306	573	535	93%	14,336	4.6	1.0	3.0	68.7	20.4	7.0	3.5	92	6	97.9%	150	12	97.9%	300		1.48	0.62	6.3	4.6	69	11	Y	6/28/10
Tuesday	6/29/2010	67	19.444			8.0	1.8	293	7,331	297	263	89%	7,431			3.0	68.7	20.4	7.1	3.6	91	7	97.6%	175	12	96.0%	300					3.7	69	13		
Wednesday	6/30/2010	67	19.444		26.1	8.1	1.4	310	7,756	271	243	90%	6,780	3.8		3.0	68.0	20.0	7.1	3.7	131	7	97.7%	175	11	95.9%	275		7.43	0.71	5.6	4.9	68	118		
Thursday	7/1/2010	67	19.444			7.8	2.0		7,199	293	269	92%	7,086	3.7	1.4	2.9	68.0	20.0	7.0	3.8	107			83	10	96.6%	242									
Friday	7/2/2010	68	20			8.0	1.5		7,199	378	347	92%	9,142	4.0	1.3	2.9	68.2	20.1	7.1	3.7	134			83	10	97.4%	242									
Saturday	7/3/2010	68	20			7.7	1.4		6,951	320	291	91%	7,473	3.9	1.1	2.8	68.4	20.2	7.2	3.8	88			80	9	97.2%	210									
Sunday	7/4/2010	65	18.333			7.7	1.8		6,455	370	341	92%	8,023	3.9	1.2	2.6	68.2	20.1	7.0	3.7	92			74	7	98.1%	152									
Monday	7/5/2010	66	18.889		26.4	7.8	0.8	325	7,860	271	238	88%	6,554	4.2	1.1	2.9	68.4	20.2	7.0	3.7	91	4	98.8%	97	8	97.0%	193		0.942	0.51	7.5					
Tuesday	7/6/2010	68	20			7.9	1.9	325	8,132	290	260	90%	7,256	3.9	1.3	3.0	69.4	20.8	7.0	3.8	97	4	98.8%	100	6	97.9%	150									
Wednesday	7/7/2010	68	20	39.8	25.7	8.0	1.8	299	7,232	308	276	90%	7,449		1.2	2.9	69.6	20.9	7.0	3.7	90	4	98.7%	97	6	98.1%	145		2.56	0.79	9.7	2.3	69	21		
Thursday	7/8/2010	69	20.556			8.0	1.7		7,448	262	236	90%	6,555			3.0	70.3	21.3	6.9	3.7	79			85	6	97.7%	150					1.9	69	30		
Friday	7/9/2010	69	20.556			7.9	1.3		7,448	287	257	90%	7,181			3.0	70.7	21.5	6.9	3.6	79			85	5	98.3%	125					1.7	69	11	Y	7/9/10
Saturday	7/10/2010	70	21.111			7.8	1.1		6,951	339	310	91%	7,916			2.8	71.1	21.7	7.0	3.6	90			80	4	98.8%	93									
Sunday	7/11/2010	67	19.444			7.8	1.8		6,951	264	236	89%	6,165			2.8	70.7	21.5	6.9	3.8	90			80	2	99.2%	47									
Monday	7/12/2010	69	20.556		26.0	7.9	1.5		7,696	276	252	91%	7,136			3.1	70.9	21.6	7.1	3.7	94			88	3	98.9%	78		3.15	0.86	6.4	2.1	69	15		
Tuesday	7/13/2010	69	20.556			7.8	1.5	366	9,157	279	249	89%	6,981			3.0	70.0	21.1	7.0	3.6	87	2	99.5%	50	3	98.9%	75					1.7	69	10	Y	7/13/10
Wednesday	7/14/2010	69	20.556		24.4	7.8	1.4	302	7,556	308	279	91%	7,706			3.0	70.2	21.2	7.0	3.7	85	3	99.0%	75	3	99.0%	75	103.4	3.35	1.09	12.8	2.3	68	11	Y	7/14/10
Thursday	7/15/2010	70	21.111			8.0	1.4	344	8,033	467	429	92%	10,905	3.8		2.8	70.7	21.5	6.9	3.8	80	4	98.8%	94	9	98.1%	210									
Friday	7/16/2010	70	21.111			7.9	1.3		7,199	322	286	89%	7,788	4.2	1.1	2.9	71.2	21.8	6.9	3.8	76			83	7	97.8%	169									
Saturday	7/17/2010	69	20.556			7.7	1.8		6,951	319	290	91%	7,449	4.1	1.3	2.8	70.9	21.6	7.0	3.8	82			80	5	98.4%	117									
Sunday	7/18/2010	67	19.444			7.6	1.6	257	6,216	286	255	89%	6,917	4.0	1.5	2.9	70.3	21.3	6.9	3.6	87	2	99.2%	48	5	98.3%	121									
Monday	7/19/2010	70	21.111		24.9	8.0	1.5	250	6,464	293	263	90%	7,575	4.3	1.1	3.1	70.7	21.5	7.1	3.8	86	3	98.8%	78	5	98.3%	129		3.73	1.08	11.0					
Tuesday	7/20/2010	69	20.556			8.0	1.6	274	7,084	291	261	90%	7,524	4.0	1.4	3.1	71.1	21.7	6.9	3.8	72	3	98.9%	78	8	97.3%	207									
Wednesday	7/21/2010	69	20.556		23.3	7.9	1.5		7,696	278	248	89%	7,187	4.0	1.3	3.1	71.2	21.8	6.9	3.7	67			88	6	97.8%	155		3.51	1.17	13.7	3.6	66	23		
Thursday	7/22/2010	70	21.111			7.7	1.4		7,696	291	265	91%	7,524	4.1	1.5	3.1	71.2	21.8	6.9	3.7	73			88	6	97.9%	155					3.7	68	124	Y	7/22/10
Friday	7/23/2010	70	21.111			7.9	1.3		7,199	301	282	94%	7,280	4.0	1.2	2.9	70.7	21.5	6.9	3.7	75			83	5	98.3%	121					3.4	67	138	Y	7/23/10
Saturday	7/24/2010	70	21.111			7.5	1.4		6,951	306	279	91%	7,146	4.0	1.3	2.8	70.9	21.6	7.1	3.7	85			80	10	96.7%	234									
Sunday	7/25/2010	71	21.667			7.5	1.1	277	6,469	288	259	90%	6,725	4.1	1.3	2.8	71.4	21.9	6.9	3.6	83	4	98.6%	94	8	97.2%	187									
Monday	7/26/2010	70	21.111		23.8	7.9	1.6	270	6,755	277	243	88%	6,931	4.1	1.1	3.0	72.0	22.2	7.0	3.6	90	4	98.5%	100	8	97.1%	200		8.24	0.83	5.8					
Tuesday	7/27/2010	70	21.111			7.9	1.3	283	7,317	267	239	90%	6,903	4.0	1.3	3.1	72.0	22.2	7.1	3.6	104	4	98.6%	104	8	97.0%	207					4.2	68	192	Y	7/27/10
Wednesday	7/28/2010	71	21.667		20.2	7.9	1.4		9,434	519	272	52%	16,448	7.5	1.2	3.8	72.1	22.3	7.0	3.6	99			108	7	98.7%	222		8.89	0.78	5.3	3.7	68	300	Y	7/28/10
Thursday	7/29/2010	71	21.667			7.7	2.5		8,441	286	212	74%	8,110	5.1	2.3	3.4	72.0	22.2	6.9	3.4	83			97	6	97.9%	170					4.7	58	256	Y	7/29/10
Friday	7/30/2010	71	21.667			7.8	1.7		7,448	376	291	77%	9,408	4.0	1.2	3.0	72.5	22.5	7.0	3.5	90			85	5	98.7%	125									
Saturday	7/31/2010	71	21.667			7.6	1.5		7,199	312	266	85%	7,546	4.7	1.5	2.9	72.9	22.7	7.0	3.6	86			83	4	98.7%	97									
Sunday	8/1/2010	72	22.222			7.8	0.5		6,290	302	258	85%	6,800	4.1	1.2	2.7	72.3	22.4	6.9	3.7	83			69	5	98.3%	113									
Monday	8/2/2010	72	22.222		22.5	8.0	0.8	249	6,230	326	288	88%	8,157	4.2	1.1	3.0	73.4	23.0	7.0	3.6	93	3	98.8%	75	5	98.5%	125		9.9	0.6	4.4					
Tuesday	8/3/2010	72	22.222			7.9	1.2	217	5,429	335	304	91%	8,382	4.1	1.4	3.0	73.4	23.0	7.2	3.6	112	4	98.2%	100	5	98.5%	125									
Wednesday	8/4/2010	72	22.222			7.8	0.7	306	7,656	328	298	91%	8,207	4.1	1.3	3.0	73.0	22.8	7.0	3.6	98	4	98.7%	100	4	98.8%	100					2.4	70	2	Y	8/4/10
Thursday	8/5/2010	72	22.222		23.4	7.9	0.8		6,989	299	264	88%	7,481	4.1	1.2	3.0	73.0	22.8	7.0	3.6	95			77	7	97.7%	175		3.85	0.57	8.3	2.8	71	2	Y	8/5/10
Friday	8/6/2010	72	22.222			7.9	1.0		7,222	285	258	91%	7,368	4.4	1.3	3.1	73.6	23.1	7.0	3.8	85			80	8	97.2%	207					2.7	72	2	Y	8/6/10
Saturday	8/7/2010	72	22.222			7.9	0.9		6,756	279	253	91%	6,748	4.1	1.4	2.9	72.5	22.5	7.0	3.6	88			75	5	98.2%	121									
Sunday	8/8/2010	71	21.667			7.7	0.4		6,523	345	302	88%	8,056	4.3	1.3	2.8	72.1	22.3	6.9	3.6	88			72	5	98.6%	117									
Monday	8/9/2010	72	22.222		24.3	7.9	1.0		7,455	272	244	90%	7,259	4.5	1.1	3.2	73.6	23.1	7.0	3.5	89			82	5	98.2%	133		7.69	0.56	7.1	3.4	70	8	Y	8/9/10
Tuesday	8/10/2010	72	22.222	40.2		7.9	0.8	339	8,482	289	259	90%	7,231	4.0	1.2	3.0	72.5	22.5	7.1	3.6	103	3	99.1%	75	7	97.6%	175	96.6				2.3	69	9	Y	8/10/10
Wednesday	8/11/2010	72	22.222		23.0	7.9	0.9	281	7,265	301	273	91%	7,782	4.3	1.2	3.1	73.2	22.9	7.1	3.6	94	3	98.9%	78	6	98.0%	155		7.46	0.47	6.6	2.8	68	22		
Thursday	8/12/2010	73	22.778			7.9	0.8	266	6,655	282	253	90%	7,056	4.0	1.3	3.0	73.4	23.0	7.0	3.7	99	3	98.9%	75	4	98.6%	100									
Friday	8/13/2010	73	22.778			7.9	0.7		6,989	287	263	92%	7,181	4.2	1.2	3.0	73.6	23.1	7.0	3.7	95			77	4	98.6%	100									
Saturday	8/14/2010	73	22.778			7.9	0.8		6,290	298	270	91%	6,710	4.1	1.2	2.7	73.2	22.9	7.1	3.6	92			69	4	98.7%	90									
Sunday	8/15/2010	73	22.778			7.8	0.5	289	6,508	309	277	90%	6,958	4.3	1.2	2.7	73.8	23.2	7.0	3.8	93	3	99.0%	68	6	98.1%	135									
Monday	8/16/2010	72	22.222		24.4	7.9	1.5	249	6,438	293	264	90%	7,575	4.3	1.1	3.1	74.1	23.4	7.1	3.6	93	3	98.8%	78	4	98.6%	103		5.97	0.31	4.6					
Tuesday	8/17/2010	73	22.778			7.9	0.8	265	6,630	287	256	89%	7,181	4.4	1.2	3.0	73.9	23.3	7.1	3.4	109	4	98.5%	100	7	97.6%	175					3.7	70	236	Y	8/17/10
Wednesday	8/18/2010	73	22.778		22.6	7.9	1.0		6,756	284	259	91%	6,869	4.2	1.4	2.9	74.1	23.4	7.1	3.4	103			75	8	97.2%	193		3.51	0.29	5.8	3.3	70	23		
Thursday	8/19/2010	73	22.778			7.9	0.6		6,523	280	261	93%	6,539	4.1	1.2	2.8	73.9	23.3	7.0	3.5	91			72	4	98.6%	93					2.4	72	4	Y	8/19/10
Friday	8/20/2010	73	22.778			7.9	0.3		6,290	300	276	92%	6,755	3.9	1.1	2.7	73.4	23.0	7.1	3.6	88			69	7	97.7%	158									
Saturday	8/21/2010	73	22.778			7.5	0.7		5,824	315	288	91%	6,568	4.0	1.2	2.5	73.6	23.1	7.1	3.6	87			64	5	98.4%	104									
Sunday	8/22/2010	72	22.222			7.5	0.5		5,824	358	324	91%	7,464	4.0	0.9	2.5	72.5	22.5	6.9	3.4	83			64	7	98.0%	146									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Monday	8/23/2010	73	22.778		22.5	8.1	0.8		6,756	317	286	90%	7,667	4.1	0.9	2.9	73.6	23.1	7.0	3.4	89			75	5	98.4%	121		4.79	0.39	5.7	1.6	69	6	Y	8/23/10
Tuesday	8/24/2010	73	22.778			8.0	0.8	305	7,122	308	280	91%	7,192	4.0	1.2	2.8	74.1	23.4	7.0	3.4	95	2	99.3%	47	4	98.7%	93					1.5	71	0	Y	8/24/10
Wednesday	8/25/2010	73	22.778		23.8	7.8	2.3	278	6,724	284	259	91%	6,869	3.9	1.2	2.9	74.1	23.4	7.0	3.6	87	2	99.3%	48	6	97.9%	145		4.76	0.46	7.9	2.6	69	10	Y	8/25/10
Thursday	8/26/2010	73	22.778			7.7	0.8	308	7,192	292	265	91%	6,819	4.1	1.2	2.8	73.8	23.2	7.0	3.6	87	3	99.0%	70	1	99.7%	23					2.4	67	22		
Friday	8/27/2010	73	22.778			8.0	0.8		6,756	304	278	91%	7,353	4.1	1.1	2.9	73.8	23.2	7.0	3.5	84			75	6	98.0%	145									
Saturday	8/28/2010	73	22.778			7.9	0.5		5,824	301	277	92%	6,276	4.2	1.2	2.5	73.4	23.0	7.0	3.6	85			64	3	99.0%	63									
Sunday	8/29/2010	71	21.667			7.7	0.4		6,057	401	373	93%	8,695	4.2	1.0	2.6	72.9	22.7	6.9	3.7	86			67	6	98.5%	130									
Monday	8/30/2010	73	22.778			7.9	0.6		6,756	419	374	89%	10,134	4.1	1.0	2.9	73.8	23.2	7.0	3.6	90			75	6	98.6%	145									
Tuesday	8/31/2010	73	22.778			8.0	0.8		6,756	322	293	91%	7,788	4.0	1.2	2.9	73.2	22.9	6.9	3.5	86			75	7	97.8%	169									
Wednesday	9/1/2010	73	22.778		23.3	8.2	0.8	336	8,126	301	268	89%	7,280	4.1	1.1	2.9	73.8	23.2	6.9	3.3	83	2	99.4%	48	6	98.0%	145		3.47	0.5	9.0	4.5	66	17		
Thursday	9/2/2010	73	22.778		30.9	8.1	1.0	308	7,192	266	240	90%	6,212	4.0	1.1	2.8	73.4	23.0	7.1	3.6	81	2	99.4%	47	5	98.1%	117		3.97	0.59	8.9	3.2	67	25		
Friday	9/3/2010	73	22.778			7.9	0.8	269	6,282	271	241	89%	6,328	4.0	1.0	2.8	73.9	23.3	6.9	3.7	77	4	98.5%	94	6	97.8%	140					3	67	124	Y	9/3/10
Saturday	9/4/2010	73	22.778			7.9	0.6		6,436	288	262	91%	6,005	4.0	1.2	2.5	73.8	23.2	7.2	3.8	80			89	3	99.0%	63									
Sunday	9/5/2010	71	21.667			7.7	0.7		6,436	305	276	90%	6,359	4.1	1.0	2.5	72.3	22.4	6.9	3.9	85			89	5	98.4%	104									
Monday	9/6/2010	71	21.667		20.9	7.6	0.4		7,208	285	254	89%	6,655	4.3	0.9	2.8	72.7	22.6	6.9	3.8	84			100	5	98.2%	117		1.17	0.6	6.8					
Tuesday	9/7/2010	73	22.778			8.0	1.2	287	7,899	378	294	78%	10,403	5.1	1.0	3.3	73.6	23.1	7.0	3.6	90	5	98.3%	138	6	98.4%	165					4.7	64	150	Y	9/7/10
Wednesday	9/8/2010	70	21.111		23.5	7.8	2.5	262	7,648	235	205	87%	6,860	8.7	1.2	3.5	71.4	21.9	7.0	3.4	79	4	98.5%	117	6	97.4%	175		4.4	0.6	9.6	4	62	25		
Thursday	9/9/2010	73	22.778			8.1	1.3	286	6,917	344	294	85%	8,320	4.4	1.1	2.9	72.0	22.2	6.8	3.6	64	4	98.6%	97	4	98.8%	97					3.1	66	36		
Friday	9/10/2010	73	22.778			8.1	0.9		6,951	297	273	92%	6,688	4.2	1.0	2.7	72.7	22.6	6.9	3.6	72			96	4	98.7%	90									
Saturday	9/11/2010	72	22.222			7.4	0.2		6,951	289	262	91%	6,508	4.2	1.1	2.7	72.5	22.5	6.9	3.6	79			96	3	99.0%	68									
Sunday	9/12/2010	70	21.111		25.9	7.6	1.3		6,951	298	271	91%	6,710	4.3	1.0	2.7	72.3	22.4	7.0	3.5	89			96	5	98.3%	113		0.59	0.29	7.4					
Monday	9/13/2010	73	22.778	40.3		8.0	0.7	310	7,498	375	346	92%	9,070	4.4	1.0	2.9	73.8	23.2	7.0	3.5	94	3	99.0%	73	6	98.4%	145					3.7	70	4	Y	9/13/10
Tuesday	9/14/2010	73	22.778			8.0	0.8	325	7,860	320	292	91%	7,740	4.0	1.1	2.9	73.9	23.3	7.0	3.3	85	4	98.8%	97	5	98.4%	121					2.7	68	1	Y	9/14/10
Wednesday	9/15/2010	73	22.778		29.6	8.1	0.4	299	7,232	311	282	91%	7,522	4.0	1.0	2.9	73.6	23.1	6.9	3.5	84	4	98.7%	97	6	98.1%	145		3.03	0.62	5.1	3.2	67	5	Y	9/15/10
Thursday	9/16/2010	73	22.778			8.1	0.7		7,723	307	274	89%	7,681	4.0	1.1	3.0	73.8	23.2	6.9	3.5	77			107	8	97.4%	200									
Friday	9/17/2010	73	22.778			8.1	0.8		7,723	350	315	90%	8,757	4.4	1.1	3.0	73.8	23.2	7.0	3.6	79			107	8	97.7%	200									
Saturday	9/18/2010	73	22.778			7.9	0.6		8,238	304	278	91%	8,113	4.3	1.3	3.2	73.6	23.1	7.1	3.6	82			114	9	97.0%	240									
Sunday	9/19/2010	70	21.111			7.4	2.3		7,465	286	259	91%	6,917	5.5	1.4	2.9	73.6	23.1	6.8	3.7	84			103	7	97.6%	169	89.6								
Monday	9/20/2010	73	22.778		27.5	8.1	0.6	316	7,906	296	262	89%	7,406	4.4	1.1	3.0	73.2	22.9	7.1	3.6	102	6	98.1%	150	10	96.6%	250		11.3	0.34	3.8					
Tuesday	9/21/2010	72	22.222			8.1	0.9	312	7,286	298	269	90%	6,959	4.1	1.1	2.8	72.7	22.6	7.3	3.4	122	5	98.4%	117	9	97.0%	210									
Wednesday	9/22/2010	72	22.222		27.9	8.1	1.0	351	8,489	298	269	90%	7,207	4.3	1.1	2.9	72.7	22.6	7.1	3.6	138	5	98.6%	121	9	97.0%	218		15.5	0.34	4.3	4.4	68	44		
Thursday	9/23/2010	72	22.222			8.2	1.1		7,465	329	298	91%	7,957	4.2	1.2	2.9	72.1	22.3	7.2	3.4	141			103	10	97.0%	242					6.1	65	46		
Friday	9/24/2010	72	22.222			8.2	0.9		6,951	331	301	91%	7,453	3.9	1.1	2.7	72.3	22.4	7.1	3.5	126			96	9	97.3%	203					4.6	67	28		
Saturday	9/25/2010	73	22.778			7.8	0.3		6,436	364	330	91%	7,589	4.0	1.1	2.5	72.5	22.5	7.1	3.6	114			89	8	97.8%	167									
Sunday	9/26/2010	71	21.667			7.5	0.6	355	7,698	321	292	91%	6,961	4.1	0.8	2.6	72.7	22.6	7.1	3.6	125	6	98.3%	130	8	97.5%	173									
Monday	9/27/2010	73	22.778		26.4	8.0	0.8	322	7,519	337	304	90%	7,870	4.2	0.8	2.8	74.3	23.5	7.0	3.6	114	5	98.4%	117	8	97.6%	187		12.8	0.33	3.8	5.8	66	92		
Tuesday	9/28/2010	73	22.778			8.0	0.8	292	7,062	336	296	88%	8,126	4.4	1.1	2.9	74.1	23.4	7.2	3.6	139	5	98.3%	121	9	97.3%	218					5.7	62	98		
Wednesday	9/29/2010	72	22.222		27.6	8.1	0.9		7,208	306	272	89%	7,146	4.2	1.1	2.8	73.0	22.8	7.1	3.7	137			100	8	97.4%	187		16.1	0.36	3.9	5.8	68	100		
Thursday	9/30/2010	72	22.222			8.1	1.0		7,208	303	275	91%	7,076	4.1	1.3	2.8	72.5	22.5	7.2	3.2	147			100	7	97.7%	163									
Friday	10/1/2010	73	22.778			8.1	0.8		7,648	316	285	90%	7,379	4.1	1.1	2.8	72.5	22.5	7.1	3.5	126			93	6	98.1%	140									
Saturday	10/2/2010	73	22.778			7.8	0.5		7,375	321	293	91%	7,228	4.2	1.3	2.7	72.9	22.7	7.2	3.6	133			90	10	96.9%	225									
Sunday	10/3/2010	71	21.667			7.8	0.2		7,102	299	266	89%	6,484	4.1	0.7	2.6	72.9	22.7	7.0	3.5	120			87	8	97.3%	173									
Monday	10/4/2010	72	22.222		26.9	8.1	1.6		7,648	298	267	90%	6,959	4.2	1.0	2.8	73.0	22.8	7.1	3.5	112			93	8	97.3%	187		10.1	0.63	6.7	4.4	66	28		
Tuesday	10/5/2010	72	22.222	41.2		8.2	1.1	314	7,333	295	264	89%	6,889	4.1	1.1	2.8	71.8	22.1	7.0	3.5	99	5	98.4%	117	10	96.6%	234					4.2	66	46		
Wednesday	10/6/2010	71	21.667		28.1	8.0	0.7	331	8,006	298	267	90%	7,207	4.2	1.1	2.9	71.8	22.1	7.0	3.6	85	4	98.8%	97	8	97.3%	193		5.23	0.63	9.4	5.3	66	50		
Thursday	10/7/2010	71	21.667			8.2	1.0	316	7,379	372	342	92%	8,687	4.0	1.1	2.8	71.6	22.0	6.9	3.5	80	4	98.7%	94	8	97.8%	187									
Friday	10/8/2010	71	21.667			8.1	1.2		7,375	320	284	89%	7,206	3.9	0.9	2.7	72.0	22.2	6.8	3.5	72			90	14	95.6%	315									
Saturday	10/9/2010	73	22.778			7.8	0.9		7,102	337	308	91%	7,308	4.1	1.1	2.6	72.1	22.3	6.9	3.6	74			87	6	98.2%	130									
Sunday	10/10/2010	72	22.222			7.6	0.1		6,828	330	297	90%	6,881	4.2	0.9	2.5	72.3	22.4	6.8	3.5	77			83	8	97.6%	167	96								
Monday	10/11/2010	72	22.222		29.0	8.1	1.0	360	8,106	318	283	89%	7,161	4.2	0.8	2.7	71.8	22.1	7.0	3.7	80	3	99.2%	68	8	97.5%	180		3.54	0.53	8.2					
Tuesday	10/12/2010	72	22.222			8.2	0.9	354	7,971	328	295	90%	7,386	4.0	0.9	2.7	71.6	22.0	7.0	3.6	75	2	99.4%	45	6	98.2%	135					2.7	67	19		
Wednesday	10/13/2010	71	21.667		30.1	8.1	1.0	185	4,320	325	297	91%	7,589	4.1	1.1	2.8	71.4	21.9	6.8	3.6	70	3	98.4%	70	4	98.8%	93		3.86	0.58	11.1	2.7	68	18		
Thursday	10/14/2010	71	21.667			8.1	1.1		7,375	315	283	90%	7,093	3.9	1.1	2.7	71.4	21.9	6.8	3.7	69			90	5	98.4%	113					2.4	68	20		
Friday	10/15/2010	71	21.667			8.2	0.9		7,375	305	271	89%	6,868	3.9	1.0	2.7	70.9	21.6	6.9	3.6	76			90	6	98.0%	135									
Saturday	10/16/2010	71	21.667			8.0	1.0		6,828	347	312	90%	7,235	4.2	1.0	2.5	71.2	21.8	7.0	3.7	77			83	5	98.6%	104									
Sunday	10/17/2010	69	20.556			7.6	0.6		7,102	332	298	90%	7,199	4.3	0.9	2.6	69.4	20.8	6.9	3.6	79			87	4	98.8%	87									
Monday	10/18/2010	71	21.667		28.5	8.1	1.3		7,648	300	269	90%	7,006	4.0	0.8	2.8	70.7	21.5	6.9	3.7	94			93	6	98.0%	140		4.98	0.61	9.2					
Tuesday	10/19/2010	71	21.667			8.2	1.1	330	7,431	332	300	90%	7,476	4.0	1.0	2.7	70.5	21.4	7.0	3.5	90	7	97.9%	158	7	97.9%	158									
Wednesday	10/20/2010	71	21.667		29.2	8.2	1.0	304	7,099	305	273	90%	7,122	4.0	1.0	2.8	70.3	21.3	7.0	3.4	82	4	98.7%	94	7	97.7%	163		5.13	0.57	9.2	3.4	67	36		

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Thursday	10/21/2010	71	21.667			8.2	1.1	357	8,039	306	270	88%	6,891	3.9	1.0	2.7	70.5	21.4	6.9	3.7	81	4	98.9%	90	6	98.0%	135					2.8	68	52		
Friday	10/22/2010	71	21.667			8.2	0.9		6,828	345	315	91%	7,193	3.7	1.0	2.5	70.5	21.4	7.0	3.5	82			83	8	97.7%	167					5	66	74		
Saturday	10/23/2010	71	21.667			7.8	0.5		6,828	344	304	88%	7,172	4.1	1.0	2.5	70.5	21.4	7.0	3.6	86			83	7	98.0%	146									
Sunday	10/24/2010	69	20.556			7.5	0.8	348	7,546	302	270	89%	6,549	4.3	1.0	2.6	70.0	21.1	6.9	3.6	90	4	98.9%	87	7	97.7%	152									
Monday	10/25/2010	70	21.111		28.7	8.1	1.3	350	8,173	286	254	89%	6,679	4.1	0.9	2.8	70.0	21.1	6.9	3.6	96	4	98.9%	94	6	97.9%	140		5.78	0.87	7.0	3.8	66	6	Y	10/25/10
Tuesday	10/26/2010	70	21.111			8.2	0.6	381	8,579	345	312	90%	7,769	4.0	1.1	2.7	69.3	20.7	7.0	3.6	94	4	99.0%	90	9	97.4%	203					3.2	66	21	Y	10/26/10
Wednesday	10/27/2010	70	21.111		28.9	8.2	1.3		7,648	360	312	87%	8,407	4.1	1.0	2.8	69.4	20.8	6.9	3.5	88			93	8	97.8%	187		6.32	0.99	9.0	4.6	66	6	Y	10/27/10
Thursday	10/28/2010	70	21.111			8.1	1.0		8,194	287	247	86%	7,181	3.9	1.1	3.0	69.6	20.9	6.9	3.6	82			100	6	97.9%	150									
Friday	10/29/2010	70	21.111			8.2	1.0		7,375	308	278	90%	6,936	3.8	1.6	2.7	69.3	20.7	6.9	3.6	76			90	7	97.7%	158									
Saturday	10/30/2010	70	21.111			7.8	1.1		7,102	329	298	91%	7,134	4.2	1.0	2.6	69.8	21.0	6.9	3.6	76			87	7	97.9%	152									
Sunday	10/31/2010	69	20.556			7.6	0.8		6,828	325	293	90%	6,776	4.3	1.0	2.5	69.3	20.7	6.9	3.7	83			83	7	97.8%	146									
Monday	11/1/2010	70	21.111		25.5	8.0	1.6	323	8,081	306	273	89%	7,656	4.9	0.8	3.0	70.0	21.1	7.0	3.6	91	5	98.5%	125	7	97.7%	175		7.02	0.72	7.2					
Tuesday	11/2/2010	70	21.111			8.2	1.4	311	7,522	285	258	91%	6,893	3.9	1.1	2.9	68.9	20.5	7.0	3.6	95	4	98.7%	97	6	97.9%	145									
Wednesday	11/3/2010	70	21.111	44.1	28.8	8.2	1.3	322	7,519	312	273	88%	7,286	3.9	1.1	2.8	68.9	20.5	7.0	3.7	97	4	98.8%	94	7	97.8%	163		6.96	0.81	9.8	4.8	64	60		
Thursday	11/4/2010	69	20.556			8.1	1.1		7,369	304	271	89%	6,845	3.8	1.2	2.7	68.7	20.4	6.9	3.7	90			96	8	97.4%	180					5.8	66	23		
Friday	11/5/2010	70	21.111			8.0	0.9		7,096	329	298	91%	7,134	3.7	1.1	2.6	68.7	20.4	6.9	3.8	87			92	9	97.3%	195					6.1	64	114		
Saturday	11/6/2010	68	20			7.6	1.1		7,096	307	275	90%	6,657	4.2	1.1	2.6	68.2	20.1	7.0	3.8	90			92	10	96.7%	217									
Sunday	11/7/2010	67	19.444		29.2	7.7	0.8	363	7,871	288	258	90%	6,245	4.4	1.1	2.6	68.0	20.0	6.9	3.7	94	4	98.9%	87	6	97.9%	130		2.86	0.72	5.4					
Monday	11/8/2010	69	20.556			8.1	1.8	375	8,757	320	282	88%	7,473	4.3	0.9	2.8	68.4	20.2	7.0	3.7	92	4	98.9%	94	7	97.8%	163					6	68	202	Y	11/8/10
Tuesday	11/9/2010	69	20.556		25.4	8.1	1.5	246	6,360	340	305	90%	8,790	5.8	0.9	3.1	67.5	19.7	7.0	3.6	94	5	98.0%	129	7	97.9%	181		5	0.85	8.3	3.1	68	14		
Wednesday	11/10/2010	68	20			8.2	1.5		7,096	353	320	91%	7,654	3.9	1.1	2.6	66.4	19.1	6.9	3.7	82			92	8	97.7%	173					2.1	68	2	Y	11/10/10
Thursday	11/11/2010	68	20			8.0	1.6		7,369	333	303	91%	7,498	3.8	1.1	2.7	66.4	19.1	6.9	3.6	82			96	6	98.2%	135									
Friday	11/12/2010	68	20			8.1	1.1		7,096	295	266	90%	6,397	4.0	1.1	2.6	67.1	19.5	6.9	3.8	93			92	8	97.3%	173									
Saturday	11/13/2010	68	20			7.8	0.6		6,823	317	281	89%	6,609	4.0	1.0	2.5	66.9	19.4	6.9	3.6	91			89	7	97.8%	146									
Sunday	11/14/2010	66	18.889			7.7	1.2		6,823	348	319	92%	7,256		1.0	2.5	66.7	19.3	6.9	3.6	108			89	7	98.0%	146									
Monday	11/15/2010	68	20		29.0	8.1	1.0		7,642	320	278	87%	7,473	3.9	0.8	2.8	67.5	19.7	7.0	3.6	105			99	8	97.5%	187		7.61	1.27	6.6					
Tuesday	11/16/2010	68	20			8.2	1.7	331	7,453	292	255	87%	6,575	3.9	1.1	2.7	66.7	19.3	7.0	3.7	115	4	98.8%	90	9	96.9%	203					3.3	64	10	Y	11/16/10
Wednesday	11/17/2010	68	20		30.2	8.0	1.5	333	7,776	326	287	88%	7,613	3.9	1.0	2.8	66.9	19.4	7.1	3.5	117	4	98.8%	94	8	97.5%	187		11.4	1.49	6.8	4.7	64	36		
Thursday	11/18/2010	68	20			8.2	1.6	346	6,926	334	302	90%	6,685	4.1	1.1	2.4	66.6	19.2	7.0	3.5	126	5	98.6%	100	10	97.0%	200					3.8	64	38		
Friday	11/19/2010	67	19.444			8.1	1.8		7,915	289	260	90%	6,990	3.9	1.0	2.9	65.8	18.8	7.0	3.4	113			103	10	96.5%	242									
Saturday	11/20/2010	67	19.444			8.0	1.2		7,096	315	281	89%	6,830	4.3	1.2	2.6	64.9	18.3	7.1	3.6	101			92	11	96.5%	239									
Sunday	11/21/2010	65	18.333		31.1	7.6	0.8	359	7,785	371	343	92%	8,045	4.1	0.9	2.6	64.0	17.8	7.0	3.6	113	4	98.9%	87	7	98.1%	152		6.37	0.82	5.9					
Monday	11/22/2010	67	19.444			8.4	1.7	340	7,656	305	276	90%	6,868	4.0	0.9	2.7	64.4	18.0	7.0	3.5	112	4	98.8%	90	8	97.4%	180					6.2	66	27		
Tuesday	11/23/2010	67	19.444		34.0	8.2	1.6	278	6,492	429	379	88%	10,018	3.7	1.0	2.8	63.5	17.5	7.1	3.8	143	4	98.6%	94	8	98.1%	187	96	17.4	0.85	3.2	4.7	65	27		
Wednesday	11/24/2010	66	18.889			8.3	1.4		6,823	320	290	91%	6,672	3.9	1.2	2.5	62.6	17.0	7.1	3.9	158			89	9	97.2%	188					6.8	64	42		
Thursday	11/25/2010	65	18.333			7.7	0.7		6,823	381	355	93%	7,944	4.0	1.0	2.5	61.5	16.4	7.2	3.7	172			89	9	97.6%	188									
Friday	11/26/2010	65	18.333			8.1	0.8		6,550	530	502	95%	10,608	3.7	1.0	2.4	63.0	17.2	7.1	3.5	126			85	9	98.3%	180									
Saturday	11/27/2010	66	18.889			8.0	1.3		6,823	351	316	90%	7,318	4.3	1.0	2.5	63.3	17.4	7.1	3.6	148			89	10	97.2%	209									
Sunday	11/28/2010	64	17.778			7.7	0.4		7,096	271	242	89%	5,876	4.2	1.0	2.6	62.6	17.0	7.1	3.8	166			92	7	97.4%	152									
Monday	11/29/2010	65	18.333			8.1	2.0		7,369	314	283	90%	7,071	4.1	0.9	2.7	62.8	17.1	7.2	3.9	142			96	6	98.1%	135									
Tuesday	11/30/2010	65	18.333			8.2	1.7		7,369	290	262	90%	6,530	3.7	1.1	2.7	62.8	17.1	7.1	3.8	143			96	8	97.2%	180									
Wednesday	12/1/2010	65	18.333		32.7	8.2	2.2	334	7,800	290	260	90%	6,772	3.9	1.0	2.8	62.8	17.1	7.1	4	141	3	99.1%	70	5	98.3%	117		17.8	1.48	5.1	5	65	80		
Thursday	12/2/2010	65	18.333			8.2	1.8	317	7,138	296	273	92%	6,665	3.8	1.1	2.7	63.0	17.2	7.2	4	141	3	99.1%	68	5	98.3%	113					4.3	65	110		
Friday	12/3/2010	65	18.333		31.3	8.2	2.1	363	7,871	255	224	88%	5,529	3.7	1.1	2.6	62.6	17.0	7.0	3.6	115	4	98.9%	87	7	97.3%	152		7.21	1.54	5.7	5.8	65	74		
Saturday	12/4/2010	65	18.333			7.8	0.7		6,829	363	327	90%	7,569	4.0	1.1	2.5	62.6	17.0	7.0	3.7	118			79	6	98.3%	125									
Sunday	12/5/2010	62	16.667			7.6	3.1		7,102	286	259	91%	6,202	4.2	0.9	2.6	61.9	16.6	7.0	3.6	118			82	7	97.6%	152									
Monday	12/6/2010	64	17.778		31.6	8.1	1.7		7,375	247	225	91%	5,562	4.1	0.9	2.7	63.1	17.3	7.0	3.6	114			86	6	97.6%	135		10.5	1.64	5.9					
Tuesday	12/7/2010	64	17.778			8.2	2.1	337	7,589	287	258	90%	6,463	3.8	1.0	2.7	62.6	17.0	7.0	3.8	134	4	98.8%	90	5	98.3%	113					4.9	65	11	Y	12/7/10
Wednesday	12/8/2010	64	17.778	42.7	30.2	7.9	2.3	305	7,377	242	207	86%	5,853	3.9	1.2	2.9	62.8	17.1	7.1	3.6	139	4	98.7%	97	6	97.5%	145		16	1.98	5.2	3.7	66	13		
Thursday	12/9/2010	64	17.778			8.1	1.9	309	7,731	311	271	87%	7,781	4.9	1.2	3.0	62.6	17.0	7.1	3.7	142	3	99.0%	75	6	98.1%	150	96				4	65	13		
Friday	12/10/2010	64	17.778			8.2	2.2		7,649	266	235	88%	6,212	3.8	1.1	2.8	62.1	16.7	7.0	3.8	119			89	3	98.9%	70									
Saturday	12/11/2010	64	17.778			7.6	1.1		7,375	275	240	87%	6,192	4.2	1.3	2.7	62.1	16.7	7.0	3.9	108			86	5	98.2%	113									
Sunday	12/12/2010	59	15			7.6	2.6		9,561	295	252	85%	8,611	6.1	1.3	3.5	61.3	16.3	7.0	3.8	112			111	6	98.0%	175									
Monday	12/13/2010	61	16.111		25.2	8.1	3.6	261	7,619	240	214	89%	7,006	4.4	1.3	3.5	59.7	15.4	7.0	4	108	3	98.9%	88	6	97.5%	175		12.6	1.66	4.2					
Tuesday	12/14/2010	60	15.556			8.1	3.7	294	7,601	296	270	91%	7,653	4.6	1.8	3.1	59.9	15.5	7.1	3.9	121	3	99.0%	78	4	98.6%	103									
Wednesday	12/15/2010	63	17.222		31.5	8.2	2.1	359	8,084	320	289	90%	7,206	3.7	1.1	2.7	59.9	15.5	7.0	4	122	4	98.9%	90	4	98.8%	90		13.5	2.18	7.4	4.6	67	9	Y	12/15/10
Thursday	12/16/2010	61	16.111			8.1	2.5		7,375	387	355	92%	8,714	3.7	1.2	2.7	61.2	16.2	7.1	4	136			86	5	98.7%	113					4.6	64	19		
Friday	12/17/2010	63	17.222			8.1	2.1		7,375	300	266	89%	6,755	3.6	1.1	2.7	61.5	16.4	7.0	3.9	112			86	6	98.0%	135					4	65	13	Y	12/17/10
Saturday	12/18/2010	63	17.222			7.7	1.2		7,102	330	295	89%	7,156	4.2	1.2	2.6	61.2	16.2	7.0	3.9	101			82	6	98.2%	130									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	12/19/2010	62	16.667			7.8	1.0		7,102	302	277	92%	6,549	4.3	1.0	2.6	61.0	16.1	7.0	3.9	107			82	6	98.0%	130									
Monday	12/20/2010	62	16.667		29.2	8.1	1.8	314	7,594	296	267	90%	7,159	4.2	0.9	2.9	61.5	16.4	6.9	3.9	114	5	98.4%	121	6	98.0%	145		8.29	1.78	5.8	5.5	64	300	Y	12/20/10
Tuesday	12/21/2010	62	16.667			8.1	1.7	337	7,870	303	273	90%	7,076	4.1	1.2	2.8	61.3	16.3	7.0	3.7	110	5	98.5%	117	6	98.0%	140					4.4	66	11	Y	12/21/10
Wednesday	12/22/2010	62	16.667		30.0	8.0	1.6	301	7,280	305	265	87%	7,377	4.0	1.2	2.9	61.0	16.1	7.1	4	110	4	98.7%	97	5	98.4%	121		8.18	1.47	6.5	4	64	92		
Thursday	12/23/2010	62	16.667			8.1	3.5		7,922	304	271	89%	7,353	4.2	1.3	2.9	61.0	16.1	6.9	4.2	102			92	7	97.7%	169									
Friday	12/24/2010	62	16.667			7.9	3.2		7,922	179	154	86%	4,329	4.5	1.2	2.9	61.0	16.1	6.9	4.1	101			92	6	96.6%	145									
Saturday	12/25/2010	59	15			7.5	3.9		6,556	298			5,965	3.6	1.4	2.4	61.3	16.3	6.9	3.6	92			76	6	98.0%	120									
Sunday	12/26/2010	60	15.556			7.6	3.2		7,102	346	315	91%	7,503	4.1	1.0	2.6	61.5	16.4	7.0	3.8	95			82	6	98.3%	130									
Monday	12/27/2010	62	16.667		30.6	8.1	2.2	346	8,368	324	293	90%	7,836	4.2	1.0	2.9	60.8	16.0	7.0	4	103	4	98.8%	97	6	98.1%	145		7.91	0.68	7.6	4.2	66	9	Y	12/27/10
Tuesday	12/28/2010	62	16.667			8.0	2.4	371	9,282	318	287	90%	7,956	4.6	1.1	3.0	60.8	16.0	7.0	3.9	101	4	98.9%	100	3	99.1%	75					4.5	66	26		
Wednesday	12/29/2010	62	16.667		31.3	8.0	2.6	365	8,523	370	338	91%	8,640	4.1	1.1	2.8	60.6	15.9	6.9	3.9	85	4	98.9%	94	4	98.9%	93		6.91	0.47	7.2	4.2	67	16		
Thursday	12/30/2010	61	16.111			8.1	2.4		7,375	368	330	90%	8,287	4.0	1.1	2.7	60.3	15.7	6.9	4	89			86	7	98.1%	158									
Friday	12/31/2010	61	16.111			7.8	1.5		7,102	338	310	92%	7,329	4.1	0.9	2.6	59.4	15.2	6.8	3.9	80			82	6	98.2%	130									
																1042.1																				
	Average	65.8	18.8	43.5	28.3	8.0	2.1	322	7,641	332	298	90%	7,895	4.3	1.1	2.9	66.1	18.9	7.0	3.7	94.1	5	98.5%	112	8	97.6%	188	94.7	7.4	0.8	7.6	4.4	65.3	59.9		
	Max	73.0	22.8	48.6	37.4	8.4	6.1	419	14,695	581	544	95%	16,448	8.7	4.0	1042.1	74.3	23.5	7.3	4.6	172.0	8	99.5%	228	16	99.7%	400	103.4	23.8	2.2	13.7	10.1	72.0	800.0		
	Min	54.0	12.2	39.2	20.2	7.4	0.1	185	4,320	179	120	43%	4,329	3.6	0.7	2.4	54.3	12.4	6.6	2.8	44.0	2	97.0%	45	1	95.4%	23	88.6	0.1	0.3	3.0	1.5	6.2	0.0		
	Median																																			
2011																																				
Saturday	01/01/11	60	15.6			7.7	1.2		6,715	355	325	92%	6,810	3.8	1.0	2.3	58.5	14.7	6.9	3.8	84			85	7	98.0%	134									
Sunday	01/02/11	59	15.0			7.6	1.7		7,299	330	298	90%	6,881	4.0	0.7	2.5	57.7	14.3	6.8	4.1	87			92	4	98.8%	83									
Monday	01/03/11	60	15.6	48	33	8.1	3.1		7,591	344	308	90%	7,459	3.8	0.8	2.6	58.3	14.6	6.9	4.0	92			96	7	98.0%	152		6.6	0.4	6.0					
Tuesday	01/04/11	61	16.1			8.2	2.9	383	8,624	346	313	90%	7,791	3.6	0.8	2.7	58.5	14.7	6.9	4.0	92	4	99.0%	90	6	98.3%	135	98				5.7	66	25		
Wednesday	01/05/11	61	16.1		34	8.2	3.2	365	8,219	408	369	90%	9,187	3.7	1.0	2.7	59.0	15	7.0	4.1	87	4	98.9%	90	7	98.3%	158		7.2	0.4	9.5	6.3	66	25		
Thursday	01/06/11	61	16.1			8.1	3.8	365	8,219	363	326	90%	8,174	3.8	1.0	2.7	59.4	15.2	6.9	4.0	84	4	98.9%	90	7	98.1%	158					4.9	66	13		
Friday	01/07/11	61	16.1			8.1	3.6		7,591	355	321	90%	7,698	3.7	1.0	2.6	59.7	15.4	6.9	4.1	78			96	6	98.3%	130									
Saturday	01/08/11	59	15.0			7.7	3.2		7,591	340	300	88%	7,373	4.3	1.1	2.6	59.2	15.1	6.8	4.3	78			96	8	97.6%	173									
Sunday	01/09/11	59	15.0			7.7	2.6		7,299	350	321	92%	7,298	4.1	0.9	2.5	58.8	14.9	6.8	4.1	82			92	6	98.3%	125									
Monday	01/10/11	60	15.6		32	8.2	4.3	355	7,994	434	390	90%	9,773	3.8	0.9	2.7	59.2	15.1	6.9	3.9	87	4	98.9%	90	10	97.7%	225		6.8	0.4	10.4	4.3	66	128	Y	01/10/11
Tuesday	01/11/11	60	15.6			8.2	3.3	357	7,741	337	310	92%	7,308	3.7	1.0	2.6	58.8	14.9	6.9	4.0	84	4	98.9%	87	8	97.6%	173					4.1	68	23		
Wednesday	01/12/11	60	15.6		33	8.0	3.0	340	7,656	321	289	90%	7,228	3.5	1.0	2.7	58.5	14.7	6.8	4.2	81	4	98.8%	90	8	97.5%	180		7.0	0.3	12.1	3.9	66	118		
Thursday	01/13/11	60	15.6			8.1	3.6		7,883	348	316	91%	7,836	3.9	1.1	2.7	58.6	14.8	6.8	4.1	78			99	6	98.3%	135									
Friday	01/14/11	60	15.6			8.3	3.1		8,175	355	315	89%	8,290	3.9	1.1	2.8	59.2	15.1	6.8	3.8	78			103	6	98.3%	140									
Saturday	01/15/11	58	14.4			7.8	3.2		11,387	311	268	86%	10,116	5.4	1.1	3.9	59.0	15	6.9	4.0	85			144	7	97.7%	228									
Sunday	01/16/11	54	12.2			7.5	5.2		10,803	282	250	89%	8,702	6.7	2.2	3.7	57.0	13.9	6.9	4.1	95			136	6	97.9%	185									
Monday	01/17/11	58	14.4			8.1	4.3		9,051	274	241	88%	7,084	4.9	1.6	3.1	55.8	13.2	6.9	4.0	87			114	10	96.4%	259									
Tuesday	01/18/11	60	15.6		31	8.2	3.7	343	8,010	289	259	90%	6,749	3.8	1.1	2.8	57.7	14.3	7.0	4.1	112	6	98.3%	140	8	97.2%	187		12.7	0.5	8.0					
Wednesday	01/19/11	60	15.6			8.2	3.8	359	8,084	312	280	90%	7,026	3.6	1.2	2.7	58.6	14.8	7.0	3.9	127	5	98.6%	113	7	97.8%	158					5.5	64	21		
Thursday	01/20/11	60	15.6		32	8.2	3.1	302	6,800	287	261	91%	6,463	3.8	1.1	2.7	59.0	15	7.1	4.1	140	4	98.7%	90	8	97.2%	180		16.6	0.7	9.0	5.1	63	13		
Friday	01/21/11	59	15.0			8.2	4.1		8,175	337	308	91%	7,870	3.8	1.1	2.8	59.2	15.1	7.1	3.9	141			103	8	97.6%	187					4.2	63	14		
Saturday	01/22/11	60	15.6			7.8	3.0		7,591	346	311	90%	7,503	4.2	1.1	2.6	59.0	15	7.1	4.0	133			96	8	97.7%	173									
Sunday	01/23/11	58	14.4			7.6	3.5	350	7,589	304	275	90%	6,592	4.3	0.9	2.6	58.8	14.9	7.0	3.9	124	5	98.6%	109	8	97.4%	173									
Monday	01/24/11	59	15.0		30	8.1	3.6	323	7,543	305	275	90%	7,122	4.0	0.9	2.8	59.2	15.1	7.1	4.0	117	5	98.5%	117	9	97.0%	210		13.0	1.0	8.7	4.8	65	13	Y	01/24/11
Tuesday	01/25/11	60	15.6			7.8	3.0	359	8,084	338	307	91%	7,611	3.8	1.1	2.7	58.8	14.9	7.0	4.0	126	4	98.9%	90	8	97.6%	180					4.7	64	8	Y	01/25/11
Wednesday	01/26/11	60	15.6		32	8.2	3.1		8,175	319	290	91%	7,449	3.8	1.1	2.8	59.4	15.2	7.2	3.9	170			103	9	97.2%	210		23.3	0.5	3.9	4.7	64	11	Y	01/26/11
Thursday	01/27/11	60	15.6			8.2	3.1		7,883	326	287	88%	7,341	3.8	1.1	2.7	59.4	15.2	7.1	4.0	186			99	10	96.9%	225									
Friday	01/28/11	60	15.6			8.1	2.9		8,175	328	294	90%	7,659	4.0	1.1	2.8	59.4	15.2	7.2	3.9	195			103	9	97.3%	210									
Saturday	01/29/11	60	15.6			7.7	3.1		7,299	385	347	90%	8,027	4.1	1.1	2.5	59.4	15.2	7.2	3.8	182			92	10	97.4%	209									
Sunday	01/30/11	59	15.0			8.0	2.8		7,591	326	297	91%	7,069	4.2	1.0	2.6	59.2	15.1	7.1	4.0	171			96	10	96.9%	217									
Monday	01/31/11	59	15.0			8.2	2.7		8,175	276	241	87%	6,445	3.9	0.9	2.8	58.5	14.7	6.9	3.8	162			103	9	96.7%	210									
Tuesday	02/01/11	59	15.0		34	8.2	3.5	355	7,698	310	270	87%	6,722	3.7	1.0	2.6	57.7	14.3	7.2	3.7	178	10	97.2%	217	12	96.1%	260		21.1	0.3	4.2	9.4	59	36		
Wednesday	02/02/11	59	15.0			8.3	3.6	322	7,519	295	256	87%	6,889	3.7	1.0	2.8	57.6	14.2	7.2	4.5	182	8	97.5%	187	10	96.6%	234	97				8.6	60	400		
Thursday	02/03/11	59	15.0	46	32	8.2	3.8	349	7,859	278	239	86%	6,260	3.9	1.1	2.7	57.9	14.4	7.2	3.9	190	8	97.7%	180	10	96.4%	225		22.6	0.3	3.1	6.8	61	3	Y	02/03/11
Friday	02/04/11	59	15.0			8.2	3.7		8,501	361	300	83%	9,032	3.8	1.0	3.0	58.5	14.7	7.2	3.9	183			144	10	97.2%	250									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	02/05/11	59	15.0			7.9	2.3		7,084	320	280	88%	6,672	4.2	1.3	2.5	58.6	14.8	7.1	4.1	170			120	7	97.8%	146									
Sunday	02/06/11	57	13.9			7.5	4.2		7,934	299	257	86%	6,982	4.2	1.0	2.8	58.8	14.9	7.1	3.8	154			134	8	97.3%	187									
Monday	02/07/11	59	15.0		30	8.1	3.4	314	7,333	280	245	88%	6,539	4.1	1.0	2.8	58.6	14.8	7.1	4.1	139	3	99.0%	70	7	97.5%	163		14.8	0.5	4.3					
Tuesday	02/08/11	59	15.0			8.2	3.5	345	8,056	302	267	88%	7,052	4.0	1.1	2.8	58.3	14.6	7.2	4.1	147	3	99.1%	70	5	98.3%	117									
Wednesday	02/09/11	59	15.0		33	8.2	4.1	318	7,161	311	275	88%	7,003	3.9	1.0	2.7	58.6	14.8	7.1	4.1	145	3	99.1%	68	5	98.4%	113		13.9	0.8	6.3	3.5	65	8	Y	02/09/11
Thursday	02/10/11	59	15.0			8.2	3.5		7,650	298	266	89%	6,710	3.9	1.1	2.7	58.5	14.7	7.0	4.0	128			129	5	98.3%	113					4	66	3	Y	02/10/11
Friday	02/11/11	60	15.6			8.1	3.5		7,934	369	328	89%	8,617	3.9	1.0	2.8	58.6	14.8	7.0	4.2	127			134	6	98.4%	140					2.8	66	5	Y	02/11/11
Saturday	02/12/11	59	15.0			7.9	2.1		7,084	321	283	88%	6,693	4.2	1.2	2.5	58.6	14.8	7.1	4.2	147			120	8	97.5%	167									
Sunday	02/13/11	59	15.0			7.7	2.6	338	7,329	311	279	90%	6,744	4.2	0.9	2.6	58.3	14.6	7.1	4.0	146	5	98.5%	109	7	97.7%	152									
Monday	02/14/11	59	15.0		32	8.0	3.7	342	7,701	312	279	89%	7,026	4.0	0.9	2.7	59.2	15.1	7.2	3.8	147	5	98.5%	113	8	97.4%	180		14.3	1.9	4.3	5.4	64	9	Y	02/14/11
Tuesday	02/15/11	60	15.6			8.2	3.5	318	7,161	294	260	88%	6,620	3.8	1.1	2.7	59.0	15	7.2	3.9	167	5	98.4%	113	8	97.3%	180					6.1	63	11	Y	02/15/11
Wednesday	02/16/11	59	15.0		33	8.1	3.7		7,934	299	264	88%	6,982	4.0	1.0	2.8	59.0	15	7.3	4.3	182			134	8	97.3%	187		21.1	2.1	4.6	4.3	63	3	Y	02/16/11
Thursday	02/17/11	60	15.6			8.2	3.5		7,367	307	282	92%	6,657	3.9	1.1	2.6	58.6	14.8	7.2	4.1	189			125	9	97.1%	195									
Friday	02/18/11	59	15.0			8.2	2.8		7,650	330	299	91%	7,431	3.9	1.0	2.7	58.5	14.7	7.2	3.7	170			129	6	98.2%	135									
Saturday	02/19/11	60	15.6			7.9	2.6		7,367	357	322	90%	7,741	4.2	1.0	2.6	58.5	14.7	7.2	4.0	184			125	9	97.5%	195									
Sunday	02/20/11	57	13.9			7.6	2.9		7,084	287	260	91%	5,984	4.2	0.8	2.5	57.9	14.4	7.1	3.9	180			120	10	96.5%	209									
Monday	02/21/11	57	13.9		31	7.7	2.9	335	7,823	329	294	89%	7,683	4.3	0.8	2.8	57.9	14.4	7.2	4.0	187	5	98.5%	117	11	96.7%	257		20.4	2.7	6.2					
Tuesday	02/22/11	59	15.0			8.2	3.8	371	8,354	276	247	89%	6,215	4.0	1.0	2.7	58.8	14.9	7.2	4.1	176	7	98.1%	158	14	94.9%	315					8.4	62	154	Y	02/23/11
Wednesday	02/23/11	60	15.6		33	8.3	3.1	370	8,332	297	267	90%	6,688	3.8	1.0	2.7	58.3	14.6	7.1	3.9	174	7	98.1%	158	16	94.6%	360		18.9	3.1	6.7	11.2	61	232	Y	02/24/11
Thursday	02/24/11	59	15.0			7.9	3.2		7,650	340	300	88%	7,656	3.7	1.0	2.7	58.1	14.5	7.1	3.7	172			129	20	94.1%	450					15.1	57	3	Y	02/25/11
Friday	02/25/11	59	15.0			8.3	3.5		7,084	322	287	89%	6,714	3.6	1.0	2.5	57.4	14.1	7.2	3.7	158			120	26	91.9%	542									
Saturday	02/26/11	59	15.0			7.9	2.6		7,084	303	274	90%	6,318	4.1	0.9	2.5	56.8	13.8	7.1	4.0	151			120	24	92.1%	500									
Sunday	02/27/11	59	15.0			8.0	2.5		7,650	316	281	89%	7,116	4.0	0.9	2.7	56.5	13.6	7.1	3.5	136			129	19	94.0%	428									
Monday	02/28/11	58	14.4			8.1	3.1		7,934	300	270	90%	7,006	4.1	0.9	2.8	57.9	14.4	7.0	3.7	126			134	16	94.7%	374									
Tuesday	03/01/11	59	15.0		32	8.3	3.8	317	7,403	293	261	89%	6,842	3.9	1.0	2.8	57.9	14.4	7.1	3.8	127	10	96.8%	234	11	96.2%	257		12.7	4.2	12.1	10.6	58	20		
Wednesday	03/02/11	58	14.4			8.1	4.0	342	7,986	296	257	87%	6,912	4.3	1.0	2.8	58.3	14.6	7.1	3.8	134	11	96.8%	257	16	94.6%	374					10.3	56	52		
Thursday	03/03/11	59	15.0		33	8.2	4.0	342	7,986	307	266	87%	7,169	3.9	1.1	2.8	58.1	14.5	7.1	3.8	139	10	97.1%	234	13	95.8%	304		15.2	3.3	9.5			160	Y	03/03/11
Friday	03/04/11	59	15.0			8.3	3.7		7,533	301	264	88%	6,778	3.9	1.0	2.7	58.1	14.5	7.2	3.7	155			188	15	95.0%	338									
Saturday	03/05/11	59	15.0			8.0	2.9		7,254	334	295	88%	7,242	4.4	1.1	2.6	58.5	14.7	7.2	3.8	157			181	12	96.4%	260									
Sunday	03/06/11	58	14.4			7.8	2.4		7,254	334	303	91%	7,242	4.2	0.8	2.6	58.1	14.5	7.2	3.8	147			181	7	97.9%	152									
Monday	03/07/11	59	15.0		33	8.3	3.7		7,533	320	281	88%	7,206	4.1	0.8	2.7	59.0	15	7.2	3.5	152			188	8	97.5%	180		17.3	3.7	8.8					
Tuesday	03/08/11	57	13.9			8.2	3.8	349	8,150	315	265	84%	7,356	4.1	0.9	2.8	58.5	14.7	7.3	3.6	160	8	97.7%	187	8	97.5%	187					10.2	56	30		
Wednesday	03/09/11	59	15.0	35	27	8.2	3.9	355	9,770	378	303	80%	10,403	6.2	1.1	3.3	58.5	14.7	7.2	3.6	164	10	97.2%	276	10	97.4%	275	96	23.0	3.1	7.1	8.3	56	29		
Thursday	03/10/11	59	15.0			8.2	4.2	308	6,936	350	303	87%	7,881	7.9	1.2	2.7	57.7	14.3	7.2	3.8	185	9	97.1%	203	8	97.7%	180					8	58	11	Y	03/10/11
Friday	03/11/11	59	15.0			8.3	3.6		5,580	339	310	91%	5,655	3.7	1.0	2.0	57.7	14.3	7.1	3.6	154			139	11	96.8%	183									
Saturday	03/12/11	59	15.0			7.9	2.7		8,649	293	264	90%	7,575	4.0	1.0	3.1	58.8	14.9	7.2	3.7	159			215	12	95.9%	310									
Sunday	03/13/11	57	13.9			7.7	3.9		7,533	286	254	89%	6,440	4.1	0.7	2.7	58.6	14.8	7.0	3.7	143			188	12	95.8%	270									
Monday	03/14/11	59	15.0		33	8.3	3.5	337	7,589	306	269	88%	6,891	4.1	0.9	2.7	58.6	14.8	7.1	3.6	137	8	97.6%	180	10	96.7%	225		15.2	4.4	11.9					
Tuesday	03/15/11	59	15.0			8.0	3.2	373	8,399	326	290	89%	7,341	3.9	1.0	2.7	59.2	15.1	7.2	3.9	146	9	97.6%	203	13	96.0%	293									
Wednesday	03/16/11	60	15.6		33	8.2	3.3	330	7,431	309	277	90%	6,958	3.8	1.0	2.7	59.5	15.3	7.2	3.7	152	9	97.3%	203	12	96.1%	270		16.9	5.1	12.3	6.9	58	3	Y	03/16/11
Thursday	03/17/11	60	15.6			8.2	3.4		7,533	335	297	89%	7,544	3.8	1.0	2.7	59.2	15.1	7.1	3.6	145			188	12	96.4%	270					5.7	59	168	Y	03/17/11
Friday	03/18/11	60	15.6			8.2	3.2		13,113	383	301	79%	15,013	8.7	1.0	4.7	59.4	15.2	7.1	3.5	134			327	16	95.8%	627					7.5	58	5	Y	03/18/11
Saturday	03/19/11	60	15.6			8.3	3.0		6,975	296	262	89%	6,172	4.3	1.1	2.5	59.4	15.2	7.1	3.7	110			174	11	96.3%	229									
Sunday	03/20/11	58	14.4			7.8	2.7	279	7,911	248	215	87%	7,032	4.7	0.8	3.4	56.3	13.5	7.0	3.9	107	7	97.5%	199	10	96.0%	284									
Monday	03/21/11	59	15.0		31	8.2	3.7	329	7,683	295	257	87%	6,889	4.9	2.1	2.8	57.4	14.1	7.1	3.7	108	6	98.2%	140	9	96.9%	210		9.9	2.8	7.5	3.8	66	3	Y	03/21/11
Tuesday	03/22/11	59	15.0			8.2	3.7	295	7,135	295	263	89%	7,135	4.3	1.0	2.9	58.5	14.7	7.0	3.8	112	6	98.0%	145	10	96.6%	242					7.5	62	11	Y	03/22/11
Wednesday	03/23/11	59	15.0		33	8.1	3.6		7,812	322	287	89%	7,519	4.0	1.0	2.8	59.2	15.1	7.1	3.7	116			195	11	96.6%	257		10.8	3.8	13.5	5.9	60	138	Y	03/23/11
Thursday	03/24/11	59	15.0			8.2	3.8		8,370	293	260	89%	7,331	4.0	1.1	3.0	59.9	15.5	7.0	3.7	95			209	10	96.6%	250					7.1	58	90		
Friday	03/25/11	60	15.6			8.1	2.8		7,812	293	265	90%	6,842	3.7	1.3	2.8	60.1	15.6	6.9	3.7	79			195	14	95.2%	327									
Saturday	03/26/11	59	15.0			8.1	3.2		8,370	289	251	87%	7,231	6.5	1.0	3.0	59.7	15.4	6.8	3.5	65			209	16	94.5%	400									
Sunday	03/27/11	59	15.0			7.9	2.2		7,254	285	259	91%	6,180	4.0	0.9	2.6	59.0	15	6.8	3.5	71			181	12	95.8%	260									
Monday	03/28/11	60	15.6		32	8.3	3.0	371	8,354	314	285	91%	7,071	4.1	0.8	2.7	59.9	15.5	6.9	3.7	75	7	98.1%	158	13	95.9%	293		4.3	2.5	14.8	7.4	62	22		
Tuesday	03/29/11	60	15.6			8.2	3.1	355	7,994	327	298	91%	7,363	3.8	1.0	2.7	60.3	15.7	6.8	3.6	70	7	98.0%	158	14	95.7%	315					7.6	61	13		
Wednesday	03/30/11	60	15.6		32	8.1	3.2	336	7,566	348	322	93%	7,836	4.0	1.0	2.7	60.1	15.6	6.8	3.8	62	8	97.6%	180	14	96.0%	315		4.4	2.3	19.6	9.3	58	20		
Thursday	03/31/11	60	15.6			8.1	3.0		7,533	311	281	90%	7,003	3.9	1.0	2.7	60.8	16	6.8	3.7	60			188	18	94.2%	405									
Friday	04/01/11	60	15.6			8.2	2.4		8,283	319	281	88%	7,183	3.8	1.0	2.7	60.6	15.9	6.8	3.5	56			231	24	92.5%	540									
Saturday	04/02/11	60	15.6			7.9	1.6		7,669	363	330	91%	7,569	4.1	1.1	2.5	60.4	15.8	6.8	3.7	58			214	22	93.9%	459									
Sunday	04/03/11	58	14.4			7.7	2.3		7,363	396	362	91%	7,926	4.1	0.9	2.4	59.7	15.4	6.8	3.6	69			205	22	94.4%	440									
Monday	04/04/11	60	15.6		31	8.2	2.7	373	8,710	327	296	91%	7,636	3.9	0.9	2.8	60.3	15.7	6.9	3.5	90	11	97.1%	257	23	93.0%	537		9.0	0.9	6.2	13.7	58	400		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Tuesday	04/05/11	60	15.6			8.1	3.0	432	9,007	337	304	90%	7,026	3.7	1.0	2.5	60.3	15.7	7.1	3.6	114	11	97.5%	230	23	93.2%	480					12.6	56	130	Y	04/05/11
Wednesday	04/06/11	60	15.6	46	31	8.1	2.8	357	7,443	352	314	89%	7,339	3.9	1.0	2.5	60.1	15.6	7.0	3.6	103	9	97.5%	188	19	94.6%	396		10.2	1.0	4.9	13.1	58	29		
Thursday	04/07/11	60	15.6			8.1	2.6		8,283	322	290	90%	7,251	4.0	1.0	2.7	60.1	15.6	7.0	3.6	110			231	18	94.4%	405									
Friday	04/08/11	60	15.6			8.0	2.7		8,283	353	320	91%	7,949	4.0	1.2	2.7	59.9	15.5	7.0	3.4	117			231	15	95.8%	338									
Saturday	04/09/11	60	15.6			7.5	2.6		8,283	492	450	91%	11,079	4.0	1.0	2.7	60.1	15.6	7.0	3.5	118			231	15	97.0%	338									
Sunday	04/10/11	60	15.6			7.7	2.3		7,976	306	275	90%	6,635	4.1	0.9	2.6	59.7	15.4	6.9	3.2	110			222	13	95.8%	282									
Monday	04/11/11	60	15.6		31	8.2	2.9		8,590	327	300	92%	7,636	4.2	0.9	2.8	61.2	16.2	7.0	3.6	109			239	16	95.1%	374	94	11.4	0.9	4.2					
Tuesday	04/12/11	60	15.6			8.2	2.9	413	9,644	387	353	91%	9,037	4.0	1.0	2.8	60.3	15.7	7.0	3.5	121	10	97.6%	234	18	95.3%	420									
Wednesday	04/13/11	61	16.1		31	8.1	3.1	408	9,868	379	333	88%	9,166	4.1	1.1	2.9	60.4	15.8	7.1	3.7	127	8	98.0%	194	17	95.5%	411		13.3	0.8	5.5	12.4	57	70		
Thursday	04/14/11	61	16.1			8.3	3.0	376	8,780	388	355	91%	9,061	4.2	1.1	2.8	60.8	16	7.0	3.6	127	8	97.9%	187	20	94.8%	467					12.7	58	106		
Friday	04/15/11	60	15.6			8.3	3.1		8,283	341	315	92%	7,679	4.0	1.0	2.7	60.3	15.7	6.9	3.6	127			231	16	95.3%	360					12	58	34		
Saturday	04/16/11	59	15.0			7.7	3.0		7,976	315	285	90%	6,830	4.2	1.2	2.6	60.3	15.7	7.0	3.7	125			222	16	94.9%	347									
Sunday	04/17/11	58	14.4			7.7	3.0	314	6,809	456	419	92%	9,888	4.2	1.0	2.6	60.4	15.8	7.0	3.7	110	8	97.5%	174	15	96.7%	325									
Monday	04/18/11	61	16.1		30	8.2	2.2	349	8,150	333	297	89%	7,776	4.3	0.9	2.8	60.6	15.9	7.0	3.6	111	8	97.7%	187	16	95.2%	374		12.3	0.7	4.4					
Tuesday	04/19/11	60	15.6			8.2	3.1	374	8,734	315	276	88%	7,356	4.1	1.0	2.8	60.8	16	7.1	3.5	133	10	97.3%	234	17	94.6%	397					10.4	59	35		
Wednesday	04/20/11	60	15.6		29	8.1	3.1		8,896	301	271	90%	7,280	4.3	1.1	2.9	60.6	15.9	7.1	3.7	137			248	14	95.3%	339		18.0	1.3	3.7	10.9	58	44		
Thursday	04/21/11	61	16.1			8.2	2.6		8,590	316	287	91%	7,379	4.2	1.2	2.8	60.4	15.8	7.2	3.5	173			239	15	95.3%	350					11.7	57	51		
Friday	04/22/11	62	16.7			8.2	2.6		8,283	342	311	91%	7,701	4.1	1.1	2.7	60.4	15.8	7.3	3.5	191			231	15	95.6%	338									
Saturday	04/23/11	61	16.1			7.9	1.9		7,976	339	312	92%	7,351	4.2	1.0	2.6	61.3	16.3	7.3	3.6	189			222	12	96.5%	260									
Sunday	04/24/11	59	15.0			7.6	3.0		7,976	292	272	93%	6,332	4.2	0.9	2.6	61.2	16.2	7.3	3.7	190			222	10	96.6%	217									
Monday	04/25/11	61	16.1		30	8.0	2.1		9,203	326	293	90%	8,157	4.3	0.9	3.0	61.3	16.3	7.3	3.4	187			256	15	95.4%	375		27.1	1.4	2.3	8.8	57	4	Y	04/25/11
Tuesday	04/26/11	61	16.1			8.2	3.0	331	7,730	302	270	89%	7,052	4.3	1.1	2.8	61.3	16.3	7.3	3.4	199	11	96.7%	257	16	94.7%	374					11.3	56	34		
Wednesday	04/27/11	62	16.7		31	8.2	2.6	332	7,753	306	274	90%	7,146	4.1	1.1	2.8	61.5	16.4	7.3	3.5	203	13	96.1%	304	19	93.8%	444		28.6	1.2	2.2	12.3	55	49		
Thursday	04/28/11	62	16.7			8.2	2.7	355	8,290	387	346	89%	9,037	4.2	1.2	2.8	61.7	16.5	7.4	3.5	215	16	95.5%	374	20	94.8%	467									
Friday	04/29/11	62	16.7			8.3	2.7		8,590	309	277	90%	7,216	4.1	1.2	2.8	61.0	16.1	7.3	3.5	216			239	23	92.6%	537									
Saturday	04/30/11	62	16.7			8.1	2.5		7,669	306	276	90%	6,380	4.4	1.1	2.5	61.5	16.4	7.3	3.6	210			214	20	93.5%	417									
Sunday	5/1/2011	60	15.6			7.6	1.7		7,689	284	257	90%	6,158	4.2	1.0	2.6	61.3	16.3	7.3	3.6	202			217	20	93.0%	434									
Monday	5/2/2011	62	16.7		32.2	8.1	2.5	325	7,589	318	291	92%	7,426	4.1	0.9	2.8	62.1	16.7	7.4	3.4	211			234	23	92.8%	537		29.8	0.34	1.5					
Tuesday	5/3/2011	62	16.7			8.3	2.5	318	7,426	334	306	92%	7,800	4.0	1.0	2.8	62.2	16.8	7.4	3.3	231	17	94.7%	397	24	92.8%	560									
Wednesday	5/4/2011	62	16.7	42.6	30.8	8.2	2.5	369	8,617	318	286	90%	7,426	4.2	1.0	2.8	62.4	16.9	7.4	3.6	230	15	95.9%	351	22	93.1%	514		32.6	0.25	1.4	14.4	53	168	Y	5/4/11
Thursday	5/5/2011	62	16.7			8.0	1.9		7,985	346	308	89%	7,791	4.0	1.1	2.7	63.1	17.3	7.4	3.4	227			225	19	94.5%	428					15.1	54	48		
Friday	5/6/2011	63	17.2			8.1	1.4		8,281	365	337	92%	8,523	4.1	1.1	2.8	62.6	17.0	7.4	3.6	225			234	19	94.8%	444					11.9	56	46		
Saturday	5/7/2011	61	16.1			7.8	1.7	320	7,740	382	316	83%	9,239	6.5	1.1	2.9	62.4	16.9	7.4	3.7	220	11	96.6%	266	19	95.0%	460									
Sunday	5/8/2011	61	16.1			7.6	1.7	415	9,691	396	367	93%	9,247	4.3	1.0	2.8	62.2	16.8	7.3	3.8	201	13	96.9%	304	19	95.2%	444									
Monday	5/9/2011	62	16.7		29.0	8.2	2.8	408	9,528	456	419	92%	10,649	4.4	1.0	2.8	63.7	17.6	7.5	3.5	206	13	96.8%	304	21	95.4%	490		27.5	0.18	0.5	11.3	58	14	Y	5/9/11
Tuesday	5/10/2011	63	17.2			8.1	2.8	390	9,107	392	360	92%	9,154	4.1	1.1	2.8	63.7	17.6	7.4	3.4	218	14	96.4%	327	24	93.9%	560					15.9	54	25		
Wednesday	5/11/2011	63	17.2		28.8	8.0	2.1		8,281	371	334	90%	8,664	4.0	1.2	2.8	63.9	17.7	7.4	3.3	231			234	25	93.3%	584	100	33.2	0.15	2.4	17.6	51	28		
Thursday	5/12/2011	63	17.2			8.2	2.5		8,281	379	340	90%	8,850	4.2	1.2	2.8	63.5	17.5	7.4	3.4	234			234	22	94.2%	514									
Friday	5/13/2011	63	17.2			8.2	2.3		9,464	479	428	89%	12,784	4.2	1.2	3.2	63.7	17.6	7.4	3.3	225			267	22	95.4%	587									
Saturday	5/14/2011	64	17.8			7.8	2.4		11,238	353	309	88%	11,187	8.5	1.5	3.8	63.0	17.2	7.3	3.5	207			317	24	93.2%	761									
Sunday	5/15/2011	60	15.6			7.5	5.8		13,013	240	217	90%	8,807	9.8	1.5	4.4	62.6	17.0	7.3	3.6	155			367	22	90.8%	807									
Monday	5/16/2011	60	15.6		27.3	8.1	5.2		8,872	324	294	91%	8,106	4.2	1.1	3.0	62.4	16.9	7.1	3.6	105			250	14	95.7%	350		16.5	0.64	2.5					
Tuesday	5/17/2011	63	17.2			8.0	2.6	348	8,417	352	326	93%	8,513	4.1	1.2	2.9	63.1	17.3	7.3	3.7	161	10	97.1%	242	12	96.6%	290					10.8	60	29		
Wednesday	5/18/2011	63	17.2		28.2	8.1	2.6	355	8,290	357	315	88%	8,337	4.3	1.1	2.8	63.9	17.7	7.3	3.7	168	8	97.7%	187	12	96.6%	280		21.2	0.77	3.1	9.1	61	39		
Thursday	5/19/2011	64	17.8			8.3	2.6	324	7,566	359	323	90%	8,383	4.1	1.2	2.8	64.4	18.0	7.3	3.7	169	7	97.8%	164	10	97.2%	234					9.2	61	35		
Friday	5/20/2011	64	17.8			8.2	2.1		8,281	312	287	92%	7,286	4.0	1.0	2.8	64.6	18.1	7.3	3.3	177			234	11	96.5%	257									
Saturday	5/21/2011	64	17.8			8.0	1.5		7,689	333	299	90%	7,221	4.0	1.2	2.6	64.9	18.3	7.2	3.9	156			217	8	97.6%	173									
Sunday	5/22/2011	63	17.2			7.6	2.9		7,985	380	346	91%	8,557	4.2	1.0	2.7	64.4	18.0	7.1	4.7	143			225	7	98.2%	158									
Monday	5/23/2011	64	17.8		27.6	8.1	2.4	356	8,313	338	305	90%	7,893	4.1	1.0	2.8	64.4	18.0	7.1	4.0	107	4	98.9%	94	6	98.2%	140		7.33	1.36	7.9					
Tuesday	5/24/2011	64	17.8			8.2	2.4	344	8,033	374	339	91%	8,734	4.1	1.1	2.8	64.9	18.3	7.1	4.1	86	4	98.8%	94	6	98.4%	140					3.4	67	17		
Wednesday	5/25/2011	64	17.8		24.8	8.3	2.0	338	9,302	441	364	83%	12,137	8.3	1.1	3.3	64.6	18.1	6.9	3.3	77	4	98.8%	110	7	98.4%	193		4.65	1.1	10.8	3.5	66	19		
Thursday	5/26/2011	65	18.3			8.2	2.5		8,281	389	348	89%	9,084	4.0	1.2	2.8	63.5	17.5	6.9	3.8	77			234	6	98.5%	140					3.8	62	6	Y	5/26/11
Friday	5/27/2011	65	18.3			8.2	2.1		8,281	358	330	92%	8,360	4.0	1.0	2.8	64.2	17.9	6.8	3.7	65			234	6	98.3%	140									
Saturday	5/28/2011	66	18.9			7.9	1.5		7,689	359	326	91%	7,785	4.0	1.1	2.6	64.6	18.1	6.8	3.7	60			217	4	98.9%	87									
Sunday	5/29/2011	63	17.2			7.6	0.8		7,394	339	307	91%	7,068	4.0	1.0	2.5	66.0	18.9	6.7	3.2	63			209	6	98.2%	125									
Monday	5/30/2011	65	18.3			7.9	0.6		9,464	442	361	82%	11,796	8.2	1.0	3.2	65.7	18.7	6.8	3.0	64			267	6	98.6%	160									
Tuesday	5/31/2011	64	17.8			8.1	2.6		9,464	386	327	85%	10,302	7.2	1.2	3.2	64.8	18.2	6.9	3.5	67			267	4	99.0%	107									
Wednesday	6/1/2011	64	17.8		27.5	8.2	2.1	408	9,868	345	308	89%	8,344	4.9	1.1	2.9	65.5	18.6	6.7	3.5	66	4	99.0%	97	6	98.3%	145		10.1	0.58	8.3	3.8	69	17		
Thursday	6/2/2011	64	17.8			8.2	8.2		8,911	373	341	91%	9,332	4.1	1.1	3.0	67.1	19.5	6.8	4.2	85			114	6	98.4%	150					5.5	68	13	Y	6/2/11

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	6/3/2011	65	18.3			8.4	1.8	395	9,224	401	370	92%	9,364	4.1	1.2	2.8	66.9	19.4	6.9	3.9	72	4	99.0%	94	6	98.5%	140					2.3	67	9	Y	6/3/11
Saturday	6/4/2011	65	18.3		28.9	8.1	1.2		7,723	341	311	91%	7,394	4.2	1.2	2.6	67.3	19.6	6.9	3.5	75			99	5	98.5%	108		5.32	0.52	7.8					
Sunday	6/5/2011	63	17.2			7.7	1.5		8,020	343	314	92%	7,724	4.4	1.0	2.7	68.2	20.1	6.8	3.3	85			103	6	98.3%	135									
Monday	6/6/2011	67	19.4		27.0	8.1	1.8		8,911	337	308	91%	8,432	4.2	1.0	3.0	66.9	19.4	6.9	3.9	78			114	4	98.8%	100		6.92	0.62	9.0	3.1	69	136	Y	6/6/11
Tuesday	6/7/2011	67	19.4			8.2	1.8	344	9,181	345	306	89%	9,207	4.0	1.2	3.2	66.9	19.4	6.9	4.1	82	3	99.1%	80	7	98.0%	187					4	67	130		
Wednesday	6/8/2011	66	18.9		23.4	8.1	1.5	358	10,450	304	268	88%	8,874	6.4	1.3	3.5	65.5	18.6	6.9	3.9	73	4	98.9%	117	6	98.0%	175		5.7	0.55	11.4	3.4	70	142		
Thursday	6/9/2011	66	18.9			8.1	1.4	434	10,135	359	332	92%	8,383	4.3	1.3	2.8	66.0	18.9	6.8	3.4	63	4	99.1%	94	8	97.8%	187									
Friday	6/10/2011	67	19.4			8.2	2.0		7,723	343	316	92%	7,438	4.0	1.2	2.6	66.9	19.4	6.8	3.5	60			99	7	98.0%	152									
Saturday	6/11/2011	65	18.3			7.7	1.7		8,020	339	316	93%	7,634	4.1	1.1	2.7	65.5	18.6	6.8	3.8	66			103	5	98.5%	113									
Sunday	6/12/2011	65	18.3			7.6	0.4		7,723	333	307	92%	7,221	4.0	1.0	2.6	66.9	19.4	6.8	4.1	70			99	8	97.6%	173									
Monday	6/13/2011	68	20.0		26.3	8.1	1.9		8,614	333	305	92%	8,054	4.4	1.0	2.9	67.1	19.5	6.9	3.9	73			111	7	97.9%	169		5.15	0.52	13.7					
Tuesday	6/14/2011	66	18.9			8.6	1.3	416	10,061	503	467	93%	12,166	4.2	1.2	2.9	66.9	19.4	6.8	3.6	71	4	99.0%	97	10	98.0%	242					4.4	67	66		
Wednesday	6/15/2011	65	18.3	45.1	28.0	8.1	1.9	355	8,290	339	302	89%	7,916	4.0	1.2	2.8	66.7	19.3	6.8	3.6	70	5	98.6%	117	9	97.3%	210	100	5.92	0.59	12.4	3.9	67	22		
Thursday	6/16/2011	66	18.9			8.1	1.4	319	7,449	327	295	90%	7,636	4.0	1.1	2.8	66.4	19.1	6.9	3.5	72	5	98.4%	117	11	96.6%	257					3.4	65	66		
Friday	6/17/2011	66	18.9			8.1	1.5		8,317	393	354	90%	9,177	3.9	1.1	2.8	66.6	19.2	6.9	3.5	76			107	15	96.2%	350									
Saturday	6/18/2011	65	18.3			7.8	1.0		8,317	334	300	90%	7,800	4.2	1.0	2.8	66.6	19.2	6.9	3.7	73			107	10	97.0%	234									
Sunday	6/19/2011	65	18.3			7.7	0.4	324	7,566	349	354	101%	8,150	4.2	1.2	2.8	66.4	19.1	6.8	3.8	72	5	98.5%	117	8	97.7%	187									
Monday	6/20/2011	65	18.3		23.7	8.0	1.6	373	9,332	375	330	88%	9,383	4.1	1.2	3.0	67.3	19.6	6.9	3.6	74	4	98.9%	100	10	97.3%	250		10.1	0.6	6.1	5.3	70	35		
Tuesday	6/21/2011	65	18.3			8.1	1.8	338	8,457	357	317	89%	8,932	3.9	1.3	3.0	67.3	19.6	7.1	3.5	122	5	98.5%	125	8	97.8%	200					4.9		46		
Wednesday	6/22/2011	65	18.3		23.6	8.0	1.6		8,911	330	295	89%	8,257	4.0	1.2	3.0	67.1	19.5	7.1	3.5	124			114	8	97.6%	200		13.1	0.71	6.6	4.2		40		
Thursday	6/23/2011	66	18.9			8.0	1.7		8,911	378	341	90%	9,458	4.0	1.2	3.0	66.9	19.4	7.1	3.6	129			114	6	98.4%	150									
Friday	6/24/2011	65	18.3			8.1	1.7		8,614	362	332	92%	8,755	4.0	1.3	2.9	66.6	19.2	7.1	3.7	133			111	8	97.8%	193									
Saturday	6/25/2011	65	18.3			7.6	1.1		9,208	301	275	91%	7,782	4.2	1.2	3.1	65.8	18.8	7.1	3.4	136			118	7	97.7%	181									
Sunday	6/26/2011	66	18.9			7.5	0.5		8,317	375	319	85%	8,757	4.1	1.1	2.8	66.4	19.1	7.0	3.5	120			107	8	97.9%	187									
Monday	6/27/2011	66	18.9		23.7	8.0	1.5	305	8,140	337	298	88%	8,994	4.4	1.0	3.2	67.3	19.6	7.1	3.0	120	5	98.4%	134	10	97.0%	267		15.9	0.74	7.0					
Tuesday	6/28/2011	66	18.9			7.9	1.5	335	8,661	391	335	86%	10,109	4.0	1.4	3.1	67.5	19.7	7.1	3.6	142	6	98.2%	155	12	96.9%	310					5.7		192	Y	6/28/11
Wednesday	6/29/2011	66	18.9		22.8	8.0	1.8	282	7,526	310	273	88%	8,273	4.1	1.4	3.2	67.6	19.8	7.1	3.5	141	6	97.9%	160	11	96.5%	294		14.5	0.65	6.0	4.7		18		
Thursday	6/30/2011	66	18.9			8.1	1.6		9,505	355	315	89%	9,474	4.0	1.5	3.2	66.7	19.3	7.2	3.7	132			122	8	97.7%	214					4.8		332	Y	6/30/11
Friday	7/1/2011	66	18.9			8.1	1.8		8,185	315	282	90%	8,144	4.2	1.5	3.1	66.2	19.0	7.1	3.5	121			118	11	96.5%	284									
Saturday	7/2/2011	65	18.3			7.8	1.2		7,921	320	289	90%	8,006	4.2	1.4	3.0	66.6	19.2	7.0	3.6	125			115	8	97.5%	200									
Sunday	7/3/2011	66	18.9			7.4	1.1		7,921	322	294	91%	8,056	4.4	1.6	3.0	67.6	19.8	6.9	3.6	111			115	6	98.1%	150									
Monday	7/4/2011	65	18.3		27.7	7.4	1.2		7,921	404	367	91%	10,108	4.5	1.6	3.0	66.7	19.3	6.9	3.3	116			115	6	98.5%	150		8.96	0.58	5.9					
Tuesday	7/5/2011	66	18.9			8.0	1.0	341	9,101	349	312	89%	9,314	4.2	1.4	3.2	67.5	19.7	6.9	3.5	96	3	99.1%	80	4	98.9%	107	98				3		9	Y	7/5/11
Wednesday	7/6/2011	67	19.4		20.7	7.9	1.5	311	8,300	307	274	89%	8,193	4.4	1.5	3.2	68.2	20.1	7.0	3.5	102	4	98.7%	107	6	98.0%	160		7.49	0.56	5.7	2.6		35		
Thursday	7/7/2011	67	19.4			7.8	1.8	305	8,394	321	279	87%	8,835	4.2	1.6	3.3	68.5	20.3	7.0	3.5	99	3	99.0%	83	5	98.4%	138							15		
Friday	7/8/2011	67	19.4			8.1	1.3		8,185	306	285	93%	7,911	4.3	1.6	3.1	67.6	19.8	6.9	3.5	93			118	4	98.7%	103									
Saturday	7/9/2011	65	18.3			7.6	1.2		8,449	345	309	90%	9,207	4.3	1.5	3.2	66.6	19.2	7.0	3.7	92			122	4	98.8%	107									
Sunday	7/10/2011	67	19.4			7.5	0.9		8,185	302	270	89%	7,808	4.4	1.5	3.1	67.6	19.8	6.8	3.5	91			118	4	98.7%	103									
Monday	7/11/2011	67	19.4	36	22.5	7.9	1.6	314	8,380	361	322	89%	9,634	4.2	1.4	3.2	68.9	20.5	6.9	3.6	83	5	98.4%	134	4	98.9%	107		5.93	1.42	9.1					
Tuesday	7/12/2011	68	20.0			7.9	1.4	308	7,963	333	297	89%	8,609	4.2	1.4	3.1	68.4	20.2	6.9	3.6	82	7	97.7%	181	6	98.2%	155									
Wednesday	7/13/2011	68	20.0		23.2	7.9	1.5	297	7,926	316	285	90%	8,433	4.0	1.5	3.2	68.9	20.5	6.9	3.7	82	5	98.3%	134	5	98.4%	133		4.27	0.67	9.9	1.9		3	Y	7/13/11
Thursday	7/14/2011	67	19.4			7.9	1.4		8,185	347	315	91%	8,971	4.3	1.5	3.1	68.4	20.2	6.8	3.8	75			118	3	99.1%	78					1.8		43		
Friday	7/15/2011	68	20.0			7.9	1.4		8,185	340	314	92%	8,790	4.0	1.4	3.1	68.4	20.2	6.8	3.6	73			118	2	99.4%	52					2.2		5	Y	7/15/11
Saturday	7/16/2011	67	19.4			7.6	1.0		8,185	335	290	87%	8,661	5.5	1.5	3.1	68.2	20.1	6.8	3.7	68			118	5	98.5%	129									
Sunday	7/17/2011	68	20.0			7.6	0.5	308	7,706	333	297	89%	8,332	4.1	1.5	3.0	68.7	20.4	7.0	3.7	75	5	98.4%	125	6	98.2%	150									
Monday	7/18/2011	68	20.0		23.7	7.9	1.2	306	7,911	356	311	87%	9,204	4.0	1.3	3.1	69.3	20.7	7.0	3.5	77	5	98.4%	129	8	97.8%	207		2.83	0.51	10.1					
Tuesday	7/19/2011	68	20.0			7.8	1.4	338	8,739	498	461	93%	12,875	5.2	1.4	3.1	68.9	20.5	6.9	3.5	74	5	98.5%	129	3	99.4%	78									
Wednesday	7/20/2011	67	19.4		23.7	7.8	2.0		8,449	350	301	86%	9,341	4.1	1.3	3.2	68.9	20.5	6.9	3.7	74			122	4	98.9%	107		3.4	0.52	6.5	2.2		164	Y	7/20/11
Thursday	7/21/2011	67	19.4			7.7	1.6		8,185	336	299	89%	8,687	4.0	1.3	3.1	68.7	20.4	6.9	3.7	74			118	4	98.8%	103					1.6		200	Y	7/21/11
Friday	7/22/2011	68	20.0			8.0	1.5		7,921	317	288	91%	7,931	4.2	1.4	3.0	68.4	20.2	6.9	3.7	79			115	4	98.7%	100					1.7		108		
Saturday	7/23/2011	67	19.4			7.5	1.3		7,921	319	288	90%	7,981	4.1	1.4	3.0	67.6	19.8	6.8	3.6	72			115	6	98.1%	150									
Sunday	7/24/2011	68	20.0			7.5	0.6		7,657	332	296	89%	8,030	4.2	1.4	2.9	68.9	20.5	6.8	3.9	77			111	5	98.5%	121									
Monday	7/25/2011	68	20.0		21.8	7.7	1.8		9,241	362	300	83%	10,567	10.0	1.3	3.5	69.3	20.7	6.9	3.4	80			134	6	98.3%	175		5.16	0.65	5.4					
Tuesday	7/26/2011	69	20.6			7.9	1.8	331	8,282	352	321	91%	8,807	4.0	1.3	3.0	69.3	20.7	6.9	3.6	75	4	98.8%	100	4	98.9%	100					1.6	67	11	Y	7/26/11
Wednesday	7/27/2011	69	20.6		24.1	8.0	1.6	329	8,506	339	301	89%	8,765	4.0	1.3	3.1	70.0	21.1	6.9	3.4	77	4	98.8%	104	4	98.8%	103		3.56	0.68	11.0	1.4	69	11	Y	7/27/11
Thursday	7/28/2011	69	20.6			8.0	1.5	311	8,041	291	264	91%	7,524	4.0	1.5	3.1	69.8	21.0	6.9	3.4	80	5	98.4%	129	4	98.6%	103					3.5	70	15		
Friday	7/29/2011	68	20.0			7.9	0.5		8,449	313	281	90%	8,353	4.4	1.5	3.2	69.4	20.8	6.9	3.5	76			122	4	98.7%	107									
Saturday	7/30/2011	69	20.6			7.8	1.1		7,657	328	299	91%	7,933	4.3	1.5	2.9	69.8	21.0	6.9	3.8	75			111	5	98.5%	121									
Sunday	7/31/2011	68	20.0			7.6	0.6		8,185	299	263	88%	7,730	4.2	1.4	3.1	69.3	20.7	6.9	3.6	77			118	6	98.0%	155									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Monday	8/1/2011	69	20.6		23.7	7.9	1.6	273	7,286	329	284	86%	8,780	4.2	1.4	3.2	69.8	21.0	6.9	3.5	81	5	98.2%	134	7	97.9%	187		6.02	0.59	4.7					
Tuesday	8/2/2011	69	20.6			7.9	1.6	288	7,686	324	286	88%	8,647	4.1	1.5	3.2	69.8	21.0	7.1	3.5	95	5	98.3%	134	5	98.5%	133					2.9	68	33		
Wednesday	8/3/2011	69	20.6	36	22.2	7.9	1.4	301	7,782	315	274	87%	8,144	4.0	1.4	3.1	70.0	21.1	7.0	3.5	98	4	98.7%	104	7	97.8%	181		7.38	0.59	5.1	3.8	68	23		
Thursday	8/4/2011	69	20.6			7.9	1.6		7,736	310	278	90%	8,015	4.1	1.6	3.1	70.5	21.4	7.0	3.5	97			171	8	97.4%	207	96				3.7	69	21		
Friday	8/5/2011	69	20.6			7.9	1.5		7,736	298	267	90%	7,704	4.2	1.6	3.1	70.5	21.4	7.0	3.5	101			171	8	97.3%	207									
Saturday	8/6/2011	69	20.6			7.6	1.0		7,486	319	288	90%	7,981	4.2	1.6	3.0	69.8	21.0	7.1	3.5	110			165	9	97.2%	225									
Sunday	8/7/2011	70	21.1			7.7	0.3		7,486	305	277	91%	7,631	4.3	1.4	3.0	70.5	21.4	7.0	3.5	113			165	11	96.4%	275									
Monday	8/8/2011	70	21.1		23.5	8.0	1.2		7,486	320	287	90%	8,006	4.2	1.2	3.0	70.9	21.6	7.1	3.4	123			165	10	96.9%	250		15.3	0.35	3.2					
Tuesday	8/9/2011	70	21.1			8.0	1.2	327	8,182	334	304	91%	8,357	4.0	1.2	3.0	70.7	21.5	7.2	3.4	152	7	97.9%	175	12	96.4%	300					5.4	66	400		
Wednesday	8/10/2011	71	21.7		25.7	8.0	0.5	337	8,432	306	276	90%	7,656	4.2	1.3	3.0	70.5	21.4	7.2	3.5	166	8	97.6%	200	12	96.1%	300		22.3	0.32	1.6	9.1	68	28		
Thursday	8/11/2011	70	21.1			8.0	1.1	250	6,255	321	290	90%	8,031	4.0	1.2	3.0	70.9	21.6	7.2	3.4	172	9	96.4%	225	14	95.6%	350					6.3	65	20		
Friday	8/12/2011	69	20.6			7.9	0.4		7,736	297	272	92%	7,679	4.2	1.1	3.1	71.1	21.7	7.3	3.4	193			171	15	94.9%	388									
Saturday	8/13/2011	71	21.7			7.9	0.4		6,737	320	292	91%	7,206	4.0	1.3	2.7	71.4	21.9	7.3	3.5	193			149	13	95.9%	293									
Sunday	8/14/2011	70	21.1			7.6	0.4		6,987	342	308	90%	7,986	4.2	1.2	2.8	70.9	21.6	7.3	3.5	182			154	15	95.6%	350									
Monday	8/15/2011	70	21.1		25.4	7.8	1.0	275	7,110	314	277	88%	8,118	4.3	1.1	3.1	71.2	21.8	7.3	3.4	183	8	97.1%	207	17	94.6%	440		24.7	0.56	1.9					
Tuesday	8/16/2011	71	21.7			7.9	1.1	289	7,472	311	280	90%	8,041	4.4	1.2	3.1	71.1	21.7	7.3	3.4	189	7	97.6%	181	10	96.8%	259									
Wednesday	8/17/2011	71	21.7		25.1	7.9	1.1	325	8,132	349	319	91%	8,732	4.2	1.1	3.0	71.2	21.8	7.3	3.4	183	8	97.5%	200	15	95.7%	375		21.3	0.92	3.8	6.3	66	50		
Thursday	8/18/2011	72	22.2			7.9	0.8		7,236	323	292	90%	7,812	4.3	1.1	2.9	71.2	21.8	7.2	2.8	149			160	17	94.7%	411					6	64	148	Y	8/18/11
Friday	8/19/2011	73	22.8			7.9	0.8		7,236	291	263	90%	7,038	4.1	1.2	2.9	71.2	21.8	7.2	2.8	129			160	18	93.8%	435					8.6	63	46		
Saturday	8/20/2011	71	21.7			7.5	0.4		6,987	322	296	92%	7,519	4.2	1.3	2.8	71.8	22.1	7.1	3.3	110			154	18	94.4%	420									
Sunday	8/21/2011	71	21.7			7.4	0.3		6,488	296	271	92%	6,418	4.0	1.2	2.6	72.1	22.3	7.0	3.2	98			143	16	94.6%	347									
Monday	8/22/2011	72	22.2		26.1	8.0	0.7		7,486	302	271	90%	7,556	4.2	1.0	3.0	73.4	23.0	7.1	3.3	89			165	15	95.0%	375		7.43	1.27	5.7					
Tuesday	8/23/2011	72	22.2			8.2	0.5	288	6,725	401	373	93%	9,364	4.1	1.1	2.8	72.9	22.7	7.1	3.3	102	7	97.6%	164	16	96.0%	374					3.6	65	45		
Wednesday	8/24/2011	73	22.8		26.7	7.9	0.7	267	6,458	336	310	92%	8,126	4.0	1.1	2.9	73.2	22.9	7.1	3.3	92	7	97.4%	170	12	96.4%	290		4.82	1.54	7.9	6.5	66	100		
Thursday	8/25/2011	73	22.8			7.8	0.8	291	6,795	329	302	92%	7,683	4.0	1.2	2.8	73.6	23.1	7.2	3.4	90	7	97.6%	164	12	96.4%	280					3	67	15		
Friday	8/26/2011	73	22.8			8.0	0.6		6,987	337	304	90%	7,870	3.9	1.1	2.8	74.1	23.4	7.0	3.4	90			154	18	94.7%	420									
Saturday	8/27/2011	73	22.8			7.7	0.3		6,238	347	315	91%	7,235	4.0	1.1	2.5	73.9	23.3	7.0	3.5	84			138	11	96.8%	229									
Sunday	8/28/2011	73	22.8			7.5	0.4	365	7,610	365	333	91%	7,610	4.0	1.0	2.5	73.4	23.0	7.0	3.6	85	6	98.4%	125	12	96.7%	250									
Monday	8/29/2011	73	22.8		25.3	8.0	0.7	314	7,594	315	286	91%	7,619	4.2	1.1	2.9	74.3	23.5	7.0	3.4	88	6	98.1%	145	9	97.1%	218		5.43	1.83	6.0	4.6	67	9	Y	8/29/11
Tuesday	8/30/2011	72	22.2			8.0	0.6	298	7,456	637	332	52%	15,938	4.2	1.2	3.0	73.2	22.9	7.0	3.4	98	5	98.3%	125	8	98.7%	200					4.5	67	544	Y	8/30/11
Wednesday	8/31/2011	72	22.2		26.3	8.1	1.3		6,987	469	369	79%	10,952	4.1	1.1	2.8	73.2	22.9	7.0	3.6	99			154	8	98.3%	187		4.57	1.57	6.3	2.7	69	11	Y	8/31/11
Thursday	9/1/2011	73	22.8			8.1	1.0		7,490	395	323	82%	9,553	4.1	1.1	2.9	72.7	22.6	7.0	3.4	94			93	8	98.0%	193									
Friday	9/2/2011	72	22.2			8.2	0.9		7,231	369	330	89%	8,617	4.2	1.1	2.8	72.7	22.6	7.0	3.7	87			90	8	97.8%	187									
Saturday	9/3/2011	73	22.8			7.9	0.9		6,457	331	287	87%	6,901	4.1	1.2	2.5	72.5	22.5	7.0	3.5	80			80	6	98.2%	125									
Sunday	9/4/2011	72	22.2			7.6	0.7		6,457	580	545	94%	12,093	4.1	1.1	2.5	72.3	22.4	6.9	3.4	82			80	6	99.0%	125									
Monday	9/5/2011	72	22.2		26.0	7.7	0.5		6,973	344	290	84%	7,746	4.4	1.0	2.7	72.7	22.6	6.9	3.6	83			86	6	98.3%	135		1.54	0.7	5.5					
Tuesday	9/6/2011	73	22.8			8.1	0.9	343	8,296	339	296	87%	8,199	4.0	1.0	2.9	73.6	23.1	7.0	3.5	85	3	99.1%	73	8	97.6%	193	95.6								
Wednesday	9/7/2011	72	22.2	43.1	25.5	8.1	1.0	310	7,498	347	289	83%	8,393	4.1	1.1	2.9	73.6	23.1	7.1	3.5	85	3	99.0%	73	6	98.3%	145		2.67	0.92	6.6	1.7	70	9	Y	9/7/11
Thursday	9/8/2011	72	22.2			8.1	1.3	331	8,006	354	314	89%	8,562	4.1	1.2	2.9	73.6	23.1	7.0	3.3	82	3	99.1%	73	8	97.7%	193					1.8	70	9	Y	9/8/11
Friday	9/9/2011	73	22.8			8.1	1.0		7,490	315	283	90%	7,619	4.1	1.2	2.9	73.8	23.2	7.0	3.3	74			93	9	97.1%	218					2	68	11	Y	9/9/11
Saturday	9/10/2011	73	22.8			8.0	0.8		6,457	323	289	89%	6,735	4.0	1.3	2.5	73.6	23.1	7.0	3.4	75			80	7	97.8%	146									
Sunday	9/11/2011	71	21.7			7.4	1.6		6,973	303	271	89%	6,823	4.2	1.2	2.7	73.6	23.1	6.9	3.3	76			86	8	97.4%	180									
Monday	9/12/2011	73	22.8		25.7	7.9	0.7	294	7,111	398	311	78%	9,626	4.3	1.1	2.9	74.3	23.5	7.1	3.3	89	4	98.6%	97	5	98.7%	121		3.58	0.76	5.3					
Tuesday	9/13/2011	73	22.8			8.1	1.0	324	7,836	603	542	90%	14,584	4.0	1.1	2.9	74.1	23.4	7.1	3.6	88	4	98.8%	97	7	98.8%	169					2.5	68	17		
Wednesday	9/14/2011	73	22.8		25.6	8.1	1.1	307	7,169	377	325	86%	8,804	4.2	1.2	2.8	73.8	23.2	7.0	3.6	89	3	99.0%	70	6	98.4%	140		3.9	0.87	8.0	2	67	8	Y	9/14/11
Thursday	9/15/2011	73	22.8			8.0	0.8		7,748	412	362	88%	10,308	5.8	1.3	3.0	72.5	22.5	7.0	3.4	85			96	5	98.8%	125					1.8	6.8	15		
Friday	9/16/2011	73	22.8			8.1	0.8		7,748	339	308	91%	8,482	4.1	1.2	3.0	72.5	22.5	7.1	3.7	89			96	5	98.5%	125									
Saturday	9/17/2011	73	22.8			8.1	0.4		6,715	338	306	91%	7,329	4.0	1.3	2.6	71.8	22.1	7.0	3.5	85			83	7	97.9%	152									
Sunday	9/18/2011	71	21.7			7.6	0.4		7,231	325	290	89%	7,589	4.2	1.1	2.8	71.6	22.0	6.9	3.3	82			90	6	98.2%	140									
Monday	9/19/2011	73	22.8		23.8	8.1	0.5	307	7,681	346	311	90%	8,657	4.4	1.1	3.0	73.0	22.8	6.9	3.4	92	3	99.0%	75	8	97.7%	200		4.08	0.88	6.4					
Tuesday	9/20/2011	72	22.2			8.1	1.0	316	7,643	309	273	88%	7,473	4.3	1.1	2.9	73.0	22.8	7.0	3.6	86	4	98.7%	97	6	98.1%	145									
Wednesday	9/21/2011	72	22.2		28.9	8.1	0.9	316	7,906	353	263	75%	8,832	4.3	1.3	3.0	72.9	22.7	7.1	3.6	81	4	98.7%	100	8	97.7%	200		3.87	0.94	8.0	3.5	68	196	Y	9/21/11
Thursday	9/22/2011	72	22.2			8.0	1.0		7,490	303	265	87%	7,328	4.0	1.3	2.9	72.7	22.6	7.0	3.5	82			93	16	94.7%	387					3.2	68	10		
Friday	9/23/2011	72	22.2			8.1	0.9		7,748	269	239	89%	6,730	4.1	1.2	3.0	73.2	22.9	6.9	3.5	78			96	12	95.5%	300					2.9	67	110		
Saturday	9/24/2011	73	22.8			7.9	0.2		6,973	267	244	91%	6,012	4.3	1.3	2.7	73.9	23.3	7.0	3.4	77			86	6	97.8%	135									
Sunday	9/25/2011	72	22.2			7.6	0.2		7,231	255	229	90%	5,955	4.2	1.1	2.8	73.6	23.1	6.9	3.5	80			90	12	95.3%	280									
Monday	9/26/2011	72	22.2		30.7	8.0	0.4		7,490	292	256	88%	7,062	4.3	1.0	2.9	72.9	22.7	7.0	3.4	92			93	12	95.9%	290		8.25	0.96	6.2	5.8	66	188	Y	9/26/11
Tuesday	9/27/2011	72	22.2			8.0	0.8	302	7,556	305	272	89%	7,631	4.6	1.0	3.0	72.7	22.6	7.1	3.3	107	5	98.3%	125	14	95.4%	350									
Wednesday	9/28/2011	72	22.2		30.0	8.2	0.9	277	6,700	310	272	88%	7,498	4.3	1.2	2.9	72.1	22.3	7.0	3.6	96	5	98.2%	121	12	96.1%	290		10.2	1.01	7.3	5.9	63	114		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Thursday	9/29/2011	72	22.2			8.0	1.1	289	7,231	290	257	89%	7,256	4.3	1.3	3.0	72.1	22.3	7.0	3.5	106	5	98.3%	125	12	95.9%	300							19		
Friday	9/30/2011	72	22.2			8.1	0.9		7,231	248	220	89%	5,791	4.2	1.3	2.8	72.0	22.2	7.0	3.4	96			90	11	95.6%	257									
Saturday	10/1/2011	72	22.2			7.6	0.5		7,529	159	149	94%	3,580	4.1	1.2	2.7	72.0	22.2	7.0	3.5	84			101	10	93.7%	225									
Sunday	10/2/2011	70	21.1			7.6	0.6		7,807	296	269	91%	6,912	4.3	1.1	2.8	71.4	21.9	7.0	3.5	77			105	10	96.6%	234									
Monday	10/3/2011	72	22.2		29.2	8.0	1.0		8,365	311	272	87%	7,781	4.2	1.0	3.0	72.5	22.5	7.0	3.4	86			113	11	96.5%	275		5.41	1	5.5					
Tuesday	10/4/2011	71	21.7			8.0	1.2	269	7,403	315	271	86%	8,669	4.2	1.4	3.3	72.1	22.3	7.0	3.4	88	4	98.5%	110	10	96.8%	275									
Wednesday	10/5/2011	68	20.0		22.3	7.8	2.8	258	8,177	417	373	89%	13,216	8.7	1.4	3.8	70.3	21.3	6.9	3.3	83	5	98.1%	159	9	97.8%	285		6.19	0.81	5.5	6.6	60	88		
Thursday	10/6/2011	71	21.7			8.1	1.0	257	6,216	310	270	87%	7,498	4.8	1.5	2.9	69.4	20.8	6.9	3.7	77	3	98.8%	73	8	97.4%	193					3.8	64	12	Y	10/6/11
Friday	10/7/2011	71	21.7			8.2	1.1		7,529	329	302	92%	7,408	4.0	1.2	2.7	70.3	21.3	6.9	3.4	84			101	9	97.3%	203					4.2	63	18		
Saturday	10/8/2011	70	21.1			7.8	1.3		7,529	535	498	93%	12,047	4.3	1.1	2.7	70.2	21.2	6.9	3.6	85			101	11	97.9%	248									
Sunday	10/9/2011	71	21.7			7.5	0.5		7,250	302	273	90%	6,549	4.2	1.0	2.6	71.1	21.7	6.9	3.6	84			98	12	96.0%	260	100.2								
Monday	10/10/2011	72	22.2		31.0	7.8	0.6		7,807	331	296	89%	7,730	4.0	0.9	2.8	72.3	22.4	7.0	2.6	85			105	12	96.4%	280		4.91	1.02	8.0					
Tuesday	10/11/2011	71	21.7			8.2	1.2	283	6,845	433	326	75%	10,473	4.2	1.1	2.9	72.0	22.2	7.0	3.4	86	4	98.6%	97	9	97.9%	218					3.5	63	25		
Wednesday	10/12/2011	71	21.7	43.7	32.3	8.2	1.1	395	9,224	476	356	75%	11,116	4.2	1.1	2.8	70.9	21.6	7.0	3.5	90	4	99.0%	94	10	97.9%	234		5.62	1.14	7.2	4	63	21		
Thursday	10/13/2011	71	21.7			8.2	1.2	310	7,239	393	352	90%	9,177	4.0	1.1	2.8	70.9	21.6	6.9	3.6	82	4	98.7%	94	9	97.7%	210					2.5	64	238	Y	10/13/11
Friday	10/14/2011	71	21.7			8.1	0.7		7,807	345	309	90%	8,056	4.0	1.1	2.8	70.5	21.4	6.9	3.6	77			105	11	96.8%	257									
Saturday	10/15/2011	71	21.7			8.0	0.7		7,250	343	309	90%	7,438	4.2	1.1	2.6	70.3	21.3	7.0	3.5	68			98	8	97.7%	173									
Sunday	10/16/2011	70	21.1			7.6	0.4		7,529	378	342	90%	8,512	4.3	1.0	2.7	70.2	21.2	6.9	3.8	74			101	9	97.6%	203									
Monday	10/17/2011	71	21.7		26.5	8.1	0.5	377	9,118	352	313	89%	8,513	4.0	0.9	2.9	70.7	21.5	6.9	3.8	83	4	98.9%	97	9	97.4%	218		4.86	0.42	10.8					
Tuesday	10/18/2011	71	21.7			8.2	1.2	393	9,177	411	351	85%	9,598	4.1	1.1	2.8	70.2	21.2	7.0	3.8	78	4	99.0%	94	11	97.3%	257									
Wednesday	10/19/2011	70	21.1		27.7	8.1	1.0	363	8,477	372	325	87%	8,687	4.0	1.1	2.8	70.5	21.4	6.9	3.6	73	3	99.2%	70	8	97.8%	187		0.75	0.82	8.0	6.2	64	9	Y	10/19/11
Thursday	10/20/2011	71	21.7			7.7	1.3		7,807	436	342	78%	10,181	4.4	1.1	2.8	70.5	21.4	6.9	3.6	72			105	10	97.7%	234					3.1	64	26		
Friday	10/21/2011	71	21.7			8.2	1.2		7,807	387	350	90%	9,037	3.9	1.0	2.8	70.3	21.3	6.9	3.5	78			105	12	96.9%	280					3.7	62	11	Y	10/21/11
Saturday	10/22/2011	71	21.7			7.9	0.7		7,250	407	367	90%	8,825	4.3	1.2	2.6	70.5	21.4	6.9	3.6	70			98	13	96.8%	282									
Sunday	10/23/2011	69	20.6			7.6	0.3	339	7,351	352	320	91%	7,633	4.1	1.0	2.6	69.8	21.0	6.8	3.6	61	6	98.2%	130	12	96.6%	260									
Monday	10/24/2011	70	21.1		25.8	8.1	1.3	291	7,766	301	265	88%	8,033	4.8	0.9	3.2	70.0	21.1	7.0	3.5	73	7	97.6%	187	17	94.4%	454		6.66	1.44	8.1	5.2	62	48		
Tuesday	10/25/2011	69	20.6			8.2	1.5	477	11,139	482	416	86%	11,256	4.1	1.1	2.8	69.4	20.8	6.9	3.5	77	6	98.7%	140	14	97.1%	327					9.8	62	60		
Wednesday	10/26/2011	70	21.1		30.0	8.1	1.4		6,413	387	340	88%	7,423	4.0	1.1	2.3	69.1	20.6	6.8	3.4	56			86	10	97.4%	192		8.35	1.37	10.3	5.7	63	230	Y	10/26/11
Thursday	10/27/2011	70	21.1			8.1	1.0		7,807	369	329	89%	8,617	4.1	1.1	2.8	68.4	20.2	7.0	3.6	92			105	9	97.6%	210									
Friday	10/28/2011	69	20.6			8.1	1.1		7,529	355	336	95%	7,994	3.8	1.0	2.7	68.2	20.1	6.9	3.4	74			101	9	97.5%	203									
Saturday	10/29/2011	69	20.6			7.8	0.3		7,250	403	361	90%	8,739	4.2	1.1	2.6	68.2	20.1	6.9	3.5	72			98	7	98.3%	152									
Sunday	10/30/2011	68	20.0			7.7	1.1		7,250	352	327	93%	7,633	4.1	0.9	2.6	67.8	19.9	6.8	3.5	77			98	8	97.7%	173									
Monday	10/31/2011	69	20.6			8.1	1.1		7,250	405	348	86%	8,782	4.0	0.6	2.6	68.9	20.5	7.0	3.7	81			98	12	97.0%	260									
Tuesday	11/01/11	69	20.6		29	8.2	1	365	8,523	399	340	85%	9,317	3.8	1.0	2.8	68.0	20	7.0	3.5	80	3	99.2%	70	8	98.0%	187		5.7	1.2	9.1	3.1	64	35		
Wednesday	11/02/11	69	20.6			7.9	1	419	9,784	404	340	84%	9,434	3.9	1.1	2.8	67.8	19.9	7.0	3.8	83	4	99.0%	94	7	98.3%	163	98				7	63	36		
Thursday	11/03/11	68	20.0		29	8.1	1	355	8,290	367	312	85%	8,570	3.9	1.2	2.8	67.8	19.9	7.0	3.8	91	4	98.9%	94	7	98.1%	163		6.0	1.1	6.3	5.1	63	400	Y	11/03/11
Friday	11/04/11	68	20.0			8.1	2		8,187	330	291	88%	7,706	4.0	1.1	2.8	67.1	19.5	7.0	3.7	89			75	10	97.0%	234									
Saturday	11/05/11	69	20.6			8.0	1		7,018	341	306	90%	6,825	4.0	0.9	2.4	66.6	19.2	6.9	3.6	79			64	10	97.1%	200									
Sunday	11/06/11	68	20.0			7.6	1		7,602	436	391	90%	9,454	4.2	0.8	2.6	66.2	19	7.0	3.6	83			69	9	97.9%	195									
Monday	11/07/11	67	19.4	43	29	8.1	2	366	8,547	335	292	87%	7,823	4.1	0.8	2.8	66.6	19.2	6.9	3.5	87	3	99.2%	70	9	97.3%	210		6.4	1.0	5.0	3.6	67	14		
Tuesday	11/08/11	67	19.4			8.3	2	337	8,151	347	305	88%	8,393	4.2	1.1	2.9	66.4	19.1	7.1	3.7	104	4	98.8%	97	8	97.7%	193					4.3	65	154	Y	11/08/11
Wednesday	11/09/11	68	20.0		29	8.2	2	387	8,714	352	316	90%	7,926	4.1	1.1	2.7	66.7	19.3	7.0	3.6	104	4	99.0%	90	6	98.3%	135		5.7	1.5	8.3	3.5	65	23		
Thursday	11/10/11	68	20.0			8.2	1		7,602	362	330	91%	7,850	4.0	1.1	2.6	66.4	19.1	6.9	3.7	71			69	8	97.8%	173									
Friday	11/11/11	67	19.4			8.0	2		8,187	318	279	88%	7,426	4.0	1.0	2.8	66.0	18.9	6.8	3.7	66			75	8	97.5%	187									
Saturday	11/12/11	67	19.4			8.0	2		7,310	320	287	90%	6,672	4.1	1.2	2.5	66.2	19	6.9	3.6	73			67	4	98.8%	83									
Sunday	11/13/11	68	20.0			7.9	2		7,602	343	313	91%	7,438	4.1	1.0	2.6	66.7	19.3	6.8	3.7	98			69	6	98.3%	130									
Monday	11/14/11	67	19.4		31	8.1	2	325	7,318	448	410	92%	10,088	4.2	0.9	2.7	65.5	18.6	6.9	3.5	79	2	99.4%	45	5	98.9%	113		3.3	1.0	6.2					
Tuesday	11/15/11	67	19.4			8.2	2	325	7,318	324	293	90%	7,296	3.8	1.1	2.7	65.5	18.6	6.8	3.4	65	3	99.1%	68	6	98.1%	135					2.3	67	26		
Wednesday	11/16/11	67	19.4		31	8.1	2	339	7,916	363	312	86%	8,477	3.9	1.1	2.8	65.1	18.4	6.8	3.7	56	3	99.1%	70	9	97.5%	210		3.3	1.0	10.6	2.7	67	3	Y	11/16/11
Thursday	11/17/11	64	17.8			8.2	3		9,064	341	299	88%	8,816	5.2	1.3	3.1	64.9	18.3	6.8	3.7	54			83	6	98.2%	155					3.9	65	48		
Friday	11/18/11	66	18.9			8.2	2		8,187	469	421	90%	10,952	4.1	1.2	2.8	64.2	17.9	6.8	3.7	53			75	6	98.7%	140									
Saturday	11/19/11	66	18.9			7.8	2		7,602	393	358	91%	8,522	4.1	1.1	2.6	64.4	18	6.7	3.7	51			69	11	97.2%	239									
Sunday	11/20/11	64	17.8		36	7.7	2	344	7,459	354	323	91%	7,676	4.2	0.9	2.6	63.5	17.5	6.7	3.6	61	2	99.4%	43	5	98.6%	108		1.1	0.5	6.8					
Monday	11/21/11	65	18.3			8.0	2	325	7,589	349	317	91%	8,150	3.9	0.9	2.8	64.4	18	6.9	3.7	78	2	99.4%	47	6	98.3%	140					2.3	69	9	Y	11/21/11
Tuesday	11/22/11	65	18.3		29	8.1	2	286	7,156	341	302	89%	8,532	3.9	1.3	3.0	64.4	18	6.8	3.7	71	4	98.6%	100	6	98.2%	150		4.8	0.7	7.6	2.2	67	136	Y	11/22/11
Wednesday	11/23/11	65	18.3			8.0	2		8,187	312	271	87%	7,286	4.1	1.3	2.8	64.4	18	6.8	3.8	63			75	6	98.1%	140					2	67	102		
Thursday	11/24/11	65	18.3			8.0	2		7,602	420	388	92%	9,107	4.5	0.9	2.6	64.4	18	6.8	3.7	64			69	7	98.3%	152									
Friday	11/25/11	65	18.3			8.1	1		7,310	365	339	93%	7,610	3.8	1.1	2.5	64.2	17.9	6.9	3.8	74			67	8	97.8%	167									
Saturday	11/26/11	65	18.3			8.2	2		6,725	339	308	91%	6,503	4.2	0.9	2.3	64.4	18	6.7	3.7	63			61	9	97.3%	173									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	11/27/11	63	17.2			7.6	2		7,310	346	313	90%	7,214	4.1	0.8	2.5	63.5	17.5	6.8	3.9	61			67	8	97.7%	167									
Monday	11/28/11	65	18.3		32	8.2	2	317	7,403	346	314	91%	8,080	4.0	0.9	2.8	64.4	18	6.9	3.6	70	3	99.1%	70	7	98.0%	163		3.3	0.6	9.1	2.9	68	176	Y	11/28/11
Tuesday	11/29/11	65	18.3			8.1	2	361	8,129	334	299	90%	7,521	3.8	1.0	2.7	64.2	17.9	6.9	3.7	65	3	99.2%	68	10	97.0%	225					5	65	208	Y	11/29/11
Wednesday	11/30/11	65	18.3		32	8.2	3	408	9,187	361	322	89%	8,129	3.9	1.1	2.7	64.2	17.9	6.8	3.8	58	4	99.0%	90	12	96.7%	270		3.8	0.7	9.8	6.2	65	35		
Thursday	12/1/2011	65	18.3			8.2	2.3		8,280	346	305	88%	8,080	3.9	1.1	2.8	63.9	17.7	6.7	3.8	53			115	15	95.7%	350									
Friday	12/2/2011	65	18.3			8.2	2.2		7,985	350	320	91%	7,881	3.9	1.1	2.7	63.7	17.6	6.7	4.0	53			111	17	95.1%	383									
Saturday	12/3/2011	65	18.3			8.1	1.5		7,393	329	295	90%	6,860	4.2	1.0	2.5	63.5	17.5	6.7	3.8	50			103	16	95.1%	334									
Sunday	12/4/2011	62	16.7			7.7	2.4		7,689	346	318	92%	7,503	4.2	0.9	2.6	62.8	17.1	6.8	3.9	66			107	9	97.4%	195									
Monday	12/5/2011	64	17.8		29.5	8.2	2.8	343	8,010	316	282	89%	7,379	4.1	0.6	2.8	63.5	17.5	6.8	3.8	71	4	98.8%	94	13	95.9%	304		4.17	0.66	8.2	5.9	66	20		
Tuesday	12/6/2011	64	17.8			8.2	2.6	347	8,103	319	289	91%	7,449	4.0	1.2	2.8	63.0	17.2	6.8	3.6	65	6	98.3%	140	17	94.7%	397	94				5.6	64	38		
Wednesday	12/7/2011	64	17.8	44.1	31.3	8.2	2.3	363	8,174	340	299	88%	7,656	4.1	1.1	2.7	62.8	17.1	6.7	3.8	58	6	98.3%	135	17	95.0%	383		5.21	0.67	9.6	9.7	61	36		
Thursday	12/8/2011	64	17.8			8.2	2.6		7,985	326	294	90%	7,341	3.8	1.0	2.7	62.6	17.0	6.7	3.8	57			111	17	94.8%	383									
Friday	12/9/2011	64	17.8			8.3	2.5		7,985	339	296	87%	7,634	3.9	1.2	2.7	62.4	16.9	6.8	3.8	67			111	16	95.3%	360									
Saturday	12/10/2011	64	17.8			8.0	1.8		7,393	351	313	89%	7,318	4.0	1.0	2.5	61.9	16.6	6.8	3.9	65			103	17	95.2%	354									
Sunday	12/11/2011	63	17.2			7.7	2.0	372	8,066	331	300	91%	7,177	4.1	0.9	2.6	61.0	16.1	6.8	3.8	69	6	98.4%	130	12	96.4%	260									
Monday	12/12/2011	62	16.7		32.2	8.1	2.5	346	7,791	342	310	91%	7,701	3.8	0.8	2.7	61.9	16.6	7.0	3.6	101	5	98.6%	113	10	97.1%	225		10.7	0.64	5.7					
Tuesday	12/13/2011	62	16.7			8.1	2.4	360	8,106	343	312	91%	7,724	3.8	1.1	2.7	61.3	16.3	6.9	3.9	115	5	98.6%	113	10	97.1%	225									
Wednesday	12/14/2011	63	17.2		33.0	8.2	2.9		7,985	380	345	91%	8,557	3.8	1.2	2.7	61.2	16.2	7.0	3.7	123			111	8	97.9%	180		14	0.69	5.6	5.6	63	268	Y	40891
Thursday	12/15/2011	63	17.2			8.2	2.4		7,985	327	296	91%	7,363	3.5	1.2	2.7	61.2	16.2	7.1	3.7	127			111	8	97.6%	180					5.4	62	315	Y	40892
Friday	12/16/2011	63	17.2			8.2	2.3		7,985	365	326	89%	8,219	3.5	1.1	2.7	61.3	16.3	7.1	3.7	123			111	6	98.4%	135					4.7	62	18		
Saturday	12/17/2011	62	16.7			8.1	2.0		7,393	332	304	92%	6,922	4.1	1.1	2.5	61.5	16.4	7.0	3.8	108			103	8	97.6%	167									
Sunday	12/18/2011	61	16.1			7.7	3.6		7,393	347	321	93%	7,235	4.1	0.9	2.5	61.2	16.2	7.0	4.3	106			103	8	97.7%	167									
Monday	12/19/2011	62	16.7		32.3	8.1	2.1	359	8,383	295	271	92%	6,889	4.0	0.9	2.8	61.5	16.4	6.9	3.7	99	5	98.6%	117	8	97.3%	187		10.5	0.6	4.9					
Tuesday	12/20/2011	62	16.7			8.0	2.1	342	7,701	378	348	92%	8,512	3.8	1.0	2.7	61.2	16.2	7.1	3.8	117	4	98.8%	90	6	98.4%	135					4.2	64	11	Y	40897
Wednesday	12/21/2011	62	16.7		31.7	8.1	2.0	345	8,056	364	332	91%	8,500	4.0	1.2	2.8	61.0	16.1	7.1	3.8	123	4	98.8%	94	8	97.8%	187		12.2	0.63	6.6	3.3	64	4	Y	40898
Thursday	12/22/2011	62	16.7			8.1	1.7		8,280	371	327	88%	8,664	3.9	1.1	2.8	60.4	15.8	7.0	3.6	120			115	14	96.2%	327					4.2	64	13	Y	40899
Friday	12/23/2011	62	16.7			8.1	2.1		8,280	367	331	90%	8,570	4.2	1.1	2.8	60.3	15.7	7.0	3.9	121			115	5	98.6%	117									
Saturday	12/24/2011	60	15.6			7.5	2.8		7,393	395	358	91%	8,236	4.2	1.0	2.5	59.7	15.4	7.1	3.8	120			103	10	97.5%	209									
Sunday	12/25/2011	60	15.6			7.6	3.8		6,506	579	546	94%	10,623	3.4	0.9	2.2	59.9	15.5	6.8	3.6	107			90	6	99.0%	110									
Monday	12/26/2011	59	15.0		33.9	7.7	4.5		7,689	430	396	92%	9,324	4.2	0.9	2.6	59.7	15.4	6.7	3.8	104			107	8	98.1%	173		9.14	0.62	6.6					
Tuesday	12/27/2011	61	16.1			8.0	2.0	330	8,532	329	290	88%	8,506	4.2	0.9	3.1	60.4	15.8	7.0	3.7	104	4	98.8%	104	7	97.9%	181					3.9	64	24		
Wednesday	12/28/2011	61	16.1		24.5	8.0	2.2	363	9,990	412	352	85%	11,339	7.6	1.1	3.3	60.1	15.6	7.2	3.7	116	5	98.6%	138	8	98.1%	220		11.9	0.58	7.7	3.2	63	25		
Thursday	12/29/2011	61	16.1			8.1	2.8		9,167	332	386	116%	8,584	5.1	1.1	3.1	58.6	14.8	7.0	3.9	110			127	7	97.9%	181					3.2	66	136	Y	40906
Friday	12/30/2011	61	16.1			8.0	2.3	385	9,312	356	320	90%	8,610	4.1	1.3	2.9	59.9	15.5	7.0	3.9	109	5	98.7%	121	7	98.0%	169									
Saturday	12/31/2011	60	15.6			7.4	2.8		7,393	422	387	92%	8,799	4.2	1.1	2.5	59.4	15.2	7.0	3.7	105			103	6	98.6%	125									
	Average	64.7	18.2	42.4	28.8	8.0	2.1	339	7,971	344	307	0.9	8,109	4.3	1.1	2.8	64.8	18.2	7.0	3.7	110.6	5.9	98.2%	140	10.4	96.9%	243.3	97.3	10.8	1.1	7.1	5.8	62.9	68.1		
	Max	73.0	22.8	48.3	35.7	8.6	8.2	477	13,113	637	546	1.2	15,938	10.0	2.2	4.7	74.3	23.5	7.5	4.7	234.0	17.0	99.4%	397	26.0	99.4%	807.3	100.2	33.2	5.1	19.6	17.6	70.0	544.0		
	Min	54.0	12.2	35.1	20.7	7.4	0.2	250	5,580	159	149	0.5	3,580	3.4	0.6	2.0	55.8	13.2	6.7	2.6	50.0	2.0	94.7%	43	2.0	90.8%	51.7	94.0	0.8	0.2	0.5	1.4	6.8	3.0		
	Median													4.1	1.1	2.8	64.4																			
2012																																				
Sunday	01/01/12	59	15.0			7.8	4		7,086	457	428	94%	8,766	3.8	1.0	2.3	59.9	15.5	6.9	3.9	90			86	6	98.7%	115									
Monday	01/02/12	59	15.0		32	7.7	4	394	8,543	371	335	90%	8,045	4.1	0.9	2.6	59.5	15.3	6.9	3.7	93	4	99.0%	87	2	99.5%	43		6.1	0.6	6.2					
Tuesday	01/03/12	60	15.6			8.2	3	374	8,422	420	381	91%	9,458	3.8	0.9	2.7	59.9	15.5	6.9	3.7	89	4	98.9%	90	6	98.6%	135					4.5	66	8	Y	01/03/12
Wednesday	01/04/12	61	16.1		31	8.2	3	348	8,126	371	326	88%	8,664	3.6	1.1	2.8	60.1	15.6	6.9	3.9	88	4	98.9%	94	7	98.1%	163		6.9	0.8	8.4	4.5	64	400		
Thursday	01/05/12	61	16.1			8.3	3		8,319	418	373	89%	9,413	3.7	1.1	2.7	60.4	15.8	6.7	4	61			101	6	98.6%	135					4	64	7	Y	01/05/12
Friday	01/06/12	61	16.1			8.2	3		8,627	422	378	90%	9,855	3.6	1.0	2.8	60.4	15.8	6.7	3.9	55			105	8	98.1%	187									
Saturday	01/07/12	61	16.1			7.1	2		7,394	423	377	89%	8,467	4.0	1.0	2.4	59.9	15.5	6.7	3.9	48			90	8	98.1%	160									
Sunday	01/08/12	59	15.0			7.8	4		7,702	464	422	91%	9,674	4.0	0.9	2.5	59.9	15.5	6.6	4.2	51			94	9	98.1%	188									
Monday	01/09/12	61	16.1	46	30	8.2	3		8,627	386	341	88%	9,014	4.0	0.9	2.8	60.1	15.6	6.7	3.7	57			105	9	97.7%	210		4.8	0.8	7.4					
Tuesday	01/10/12	60	15.6			8.2	3	318	7,161	372	333	90%	8,377	3.6	0.9	2.7	60.1	15.6	6.8	4	60	4	98.7%	90	11	97.0%	248									
Wednesday	01/11/12	60	15.6		32	8.3	3	405	9,120	410	365	89%	9,232	3.7	1.0	2.7	59.5	15.3	6.6	3.8	47	5	98.8%	113	15	96.3%	338		4.2	0.8	9.1	7.6	62	9	Y	01/11/12
Thursday	01/12/12	60	15.6			8.2	3	479	10,786	359	323	90%	8,084	3.6	1.0	2.7	59.0	15	6.7	3.7	51	5	99.0%	113	14	96.1%	315					6.3	64	22		
Friday	01/13/12	60	15.6			8.3	3		8,319	358	318	89%	8,061	3.7	1.0	2.7	58.8	14.9	6.6	3.8	45			101	16	95.5%	360					10.7	63	6	Y	01/13/12
Saturday	01/14/12	60	15.6			6.4	3		7,394	419	379	90%	8,387	4.1	0.9	2.4	59.0	15	6.6	3.8	46			90	15	96.4%	300									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	01/15/12	59	15.0			7.8	3		7,394	326	296	91%	6,525	3.9	0.8	2.4	58.1	14.5	6.7	3.6	56			90	11	96.6%	220									
Monday	01/16/12	58	14.4		32	8.0	2	372	8,687	345	310	90%	8,056	4.1	0.8	2.8	58.1	14.5	6.7	3.9	57	5	98.7%	117	12	96.5%	280		5.1	0.9	10.2					
Tuesday	01/17/12	60	15.6			8.1	3	371	8,354	381	347	91%	8,579	3.7	1.0	2.7	58.6	14.8	6.8	3.6	60	5	98.7%	113	13	96.6%	293									
Wednesday	01/18/12	59	15.0		35	8.2	3	401	8,695	355	314	88%	7,698	3.5	1.1	2.6	57.6	14.2	6.7	4.1	50	5	98.8%	109	15	95.8%	325	93	4.5	0.7	10.7	7.9	62	80		
Thursday	01/19/12	59	15.0			8.2	3		8,010	401	345	86%	8,695	3.5	1.0	2.6	57.0	13.9	6.5	4.1	42			98	13	96.8%	282					6.4	62	21		
Friday	01/20/12	59	15.0			8.3	3		8,319	457	418	91%	10,291	3.6	1.0	2.7	57.0	13.9	6.6	3.7	46			101	12	97.4%	270					6.5	64	20		
Saturday	01/21/12	60	15.6			8.0	3		7,702	384	350	91%	8,006	4.0	1.1	2.5	57.2	14	6.6	3.7	40			94	9	97.7%	188									
Sunday	01/22/12	59	15.0			7.8	3		8,010	321	292	91%	6,961	4.0	1.0	2.6	57.2	14	6.7	3.8	52			98	8	97.5%	173									
Monday	01/23/12	59	15.0		33	8.2	3		8,319	486	446	92%	10,944	3.8	0.9	2.7	58.1	14.5	6.6	3.9	51			101	7	98.6%	158		4.9	0.9	7.2	3.8	64	34		
Tuesday	01/24/12	59	15.0			8.3	3	343	8,010	330	302	92%	7,706	3.6	1.1	2.8	57.9	14.4	6.6	3.8	45	4	98.8%	94	8	97.6%	187					4.3	64	23		
Wednesday	01/25/12	58	14.4		28	8.3	3	318	8,752	305	248	81%	8,394	4.8	1.3	3.3	58.3	14.6	6.6	3.7	42	4	98.7%	110	7	97.7%	193		5.5	1.0	8.3	3.9	63	21		
Thursday	01/26/12	57	13.9			8.2	4	310	7,756	316	296	94%	7,906	5.1	1.5	3.0	56.8	13.8	6.5	4	42	5	98.4%	125	9	97.2%	225									
Friday	01/27/12	59	15.0			8.3	3		8,319	360	328	91%	8,106	3.9	1.1	2.7	56.7	13.7	6.5	3.9	42			101	9	97.5%	203									
Saturday	01/28/12	57	13.9			7.8	4		8,010	311	281	90%	6,744	4.1	1.1	2.6	57.0	13.9	6.7	4.1	41			98	8	97.4%	173									
Sunday	01/29/12	56	13.3			7.7	5		8,010	296	269	91%	6,418	4.1	1.0	2.6	57.7	14.3	6.5	3.9	44			98	9	97.0%	195									
Monday	01/30/12	58	14.4			8.3	3		9,551	341	293	86%	8,816	4.5	0.9	3.1	58.6	14.8	6.5	3.8	43			116	10	97.1%	259									
Tuesday	01/31/12	59	15.0			8.3	4		8,935	294	257	87%	7,111	4.0	1.2	2.9	58.1	14.5	6.5	3.8	42			109	12	95.9%	290									
Wednesday	02/01/12	58	14.4		32	8.2	5	309	7,989	320	258	81%	8,273	4.8	1.2	3.1	58.5	14.7	6.4	3.8	36	7	97.7%	181	18	94.4%	465		4.8	1.2	14.0	9.5	58	325	Y	02/01/12
Thursday	02/02/12	59	15.0			8.3	4	299	6,982	356	317	89%	8,313	3.9	1.1	2.8	57.6	14.2	6.5	3.8	36	6	98.0%	140	16	95.5%	374					8.8	60	49.5		
Friday	02/03/12	59	15.0			8.3	2	335	7,823	344	302	88%	8,033	4.0	1.0	2.8	57.6	14.2	6.5	3.8	38	7	97.9%	164	19	94.5%	444					9.6	62	23		
Saturday	02/04/12	59	15.0		33	7.2	3		8,250	340	301	89%	7,373	4.2	1.1	2.6	58.3	14.6	6.5	3.8	36			114	17	95.0%	369		2.1	0.8	8.5					
Sunday	02/05/12	56	13.3			7.8	5		8,250	306	273	89%	6,635	4.3	0.9	2.6	57.9	14.4	6.6	3.8	48			114	14	95.4%	304									
Monday	02/06/12	58	14.4		30	8.3	4		8,885	342	304	89%	7,986	4.0	0.9	2.8	57.7	14.3	6.6	3.5	55			123	16	95.3%	374		4.0	0.8	8.1					
Tuesday	02/07/12	58	14.4			8.2	4	367	8,570	343	300	87%	8,010	3.8	1.0	2.8	58.1	14.5	6.7	3.9	57	6	98.4%	140	11	96.8%	257					6.9	76	16		
Wednesday	02/08/12	58	14.4	49	32	8.4	4	409	8,528	414	360	87%	8,632	3.8	1.1	2.5	59.0	15	6.7	3.6	54	5	98.8%	104	12	97.1%	250		4.8	0.8	9.0	7	63	72		
Thursday	02/09/12	59	15.0			8.2	3	385	8,348	352	307	87%	7,633	3.6	0.9	2.6	58.6	14.8	6.6	3.9	56	5	98.7%	109	12	96.6%	260					7.2	60	59		
Friday	02/10/12	56	13.3			8.2	5		9,202	332	282	85%	8,030	5.5	0.9	2.9	58.5	14.7	6.6	3.9	53			127	11	96.7%	266									
Saturday	02/11/12	56	13.3			7.8	5		7,298	315	280	89%	6,042	3.9	1.1	2.3	57.2	14	6.6	3.9	42			101	9	97.1%	173									
Sunday	02/12/12	55	12.8			8.0	5		7,298	333	309	93%	6,388	3.8	0.8	2.3	57.4	14.1	6.6	3.6	51			101	8	97.6%	153	88								
Monday	02/13/12	58	14.4		32	8.2	3		7,933	433	392	91%	9,028	3.5	0.7	2.5	58.6	14.8	6.7	3.8	61			110	9	97.9%	188		3.7	0.8	7.9					
Tuesday	02/14/12	59	15.0			8.2	3	363	7,266	343	306	89%	6,865	3.5	0.9	2.4	58.3	14.6	6.6	3.9	56	4	98.9%	80	9	97.4%	180					5.4	63	44		
Wednesday	02/15/12	59	15.0		32	8.2	3	390	9,433	344	298	87%	8,320	3.6	0.9	2.9	58.5	14.7	6.6	4	48	4	99.0%	97	10	97.1%	242		3.8	0.9	9.5	5.3	62	400	>	02/15/12
Thursday	02/16/12	59	15.0			8.2	4	333	5,832	351	306	87%	6,147	3.5	0.8	2.1	58.6	14.8	6.5	3.9	46	4	98.8%	70	8	97.7%	140					4.4	63	25		
Friday	02/17/12	59	15.0			8.2	3		8,250	392	346	88%	8,500	4.5	0.9	2.6	58.5	14.7	6.6	3.8	48			114	11	97.2%	239									
Saturday	02/18/12	59	15.0			8.0	3		7,298	373	338	91%	7,155	3.8	0.8	2.3	57.6	14.2	6.7	3.9	50			101	10	97.3%	192									
Sunday	02/19/12	56	13.3			7.8	4		6,981	314	288	92%	5,761	3.7	0.7	2.2	57.6	14.2	6.6	4.2	52			97	10	96.8%	183									
Monday	02/20/12	57	13.9		31	8.1	2	376	8,153	334	299	90%	7,242	4.0	0.4	2.6	58.3	14.6	6.7	3.5	52	5	98.7%	109	9	97.3%	195		2.3	0.8	7.9	5.2	65	42		
Tuesday	02/21/12	59	15.0			8.3	3	409	8,869	307	271	88%	6,657	3.5	0.8	2.6	59.0	15	6.7	3.6	49	6	98.5%	130	10	96.7%	217					7	62	500	>	02/21/12
Wednesday	02/22/12	59	15.0		33	8.1	4	346	7,503	329	290	88%	7,134	3.9	1.1	2.6	58.8	14.9	6.5	3.8	38	5	98.6%	109	12	96.4%	260		3.2	0.7	12.8	6.5	61	36		
Thursday	02/23/12	59	15.0			8.2	4		7,933	377	332	88%	7,860	3.6	0.8	2.5	58.6	14.8	6.4	3.9	32			110	10	97.3%	209									
Friday	02/24/12	59	15.0			8.2	3		7,298	187	156	83%	3,587	3.6	0.9	2.3	59.0	15	6.6	3.6	47			101	11	94.1%	211									
Saturday	02/25/12	59	15.0			8.0	3		7,298	339	302	89%	6,503	3.8	0.8	2.3	58.6	14.8	6.6	3.9	41			101	10	97.1%	192									
Sunday	02/26/12	56	13.3			7.8	5	483	8,862	477	434	91%	8,752	3.8	0.7	2.2	58.1	14.5	6.7	4	55	5	99.0%	92	6	98.7%	110									
Monday	02/27/12	58	14.4	441	29	8.4	4	441	8,827	489	447	91%	9,788	3.7	0.6	2.4	58.5	14.7	6.9	3.7	65	5	98.9%	100	8	98.4%	160		4.4	0.6	8.3	5.2	64	27		
Tuesday	02/28/12	58	14.4			8.3	4	462	9,633	512	463	90%	10,675	3.5	0.8	2.5	58.1	14.5	6.7	3.6	61	5	98.9%	104	10	98.0%	209					4.8	63	70		
Wednesday	02/29/12	57	13.9		32	8.2	4		8,567	434	378	87%	9,773	4.1	1.0	2.7	58.1	14.5	6.6	3.6	53			119	11	97.5%	248		4.6	0.5	10.4	9.6	63	20		
Thursday	03/01/12	58	14.4			8.3	4		9,705	449	404	90%	9,736	4.0	0.9	2.6	57.9	14.4	6.6	4.1	52			85	9	98.0%	195									
Friday	03/02/12	59	15.0			8.4	4		9,332	430	391	91%	8,966	3.6	0.8	2.5	58.1	14.5	6.6	3.8	53			82	10	97.7%	209									
Saturday	03/03/12	58	14.4			7.9	3		8,959	467	422	90%	9,347	3.9	0.9	2.4	58.5	14.7	6.6	3.7	50			78	10	97.9%	200									
Sunday	03/04/12	58	14.4			8.0	3		8,959	478	438	92%	9,568	3.9	0.8	2.4	57.9	14.4	6.6	3.8	53			78	8	98.3%	160									
Monday	03/05/12	59	15.0		33	8.0	3	475	9,904	491	447	91%	10,237	3.8	0.7	2.5	59.9	15.5	6.8	3.8	68	4	99.2%	84	10	98.0%	209		3.0	0.6	7.2	5.3	65	27		
Tuesday	03/06/12	59	15.0			8.4	4	467	9,737	504	454	90%	10,508	3.8	0.8	2.5	59.0	15	6.7	4	56	5	98.9%	104	10	98.0%	209	92				4	64	34		
Wednesday	03/07/12	59	15.0	54	32	8.4	4	436	9,091	486	434	89%	10,133	4.2	0.9	2.5	58.8	14.9	6.6	3.7	41	6	98.6%	125	11	97.7%	229		2.4	0.6	9.4	5.6	64	20		
Thursday	03/08/12	59	15.0			8.3	4		9,332	574	521	91%	11,968	3.5	0.9	2.5	59.0	15	6.5	3.8	41			82	8	98.6%	167									
Friday	03/09/12	59	15.0			8.2	3		8,959	441	406	92%	8,827	3.6	0.9	2.4	59.2	15.1	6.5	3.8	39			78	9	98.0%	180									
Saturday	03/10/12	58	14.4			7.5	3		8,212	430	388	90%	7,890	3.8	0.8	2.2	59.2	15.1	6.6	4	46			72	6	98.6%	110									
Sunday	03/11/12	57	13.9			7.5	5		8,212	446	411	92%	8,183	3.8	0.8	2.2	59.4	15.2	6.7	4.2	61			72	5	98.9%	92									
Monday	03/12/12	58	14.4		33	8.2	3	462	10,018	579	539	93%	12,555	3.6	0.7	2.6	58.8	14.9	6.7	3.6	63	4	99.1%	87	8	98.6%	173		2.6	0.8	8.6	3.2	72	118		
Tuesday	03/13/12	59	15.0			8.3	3	431	8,986	435	396	91%	9,070	3.6	0.9	2.5	59.0	15	6.6	4	45	3	99.3%	63	7	98.4%	146					3.3	64	106		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Wednesday	03/14/12	59	15.0		32	8.2	3	471	9,820	509	460	90%	10,613	3.6	0.8	2.5	59.0	15	6.5	4	39	4	99.2%	84	11	97.8%	229		2.7	0.8	17.6	2.7	65	38		
Thursday	03/15/12	59	15.0			8.2	4		9,332	566	519	92%	11,801	3.5	0.8	2.5	59.0	15	6.6	3.8	45			82	7	98.8%	146									
Friday	03/16/12	60	15.6			8.3	3		11,572	517	424	82%	13,367	3.4	0.8	3.1	59.5	15.3	6.5	3.8	41			101	11	97.9%	284									
Saturday	03/17/12	56	13.3			8.3	3		9,332	436	395	91%	9,091	7.6	1.4	2.5	57.2	14	6.7	3.8	50			82	6	98.6%	125									
Sunday	03/18/12	56	13.3			7.8	5	457	8,766	452	423	94%	8,670	3.8	0.7	2.3	56.7	13.7	6.6	3.8	46	3	99.3%	58	6	98.7%	115									
Monday	03/19/12	59	15.0		31	8.1	4	436	9,091	493	452	92%	10,279	3.7	0.6	2.5	59.0	15	6.9	3.6	61	4	99.1%	84	8	98.4%	167		2.8	0.6	12.6					
Tuesday	03/20/12	59	15.0			8.1	4	445	8,907	535	483	90%	10,709	3.4	0.8	2.4	59.4	15.2	6.6	3.6	52	4	99.1%	80	6	98.9%	120									
Wednesday	03/21/12	59	15.0		37	8.2	4		9,705	443	401	91%	9,606	3.6	0.8	2.6	59.5	15.3	6.7	3.7	58			85	8	98.2%	173		2.1	0.6	10.8	3.5	65	12	Y	03/21/12
Thursday	03/22/12	60	15.6			8.4	4		9,332	592	526	89%	12,343	3.6	1.0	2.5	59.9	15.5	6.6	3.8	50			82	8	98.6%	167					3.7	65	58		
Friday	03/23/12	60	15.6			8.3	3		8,959	428	388	91%	8,567	3.5	0.9	2.4	59.9	15.5	6.6	3.8	45			78	8	98.1%	160					3.8	64	56		
Saturday	03/24/12	59	15.0			7.6	4		8,212	519	474	91%	9,523	3.7	0.9	2.2	59.7	15.4	6.6	3.8	41			72	7	98.7%	128									
Sunday	03/25/12	59	15.0			7.9	2		8,586	497	458	92%	9,533	3.8	0.6	2.3	59.5	15.3	6.7	3.7	56			75	5	99.0%	96									
Monday	03/26/12	60	15.6		33	8.2	3		8,959	453	418	92%	9,067	2.6	0.6	2.4	60.3	15.7	6.7	3.9	61			78	7	98.5%	140		3.2	0.6	13.0					
Tuesday	03/27/12	60	15.6			8.3	3	402	11,064	416	371	89%	11,449	6.4	0.7	3.3	60.1	15.6	6.7	3.8	56	4	99.0%	110	9	97.8%	248					3.4	65	74		
Wednesday	03/28/12	59	15.0		31	8.3	4	467	9,347	428	387	90%	8,567	3.6	1.0	2.4	58.3	14.6	6.8	4	60	3	99.4%	60	6	98.6%	120		2.9	0.5	14.0	3	66	90		
Thursday	03/29/12	60	15.6			7.7	4	422	9,151	430	392	91%	9,324	3.4	0.8	2.6	59.7	15.4	6.6	3.8	44	3	99.3%	65	5	98.8%	108					3	66	170	Y	03/29/12
Friday	03/30/12	60	15.6			8.2	3		8,586	429	391	91%	8,229	3.4	1.2	2.3	60.1	15.6	6.7	3.8	51			75	7	98.4%	134									
Saturday	03/31/12	55	12.8			7.8	5		10,079	385	348	90%	8,669	5.3	2.7	2.7	59.7	15.4	6.6	3.8	43			88	5	98.7%	113									
Sunday	04/01/12	60	15.6			7.8	4		7,893	346	318	92%	6,348	3.6	0.6	2.2	58.6	14.8	6.6	4.2	47			57	5	98.6%	92									
Monday	04/02/12	60	15.6		33	8.2	5		8,251	461	423	92%	8,843	3.6	0.8	2.3	60.3	15.7	6.7	4.1	54			59	4	99.1%	77		3.1	0.5	13.3					
Tuesday	04/03/12	60	15.6			8.1	3	396	7,596	408	370	91%	7,826	3.6	0.8	2.3	60.4	15.8	6.6	3.8	45	3	99.2%	58	4	99.0%	77									
Wednesday	04/04/12	60	15.6			8.2	3	350	7,006	358	317	89%	7,166	3.5	0.7	2.4	60.4	15.8	6.4	3.9	37	3	99.1%	60	4	98.9%	80					2.1	65	110		
Thursday	04/05/12	60	15.6		32	8.1	3	413	8,267	436	396	91%	8,727	3.8	0.7	2.4	60.3	15.7	6.5	3.8	39	3	99.3%	60	3	99.3%	60		1.9	0.4	15.9	2	65	14		
Friday	04/06/12	61	16.1			8.1	3		8,251	381	346	91%	7,308	3.8	0.8	2.3	61.0	16.1	6.6	3.7	40			59	5	98.7%	96					2.8	64	26		
Saturday	04/07/12	60	15.6			8.2	2		8,251	467	428	92%	8,958	3.7	0.7	2.3	60.1	15.6	6.6	4.1	41			59	4	99.1%	77									
Sunday	04/08/12	60	15.6			7.9	2	403	7,394	426	392	92%	7,816	3.7	0.7	2.2	60.3	15.7	6.7	3.9	60	2	99.5%	37	3	99.3%	55									
Monday	04/09/12	60	15.6	54	30	8.1	4	401	8,361	484	434	90%	10,091	4.8	0.7	2.5	61.3	16.3	6.8	3.7	59	3	99.3%	63	7	98.6%	146		2.8	0.6	15.1					
Tuesday	04/10/12	60	15.6			8.2	3	454	9,466	539	497	92%	11,238	3.7	0.9	2.5	61.5	16.4	6.6	3.7	42	2	99.6%	42	5	99.1%	104					2	66	9	Y	04/10/12
Wednesday	04/11/12	61	16.1		33	7.6	3		9,328	456	409	90%	9,888	4.0	0.8	2.6	61.7	16.5	6.4	3.5	28			67	8	98.2%	173	100	1.6	0.7	22.3	3.2	64	11	Y	04/11/12
Thursday	04/12/12	61	16.1			8.3	3		8,969	510	458	90%	10,634	4.0	1.0	2.5	61.9	16.6	6.6	3.9	39			64	8	98.4%	167					1.8	66	12	Y	04/12/12
Friday	04/13/12	61	16.1			8.4	3		8,969	430	389	90%	8,966	3.7	0.8	2.5	61.5	16.4	6.6	4	36			64	8	98.1%	167									
Saturday	04/14/12	59	15.0			7.8	4		8,610	429	382	89%	8,587	3.9	0.9	2.4	61.0	16.1	6.5	3.6	29			62	7	98.4%	140									
Sunday	04/15/12	58	14.4			7.6	4		8,610	498	459	92%	9,968	3.9	0.8	2.4	61.3	16.3	6.6	3.9	44			62	5	99.0%	100									
Monday	04/16/12	60	15.6		34	8.1	3		9,328	500	457	91%	10,842	4.0	0.8	2.6	61.9	16.6	6.8	4	54			67	4	99.2%	87		0.1	0.2	11.7	2.4	67	10	Y	04/16/12
Tuesday	04/17/12	61	16.1			8.3	3	453	9,445	515	470	91%	10,738	3.7	0.9	2.5	61.7	16.5	6.8	4.2	57	3	99.3%	63	5	99.0%	104					3.5	66	8	Y	04/17/12
Wednesday	04/18/12	61	16.1		32	8.3	3	482	10,452	543	483	89%	11,774	4.0	0.9	2.6	62.1	16.7	6.8	3.6	44	4	99.2%	87	6	98.9%	130		1.6	0.7	17.0	2.7	66	10	Y	04/18/12
Thursday	04/19/12	61	16.1			8.4	3	570	12,360	597	543	91%	12,945	3.8	0.9	2.6	62.1	16.7	6.6	3.9	40	4	99.3%	87	10	98.3%	217									
Friday	04/20/12	61	16.1			8.3	3		8,969	565	514	91%	11,780	3.8	0.9	2.5	62.4	16.9	6.6	3.9	39			64	12	97.9%	250									
Saturday	04/21/12	62	16.7			7.9	3		8,610	503	455	90%	10,068	3.9	1.0	2.4	63.0	17.2	6.6	3.8	36			62	7	98.6%	140									
Sunday	04/22/12	59	15.0			7.7	4		8,610	528	489	93%	10,568	3.8	0.8	2.4	62.8	17.1	6.6	4.3	47			62	4	99.2%	80									
Monday	04/23/12	62	16.7		28	8.2	3	391	8,478	395	342	87%	8,565	4.4	0.8	2.6	63.9	17.7	6.8	3.8	58	3	99.2%	65	6	98.5%	130		1.1	0.6	15.7	2.4	67	15		
Tuesday	04/24/12	62	16.7			8.2	3	363	7,871	440	401	91%	9,541	3.9	0.9	2.6	64.6	18.1	6.7	3.8	48	3	99.2%	65	5	98.9%	108					2.5	66	36		
Wednesday	04/25/12	62	16.7		30	8.2	2	486	13,781	695	478	69%	19,707	7.9	1.0	3.4	64.0	17.8	6.6	3.9	37	4	99.2%	114	8	98.8%	227		1.8	1.1	16.5	2.3	67	31		
Thursday	04/26/12	62	16.7			7.9	3		10,763	599	417	70%	14,987	8.4	1.0	3.0	62.6	17	6.6	3.8	43			77	6	99.0%	150									
Friday	04/27/12	63	17.2			8.3	2		8,969	345	319	92%	7,193	3.9	0.9	2.5	62.6	17	6.6	3.8	34			64	6	98.3%	125									
Saturday	04/28/12	63	17.2			7.9	1		8,251	391	350	90%	7,500	4.1	0.9	2.3	63.1	17.3	6.7	3.8	43			59	6	98.5%	115									
Sunday	04/29/12	61	16.1			7.8	1		8,610	342	311	91%	6,845	4.1	0.8	2.4	62.6	17	6.7	3.9	50			62	4	98.8%	80									
Monday	04/30/12	63	17.2			8.1	2		9,328	389	353	91%	8435	4.0	0.8	2.6	64.4	18.0	6.8	3.5	57			67	7	98%	152									
Tuesday	05/01/12	63	17.2			8.3	1		9,629					3.8	1.0	2.7	64.0	17.8	6.6	3.6	42			116	8			103				3.4	66	228	Y	05/01/12
Wednesday	05/02/12	63	17.2		28	8.3	2	410	8,890	398	359	90%	8,630	4.0	1.1	2.6	63.5	17.5	6.6	3.7	35	4	99.0%	87	11	97.2%	239		1.6	0.7	21.5	3.9	66	138		
Thursday	05/03/12	62	16.7			8.1	2	377	8,489	374	343	92%	8,422	5.5	0.8	2.7	63.3	17.4	6.6	3.6	30	4	98.9%	90	10	97.3%	225					6.4	62	24		
Friday	05/04/12	63	17.2		35	8.2	1		8,559	275	258	94%	5,504	3.7	0.9	2.4	63.3	17.4	6.5	3.8	38			103	12	95.6%	240		3.9	0.6	18.9					
Saturday	05/05/12	64	17.8			8.0	1	463	8,881	412	381	92%	7,903	4.2	0.7	2.3	63.3	17.4	6.7	3.8	42	3	99.4%	58	8	98.1%	153									
Sunday	05/06/12	61	16.1			7.8	1		8,559	414	379	92%	8,287	4.0	0.7	2.4	62.8	17.1	6.6	3.5	45			103	7	98.3%	140									
Monday	05/07/12	63	17.2	50	30	8.2	1		8,915	405	365	90%	8,444	3.8	0.8	2.5	64.6	18.1	6.8	3.5	55			107	7	98.3%	146		6.1	0.6	13.4	3.5	66	178	Y	05/07/12
Tuesday	05/08/12	64	17.8			8.2	1	451	9,403	431	391	91%	8,986	3.8	0.8	2.5	64.9	18.3	6.8	3.6	63	4	99.1%	84	6	98.6%	125					3.4	65	220	Y	05/08/12
Wednesday	05/09/12	64	17.8		31	8.3	2	392	8,827	420	386	92%	9,458	4.0	0.8	2.7	64.9	18.3	6.8	3.9	52	4	99.0%	90	9	97.9%	203		5.1	0.7	16.2	4.9	64	243	Y	05/09/12
Thursday	05/10/12	64	17.8			8.3	1	377	7,860	400	367	92%	8,340	4.4	0.9	2.5	63.9	17.7	6.6	3.5	50	4	98.9%	84	9	97.8%	188									
Friday	05/11/12	64	17.8			8.3	1		8,559	398	373	94%	7,966	3.5	0.8	2.4	64.2	17.9	6.7	3.7	48			103	12	97.0%	240									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	05/12/12	63	17.2			8.1	1		8,202	386	350	91%	7,404	3.8	0.8	2.3	64.4	18	6.7	3.9	44			98	11	97.2%	211									
Sunday	05/13/12	63	17.2			7.7	1		8,202	443	405	91%	8,498	3.9	0.7	2.3	65.1	18.4	6.7	3.8	52			98	8	98.2%	153									
Monday	05/14/12	64	17.8		29	8.1	1	445	8,907	474	433	91%	9,488	3.8	0.7	2.4	66.4	19.1	6.8	3.7	59	4	99.1%	80	8	98.3%	160		4.3	0.6	17.1					
Tuesday	05/15/12	64	17.8			8.2	1	398	8,630	426	385	90%	9,237	3.7	0.8	2.6	66.7	19.3	6.8	3.6	54	4	99.0%	87	10	97.7%	217									
Wednesday	05/16/12	65	18.3		28	8.2	1	415	8,307	438	396	90%	8,767	3.8	0.9	2.4	66.4	19.1	6.7	3.8	46	4	99.0%	80	10	97.7%	200		4.3	0.8	16.8	4	64	3	Y	05/16/12
Thursday	05/17/12	65	18.3			8.1	1		8,559	435	395	91%	8,707		0.8	2.4	66.2	19	6.7	3.5	47			103	10	97.7%	200					3.5	64	150	Y	05/17/12
Friday	05/18/12	65	18.3			8.4	1		8,915	417	392	94%	8,694			2.5	65.7	18.7	6.7	3.6	49			107	9	97.8%	188					5	62	94		
Saturday	05/19/12	65	18.3			7.9	1		7,489	453	416	92%	7,934	3.6	0.8	2.1	65.1	18.4	6.7	3.7	50			90	9	98.0%	158									
Sunday	05/20/12	62	16.7			7.8	2	433	8,306	495	462	93%	9,495	3.7	0.8	2.3	65.7	18.7	7.0	3.7	63	6	98.6%	115	8	98.4%	153									
Monday	05/21/12	65	18.3		27	8.0	1	458	11,077	620	522	84%	14,995	7.7	0.4	2.9	66.4	19.1	6.9	3.6	63	4	99.1%	97	7	98.9%	169		4.8	1.0	15.4	3.4	65	9	Y	05/21/12
Tuesday	05/22/12	65	18.3			8.4	2	409	9,551	457	420	92%	10,672	3.8	0.9	2.8	65.8	18.8	6.8	3.6	60	4	99.0%	94	6	98.7%	140					3.3	60	500	Y	05/22/12
Wednesday	05/23/12	65	18.3		29	8.3	1		7,846	439	408	93%	8,055	3.8	0.8	2.2	66.0	18.9	6.8	3.6	56			94	4	99.1%	73		3.2	0.9	15.0	3.9	63	28		
Thursday	05/24/12	65	18.3			8.2	1		8,559	480	434	90%	9,608	3.6	0.9	2.4	66.0	18.9	6.8	3.7	60			103	6	98.8%	120									
Friday	05/25/12	65	18.3			8.3	1		8,559	412	380	92%	8,247	3.7	0.9	2.4	66.2	19	6.8	3.6	58			103	7	98.3%	140									
Saturday	05/26/12	66	18.9			7.8	1		8,202	410	371	90%	7,865	3.9	0.8	2.3	66.0	18.9	6.7	3.7	55			98	23	94.4%	441									
Sunday	05/27/12	64	17.8			7.8	1		8,202	453	414	91%	8,689	3.8	0.8	2.3	66.2	19	6.7	3.8	59			98	6	98.7%	115									
Monday	05/28/12	65	18.3		27	8.1	1	443	8,867	470	430	91%	9,408	3.8	0.9	2.4	67.1	19.5	6.8	3.6	60	9	98.0%	180	8	98.3%	160		1.5	0.9	11.1					
Tuesday	05/29/12	65	18.3			8.2	1	518	10,800	524	482	92%	10,925	3.7	0.8	2.5	66.9	19.4	6.9	3.6	66	9	98.3%	188	10	98.1%	209					3.9	65	15		
Wednesday	05/30/12	65	18.3		29	8.1	1	425	8,861	398	366	92%	8,298	3.7	0.8	2.5	66.4	19.1	6.7	3.5	60	10	97.6%	209	15	96.2%	313		3.7	1.0	15.2	6.7	63	3	Y	05/30/12
Thursday	05/31/12	66	18.9			8.2	1		8,915	363	333	92%	7,569	3.6	0.9	2.5	67.6	19.8	6.7	3.7	54			107	17	95.3%	354					5	63	120		
Friday	06/01/12	66	18.9			8.2	0		6,996	392	361	92%	7,846	3.7	0.8	2.4	67.8	19.9	6.8	3.5	52			147	26	93.4%	520									
Saturday	06/02/12	64	17.8			7.4	1		6,996	414	370	89%	8,287	3.8	0.8	2.4	67.3	19.6	6.7	3.5	50			147	27	93.5%	540									
Sunday	06/03/12	65	18.3			7.6	1		6,996	389	357	92%	7,786	3.9	0.6	2.4	67.3	19.6	6.7	3.6	55			147	31	92.0%	620									
Monday	06/04/12	65	18.3		28	8.1	1	376	9,094	305	277	91%	7,377	4.5	0.8	2.9	67.1	19.5	6.9	3.3	64	10	97.3%	242	22	92.8%	532		4.6	1.0	14.0	8.6	62	50		
Tuesday	06/05/12	65	18.3			8.2	1	330	7,156	262	234	89%	5,681	3.8	1.1	2.6	66.7	19.3	6.8	3.7	59	8	97.6%	174	15	94.3%	325					7.9	57	44		
Wednesday	06/06/12	66	18.9		45	8.1	1	335	6,985	343	304	89%	7,152	3.7	0.8	2.5	66.2	19	6.8	3.6	52	8	97.6%	167	14	95.9%	292		3.9	1.6	15.6	6.3	62	13	Y	06/06/12
Thursday	06/07/12	64	17.8			8.2	2		9,036	342	294	86%	8,842	7.5	0.9	3.1	66.0	18.9	6.8	3.4	51			190	14	95.9%	362									
Friday	06/08/12	66	18.9			8.2	1		7,579	290	262	90%	6,288	3.6	0.9	2.6	65.7	18.7	6.7	3.6	50			159	12	95.9%	260									
Saturday	06/09/12	65	18.3			8.0	0		7,287	291	264	91%	6,067	4.0	1.0	2.5	65.5	18.6	6.8	3.5	57			153	14	95.2%	292									
Sunday	06/10/12	65	18.3			7.6	1		7,287	337	300	89%	7,026	3.9	0.8	2.5	65.5	18.6	6.8	3.6	62			153	12	96.4%	250									
Monday	06/11/12	66	18.9	48	31	8.2	1	403	9,075	336	298	89%	7,566	4.0	0.9	2.7	67.5	19.7	6.8	3.3	68	9	97.8%	203	13	96.1%	293		5.1	0.8	11.9	8	62	44		
Tuesday	06/12/12	66	18.9			8.1	1	335	7,544	279	249	89%	6,283	3.7	0.8	2.7	68.0	20	7.0	3.3	78	10	97.0%	225	16	94.3%	360	100				8	59	353	Y	06/12/12
Wednesday	06/13/12	66	18.9		26	8.2	1	315	7,356	303	265	87%	7,076	4.0	0.9	2.8	67.8	19.9	6.9	3.2	79	9	97.1%	210	14	95.4%	327		3.3	0.7	9.0	8.3	60	200		
Thursday	06/14/12	66	18.9			8.2	1		7,870	322	284	88%	7,251	3.8	0.9	2.7	67.1	19.5	6.9	3.3	81			165	15	95.3%	338									
Friday	06/15/12	66	18.9			8.1	1		8,453	576	508	88%	13,931	3.9	1.0	2.9	66.9	19.4	7.0	3.4	80			177	13	97.7%	314									
Saturday	06/16/12	66	18.9			7.9	1		7,870	288	254	88%	6,485	4.0	1.3	2.7	67.6	19.8	6.9	3.3	78			165	11	96.2%	248									
Sunday	06/17/12	65	18.3			7.4	1		8,162	281	254	90%	6,562	4.0	1.1	2.8	67.3	19.6	6.9	3.7	85			171	11	96.1%	257									
Monday	06/18/12	66	18.9		26	8.1	1		8,453	281	253	90%	6,796	4.1	1.0	2.9	67.1	19.5	6.9	3.5	79			177	14	95.0%	339		2.7	0.3	5.3					
Tuesday	06/19/12	66	18.9			8.2	2	371	8,973	246	218	89%	5,950	3.9	1.1	2.9	67.5	19.7	7.0	3.6	98	7	98.1%	170	13	94.7%	314					4.9	65	29		
Wednesday	06/20/12	65	18.3		24	8.0	2	410	9,916	313	274	88%	7,570	3.8	1.2	2.9	67.3	19.6	7.0	3.4	92	6	98.5%	145	12	96.2%	290		2.0	0.3	5.2	4	66	52		
Thursday	06/21/12	66	18.9			7.9	2	303	7,581	278	243	87%	6,956	4.1	1.2	3.0	67.5	19.7	7.0	3.3	95	7	97.7%	175	12	95.7%	300					3	68	72		
Friday	06/22/12	66	18.9			7.9	1		8,453	309	276	89%	7,473	4.2	1.3	2.9	67.1	19.5	6.9	3.6	82			177	12	96.1%	290									
Saturday	06/23/12	66	18.9			7.9	1		8,453	293	263	90%	7,086	3.9	1.4	2.9	67.6	19.8	7.0	3.8	76			177	9	96.9%	218									
Sunday	06/24/12	65	18.3			7.7	2	327	7,636	304	272	89%	7,099	4.1	1.3	2.8	66.4	19.1	6.9	3.7	77	5	98.5%	117	6	98.0%	140									
Monday	06/25/12	66	18.9		25	7.9	1	307	7,681	284	252	89%	7,106	4.1	1.2	3.0	67.3	19.6	6.9	3.6	76	4	98.7%	100	7	97.5%	175		1.7	0.6	9.9					
Tuesday	06/26/12	66	18.9			7.9	2	382	8,920	359	295	82%	8,383	4.4	1.3	2.8	66.2	19	6.9	3.8	69	5	98.7%	117	10	97.2%	234									
Wednesday	06/27/12	67	19.4		25	8.1	1		7,870	296	264	89%	6,665	3.7	1.0	2.7	66.6	19.2	6.9	3.8	70			165	8	97.3%	180		1.4	0.6	13.1	2.8	66	33		
Thursday	06/28/12	66	18.9			8.0	2		8,453	278	244	88%	6,724	3.8	1.1	2.9	68.0	20	6.8	3.7	64			177	7	97.5%	169					2.5	69	174	Y	06/28/12
Friday	06/29/12	66	18.9			8.0	2		8,453	359	326	91%	8,683	3.8	1.3	2.9	67.8	19.9	6.9	3.4	67			177	7	98.1%	169					3.6	70	21		
Saturday	06/30/12	65	18.3			7.7	2		8,744	313	273	87%	7,831	4.7	1.4	3.0	67.6	19.8	6.9	3.6	60			183												
Sunday	07/01/12	65	18.3			7.4	3		7,572	268	240	90%	6,482	3.9	1.3	2.9	67.8	19.9	6.8	3.8	73			145	7	97.4%	169									
Monday	07/02/12	67	19.4		23	8.0	2	289	6,990	274	240	88%	6,627	3.8	1.2	2.9	67.6	19.8	6.8	3.5	73	3	99.0%	73	6	97.8%	145		1.6	0.5	12.1	2.2	71	11	Y	07/02/12
Tuesday	07/03/12	66	18.9			8.0	2		7,572	267	248	93%	6,458	4.0	1.5	2.9	67.5	19.7	6.9	3.5	62			145	7	97.4%	169					2.6	70	20		
Wednesday	07/04/12	66	18.9		23	7.7	2	305	7,122	262	227	87%	6,118	4.4	1.3	2.8	67.6	19.8	6.9	3.6	66	5	98.4%	117	10	96.2%	234		0.2	0.2	6.9					
Thursday	07/05/12	67	19.4			8.0	1	309	7,216	271	243	90%	6,328	3.8	1.3	2.8	67.3	19.6	7.0	3.2	88	7	97.7%	164	13	95.2%	304					4.1	70	50		
Friday	07/06/12	67	19.4			8.1	1		7,572	273	243	89%	6,603	3.7	1.3	2.9	68.2	20.1	6.9	3.3	70			145	16	94.1%	387									
Saturday	07/07/12	67	19.4			7.6	1		7,050	333	298	89%	7,498	3.9	1.3	2.7	68.5	20.3	6.9	3.7	67			135	15	95.5%	338									
Sunday	07/08/12	65	18.3			7.3	1		7,050	314	280	89%	7,071	3.7	1.3	2.7	68.7	20.4	6.7	3.4	61			135	20	93.6%	450									
Monday	07/09/12	67	19.4	39	23	7.9	1	310	7,756	349	308	88%	8,732	3.8	1.3	3.0	70.2	21.2	6.9	3.5	64	10	96.8%	251	23	93.4%	575		4.9	0.8	11.4					

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Tuesday	07/10/12	68	20.0			8.1	1	356	8,610	372	334	90%	8,997	4.0	1.2	2.9	70.0	21.1	6.9	3.5	70	10	97.2%	242	23	93.8%	556					5.8	65	14		
Wednesday	07/11/12	68	20.0		23	8.0	1	389	9,408	376	335	89%	9,094	4.2	1.2	2.9	69.8	21	6.8	3.5	64	8	97.9%	194	21	94.4%	508		4.5	1.0	10.2	4.8	65	60		
Thursday	07/12/12	69	20.6			7.9	1		7,311	399	351	88%	9,317	3.6	1.2	2.8	70.2	21.2	6.8	3.5	66			140	14	96.5%	327	98				3.7	69	40		
Friday	07/13/12	68	20.0			8.0	1		7,311	319	304	95%	7,449	3.8	1.5	2.8	70.5	21.4	6.9	3.5	66			140	16	95.0%	374									
Saturday	07/14/12	68	20.0			7.8	1		7,311	348	310	89%	8,126	3.7	1.5	2.8	70.5	21.4	6.9	3.6	62			140	11	96.8%	257									
Sunday	07/15/12	66	18.9			7.4	1		7,311	529	485	92%	12,353	3.9	1.3	2.8	68.2	20.1	6.8	3.8	68			140	12	97.7%	280									
Monday	07/16/12	69	20.6		23	8.0	1		7,833	401	356	89%	10,033	4.0	1.3	3.0	70.2	21.2	6.9	3.5	72			150	13	96.8%	325		4.0	0.9	8.5		70	100		
Tuesday	07/17/12	69	20.6			8.0	1	337	8,432	363	319	88%	9,082	4.0	1.3	3.0	70.5	21.4	6.9	3.7	74	5	98.5%	125	14	96.1%	350									
Wednesday	07/18/12	69	20.6		22	7.9	1	320	8,006	376	333	89%	9,408	4.1	1.4	3.0	70.9	21.6	6.9	3.7	71	5	98.4%	125	13	96.5%	325		3.9	0.8	10.3	2.2	70	74		
Thursday	07/19/12	69	20.6			8.0	1	162	4,053	159	144	91%	3,978	3.9	1.5	3.0	70.7	21.5	6.9	3.7	76	4	97.5%	100	7	95.5%	180					2.2	70	92		
Friday	07/20/12	69	20.6			7.8	0		7,833	384	345	90%	9,608	4.7	1.6	3.0	70.3	21.3	6.9	3.7	75			150	11	97.1%	275									
Saturday	07/21/12	69	20.6			7.8	1		7,311	368	336	91%	8,594	3.9	1.3	2.8	70.5	21.4	7.0	3.7	78			140	11	97.0%	257									
Sunday	07/22/12	69	20.6			7.3	1		8,094	379	343	91%	9,799	3.9	1.4	3.1	70.0	21.1	6.8	3.8	75			155	8	97.9%	207									
Monday	07/23/12	69	20.6		23	8.1	1	317	7,138	374	333	89%	8,422	3.8	1.1	2.7	69.6	20.9	6.9	3.5	76	5	98.4%	113	10	97.3%	225		6.4	0.7	9.0	3	70	20		
Tuesday	07/24/12	69	20.6			7.8	1	340	8,507	384	350	91%	9,608	3.9	0.9	3.0	70.0	21.1	6.9	3.4	80	5	98.5%	125	10	97.4%	250					5		23		
Wednesday	07/25/12	69	20.6		22	7.8	1	323	8,081	382	352	92%	9,558	3.9	1.4	3.0	70.3	21.3	6.9	3.5	66	5	98.5%	125	8	97.9%	200		3.5	0.7	10.3	5.1		13		
Thursday	07/26/12	69	20.6			7.8	1		7,833	349	310	89%	8,732	3.9	1.4	3.0	70.9	21.6	6.9	3.4	70			150	6	98.3%	150									
Friday	07/27/12	69	20.6			7.9	1		7,572	381	351	92%	9,215	3.8	1.4	2.9	70.9	21.6	6.9	3.5	78			145	6	98.4%	145									
Saturday	07/28/12	68	20.0			7.8	0		7,572	399	364	91%	9,650	3.9	1.3	2.9	69.8	21	7.0	3.6	84			145	6	98.5%	145									
Sunday	07/29/12	68	20.0			7.4	1		7,050	429	387	90%	9,660	3.9	1.4	2.7	70.2	21.2	6.9	3.4	82			135	7	98.4%	158									
Monday	07/30/12	70	21.1			7.8	0		7,572	394	356	90%	9,529	3.9	1.3	2.9	71.6	22	6.9	3.6	79			145	6	98.5%	145									
Tuesday	07/31/12	71	21.7			8.0	0		7,572	400	360	90%	9,674	3.7	1.2	2.9	71.4	21.9	6.9	3.6	87			145	6	98.5%	145									
Wednesday	08/01/12	71	21.7		23	8.1	0	401	8,695	520	466	90%	11,276	3.7	1.2	2.6	71.6	22	6.9	3.5	87	4	99.0%	87	7	98.7%	152		2.0	0.7	10.8	2.6		6	Y	08/01/12
Thursday	08/02/12	71	21.7			7.8	0	350	9,633	459	396	86%	12,633	5.4	0.0	3.3	72.0	22.2	6.8	3.3	67	4	98.9%	110	7	98.5%	193					1.7		21		
Friday	08/03/12	71	21.7		22	7.9	1		8,625	383	345	90%	9,263	5.1	1.3	2.9	71.8	22.1	7.0	3.7	88			113	5	98.7%	121		3.5	0.8	10.9	2.6		72		
Saturday	08/04/12	71	21.7			7.7	0	374	8,422	373	337	90%	8,399	3.9	1.4	2.7	72.0	22.2	6.9	3.5	71	4	98.9%	90	5	98.7%	113									
Sunday	08/05/12	70	21.1			7.4	1		7,733	397	356	90%	8,609		1.1	2.6	72.3	22.4	6.8	3.6	65			101	6	98.5%	130	96								
Monday	08/06/12	71	21.7	45	21	8.1	1		8,625	420	371	88%	10,158	4.2		2.9	73.2	22.9	6.9	3.4	65			113	9	97.9%	218		6.7	1.2	10.7	2.1		56		
Tuesday	08/07/12	71	21.7			8.1	1	416	10,061	579	531	92%	14,004	4.0	1.3	2.9	73.6	23.1	6.9	3.4	70	5	98.8%	121	10	98.3%	242					2.4		106		
Wednesday	08/08/12	72	22.2		21	8.0	1	363	8,780	396	361	91%	9,578	4.4	1.3	2.9	73.0	22.8	6.9	3.2	88	4	98.9%	97	12	97.0%	290		5.8	0.7	8.6	3.1	70	40		
Thursday	08/09/12	72	22.2			8.0	1	333	8,054	353	320	91%	8,538	3.7	1.2	2.9	72.5	22.5	7.0	3.6	87	4	98.8%	97	10	97.2%	242									
Friday	08/10/12	73	22.8			8.0	1		8,327	372	351	94%	8,687	3.5	1.4	2.8	72.5	22.5	7.2	3.4	134			109	6	98.4%	140									
Saturday	08/11/12	71	21.7			7.8	0		7,733	321	292	91%	6,961	3.8	1.3	2.6	72.5	22.5	7.1	3.6	118			101	8	97.5%	173									
Sunday	08/12/12	70	21.1			7.5	1	333	6,943	355	317	89%	7,402	3.8	1.3	2.5	73.0	22.8	7.0	3.4	116	5	98.5%	104	10	97.2%	209									
Monday	08/13/12	72	22.2		28	8.0	0	339	7,634	401	351	88%	9,030	3.7	1.0	2.7	73.8	23.2	7.0	3.4	106	5	98.5%	113	11	97.3%	248		11.0	0.6	7.0	2.6	70	25		
Tuesday	08/14/12	73	22.8			7.9	0	368	8,287	364	312	86%	8,197	3.7	1.0	2.7	73.8	23.2	7.2	3.4	130	5	98.6%	113	12	96.7%	270					2.9	68	18		
Wednesday	08/15/12	73	22.8		27	8.0	0		8,030	341	295	87%	7,679	3.6	1.2	2.7	73.9	23.3	7.1	3.4	119			105	8	97.7%	180		12.5	0.6	7.7	2.6	70	32		
Thursday	08/16/12	73	22.8			7.9	1		7,733	335	299	89%	7,264	3.5	1.2	2.6	74.1	23.4	7.0	3.4	120			101	10	97.0%	217									
Friday	08/17/12	72	22.2			7.9	1		8,030	310	278	90%	6,981	3.8	1.2	2.7	74.3	23.5	7.0	3.4	117			105	10	96.8%	225									
Saturday	08/18/12	73	22.8			7.5	0		7,435	444	400	90%	9,257	3.7	1.2	2.5	73.6	23.1	7.0	3.5	104			97	8	98.2%	167									
Sunday	08/19/12	72	22.2			7.5	0		7,435	573	521	91%	11,947	3.7	1.0	2.5	73.6	23.1	7.0	3.3	107			97	9	98.4%	188									
Monday	08/20/12	72	22.2		28	8.0	1	313	7,309	376	332	88%	8,780	3.9	0.9	2.8	74.3	23.5	7.1	3.5	106	4	98.7%	94	8	97.9%	187		12.8	0.5	6.8					
Tuesday	08/21/12	73	22.8			7.9	1	376	8,467	488	445	91%	10,989	3.7	1.1	2.7	73.9	23.3	7.1	3.6	122	5	98.7%	113	8	98.4%	180					1.8		9	Y	08/21/12
Wednesday	08/22/12	73	22.8		30	8.0	0	353	7,949	366	333	91%	8,242	3.8	1.1	2.7	73.2	22.9	7.2	3.6	126	5	98.6%	113	5	98.6%	113		14.9	0.5	6.6	1.6		13		
Thursday	08/23/12	73	22.8			8.1	1		8,030	391	332	85%	8,805	3.9	1.0	2.7	73.4	23	7.1	3.5	123			105	8	98.0%	180					1.7		15		
Friday	08/24/12	73	22.8			8.1	0		8,327	302	265	88%	7,052	3.9	1.0	2.8	72.5	22.5	7.1	3.6	126			109	5	98.3%	117									
Saturday	08/25/12	73	22.8			7.8	0		7,435	333	304	91%	6,943	3.8	1.1	2.5	72.3	22.4	7.2	3.5	114			97	6	98.2%	125									
Sunday	08/26/12	73	22.8			7.8	0		7,435	339	304	90%	7,068	3.9	0.9	2.5	72.9	22.7	7.0	3.7	113			97	7	97.9%	146									
Monday	08/27/12	73	22.8		28	8.1	0		8,030	362	315	87%	8,152	3.9	0.9	2.7	74.3	23.5	7.1	3.5	106			105	8	97.8%	180		11.3	0.6	8.3					
Tuesday	08/28/12	73	22.8			8.0	0	328	7,386	374	330	88%	8,422	3.8	1.0	2.7	74.7	23.7	7.1	3.5	124	5	98.5%	113	11	97.1%	248					4.7	68	194	Y	08/28/12
Wednesday	08/29/12	73	22.8		28	8.2	0	383	8,624	375	324	86%	8,444	3.8	0.9	2.7	73.9	23.3	7.1	3.5	128	5	98.7%	113	14	96.3%	315		13.8	0.6	6.5	4.8	67	206	Y	08/29/12
Thursday	08/30/12	73	22.8			8.2	1	319	6,917	377	346	92%	8,175	3.8	1.1	2.6	73.8	23.2	7.2	3.5	136	6	98.1%	130	9	97.6%	195					4.7	68	51		
Friday	08/31/12	74	23.3			8.1	0		7,733	329	300	91%	7,134	3.8	1.4	2.6	74.7	23.7	7.1	3.5	133			101	15	95.4%	325									
Saturday	09/01/12	73	22.8			7.7	0		6,613	306	278	91%	5,870	3.7	1.0	2.3	72.9	22.7	7.1	3.4	122			72	11	96.4%	211									
Sunday	09/02/12	72	22.2			7.5	0		6,613	343	316	92%	6,579	3.7	0.8	2.3	72.1	22.3	7.1	3.6	120			72	11	96.8%	211									
Monday	09/03/12	72	22.2		29	7.7	0		7,188	373	334	90%	7,777	4.0	0.8	2.5	72.0	22.2	7.0	3.6	112			78	10	97.3%	209		6.0	0.7	7.0					
Tuesday	09/04/12	73	22.8			8.2	0	372	8,377	368	330	90%	8,287	3.7	0.8	2.7	74.8	23.8	7.0	3.4	100	4	98.9%	90	8	97.8%	180					3.5	70	45		
Wednesday	09/05/12	73	22.8	44	27	8.1	0	334	7,800	356	320	90%	8,313	3.8	1.0	2.8	74.5	23.6	7.0	3.3	98	3	99.1%	70	13	96.3%	304		9.8	0.7	8.3	3.2	70	12	Y	09/05/12
Thursday	09/06/12	73	22.8			8.1	0	309	6,958	484	444	92%	10,899	3.5	1.1	2.7	73.9	23.3	7.0	3.4	115	3	99.0%	68	8	98.3%	180					2.2	70	308	Y	09/06/12

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	09/07/12	73	22.8			8.2	1		7,475	369	332	90%	8,001	3.9	1.1	2.6	74.3	23.5	6.9	3.5	88			81	4	98.9%	87									
Saturday	09/08/12	73	22.8			7.7	1		7,188	389	325	84%	8,111	5.1	1.1	2.5	73.6	23.1	7.0	3.6	89			78	5	98.7%	104									
Sunday	09/09/12	72	22.2			7.4	1		7,188	527	458	87%	10,988	3.9	1.0	2.5	73.6	23.1	7.0	3.5	88	4		84	6	98.9%	125	94								
Monday	09/10/12	73	22.8		28	8.0	1	335	7,264	368	327	89%	7,980	3.9	0.9	2.6	73.8	23.2	7.0	3.6	91	3	99.1%	65	6	98.4%	130		5.7	0.9	8.5					
Tuesday	09/11/12	73	22.8			8.2	1	363	8,174	406	367	90%	9,142	3.6	1.0	2.7	72.7	22.6	7.0	3.6	87	4	98.9%	90	6	98.5%	135									
Wednesday	09/12/12	73	22.8		29	8.2	1		7,475	363	325	90%	7,871	4.4	1.1	2.6	72.9	22.7	7.0	3.3	80			81	7	98.1%	152		6.2	0.8	10.2	2.9	70	11	Y	09/12/12
Thursday	09/13/12	73	22.8			8.2	0		7,763	444	381	86%	9,998	4.0	1.1	2.7	72.9	22.7	7.0	3.4	83			84	6	98.6%	135					2.1	69	20		
Friday	09/14/12	73	22.8			8.0	0		7,475	363	324	89%	7,871	3.6	1.0	2.6	72.5	22.5	6.9	3.5	82			81	6	98.3%	130					2	69	25		
Saturday	09/15/12	73	22.8			7.7	1		6,900	340	307	90%	6,805	3.8	1.1	2.4	72.9	22.7	6.8	3.6	77			75	4	98.8%	80									
Sunday	09/16/12	73	22.8			7.5	0		7,188	304	271	89%	6,338	3.7	0.9	2.5	72.7	22.6	6.8	3.1	76			78	6	98.0%	125									
Monday	09/17/12	73	22.8		28	8.0	0	314	7,071	316	282	89%	7,116	3.8	0.9	2.7	73.9	23.3	7.0	3.4	85	4	98.7%	90	7	97.8%	158		5.1	0.6	8.3					
Tuesday	09/18/12	72	22.2			8.1	0	368	8,287	363	331	91%	8,174	3.5	1.1	2.7	73.4	23	7.0	3.4	85	4	98.9%	90	8	97.8%	180					2.2	69	244	Y	09/18/12
Wednesday	09/19/12	73	22.8		26	8.2	1	365	8,219	389	350	90%	8,760	4.1	1.1	2.7	73.2	22.9	6.9	3.1	80	4	98.9%	90	7	98.2%	158		5.1	0.6	11.7	2.3		28		
Thursday	09/20/12	73	22.8			8.1	1		7,475	465	428	92%	10,083	3.5	1.1	2.6	72.9	22.7	7.0	3.6	83			81	6	98.7%	130					2.5	69	326	Y	09/20/12
Friday	09/21/12	72	22.2			8.2	1		7,188	403	361	90%	8,403	3.6	1.0	2.5	72.7	22.6	6.9	3.6	81			78	4	99.0%	83									
Saturday	09/22/12	71	21.7			7.7	0		6,900	393	352	90%	7,866	3.7	1.2	2.4	72.5	22.5	6.9	3.6	80			75	10	97.5%	200									
Sunday	09/23/12	72	22.2			7.6	1		6,900	378	345	91%	7,566	3.6	1.0	2.4	72.3	22.4	6.8	3.6	79			75	7	98.1%	140									
Monday	09/24/12	72	22.2		26	8.0	0	346	7,791	373	336	90%	8,399	3.8	0.9	2.7	73.0	22.8	7.0	3.2	88	4	98.8%	90	10	97.3%	225		5.5	0.9	9.2	2.1	70	74		
Tuesday	09/25/12	72	22.2			8.1	0	347	7,524	382	345	90%	8,283	3.6	1.1	2.6	73.0	22.8	7.0	3.5	84	4	98.8%	87	6	98.4%	130					2.2	69	82		
Wednesday	09/26/12	72	22.2		27	8.1	1	339	7,068	423	373	88%	8,820	3.8	1.0	2.5	72.9	22.7	6.9	3.4	78	4	98.8%	84	7	98.3%	146		8.9	0.7	9.4	2.7	68	36		
Thursday	09/27/12	73	22.8			8.2	0		7,763	403	348	86%	9,075	3.7	0.9	2.7	72.5	22.5	7.1	3.2	109			84	6	98.5%	135									
Friday	09/28/12	72	22.2			8.2	1		7,188	317	286	90%	6,609	3.5	1.0	2.5	72.5	22.5	7.0	3.2	108			78	4	98.7%	83									
Saturday	09/29/12	71	21.7			7.6	0		7,188	367	327	89%	7,652	4.0	1.1	2.5	72.3	22.4	6.9	3.3	101			78	6	98.4%	125									
Sunday	09/30/12	71	21.7			7.4	1		7,188	353	329	93%	7,360	3.8	0.9	2.5	71.6	22	6.8	3.7	97			78	6	98.3%	125									
Monday	10/01/12	72	22.2		24	8.1	1		8,458	353	323	92%	7,949	3.9	0.8	2.7	72.5	22.5	7.0	3.4	91			147	6	98.3%	135		8.9	0.6	5.5	2.4	69	54		
Tuesday	10/02/12	72	22.2			8.2	0	423	9,172	433	390	90%	9,389	3.9	1.1	2.6	71.6	22	7.1	3.5	119	3	99.3%	65	4	99.1%	87					2	70	21		
Wednesday	10/03/12	71	21.7		28	8.2	1	358	8,061	389	339	87%	8,760	3.8	1.0	2.7	71.1	21.7	7.0	3.5	121	4	98.9%	90	5	98.7%	113		14.2	0.6	7.8	1.6	66	68		
Thursday	10/04/12	71	21.7			8.1	1	327	7,091	355	318	90%	7,698	3.8	1.2	2.6	70.7	21.5	7.0	3.6	133	24	92.7%	521	67	81.1%	1453									
Friday	10/05/12	71	21.7			8.2	1		8,771	268	240	90%	6,258	3.8	1.0	2.8	70.5	21.4	7.0	3.5	114			153	68	74.6%	1588									
Saturday	10/06/12	71	21.7			7.4	1		7,518	352	319	91%	7,046	3.9	1.2	2.4	70.3	21.3	6.8	3.6	65			131	7	98.0%	140									
Sunday	10/07/12	69	20.6			7.4	1	390	8,132	549	509	93%	11,447	3.9	0.9	2.5	69.4	20.8	7.0	3.8	111	5	98.7%	104	6	98.9%	125									
Monday	10/08/12	71	21.7	44	26	8.0	1	338	7,611	392	359	92%	8,827	3.9	0.9	2.7	70.5	21.4	7.1	3.5	105	5	98.5%	113	4	99.0%	90		10.4	0.7	6.6					
Tuesday	10/09/12	71	21.7			8.2	1	386	8,692	408	372	91%	9,187	3.8	1.1	2.7	70.7	21.5	7.1	3.5	115	5	98.7%	113	4	99.0%	90					3.9	66	400	>	10/09/12
Wednesday	10/10/12	70	21.1		27	8.1	1		8,145	536	492	92%	11,623	3.8	1.1	2.6	70.9	21.6	7.1	3.5	118			142	6	98.9%	130		14.0	0.7	7.9	4	65	250	Y	10/10/12
Thursday	10/11/12	71	21.7			8.2	1		8,145	441	396	90%	9,563	3.7	0.9	2.6	70.9	21.6	7.1	3.4	117			142	6	98.6%	130	94				4.2	64	300	Y	10/11/12
Friday	10/12/12	71	21.7			8.0	0		7,831	457	420	92%	9,528	3.7	1.0	2.5	70.7	21.5	7.0	3.2	106			136	4	99.1%	83									
Saturday	10/13/12	71	21.7			7.8	1		7,518	644	573	89%	12,890	3.8	0.8	2.4	70.5	21.4	7.0	3.3	104			131	8	98.8%	160									
Sunday	10/14/12	70	21.1			7.5	1		7,518	747	672	90%	14,952	3.8	0.9	2.4	71.4	21.9	7.0	3.3	110			131	6	99.2%	120									
Monday	10/15/12	71	21.7		28	8.2	0		9,084	492	451	92%	11,900	4.1	0.8	2.9	72.1	22.3	7.1	3.4	110			158	7	98.6%	169		10.5	0.9	7.5					
Tuesday	10/16/12	70	21.1			8.1	1	421	9,129	367	332	90%	7,958	7.0	1.0	2.6	70.5	21.4	7.1	3.6	119	5	98.8%	109	5	98.6%	108									
Wednesday	10/17/12	71	21.7		29	8.2	1	313	7,048	324	286	88%	7,296	3.7	1.1	2.7	70.0	21.1	7.1	3.5	133	7	97.8%	158	8	97.5%	180		13.0	1.1	8.0	4.5	61	14	Y	10/17/12
Thursday	10/18/12	71	21.7			8.0	0	408	8,507	454	392	86%	9,466	3.6	1.3	2.5	70.0	21.1	7.0	3.5	104	8	98.0%	167	9	98.0%	188					3.25	64	15	Y	10/18/12
Friday	10/19/12	71	21.7			8.0	0		7,831	464	423	91%	9,674	3.5	1.1	2.5	70.0	21.1	6.9	3.5	93			136	8	98.3%	167					3.21	68	12	Y	10/19/12
Saturday	10/20/12	71	21.7			7.9	1		7,518	515	460	89%	10,308	4.0	1.0	2.4	69.8	21	6.9	3.5	83			131	7	98.6%	140									
Sunday	10/21/12	70	21.1			7.4	1		7,831	428	384	90%	8,924	3.9	0.7	2.5	69.6	20.9	6.9	3.6	91			136	8	98.1%	167									
Monday	10/22/12	69	20.6		27	7.9	1	335	8,661	398	354	89%	10,290	5.5	0.8	3.1	69.6	20.9	7.0	3.4	97	6	98.2%	155	9	97.7%	233		10.2	0.9	8.6	6.9	66	24		
Tuesday	10/23/12	70	21.1			8.3	1	351	7,611	399	361	90%	8,652	3.7	0.9	2.6	68.0	20	6.9	3.8	95	5	98.6%	109	10	97.5%	217					6.3	64	21	Y	10/23/12
Wednesday	10/24/12	63	17.2		24	8.2	4	299	8,728	348	300	86%	10,158	6.1	1.0	3.5	68.2	20.1	7.0	3.2	111	5	98.3%	146	10	97.1%	292		11.6	1.0	7.4		64	62		
Thursday	10/25/12	69	20.6			8.2	1		8,145	460	415	90%	9,975	3.7	1.2	2.6	66.0	18.9	6.9	3.9	99			142	11	97.6%	239									
Friday	10/26/12	67	19.4			8.2	2		9,711	379	314	83%	9,799	6.3	1.0	3.1	68.0	20	7.1	3.6	121			169	14	96.3%	362									
Saturday	10/27/12	68	20.0			7.2	1		9,084	360	322	89%	8,707	6.1	1.0	2.9	69.8	21	7.0	3.7	101			158	10	97.2%	242									
Sunday	10/28/12	67	19.4			7.4	1		8,771	509	465	91%	11,886	3.7	0.9	2.8	66.0	18.9	6.9	3.5	95			153	13	97.4%	304									
Monday	10/29/12	68	20.0		33	7.9	1	522	11,319	633	577	91%	13,726	5.1	1.7	2.6	67.6	19.8	6.9	3.9	84	4	99.2%	87	6	99.1%	130		9.6	1.5	11.9	3.5	68	70		
Tuesday	10/30/12					8.0		376	8,467	440	394	90%	9,908	3.8	1.0	2.7	68.5	20.3	6.9	3.8	86	5	98.7%	113	10	97.7%	225					3.8	67	150		
Wednesday	10/31/12	70	21.1		30	8.0	2	387	8,069	446	400	90%	9,299	3.6	1.2	2.5	68.7	20.4	6.9	4.2	77	7	98.2%	146	14	96.9%	292		6.1	1.2	10.1	4.7	65	38		
Thursday	11/01/12	69	20.6			8.0	1		7,831	451	407	90%	9,403	3.5	1.0	2.5	69.1	20.6	6.9	4.1	82			144	14	96.9%	292									
Friday	11/02/12	70	21.1			8.1	0		7,831	413	376	91%	8,611	3.6	1.0	2.5	68.9	20.5	6.9	3.2	75			144	10	97.6%	209									
Saturday	11/03/12	69	20.6			7.7	0		7,518	428	393	92%	8,567	3.8	1.1	2.4	69.1	20.6	6.9	3.3	76			138	16	96.3%	320									
Sunday	11/04/12	67	19.4			7.6	1		7,518	486	448	92%	9,728	3.9	0.8	2.4	68.9	20.5	6.8	3.4	74			138	20	95.9%	400									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Monday	11/05/12				30	8.1		384	8,327	449	406	90%	9,736	4.1	0.8	2.6	69.3	20.7	6.8	3.5	76	6	98.4%	130	11	97.6%	239		6.6	0.8	11.1					
Tuesday	11/06/12	68	20.0			8.0	1	402	8,382	469	424	90%	9,779	3.7	0.9	2.5	68.5	20.3	6.9	3.5	76	5	98.8%	104	12	97.4%	250					6.7	62	13		
Wednesday	11/07/12	68	20.0	52	30	8.2	1		8,144	473	427	90%	10,257	4.0	1.0	2.6	68.2	20.1	6.8	3.4	70			150	13	97.3%	282		7.6	1.0	13.8	7.6	62	11	Y	11/07/12
Thursday	11/08/12	68	20.0			8.1	1	436	9,091	483	442	92%	10,071	3.7	0.9	2.5	67.1	19.5	6.9	3.4	74	11	97.5%	230	14	97.1%	292					8.1	61	19		
Friday	11/09/12	68	20.0			8.4	1		7,518	623	573	92%	12,470	3.6	0.9	2.4	67.3	19.6	6.9	3.5	70			138	14	97.8%	280									
Saturday	11/10/12	68	20.0			8.2	0		7,204	474	433	91%	9,092	3.6	1.0	2.3	67.1	19.5	6.9	3.5	74			133	13	97.3%	249									
Sunday	11/11/12	66	18.9			7.7	1		7,204	350	317	91%	6,714	3.6	0.8	2.3	65.5	18.6	6.8	3.4	72			133	12	96.6%	230									
Monday	11/12/12	67	19.4		32	7.8	0		8,457	383	350	91%	8,624	4.4	0.9	2.7	66.0	18.9	6.9	3.4	79			156	9	97.7%	203		2.9	0.9	11.4					
Tuesday	11/13/12	67	19.4			8.2	1	372	7,756	348	309	89%	7,256	3.6	0.9	2.5	66.0	18.9	6.8	3.4	74	11	97.0%	230	8	97.7%	167	93				4.3	67	12	Y	11/13/12
Wednesday	11/14/12	67	19.4		33	8.2	1	353	7,360	338	302	89%	7,047	3.7	0.9	2.5	66.6	19.2	6.9	3.8	77	9	97.5%	188	8	97.6%	167		7.1	1.2	10.6		64	20		
Thursday	11/15/12	67	19.4			8.1	1	460	9,591	393	343	87%	8,194	3.6	0.7	2.5	66.4	19.1	6.9	3.6	78	8	98.3%	167	8	98.0%	167					3.7	64	14		
Friday	11/16/12	67	19.4			8.1	1		7,518	397	357	90%	7,946	3.5	1.0	2.4	66.6	19.2	6.9	3.5	80			138	8	98.0%	160									
Saturday	11/17/12	67	19.4			7.7	1		8,771	359	310	86%	8,383	5.8	0.8	2.8	66.4	19.1	6.8	3.5	72			162	10	97.2%	234									
Sunday	11/18/12	63	17.2		33	7.7	0	398	8,298	393	357	91%	8,194	3.7	0.8	2.5	64.4	18	6.7	3.7	66	8	98.0%	167	9	97.7%	188		2.6	1.1	9.4					
Monday	11/19/12	66	18.9			8.1	0	332	6,922	344	314	91%	7,172	3.6	0.8	2.5	66.0	18.9	6.9	3.8	78	7	97.9%	146	9	97.4%	188					3.4	67	13	Y	11/19/12
Tuesday	11/20/12	67	19.4		35	8.2	0	363	7,569	350	317	91%	7,298	3.5	1.0	2.5	66.2	19	6.8	3.6	80	7	98.1%	146	10	97.1%	209		6.5	1.3	11.3	3.6	66	13	Y	11/20/12
Wednesday	11/21/12	66	18.9			8.1	0		7,831	355	310	87%	7,402	3.7	1.0	2.5	65.8	18.8	6.9	3.8	78			144	8	97.7%	167					3.6	67	10	Y	11/21/12
Thursday	11/22/12	68	20.0			7.8	1		6,891	389	358	92%	7,137	4.0	1.0	2.2	65.3	18.5	6.8	3.6	83			127	9	97.7%	165									
Friday	11/23/12	67	19.4			8.1	1		8,457	451	362	80%	10,156	4.6	0.8	2.7	65.5	18.6	6.9	3.7	86			156	9	98.0%	203									
Saturday	11/24/12	67	19.4			7.9	1		8,457	385	323	84%	8,669	4.1	1.2	2.7	66.0	18.9	6.8	3.6	77			156	6	98.4%	135									
Sunday	11/25/12	64	17.8			7.8	2		8,771	367	287	78%	8,570	4.1	1.2	2.8	64.6	18.1	6.9	3.6	76			162	5	98.6%	117									
Monday	11/26/12	65	18.3		24	8.1	2	335	8,661	417	319	76%	10,781	4.2	1.2	3.1	63.9	17.7	6.9	3.7	76	3	99.1%	78	4	99.0%	103		3.4	1.6	11.5					
Tuesday	11/27/12	64	17.8			8.0	2	307	7,681	334	281	84%	8,357	4.0	1.5	3.0	63.5	17.5	6.8	3.5	65	4	98.7%	100	6	98.2%	150									
Wednesday	11/28/12	64	17.8		29	8.1	2	365	8,828	472	383	81%	11,416	4.4	1.4	2.9	63.5	17.5	6.8	3.5	61	4	98.9%	97	4	99.2%	97		2.6	1.7	15.8	2.5	72	11	Y	11/28/12
Thursday	11/29/12	65	18.3			8.2	1		7,831	706	586	83%	14,720	3.7	1.0	2.5	63.9	17.7	6.8	3.7	62			144	5	99.3%	104					2.8	70	7	Y	11/29/12
Friday	11/30/12	66	18.9			8.1	1		7,204	392	331	84%	7,519	3.4	0.9	2.3	64.8	18.2	6.7	3.6	55			133	6	98.5%	115					3.3	68	2	Y	12/01/12
Saturday	12/01/12	69	20.6			7.4	0		9,507	167	133	80%	4,039	4.0	1.5	2.9	69.1	20.6	6.9	4.1	50			91	5	97.0%	121									
Sunday	12/02/12	64	17.8			7.8	1		7,868	408	353	87%	8,167	3.8	1.2	2.4	63.9	17.7	6.8	3.8	65			75	4	99.0%	80									
Monday	12/03/12	65	18.3		34	8.1	1		8,851	535	480	90%	12,047	3.7	0.8	2.7	64.8	18.2	6.8	4	67			84	4	99.3%	90		1.3	0.8	11.8	2.8	70	13	Y	12/03/12
Tuesday	12/04/12	65	18.3			8.2	1	395	8,565	553	514	93%	11,991	3.7	1.1	2.6	64.6	18.1	6.8	3.8	62	3	99.2%	65	4	99.3%	87					2.2	70	6	Y	12/04/12
Wednesday	12/05/12	65	18.3		33	8.1	1	388	8,090	466	429	92%	9,716	3.6	1.0	2.5	64.6	18.1	6.7	4	50	3	99.2%	63	4	99.1%	83		0.8	0.5	13.6	2.8	68	12	Y	12/05/12
Thursday	12/06/12	65	18.3			8.3	1	395	8,236	546	488	89%	11,384	3.5	0.9	2.5	64.4	18	6.8	3.8	51	3	99.2%	63	4	99.3%	83									
Friday	12/07/12	65	18.3			8.0	1		8,851	420	379	90%	9,458	4.8	0.9	2.7	64.2	17.9	6.6	3.9	42			84	7	98.3%	158									
Saturday	12/08/12	65	18.3			8.2	1		8,196	759	712	94%	15,825	3.9	1.0	2.5	64.4	18	6.6	3.9	42			78	6	99.2%	125									
Sunday	12/09/12	65	18.3			7.7	2		6,884	595	568	95%	10,421	3.7	0.8	2.1	64.0	17.8	6.6	3.7	43			66	6	99.0%	105									
Monday	12/10/12	64	17.8	52	33	8.1	1	340	7,089	615	560	91%	12,823	3.6	0.8	2.5	63.9	17.7	6.7	3.7	55	4	98.8%	84	7	98.9%	146		0.7	0.4	14.9					
Tuesday	12/11/12	64	17.8			8.0	2	306	4,849	374	335	90%	5,926	3.9	0.9	1.9			6.7		47	4	98.7%	63	6	98.4%	95									
Wednesday	12/12/12	63	17.2		34	8.0	2	296	7,653	301	272	90%	7,782	4.7	1.9	3.1	62.8	17.1	6.7	3.7	53	4	98.6%	104	6	98.0%	155		4.0	0.6	15.1	4.4	66	10	Y	12/12/12
Thursday	12/13/12	59	15.0			8.1	0		9,179	370	335	91%	8,640	4.5	1.7	2.8	62.1	16.7	6.6	3.8	54			88	7	98.1%	163					4.9	71	35		
Friday	12/14/12	64	17.8			8.0	1		8,851	167	133	80%	3,761	3.4	1.0	2.7	63.0	17.2	6.7	3.9	61			84	5	97.0%	113					3.8	66	11	Y	12/14/12
Saturday	12/15/12	63	17.2			8.0	1		7,540	527	489	93%	10,109	3.8	1.1	2.3	63.0	17.2	6.7	3.9	67			72	7	98.7%	134									
Sunday	12/16/12	63	17.2			7.7	1	372	7,136	470	443	94%	9,016	3.8	0.9	2.3	63.0	17.2	6.7	3.6	62	4	98.9%	77	10	97.9%	192	95								
Monday	12/17/12	62	16.7		28	8.1	1	336	8,126	526	477	91%	12,722	5.4	0.8	2.9	63.0	17.2	6.9	3.5	59	5	98.5%	121	10	98.1%	242		2.3	0.4	11.2					
Tuesday	12/18/12	63	17.2			8.0	1	410	8,549	466	429	92%	9,716	3.6	0.9	2.5	61.0	16.1	6.7	3.6	61	4	99.0%	84	8	98.3%	167					4.7	68	272	Y	12/18/12
Wednesday	12/19/12	63	17.2		34	8.0	1		8,196	467	428	92%	9,737	3.7	0.9	2.5	61.9	16.6	6.7	3.7	62			78	7	98.5%	146		1.0	0.3	12.1	5.7	66	11	Y	12/19/12
Thursday	12/20/12	63	17.2			8.0	1		8,524	668	623	93%	14,485	3.7	1.0	2.6	62.4	16.9	6.8	3.7	62			81	6	99.1%	130					5.1	64	9	Y	12/20/12
Friday	12/21/12	63	17.2			8.0	1		7,868	1146	1060	92%	22,938	3.7	1.1	2.4	62.4	16.9	6.8	3.7	60			75	8	99.3%	160									
Saturday	12/22/12	63	17.2			7.2	1		8,851	751	701	93%	16,911	3.8	1.3	2.7	62.6	17	6.7	3.7	61			84	7	99.1%	158									
Sunday	12/23/12	63	17.2		30	7.8	1		9,179	550	510	93%	12,844	4.0	0.9	2.8	62.4	16.9	7.1	3.8	65			88	6	98.9%	140		0.7	0.3	11.8					
Monday	12/24/12	62	16.7			8.0	1		8,524	486	448	92%	10,538	4.6	1.2	2.6	61.0	16.1	6.7	3.9	55			81	7	98.6%	152									
Tuesday	12/25/12	63	17.2		36	7.9	1		7,540	884	841	95%	16,957	3.4	0.7	2.3	61.3	16.3	6.8	3.9	70			72	8	99.1%	153		1.3	0.4	11.9					
Wednesday	12/26/12	62	16.7			8.0	1	554	12,475	1465	1423	97%	32,989	4.1	0.9	2.7	61.5	16.4	6.7	4	46	4	99.3%	90	10	99.3%	225					3.5	68	12	Y	12/26/12
Thursday	12/27/12	62	16.7			8.1	1	508	11,439	816	769	94%	18,375	4.0	1.0	2.7	61.9	16.6	6.8	4	62	4	99.2%	90	6	99.3%	135					4.4	69	7	Y	12/27/12
Friday	12/28/12	62	16.7			8.1	1	417	9,390	710	663	93%	15,988	4.5	1.0	2.7	61.9	16.6	6.8	3.6	70	3	99.3%	68	7	99.0%	158					4.8	70	9	Y	12/28/12
Saturday	12/29/12	62	16.7			7.7	1		8,196	1010	964	95%	21,059	3.9	0.9	2.5	61.7	16.5	6.8	3.8	74			78	8	99.2%	167									
Sunday	12/30/12	61	16.1			7.8	1		7,868	581	547	94%	11,629	3.9	0.9	2.4	61.5	16.4	6.8	3.6	70			75	6	99.0%	120									
Monday	12/31/12	62	16.7			8.0	0		8,196	699	647	93%	14,574	3.9	0.9	2.5	61.7	16.5	6.8	3.8	67			78	4	99.4%	83									
	Average	64.9	18.3	78.2	29.2	8.0	1.7	381	8,259	418	376	0.9	9,079	4.0	1.0	2.6	65.5	18.6	6.8	3.7	69.1	5.1	98.6%	111	9.4	97.5%	205.8	95.6	4.9	0.8	11.0	4.2	65.7	71.4		

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
	Max		23.3	441.0	44.5	8.4	5.4	570	13,781	1,465	1,423	1.0	32,989	8.4	2.7	3.5	74.8	23.8	7.2	4.3	136.0	24.0	99.6%	521	68.0	99.5%	1587.9	102.8	14.9	1.7	22.3	10.7	76.0	500.0		
	Min	55.0	12.8	39.3	20.6	6.4	0.1	162	4,053	159	133	0.7	3,587	2.6	0.0	1.9	56.7	13.7	6.4	3.1	28.0	2.0	92.7%	37	2.0	74.6%	43.4	88.4	0.1	0.2	5.2	1.6	57.0	2.0		
	Median													3.8	1.0	2.6	66.0																			
2013																																				
Tuesday	01/01/13	61	16.1		35	7.8	1	474	9,092	539	499	93%	10,339	3.6	0.9	2.3	61.5	16.4	6.8	3.8	64	3	99.4%	58	6	98.9%	115		0.5	0.3	13.8					
Wednesday	01/02/13	61	16.1			8.1	2	390	8,457	421	378	90%	9,129	3.4	0.8	2.6	61.3	16.3	6.8	3.9	60	4	99.0%	87	5	98.8%	108	96				3.4	70	10	Y	01/02/13
Thursday	01/03/13	62	16.7		36	8.0	2	374	8,110	418	382	91%	9,064	4.0	0.9	2.6	60.8	16	6.7	3.9	62	4	98.9%	87	6	98.6%	130		0.5	0.3	14.8	2.7	70	13	Y	01/03/13
Friday	01/04/13	62	16.7			8.2	1		9,161	457	414	91%	9,910	3.3	1.0	2.6	61.0	16.1	6.7	4.1	61			91	6	98.7%	130					2.5	70	16		
Saturday	01/05/13	61	16.1			8.1	1		8,457	587	544	93%	11,749	3.9	1.0	2.4	61.2	16.2	6.7	4	67			84	6	99.0%	120									
Sunday	01/06/13	60	15.6			7.8	2		8,457	526	493	94%	10,528	3.9	0.9	2.4	60.8	16	6.8	4.2	61			84	7	98.7%	140									
Monday	01/07/13	61	16.1		29	8.1	1		11,276	522	488	93%	13,931	6.1	0.8	3.2	61.2	16.2	6.8	3.8	67			112	7	98.7%	187		0.4	0.2	11.0					
Tuesday	01/08/13	57	13.9			8.3	4	355	8,882	481	443	92%	12,035	4.7	1.1	3.0	58.5	14.7	6.7	3.8	64	3	99.2%	75	7	98.5%	175									
Wednesday	01/09/13	61	16.1	45	29	8.0	2	335	8,102	394	349	89%	9,529	4.3	1.0	2.9	59.7	15.4	6.7	3.8	58	5	98.5%	121	7	98.2%	169		0.5	0.3	12.3	3.9	70	36		
Thursday	01/10/13	61	16.1			8.1	2	420	9,458	490	442	90%	11,034	3.8	1.0	2.7	60.4	15.8	6.8	3.8	66	6	98.6%	135	7	98.6%	158					3.6	70	38		
Friday	01/11/13	61	16.1			8.1	2		9,161	545	480	88%	11,818	3.6	1.0	2.6	60.4	15.8	6.8	3.8	75			91	7	98.7%	152					3.6	69	30		
Saturday	01/12/13	60	15.6			8.0	2		8,457	839	784	93%	16,793	4.1	1.0	2.4	60.3	15.7	6.8	3.9	68			84	7	99.2%	140									
Sunday	01/13/13	60	15.6			7.6	1		8,457	435	401	92%	8,707	3.8	0.8	2.4	60.1	15.6	6.7	3.9	59	4		80	7	98.4%	140									
Monday	01/14/13	60	15.6		31	8.1	2	511	11,081	737	681	92%	15,981	3.8	0.8	2.6	60.1	15.6	6.7	4.1	58	4	99.2%	87	8	98.9%	173		0.8	0.4	15.0	3.4	68	20		
Tuesday	01/15/13	60	15.6			8.2	2	533	11,113	755	698	92%	15,742	3.4	0.9	2.5	59.7	15.4	6.7	4.1	61	4	99.2%	84	8	98.9%	167					4.4	69	46		
Wednesday	01/16/13	60	15.6		31	8.3	2	462	10,018	634	583	92%	13,748	3.5	0.9	2.6	59.9	15.5	6.6	4.1	47			91	8	98.7%	173		1.1	0.5	15.1	5.4	66	21		
Thursday	01/17/13	60	15.6			8.1	2		8,809	587	540	92%	12,239	3.5	0.9	2.5	60.1	15.6	6.7	3.9	53			88	10	98.3%	209									
Friday	01/18/13	60	15.6			8.2	2		9,161	603	539	89%	13,075	3.3	1.0	2.6	60.1	15.6	6.7	3.9	50			91	11	98.2%	239									
Saturday	01/19/13	60	15.6			8.1	2		8,457	694	650	94%	13,891	3.9	1.0	2.4	60.1	15.6	6.7	3.9	58			84	7	99.0%	140									
Sunday	01/20/13	60	15.6			7.7	1		8,104	740	693	94%	14,195	3.7	0.8	2.3	60.1	15.6	6.8	3.8	79			81	6	99.2%	115									
Monday	01/21/13	58	14.4		31	7.7	2	463	10,040	835	785	94%	18,106	3.9	0.7	2.6	59.5	15.3	6.7	4.1	65	3	99.4%	65	7	99.2%	152		0.1	0.2	17.2					
Tuesday	01/22/13	59	15.0			8.2	2	411	8,569	671	582	87%	13,990	3.6	0.9	2.5	59.4	15.2	6.8	3.9	71	4	99.0%	84	8	98.8%	167					3.9	68	54		
Wednesday	01/23/13	60	15.6		32	8.1	2	478	10,365	562	512	91%	12,186	3.6	1.0	2.6	59.4	15.2	6.7	4.2	61	7	98.5%	152	9	98.4%	195		0.6	0.3	16.1	4	69	52		
Thursday	01/24/13	60	15.6			8.1	2		8,809	475	435	92%	9,904	3.6	1.0	2.5	59.4	15.2	6.7	4.2	58			88	12	97.5%	250					4.5	68	59		
Friday	01/25/13	59	15.0			8.2	2		9,161	563	493	88%	12,208	3.6	1.0	2.6	59.4	15.2	6.7	4	51			91	11	98.0%	239									
Saturday	01/26/13	60	15.6			8.1	2		8,457	661	615	93%	13,231	4.0	1.1	2.4	59.5	15.3	6.7	4.1	56			84	10	98.5%	200									
Sunday	01/27/13	59	15.0			7.8	2		8,457	1214	1139	94%	24,299	3.8	0.7	2.4	59.5	15.3	6.9	3.9	68	4		80	10	99.2%	200									
Monday	01/28/13	59	15.0		31	8.3	2	297	6,440	412	379	92%	8,934	3.8	0.8	2.6	59.7	15.4	6.7	3.9	57	4	98.7%	87	10	97.6%	217		3.1	0.5	16.0	5.5	65	152	Y	01/28/13
Tuesday	01/29/13	60	15.6			8.2	3	412	8,934	661	612	93%	14,333	3.5	1.0	2.6	59.7	15.4	6.7	4	58	4	99.0%	87	9	98.6%	195					5.4	67	168	Y	01/29/13
Wednesday	01/30/13	60	15.6		29	8.2	2		9,514	692	637	92%	15,582	3.8	0.9	2.7	59.7	15.4	6.6	3.8	51			95	10	98.6%	225		3.3	0.5	12.7	4.9	66	182	Y	01/30/13
Thursday	01/31/13	60	15.6			8.2	2		8,809	819	772	94%	17,076	3.5	1.0	2.5	59.4	15.2	6.8	4	59			88	9	98.9%	188									
Friday	02/01/13	60	15.6			8.4	2		7,277	313	268	86%	6,787	3.6	0.9	2.6	59.5	15.3	6.7	3.9	53			92	12	96.2%	260									
Saturday	02/02/13	60	15.6			8.4	3		6,437	879	839	95%	16,861	3.9	1.0	2.3	59.4	15.2	6.8	3.9	56			82	10	98.9%	192									
Sunday	02/03/13	59	15.0			7.5	2		6,717	376	354	94%	7,526	3.9	0.7	2.4	59.2	15.1	6.8	3.9	70			85	8	97.9%	160									
Monday	02/04/13	59	15.0		28	8.2	3		7,277	324	293	90%	7,026	3.8	0.6	2.6	59.2	15.1	6.9	4.1	77			92	7	97.8%	152		4.1	0.4	11.0	4.2	68	54		
Tuesday	02/05/13	60	15.6			8.2	2	312	6,765	382	350	92%	8,283	3.5	0.9	2.6	59.5	15.3	6.8	3.9	74	4	98.7%	87	7	98.2%	152					2.8	67	7	Y	02/05/13
Wednesday	02/06/13	60	15.6		30	8.2	2	299	6,484	267	233	87%	5,790	3.7	1.0	2.6	59.5	15.3	6.9	3.9	71	4	98.7%	87	6	97.8%	130		7.2	0.4	11.2	3.1	68	5	Y	02/06/13
Thursday	02/07/13	60	15.6			7.4	3	285	6,180	562	520	93%	12,186	3.8	1.0	2.6	59.9	15.5	6.8	3.9	69	5	98.2%	109	8	98.6%	173									
Friday	02/08/13	60	15.6			8.3	3		6,997	504	464	92%	10,508	3.6	1.0	2.5	60.1	15.6	6.8	3.9	69			89	7	98.6%	146									
Saturday	02/09/13	61	16.1			8.2	3		6,437	1064	1010	95%	20,410	4.1	1.0	2.3	60.1	15.6	6.8	3.9	67			82	9	99.2%	173									
Sunday	02/10/13	60	15.6			7.6	2		6,717	483	448	93%	9,668	3.8	0.6	2.4	59.9	15.5	6.8	3.8	72			85	12	97.5%	240	95								
Monday	02/11/13	59	15.0	46	32	8.1	2	347	7,524	374	341	91%	8,110	4.5	0.8	2.6	59.4	15.2	6.8	3.4	78	5	98.6%	109	9	97.6%	195		6.1	0.7	10.4					
Tuesday	02/12/13	59	15.0			8.2	3	263	5,922	277	236	85%	6,237	3.7	0.9	2.7	59.7	15.4	6.8	4.2	75	4	98.5%	90	8	97.1%	180					5.7	66	210	Y	02/12/13
Wednesday	02/13/13	60	15.6		32	8.2	2	320	6,672	508	474	93%	10,592	3.8	1.1	2.5	60.1	15.6	6.8	3.9	75	4	98.8%	84	7	98.6%	146		4.8	0.8	17.5	3.7	66	237	Y	02/13/13
Thursday	02/14/13	60	15.6			8.1	3		6,997	498	466	94%	10,383	3.6	1.0	2.5	60.1	15.6	6.7	3.9	60			89	7	98.6%	146					4.7	66	154	Y	02/14/13
Friday	02/15/13	60	15.6			8.0	2		7,277	368	316	86%	7,980	3.8	0.9	2.6	60.1	15.6	6.7	4	55			92	11	97.0%	239									
Saturday	02/16/13	60	15.6			8.1	2		6,437	497	447	90%	9,533	4.0	1.0	2.3	60.3	15.7	6.8	3.9	58			82	10	98.0%	192									
Sunday	02/17/13	60	15.6			8.2	2		6,437	315	287	91%	6,042	3.8	0.6	2.3	59.5	15.3	6.8	3.9	71			82	9	97.1%	173									
Monday	02/18/13	59	15.0		31	7.9	2	375	8,444	487	444	91%	10,966	4.0	0.5	2.7	59.5	15.3	6.9	3.7	69	4	98.9%	90	8	98.4%	180		1.4	0.6	15.7					
Tuesday	02/19/13	60	15.6			8.2	3	366	7,631	374	341	91%	7,798	3.8	0.9	2.5	60.1	15.6	6.9	3.9	69	4	98.9%	84	8	97.9%	167									
Wednesday	02/20/13	60	15.6		33	8.0	2	364	7,893	481	447	93%	10,430	3.9	0.9	2.6	59.9	15.5	6.7	3.8	56	4	98.9%	87	9	98.1%	195		6.1	1.1	17.0	3.5	67	82		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Thursday	02/21/13	60	15.6			8.1	2		6,997	481	449	93%	10,029	3.7	0.9	2.5	59.7	15.4	6.7	3.8	48			89	10	97.9%	209					4	66	76		
Friday	02/22/13	60	15.6			8.0	2		5,877	373	331	89%	6,533	3.8	0.9	2.1	59.7	15.4	6.6	3.9	40			74	10	97.3%	175					4.2	66	68		
Saturday	02/23/13	60	15.6			8.0	2		6,437	637	598	94%	12,219	3.8	1.1	2.3	59.5	15.3	6.9	3.9	48			82	9	98.6%	173									
Sunday	02/24/13	58	14.4			7.7	2	371	7,117	433	399	92%	8,306	3.7	0.5	2.3	59.5	15.3	6.8	3.8	59	5	98.7%	96	8	98.2%	153									
Monday	02/25/13	59	15.0		33	8.2	2	343	7,438	491	452	92%	10,647	3.9	0.8	2.6	60.1	15.6	6.7	3.8	59	4	98.8%	87	7	98.6%	152		2.3	0.7	16.0					
Tuesday	02/26/13	60	15.6			8.1	2	382	7,965	469	434	93%	9,779	3.8	0.9	2.5	59.7	15.4	6.6	3.9	50	4	99.0%	84	8	98.3%	167					3.8	67	46		
Wednesday	02/27/13	60	15.6		28	8.2	2		6,997	372	334	90%	7,756	3.8	0.9	2.5	60.1	15.6	6.6	3.8	43			89	10	97.3%	209		2.6	0.7	19.6	3.4	67	21		
Thursday	02/28/13	58	14.4			7.9	4		6,997	460	419	91%	9,591	4.8	0.9	2.5	60.1	15.6	6.5	3.8	40			89	10	97.8%	209					4.6	64	120		
Friday	03/01/13	60	15.6			8.0	2		8,811	422	375	89%	9,151	3.7	0.8	2.6	60.1	15.6	6.7	3.9	46			107	9	97.9%	195									
Saturday	03/02/13	60	15.6			8.1	2		8,133	410	369	90%	8,207	4.0	0.9	2.4	60.1	15.6	6.6	3.9	49			98	9	97.8%	180									
Sunday	03/03/13	60	15.6			8.2	2		8,133	818	775	95%	16,373	3.9	0.8	2.4	59.9	15.5	6.7	3.7	65			98	9	98.9%	180									
Monday	03/04/13	59	15.0	52	31	8.1	2	385	8,027	649	611	94%	13,532	3.9	0.7	2.5	60.1	15.6	6.9	4	67	5	98.7%	104	8	98.8%	167		3.1	0.5	14.8					
Tuesday	03/05/13	60	15.6			8.1	2	396	8,917	909	869	96%	20,469	3.7	0.8	2.7	59.9	15.5	6.7	4	53	4	99.0%	90	10	98.9%	225					3.6	66	116		
Wednesday	03/06/13	59	15.0		26	7.9	3	365	9,132	595	530	89%	14,887	5.9	1.4	3.0	59.7	15.4	6.6	3.8	41	5	98.6%	125	10	98.3%	250	90	4.0	0.5	15.7	4.1	64	60		
Thursday	03/07/13	60	15.6			8.1	2		8,472	604	556	92%	12,593	3.9	2.0	2.5	59.7	15.4	6.7	4.2	45			103	10	98.3%	209					3.7	67	38		
Friday	03/08/13	60	15.6			8.1	2		8,472	502	454	90%	10,467	3.5	0.8	2.5	60.4	15.8	6.6	3.9	43			103	16	96.8%	334									
Saturday	03/09/13	60	15.6			8.1	2		7,794	585	560	96%	11,221	3.7	1.0	2.3	60.6	15.9	6.7	3.9	42			94	13	97.8%	249									
Sunday	03/10/13	60	15.6			7.8	2		7,794	601	559	93%	11,528	3.7	0.8	2.3	60.4	15.8	6.9	3.8	65			94	11	98.2%	211									
Monday	03/11/13	60	15.6		30	8.0	2		8,472	1079	1030	95%	22,497	3.6	0.8	2.5	60.6	15.9	6.8	3.7	61			103	13	98.8%	271		3.1	0.4	14.7	5.1	66	148	Y	03/11/13
Tuesday	03/12/13	60	15.6			8.0	2	408	8,847	917	856	93%	19,884	3.5	0.8	2.6	61.0	16.1	6.6	3.9	51	5	98.8%	109	12	98.7%	260					4.2	65	90		
Wednesday	03/13/13	61	16.1		30	7.9	1	432	9,007	700	638	91%	14,595	3.5	0.9	2.5	61.0	16.1	6.6	3.8	45	5	98.8%	104	12	98.3%	250		2.1	0.4	16.8	3.4	67	88		
Thursday	03/14/13	61	16.1			8.1	2	378	7,881	371	335	90%	7,735	3.6	1.0	2.5	61.5	16.4	6.7	3.8	44	5	98.7%	104	12	96.8%	250									
Friday	03/15/13	61	16.1			8.2	1		8,811	387	349	90%	8,392	3.6	0.9	2.6	61.3	16.3	6.6	3.8	40			107	14	96.4%	304									
Saturday	03/16/13	60	15.6			7.7	1		8,472	558	509	91%	11,634	3.9	0.9	2.5	61.3	16.3	6.6	3.9	47			103	10	98.2%	209									
Sunday	03/17/13	60	15.6			7.9	2		7,794	689	650	94%	13,216	3.9	0.9	2.3	60.8	16	6.8	3.9	59			94	9	98.7%	173									
Monday	03/18/13	60	15.6		29	8.0	2	372	7,756	552	519	94%	11,509	3.9	0.7	2.5	60.6	15.9	6.8	3.8	61	5	98.7%	104	10	98.2%	209		2.6	0.3	14.5					
Tuesday	03/19/13	60	15.6			8.2	2	316	8,433	574	540	94%	15,319	6.1	1.0	3.2	60.6	15.9	6.7	3.7	54	5	98.4%	134	12	97.9%	320									
Wednesday	03/20/13	60	15.6		26	8.0	3	416	9,367	465	420	90%	10,471	3.8	1.4	2.7	58.3	14.6	6.6	3.9	42	5	98.8%	113	10	97.8%	225		2.2	0.3	13.0	5.2	70	154	Y	03/20/13
Thursday	03/21/13	60	15.6			8.2	2		8,811	342	311	91%	7,416	3.8	1.0	2.6	60.1	15.6	6.6	4	44			107	10	97.1%	217					5.2	62	180	Y	03/21/13
Friday	03/22/13	60	15.6			8.1	2		8,811	426	376	88%	9,237	3.6	0.9	2.6	60.4	15.8	6.7	3.8	50			107	10	97.7%	217					5.1	65	230	Y	03/22/13
Saturday	03/23/13	60	15.6			8.1	2		7,794	1447	1390	96%	27,756	4.0	0.9	2.3	60.4	15.8	6.7	3.9	49			94	10	99.3%	192									
Sunday	03/24/13	59	15.0			7.6	3	393	7,866	487	462	95%	9,748	3.9	0.7	2.4	60.4	15.8	6.7	3.7	56	5	98.7%	100	10	97.9%	200									
Monday	03/25/13	60	15.6		29	8.1	2	473	10,257	639	598	94%	13,856	3.8	0.7	2.6	61.0	16.1	6.7	3.6	60	5	98.9%	109	10	98.4%	217		2.9	0.4	15.5					
Tuesday	03/26/13	60	15.6			8.0	2	542	11,753	1065	991	93%	23,093	3.8	0.9	2.6	61.0	16.1	6.7	3.8	57	5	99.1%	109	11	99.0%	239									
Wednesday	03/27/13	61	16.1		31	8.0	2		8,133	1261	1189	94%	25,240	3.9	1.0	2.4	61.5	16.4	6.8	3.8	57			98	12	99.0%	240		2.9	0.3	14.0	5.6	65	222	Y	03/27/13
Thursday	03/28/13	61	16.1			8.1	1		8,472	876	803	92%	18,265	3.5	0.8	2.5	61.7	16.5	6.8	3.6	52			103	11	98.7%	229					7.2	63	150		
Friday	03/29/13	61	16.1			8.1	2		7,794	597	538	90%	11,452	3.5	0.9	2.3	61.9	16.6	6.8	3.7	61			94	11	98.2%	211					5.5	64	160	Y	03/29/13
Saturday	03/30/13	61	16.1			8.1	2		7,455	1078	1024	95%	19,779	3.8	0.9	2.2	61.7	16.5	6.9	3.8	58			90	12	98.9%	220									
Sunday	03/31/13	60	15.6			7.5	2		7,455	555	516	93%	10,183	3.7	0.8	2.2	62.1	16.7	6.8	4.1	65			90	11	98.0%	202									
Monday	04/01/13	61	16.1		29	7.9	2	472	9,841	598	552	92%	12,468	3.7	0.7	2.5	62.6	17	6.8	3.7	64	6	98.7%	125	13	97.8%	271		4.7	0.4	13.0	5.7	65	338	Y	04/01/13
Tuesday	04/02/13	62	16.7			7.9	2	472	9,841	827	780	94%	17,243	3.6	0.8	2.5	62.6	17	6.8	3.8	65	10	97.9%	209	12	98.5%	250	98				6	63	18		
Wednesday	04/03/13	62	16.7	48	29	7.9	2	399	7,986	487	443	91%	9,748	3.6	0.8	2.4	63.0	17.2	6.7	3.7	61	5	98.7%	100	11	97.7%	220		4.9	0.5	14.9	5.5	63	58		
Thursday	04/04/13	62	16.7			7.4	1		9,028	417	385	92%	9,390	4.3	0.8	2.7	62.8	17.1	6.8	3.5	61			154	17	95.9%	383									
Friday	04/05/13	61	16.1			7.9	2		8,359	342	297	87%	7,131	3.7	0.9	2.5	62.4	16.9	6.7	3.5	56			142	84	75.4%	1751									
Saturday	04/06/13	60	15.6			7.6	2		8,693	403	360	89%	8,739	3.6	0.8	2.6	62.4	16.9	6.8	3.8	60			148	12	97.0%	260									
Sunday	04/07/13	60	15.6			7.4	2		9,028	388	352	91%	8,737	7.3	0.9	2.7	62.1	16.7	6.7	4.1	60			154	10	97.4%	225									
Monday	04/08/13	61	16.1		29	8.1	2		8,359	308	282	92%	6,422	3.7	0.7	2.5	61.3	16.3	6.8	3.6	61			142	12	96.1%	250		7.6	0.6	12.2					
Tuesday	04/09/13	62	16.7			8.1	2	342	7,131	376	342	91%	7,840	4.7	0.8	2.5	62.2	16.8	6.8	3.8	70	6	98.2%	125	12	96.8%	250					7	65	44		
Wednesday	04/10/13	62	16.7		29	8.0	2	411	8,912	369	327	89%	8,001	3.8	1.0	2.6	62.8	17.1	6.9	3.6	64	6	98.5%	130	13	96.5%	282		8.9	0.8	15.1	7.4	63	144	Y	04/10/13
Thursday	04/11/13	62	16.7			8.1	2	322	6,982	406	378	93%	8,804	3.6	0.9	2.6	62.8	17.1	6.8	3.8	70	6	98.1%	130	13	96.8%	282					7.2	64	72		
Friday	04/12/13	62	16.7			8.0	2		9,362	300	270	90%	7,006	3.9	1.0	2.8	62.2	16.8	6.7	3.7	60			160	12	96.0%	280									
Saturday	04/13/13	62	16.7			7.8	2		7,690	376	346	92%	7,212	3.8	1.0	2.3	62.4	16.9	6.9	3.8	64			131	10	97.3%	192									
Sunday	04/14/13	61	16.1			7.6	2	330	7,156	317	296	93%	6,874	3.9	0.8	2.6	61.7	16.5	6.7	3.7	56	5	98.5%	109	10	96.8%	217									
Monday	04/15/13	61	16.1		28	8.1	2	330	7,431	500	417	83%	11,259	5.3	0.8	2.7	62.4	16.9	6.7	3.6	60	6	98.2%	135	11	97.8%	248		6.3	0.4	12.9					
Tuesday	04/16/13	62	16.7			8.2	2	380	8,240	428	391	91%	9,281	3.8	1.0	2.6	62.2	16.8	6.7	3.8	58	5	98.7%	109	12	97.2%	260									
Wednesday	04/17/13	62	16.7		30	8.2	1		8,693	411	372	91%	8,912	3.8	0.9	2.6	62.6	17	6.7	3.8	54			148	11	97.3%	239		7.1	0.5	13.7	6.8	64	126	Y	04/17/13
Thursday	04/18/13	62	16.7			8.2	1		8,693	405	371	92%	8,782	3.8	1.0	2.6	63.1	17.3	6.6	3.7	48			148	14	96.5%	304					6.9	63	118		
Friday	04/19/13	63	17.2			7.9	1		8,693	654	615	94%	14,181	3.8	0.9	2.6	63.5	17.5	6.7	3.6	46			148	15	97.7%	325					6.9	62	94		
Saturday	04/20/13	62	16.7			7.8	1		8,025	791	735	93%	15,833	3.8	1.0	2.4	63.3	17.4	6.8	3.6	59			137	12	98.5%	240									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	04/21/13	60	15.6			7.6	2		8,359	510	481	94%	10,634	3.9	0.7	2.5	63.1	17.3	6.8	3.9	61			142	12	97.6%	250									
Monday	04/22/13	62	16.7		28	8.1	2	403	8,739	537	495	92%	11,644	4.0	0.8	2.6	63.5	17.5	6.7	3.7	57	9	97.8%	195	14	97.4%	304		5.0	0.7	14.4					
Tuesday	04/23/13	63	17.2			8.1	2	536	11,623	721	664	92%	15,634	4.3	0.9	2.6	63.5	17.5	6.7	3.4	53	9	98.3%	195	16	97.8%	347									
Wednesday	04/24/13	63	17.2		29	8.1	1	414	8,632	592	543	92%	12,343	4.0	0.9	2.5	63.9	17.7	6.6	3.4	47	9	97.8%	188	15	97.5%	313		3.7	0.7	17.2	8	63	148	Y	04/24/13
Thursday	04/25/13	63	17.2			8.0	1		9,028	517	448	87%	11,642	4.1	0.8	2.7	64.2	17.9	6.6	3.5	42			154	14	97.3%	315					6.9	62	190	Y	04/25/13
Friday	04/26/13	63	17.2			8.1	1		8,693	427	377	88%	9,259	3.7	1.0	2.6	64.6	18.1	6.7	3.4	51			148	14	96.7%	304					6.3	64	162	Y	04/26/13
Saturday	04/27/13	63	17.2			8.0	1		7,690	680	646	95%	13,044	4.1	0.8	2.3	64.6	18.1	6.7	3.4	56			131	10	98.5%	192									
Sunday	04/28/13	61	16.1			7.7	2		8,025	620	588	95%	12,410	3.9	0.8	2.4	64.0	17.8	6.7	3.7	52			137	12	98.1%	240									
Monday	04/29/13	63	17.2			8.1	1		9,028	456	418	92%	10,268	4.3	0.8	2.7	64.2	17.9	6.7	3.5	55			154	13	97.1%	293									
Tuesday	04/30/13	63	17.2			8.0	1		9,028	530	481	91%	11,935	4.0	0.9	2.7	63.7	17.6	6.7	3.6	54			154	12	97.7%	270									
Wednesday	05/01/13	63	17.2		26	8.0	1	446	9,671	492	440	89%	10,669	4.1	0.9	2.6	63.7	17.6	6.6	3.7	50	6	98.7%	130	13	97.4%	282		4.6	0.6	14.5	7.9	64	8	Y	05/01/13
Thursday	05/02/13	63	17.2			7.8	1	380	8,240	392	350	89%	8,500	3.9	0.9	2.6	64.6	18.1	6.9	6.8	62	8	97.9%	174	14	96.4%	304					7.9	64	15		
Friday	05/03/13	64	17.8			8.0	1	410	8,890	486	448	92%	10,538	4.0	0.9	2.6	65.3	18.5	6.7	3.9	62	7	98.3%	152	7	98.6%	152					8.6	63	8	Y	05/03/13
Saturday	05/04/13	64	17.8		26	8.0	1		6,851	461	426	92%	8,843	4.4	0.9	2.3	65.3	18.5	6.8	3.9	61			143	16	96.5%	307		2.0	0.4	13.8					
Sunday	05/05/13	63	17.2			7.9	1		7,446	454	418	92%	9,466	4.1	0.9	2.5	64.8	18.2	6.8	3.8	57			156	14	96.9%	292									
Monday	05/06/13	64	17.8			8.0	1		8,042					4.1	0.8	2.7	65.7	18.7	6.8	3.8	66			168	16							8.9	64	74		
Tuesday	05/07/13	64	17.8	52	28	7.7	1	488	10,989	565	502	89%	12,723	3.9	0.8	2.7	66.0	18.9	6.9	3.8	83	7	98.6%	158	14	97.5%	315		5.2	0.4	9.6	8.6	63	400	Y	05/07/13
Wednesday	05/08/13	64	17.8			8.1	1	389	8,435	427	389	91%	9,259	4.0	1.0	2.6	66.7	19.3	6.9	3.6	83	8	97.9%	174	15	96.5%	325	98				8.7	62	500	Y	05/08/13
Thursday	05/09/13	65	18.3		26	8.1	1	361	8,129	396	341	86%	8,917	4.1	0.9	2.7	66.9	19.4	6.9	3.5	75	10	97.2%	225	16	96.0%	360		6.1	0.6	12.2					
Friday	05/10/13	65	18.3			7.9	1		7,744	441	404	92%	9,563	3.9	1.0	2.6	67.1	19.5	6.8	3.5	86			162	15	96.6%	325									
Saturday	05/11/13	65	18.3			8.0	1		7,148	391	352	90%	7,826	3.7	1.0	2.4	67.1	19.5	6.9	3.5	73			149	16	95.9%	320									
Sunday	05/12/13	65	18.3			7.8	1		7,148	337	307	91%	6,745	3.8	0.9	2.4	67.3	19.6	6.7	3.6	80			149	12	96.4%	240									
Monday	05/13/13	65	18.3		28	7.9	1	362	8,152	342	299	87%	7,701	3.9	0.8	2.7	66.9	19.4	6.9	3.6	77	7	98.1%	158	12	96.5%	270		9.4	0.4	9.8					
Tuesday	05/14/13	65	18.3			8.1	1	365	7,915	398	360	90%	8,630	3.8	0.8	2.6	66.4	19.1	7.1	3.7	116	8	97.8%	174	16	96.0%	347					7.1	62	118		
Wednesday	05/15/13	65	18.3		28	8.0	1	357	7,741	382	348	91%	8,283	3.9	0.9	2.6	66.9	19.4	7.0	3.6	121	10	97.2%	217	15	96.1%	325		13.4	0.7	9.2	7.5	64	70		
Thursday	05/16/13	65	18.3			8.1	1		8,042	375	343	91%	8,444	3.8	1.0	2.7	67.1	19.5	7.0	3.6	124			168	15	96.0%	338					7.2	64	63		
Friday	05/17/13	66	18.9			8.1	1		8,042	380	359	94%	8,557	3.7	1.0	2.7	67.3	19.6	7.0	3.6	110			168	15	96.1%	338									
Saturday	05/18/13	65	18.3			8.1	1		7,446	347	313	90%	7,235	3.8	1.0	2.5	67.1	19.5	7.0	3.6	122			156	16	95.4%	334									
Sunday	05/19/13	64	17.8			7.6	1	359	7,785	369	340	92%	8,001	3.9	0.9	2.6	66.2	19	6.9	3.5	104	7	98.1%	152	14	96.2%	304									
Monday	05/20/13	66	18.9		26	8.0	1	223	4,836	308	284	92%	6,679	4.0	0.8	2.6	67.5	19.7	6.9	3.7	100	7	96.9%	152	14	95.5%	304		9.4	0.5	8.6					
Tuesday	05/21/13	62	16.7			7.9	4	181	6,189	391	327	84%	13,370	7.6	1.0	4.1	66.7	19.3	7.0	3	109	10	94.5%	342	20	94.9%	684					8.6	64	59		
Wednesday	05/22/13	65	18.3		27	7.8	2		10,127	438	365	83%	12,420	7.1	2.0	3.4	63.1	17.3	7.0	3.7	98			212	12	97.3%	340		11.5	0.5	6.7	6.4	66	7	Y	05/22/13
Thursday	05/23/13	65	18.3			8.2	2		8,340	190	170	89%	4,437	4.1	1.0	2.8	64.2	17.9	7.0	3.8	100			174	12	93.7%	280							7	Y	05/23/13
Friday	05/24/13	66	18.9			8.1	1		7,446	451	407	90%	9,403	3.9	1.0	2.5	65.8	18.8	7.1	3.8	123			156	14	96.9%	292									
Saturday	05/25/13	66	18.9			8.1	1		7,148	310	289	93%	6,205	3.7	1.1	2.4	64.8	18.2	7.1	3.7	110			149	12	96.1%	240									
Sunday	05/26/13	65	18.3			7.7	1		7,148	480	446	93%	9,608	3.9	0.8	2.4	66.7	19.3	7.0	3.4	96			149	10	97.9%	200									
Monday	05/27/13	65	18.3		29	7.8	1	319	7,183	390	364	93%	8,782	4.2	0.9	2.7	66.7	19.3	6.9	3.6	90	4	98.7%	90	10	97.4%	225		5.2	0.3	9.7					
Tuesday	05/28/13	66	18.9			8.0	1	398	8,962	427	383	90%	9,615	3.9	0.8	2.7	67.6	19.8	6.9	3.7	86	6	98.5%	135	10	97.7%	225									
Wednesday	05/29/13	66	18.9		26	7.8	1	319	7,981	391	357	91%	9,783	5.9	1.0	3.0	67.5	19.7	7.0	3.6	96	7	97.8%	175	12	96.9%	300		7.6	0.3	9.4	6	67	184	Y	05/29/13
Thursday	05/30/13	66	18.9			8.0	1		8,042	326	304	93%	7,341	4.0	1.0	2.7	67.3	19.6	6.9	3.7	92			168	9	97.2%	203					5.9	68	12	Y	05/30/13
Friday	05/31/13	66	18.9			8.1	1		9,233	595	568	95%	15,383	4.1	0.9	3.1	67.3	19.6	6.9	3.6	90			193	6	99.0%	155					5.3	68	52		
Saturday	06/01/13	66	18.9			8.1	0		6,030	477	450	94%	7,956	3.8	1.0	2.0	66.9	19.4	6.9	3.7	93			83	13	97.3%	217									
Sunday	06/02/13	65	18.3			7.5	1		7,839	481	443	92%	10,430	3.9	0.8	2.6	67.1	19.5	6.8	3.8	80			108	12	97.5%	260									
Monday	06/03/13	66	18.9		26	8.0	1	425	9,216	515	468	91%	11,167	4.6	0.9	2.6	68.4	20.2	6.9	3.2	81	8	98.1%	174	16	96.9%	347		7.5	0.4	11.3					
Tuesday	06/04/13	66	18.9			8.1	1	396	8,917	727	658	91%	16,371	3.8	0.9	2.7	68.7	20.4	6.9	3.6	81	6	98.5%	135	13	98.2%	293					3.2	69	72		
Wednesday	06/05/13	66	18.9	45	24	7.7	1	386	8,370	425	388	91%	9,216	3.9	0.9	2.6	68.5	20.3	6.9	3.5	87	6	98.4%	130	10	97.6%	217		8.6	0.3	11.2	4.4	71	92		
Thursday	06/06/13	67	19.4			7.8	1		8,140	496	450	91%	11,169	4.4	0.9	2.7	68.9	20.5	7.0	3.5	96			113	10	98.0%	225	98						60		
Friday	06/07/13	67	19.4			7.9	1		7,537	498	461	93%	10,383	3.7	0.9	2.5	68.5	20.3	7.0	3.4	95			104	10	98.0%	209									
Saturday	06/08/13	67	19.4			7.8	1		8,140	527	484	92%	11,867	3.7	1.3	2.7	68.7	20.4	7.0	3.4	92			113	10	98.1%	225									
Sunday	06/09/13	67	19.4			7.3	1		7,839	362	333	92%	7,850	3.7	1.0	2.6	67.5	19.7	6.9	3.7	81			108	5	98.6%	108									
Monday	06/10/13	67	19.4		24	7.9	1		8,442	532	498	94%	12,423	4.1	0.9	2.8	68.2	20.1	6.8	3.5	82			117	6	98.9%	140		6.1	0.3	7.7	2.4	71	44		
Tuesday	06/11/13	67	19.4			8.0	2	354	7,971	469	434	93%	10,561	3.9	1.0	2.7	68.2	20.1	6.8	3.5	81	4	98.9%	90	6	98.7%	135							31		
Wednesday	06/12/13	66	18.9		25	8.0	2	346	8,080	389	352	90%	9,084	4.1	0.9	2.8	68.0	20	6.9	3.6	79	3	99.1%	70	5	98.7%	117		10.2	0.3	7.9	1.6	70	9	Y	06/12/13
Thursday	06/13/13	67	19.4			8.0	1	383	8,944	356	319	90%	8,313	4.0	1.1	2.8	67.6	19.8	7.0	3.6	108	4	99.0%	94	6	98.3%	140									
Friday	06/14/13	67	19.4			8.0	1		8,442	371	335	90%	8,664	3.7	1.0	2.8	67.3	19.6	7.0	3.7	109			117	6	98.4%	140									
Saturday	06/15/13	67	19.4			8.1	2		8,140	359	332	92%	8,084	3.9	1.1	2.7	67.5	19.7	7.0	3.7	103			113	6	98.3%	135									
Sunday	06/16/13	66	18.9			7.4	1	259	5,832	306	288	94%	6,891	3.9	1.0	2.7	67.8	19.9	7.0	3.6	103	4	98.5%	90	5	98.4%	113									
Monday	06/17/13	66	18.9		23	7.9	2	315	7,619	383	351	92%	9,263	3.9	1.4	2.9	69.1	20.6	6.9	3.8	91	4	98.7%	97	4	99.0%	97		10.1	0.3	7.6					
Tuesday	06/18/13	67	19.4			7.9	1	246	6,155	303	274	90%	7,581	3.8	1.5	3.0	68.2	20.1	7.0	3.7	102	4	98.4%	100	5	98.3%	125									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Wednesday	06/19/13	67	19.4		24	7.9	1		8,743	256	234	91%	6,192	4.6	1.3	2.9	67.3	19.6	7.0	3.6	105			121	4	98.4%	97		12.0	0.3	7.7	2.3	71	7	Y	06/19/13
Thursday	06/20/13	67	19.4			7.8	1		8,743	326	294	90%	7,885	4.0	1.0	2.9	67.3	19.6	7.0	3.6	108			121	6	98.2%	145					2	69	4	Y	06/20/13
Friday	06/21/13	67	19.4			7.9	1		8,743	410	365	89%	9,916	3.7	1.3	2.9	68.0	20	7.1	3.7	113			121	6	98.5%	145					1.9	73	3	Y	06/21/13
Saturday	06/22/13	67	19.4			7.9	1		8,743	486	451	93%	11,754	3.9	1.3	2.9	67.5	19.7	7.0	3.7	111			121	2	99.6%	48									
Sunday	06/23/13	67	19.4			7.3	1		8,743	408	363	89%	9,868	4.0	1.4	2.9	68.0	20	6.9	3.6	96			121	3	99.3%	73									
Monday	06/24/13	67	19.4		20	7.7	1		10,552	398	331	83%	11,618	7.3	1.5	3.5	68.0	20	6.9	3.6	87			146	5	98.7%	146		8.5	0.4	6.9					
Tuesday	06/25/13	67	19.4			7.9	1	377	9,433	531	485	91%	13,286	3.9	1.6	3.0	67.6	19.8	6.9	3.7	81	4	98.9%	100	3	99.4%	75					3.2	64	7	Y	06/25/13
Wednesday	06/26/13	69	20.6		24	7.9	1	396	9,247	433	394	91%	10,111	3.6	1.2	2.8	68.0	20	7.0	3.5	95	6	98.5%	140	6	98.6%	140		9.0	0.3	5.8	2.9	69	9	Y	06/26/13
Thursday	06/27/13	68	20.0			7.7	1	455	11,384	466	433	93%	11,659	4.5	1.1	3.0	69.4	20.8	6.9	3.4	92	7	98.5%	175	6	98.7%	150					3.1	68	15		
Friday	06/28/13	68	20.0			7.9	1		8,442	618	564	91%	14,432	3.7	1.3	2.8	69.4	20.8	7.0	3.3	91			117	5	99.2%	117									
Saturday	06/29/13	68	20.0			7.6	1		11,155	525	372	71%	16,200	8.2	1.6	3.7	70.3	21.3	7.0	3.4	91			154	11	97.9%	339									
Sunday	06/30/13	67	19.4			7.6	2		9,045	386	360	93%	9,658	3.9	2.2	3.0	70.5	21.4	6.9	3.4	75			125	9	97.7%	225									
Monday	07/01/13	69	20.6		21	7.8	1	306	7,656	407	359	88%	10,183	4.0	1.9	3.0	71.1	21.7	6.9	3.4	78	8	97.4%	200	9	97.8%	225		7.3	0.3	5.2	3.7	69	5	Y	07/01/13
Tuesday	07/02/13	68	20.0			7.7	1	348	8,707	481	383	80%	12,035		1.4	3.0	70.5	21.4	6.9	3.4	90	5	98.6%	125	10	97.9%	250					3.2	70	15		
Wednesday	07/03/13	69	20.6			7.9	1	415	10,037	430	396	92%	10,400	4.0	1.3	2.9	70.2	21.2	7.0	3.5	93	6	98.6%	145	7	98.4%	169					4.3	68	6	Y	07/03/13
Thursday	07/04/13	69	20.6		22	7.9	2		9,084	543	503	93%	13,133	3.9	1.5	2.9	70.0	21.1	7.0	3.5	92			147	12	97.8%	290		7.3	0.3	8.9					
Friday	07/05/13	69	20.6			7.7	2		9,084	490	446	91%	11,851	3.8	1.5	2.9	70.0	21.1	6.9	3.5	80			147	12	97.6%	290									
Saturday	07/06/13	69	20.6			7.8	1		8,771	485	444	92%	11,326	3.9	1.4	2.8	70.2	21.2	7.0	3.5	85			142	13	97.3%	304									
Sunday	07/07/13	65	18.3			7.6	1		9,084	546	506	93%	13,206	4.1	1.4	2.9	70.2	21.2	6.9	3.1	69			147	14	97.4%	339									
Monday	07/08/13	68	20.0	44	21	7.9	1	395	9,553	468	415	89%	11,319	4.8	1.6	2.9	69.8	21	7.1	2.8	102	8	98.0%	194	15	96.8%	363		9.6	0.2	4.7					
Tuesday	07/09/13	69	20.6			7.8	1	368	8,594	458	411	90%	10,695	3.6	1.2	2.8	70.5	21.4	7.1	3.5	115	7	98.1%	164	15	96.7%	350	93								
Wednesday	07/10/13	69	20.6		22	7.8	1	343	8,582	371	332	89%	9,282	3.8	1.3	3.0	70.5	21.4	7.1	3.6	118	8	97.7%	200	12	96.8%	300		11.5	0.2	5.5	5.2	70	15		
Thursday	07/11/13	69	20.6			7.8	1		9,084	385	347	90%	9,312	3.6	1.2	2.9	69.8	21	7.1	3.8	113			147	12	96.9%	290					3.7	70	9	Y	07/11/13
Friday	07/12/13	69	20.6			8.0	1		9,398	400	362	91%	10,008	3.7	1.4	3.0	69.8	21	7.1	3.6	107			152	16	96.0%	400							7	Y	07/12/13
Saturday	07/13/13	69	20.6			7.9	1		8,771	417	385	92%	9,738	3.9	1.4	2.8	70.0	21.1	7.1	3.7	111			142	10	97.6%	234									
Sunday	07/14/13	68	20.0			7.4	1		8,771	424	398	94%	9,901	3.9	1.3	2.8	69.4	20.8	7.0	3.7	96			142	8	98.1%	187									
Monday	07/15/13	69	20.6		22	7.8	1		9,084	410	369	90%	9,916	3.8	1.1	2.9	70.5	21.4	7.0	3.6	90			147	10	97.6%	242		7.9	0.2	6.2					
Tuesday	07/16/13	69	20.6			7.8	1	397	9,933	377	342	91%	9,433	3.7	1.5	3.0	70.5	21.4	7.0	3.6	99	6	98.5%	150	6	98.4%	150					3.3	70	17		
Wednesday	07/17/13	69	20.6		22	7.8	1	323	8,081	356	320	90%	8,907	4.0	1.6	3.0	70.7	21.5	7.0	3.4	99	5	98.5%	125	10	97.2%	250		8.7	0.2	5.6	3.9	68	13		
Thursday	07/18/13	70	21.1			7.9	1	315	7,881	340	304	89%	8,507	4.0	1.4	3.0	70.7	21.5	7.0	3.4	97	5	98.4%	125	9	97.4%	225					2.9	70	12	Y	07/18/13
Friday	07/19/13	70	21.1			7.7	1		10,651	380	327	86%	10,775	4.0	1.4	3.4	70.7	21.5	7.0	3.5	99			172	8	97.9%	227									
Saturday	07/20/13	68	20.0			7.8	1		7,831	556	529	95%	11,593	4.0	1.6	2.5	70.9	21.6	7.0	3.5	98			126	6	98.9%	125									
Sunday	07/21/13	69	20.6			7.5	8		8,771	539	496	92%	12,587	4.0	1.5	2.8	70.7	21.5	6.9	3.6	100			142	6	98.9%	140									
Monday	07/22/13	70	21.1		22	7.8	1	369	9,232	356	325	91%	8,907	4.0	1.2	3.0	71.2	21.8	7.0	3.4	100	9	97.6%	225	8	97.8%	200		8.6	0.2	6.3	1.8	72	120		
Tuesday	07/23/13	70	21.1			7.7	1	378	9,142	447	410	92%	10,811	3.9	1.3	2.9	72.0	22.2	7.0	3.4	104	8	97.9%	194	7	98.4%	169					3.3	71	112		
Wednesday	07/24/13	71	21.7		22	7.7	1	402	9,723	515	472	92%	12,456	3.9	1.3	2.9	72.3	22.4	7.0	3.5	102	4	99.0%	97	5	99.0%	121		8.9	0.2	5.4	1.7	72	148		
Thursday	07/25/13	71	21.7			7.6	1		8,771	566	520	92%	13,217	3.7	1.1	2.8	72.7	22.6	7.0	3.4	105			142	6	98.9%	140									
Friday	07/26/13	71	21.7			7.7	1		9,398	506	479	95%	12,660	3.7	1.1	3.0	72.5	22.5	7.0	3.4	102			152	6	98.8%	150									
Saturday	07/27/13	71	21.7			7.7	1		7,831	449	410	91%	9,362	3.9	1.3	2.5	72.7	22.6	7.0	3.4	104			126	8	98.2%	167									
Sunday	07/28/13	68	20.0			7.4	1	449	9,362	603	555	92%	12,573	3.8	0.8	2.5	70.2	21.2	6.9	3.4	94	4	99.1%	84	12	98.0%	250									
Monday	07/29/13	72	22.2		22	7.7	0	444	9,998	559	510	91%	12,588	3.5	0.8	2.7	73.6	23.1	7.0	3.6	103	4	99.1%	90	4	99.3%	90		10.7	0.3	5.2	1.9	72	400	Y	07/29/13
Tuesday	07/30/13	72	22.2			7.8	0	382	8,602	467	426	91%	10,516	3.7	1.2	2.7	73.6	23.1	7.1	3.5	123	4	99.0%	90	5	98.9%	113					1.7	72	6	Y	07/30/13
Wednesday	07/31/13	72	22.2		22	7.7	0		8,771	472	440	93%	11,022	3.7	1.2	2.8	73.4	23	7.1	3.5	115			142	4	99.2%	93		9.6	0.6	7.2	1.9	72	6	Y	07/31/13
Thursday	08/01/13	72	22.2			7.8	0		12,030	1034	480	46%	32,770	7.8	1.1	3.8	73.2	22.9	7.1	3.5	109			177	6	99.4%	190									
Friday	08/02/13	72	22.2			7.7	0		7,914	593	497	84%	12,364	4.3	1.9	2.5	72.1	22.3	6.8	3.6	92			116	7	98.8%	146									
Saturday	08/03/13	73	22.8			7.7	0		7,914	787	554	70%	16,409	3.9	1.1	2.5	72.7	22.6	7.0	3.6	96			116	6	99.2%	125									
Sunday	08/04/13	72	22.2			7.4	1		8,547	609	425	70%	13,713	5.8	0.8	2.7	72.5	22.5	7.0	3.5	91			126	7	98.9%	158									
Monday	08/05/13	72	22.2		23	7.7	1		9,181	481	416	86%	11,633	4.2	0.9	2.9	75.0	23.9	6.9	3.5	87			135	5	99.0%	121									
Tuesday	08/06/13	73	22.8			7.8	0	363	8,477	418	376	90%	9,761	3.7	1.1	2.8	74.8	23.8	7.0	3.4	91	4	98.9%	94	4	99.0%	93	94	5.9	0.6	6.9	1.9	70	150	Y	08/06/13
Wednesday	08/07/13	73	22.8	40	22	7.7	0	320	7,206	366	330	90%	8,242	3.7	1.1	2.7	74.7	23.7	7.0	3.4	89	4	98.8%	90	5	98.6%	113		5.0	0.4	9.0	1.8	70	82		
Thursday	08/08/13	73	22.8			7.7	0	347	8,103	417	389	93%	9,738	3.8	1.1	2.8	74.7	23.7	6.9	3.4	86	3	99.1%	70	5	98.8%	117					1.9	72	150		
Friday	08/09/13	73	22.8			7.8	0		9,181	398	378	95%	9,626	3.9	1.1	2.9	74.7	23.7	6.9	3.3	84			135	5	98.7%	121									
Saturday	08/10/13	73	22.8			7.7	0		9,181	571	507	89%	13,810	6.8	1.1	2.9	74.8	23.8	6.9	3.4	83			135	8	98.6%	193									
Sunday	08/11/13	73	22.8			7.4	0		8,547	426	385	90%	9,593	4.1	1.1	2.7	74.5	23.6	6.9	3.3	85			126	8	98.1%	180									
Monday	08/12/13	73	22.8		23	7.8	0	378	8,827	490	452	92%	11,442	4.7	1.0	2.8	75.2	24	6.9	2.8	78	5	98.7%	117	9	98.2%	210		3.1	0.3	8.3	2.8	70	20		
Tuesday	08/13/13	73	22.8			7.7	0	410	9,574	462	417	90%	10,789	3.9	1.1	2.8	75.7	24.3	6.9	3.4	78	4	99.0%	94	8	98.3%	187					2.2	72	156	Y	08/13/13
Wednesday	08/14/13	73	22.8		21	7.8	0	430	10,400	533	498	93%	12,891	4.1	1.1	2.9	75.6	24.2	7.0	3.4	74	6	98.6%	145	10	98.1%	242		3.4	0.2	8.5	3.7	70	284	Y	08/14/13
Thursday	08/15/13	73	22.8			7.2	0		8,864	397	362	91%	9,271	3.9	1.2	2.8	75.4	24.1	6.9	3.4	76			130	10	97.5%	234									
Friday	08/16/13	74	23.3			7.8	0		9,497	311	281	90%	7,781	3.9	1.2	3.0	74.7	23.7	7.0	3.4	94			140	8	97.4%	200									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	08/17/13	74	23.3			7.5	0		7,914	500	462	92%	10,425	3.8	1.1	2.5	74.5	23.6	7.0	3.4	84			116	8	98.4%	167									
Sunday	08/18/13	73	22.8			7.2	0		8,231	543	511	94%	11,774	3.9	1.0	2.6	74.8	23.8	6.9	3.3	99			121	6	98.9%	130									
Monday	08/19/13	74	23.3		22	7.7	0		8,864	476	434	91%	11,116	4.1	1.0	2.8	75.6	24.2	7.0	3.4	100			130	5	98.9%	117		10.9	0.2	4.6	4.1	70	7	Y	08/19/13
Tuesday	08/20/13	74	23.3			7.8	0	393	9,177	436	399	92%	10,181	3.8	1.1	2.8	75.0	23.9	7.0	3.5	108	7	98.2%	164	8	98.2%	187					3.5	69	400	Y	08/20/13
Wednesday	08/21/13	74	23.3		21	7.7	0	446	9,671	587	537	91%	12,729	3.9	1.0	2.6	76.3	24.6	7.0	3.3	104	9	98.0%	195	5	99.1%	108		7.1	0.9	6.0	3.3	70	6	Y	08/21/13
Thursday	08/22/13	74	23.3			8.2	0	429	10,018	399	359	90%	9,317	4.0	1.1	2.8	75.0	23.9	7.0	3.4	101	9	97.9%	210	6	98.5%	140									
Friday	08/23/13	74	23.3			7.6	0		8,864	463	424	92%	10,812	4.0	1.0	2.8	75.2	24	7.0	3.3	103			130	6	98.7%	140									
Saturday	08/24/13	74	23.3			7.4	0		7,914	522	481	92%	10,884	3.9	1.0	2.5	75.0	23.9	7.2	3.5	81			116	7	98.7%	146									
Sunday	08/25/13	74	23.3			7.6	0	306	6,635	343	303	88%	7,438	3.9	0.9	2.6	74.5	23.6	6.8	3.1	71	7	97.7%	152	6	98.3%	130									
Monday	08/26/13	74	23.3		30	8.2	0	438	11,689	430	381	89%	11,476	5.2	1.0	3.2	75.4	24.1	6.9	3.2	64	5	98.9%	134	4	99.1%	107		1.8	0.4	10.1					
Tuesday	08/27/13	74	23.3			8.0	0	295	7,381	282	259	92%	7,056	4.2	1.1	3.0	75.2	24	6.9	3.4	70	4	98.6%	100	3	98.9%	75									
Wednesday	08/28/13	74	23.3		23	8.0	0		9,181	538	500	93%	13,012	4.1	1.1	2.9	75.7	24.3	6.8	3.3	53			135	4	99.3%	97		0.6	0.2	10.5	3.7	68	8	Y	08/28/13
Thursday	08/29/13	74	23.3			7.8	0		9,181	440	409	93%	10,642	4.8	1.2	2.9	75.7	24.3	6.9	3.4	65			135	7	98.4%	169					2.5	70	8	Y	08/29/13
Friday	08/30/13	74	23.3			7.9	0		8,864	833	795	95%	19,452	4.0	1.1	2.8	75.4	24.1	7.0	3.2	71			130	5	99.4%	117					2.5	68	196	Y	08/30/13
Saturday	08/31/13	74	23.3			7.6	0		7,914	812	740	91%	16,930	3.9	1.1	2.5	74.7	23.7	6.8	3.3	75			116	6	99.3%	125									
Sunday	09/01/13	74	23.3			7.6	0		8,213	979	932	95%	20,412	4.0	1.0	2.5	74.7	23.7	6.9	3.4	82			85	7	99.3%	146									
Monday	09/02/13	74	23.3		26	7.6	0	429	9,660	842	789	94%	18,960	4.2	0.9	2.7	74.8	23.8	6.9	3.3	75	5	98.8%	113	6	99.3%	135		0.3	0.2	8.8					
Tuesday	09/03/13	74	23.3			8.0	0	410	9,574	541	501	93%	12,633	3.8	0.9	2.8	76.5	24.7	7.0	3.1	74	5	98.8%	117	7	98.7%	163									
Wednesday	09/04/13	74	23.3		25	7.8	0	378	9,142	804	759	94%	19,446	3.9	1.2	2.9	76.1	24.5	6.9	3.3	72	5	98.7%	121	7	99.1%			0.4	0.1	9.5	4.4	68	17		
Thursday	09/05/13	74	23.3			8.0	0		13,141	559	461	82%	18,648	10.2	1.2	4.0	76.1	24.5	6.8	3.1	70			136	11	98.0%	367					4.2	72	400	Y	09/05/13
Friday	09/06/13	74	23.3			8.0	1		8,870	451	407	90%	10,156	3.9	1.3	2.7	74.8	23.8	6.9	3.6	71			92	14	96.9%	315					3.5	69	20		09/06/13
Saturday	09/07/13	74	23.3			8.0	0		8,213	864	816	94%	18,014	3.9	1.1	2.5	74.5	23.6	6.9	3.6	73			85	6	99.3%	125									
Sunday	09/08/13	74	23.3			7.7	0	387	8,392	474	442	93%	10,278	4.1	0.9	2.6	75.2	24	7.1	3.3	82	4	99.0%	87	5	98.9%	108									
Monday	09/09/13	74	23.3	45	23	7.8	0	404	9,434	420	380	90%	9,808	4.0	0.9	2.8	76.3	24.6	7.0	3.2	72	3	99.3%	70	5	98.8%	117		0.8	0.3	9.3					
Tuesday	09/10/13	74	23.3			8.0	0	524	12,236	628	567	90%	14,665	3.9	1.0	2.8	76.3	24.6	6.9	3.4	70	3	99.4%	70	4	99.4%	93	100				2.8	69	208	Y	09/10/13
Wednesday	09/11/13	74	23.3		24	8.0	0		9,199	361	339	94%	8,430	4.2	1.0	2.8	76.1	24.5	6.9	3.4	65			95	4	98.9%	93		0.8	0.5	9.4	2.6	69	11	Y	09/11/13
Thursday	09/12/13	74	23.3			7.9	0		8,870	204	188	92%	4,594	4.0	1.1	2.7	76.1	24.5	7.0	3.4	68			92	4	98.0%	90					2	70	9	Y	09/12/13
Friday	09/13/13	74	23.3			7.8	0		9,199	381	346	91%	8,897	3.7	1.1	2.8	76.3	24.6	6.9	3.4	71			95	6	98.4%	140									
Saturday	09/14/13	74	23.3			7.9	0		8,213	597	566	95%	12,447	4.0	1.1	2.5	76.3	24.6	7.0	3.4	70			85	4	99.3%	83									
Sunday	09/15/13	75	23.9			7.8	0		9,199	540	512	95%	12,610	5.9	0.9	2.8	76.3	24.6	7.1	3.4	87			95	2	99.6%	47									
Monday	09/16/13	74	23.3		27	7.8	0		9,199	269	248	92%	6,282	4.2	0.9	2.8	76.5	24.7	7.0	3.4	84			95	5	98.1%	117		1.0	0.4	8.7	1.6	67	400	Y	09/16/13
Tuesday	09/17/13	74	23.3			7.8	0	315	7,356	319	303	95%	7,449	3.9	1.0	2.8	75.6	24.2	6.9	3.3	72	3	99.0%	70	2	99.4%	47					1.7	71	46		
Wednesday	09/18/13	74	23.3		24	8.2	0	354	8,562	491	459	93%	11,875	4.0	1.1	2.9	74.8	23.8	6.9	3.5	69	3	99.2%	73	4	99.2%	97		0.6	0.4	10.6	1.9	70	5	Y	09/18/13
Thursday	09/19/13	73	22.8			8.1	0	390	9,107	597	559	94%	13,941	3.9	1.1	2.8	74.5	23.6	6.9	3.5	66	4	99.0%	94	6	99.0%	140									
Friday	09/20/13	74	23.3			8.0	0		8,870	419	379	90%	9,435	3.9	1.0	2.7	73.9	23.3	6.8	3	62			92	6	98.6%	135									
Saturday	09/21/13	74	23.3			8.1	0		8,870	1134	1081	95%	25,535	4.1	1.0	2.7	74.3	23.5	6.9	3.4	63			92	4	99.6%	90									
Sunday	09/22/13	74	23.3			7.7	0		8,870	610	569	93%	13,736	4.2	0.9	2.7	73.9	23.3	7.0	3.4	82			92	5	99.2%	113									
Monday	09/23/13	74	23.3		26	8.0	0	253	5,908	182	159	87%	4,250	4.1	0.9	2.8	74.5	23.6	6.9	3.1	74	5	98.0%	117	7	96.2%	163		5.0	0.6	9.9					
Tuesday	09/24/13	73	22.8			8.2	1	452	10,932	640	582	91%	15,479	4.1	1.2	2.9	74.1	23.4	6.9	3.1	75	4	99.1%	97	6	99.1%	145									
Wednesday	09/25/13	73	22.8		25	8.0	0	431	11,862	583	527	90%	16,045	4.2	1.1	3.3	73.9	23.3	6.8	3.4	64	5	98.8%	138	6	99.0%	165		5.0	0.6	10.9	3.6	64	7	Y	09/25/13
Thursday	09/26/13	73	22.8			8.1	1		7,885	524	467	89%	10,488	4.1	1.1	2.4	73.8	23.2	6.8	3.2	63			82	8	98.5%	160					3.8	63	13		
Friday	09/27/13	73	22.8			8.0	1		9,199	608	556	91%	14,198	4.0	1.1	2.8	73.6	23.1	6.9	3.3	66			95	10	98.4%	234					4.4	62	400	Y	09/27/13
Saturday	09/28/13	73	22.8			8.0	0		8,542	824	766	93%	17,868	4.3	1.0	2.6	73.4	23	6.9	3.4	68			89	8	99.0%	173									
Sunday	09/29/13	73	22.8			7.8	0		9,199	625	586	94%	14,595	4.2	0.9	2.8	73.4	23	6.9	3.3	67			95	9	98.6%	210									
Monday	09/30/13	70	21.1			7.9	1		9,856	472	422	89%	11,809	7.8	0.9	3.0	73.0	22.8	6.8	3.2	60			102	8	98.3%	200									
Tuesday	10/01/13	72	22.2		26	8.1	0	419	9,784	588	541	92%	13,731	3.9	1.0	2.8	71.8	22.1	6.8	3.2	65	6	98.6%	140	5	99.1%	117		6.5	0.5	10.5					
Wednesday	10/02/13	72	22.2			8.0	0	513	11,980	758	696	92%	17,701	4.2	1.1	2.8	72.7	22.6	6.8	3.4	64	7	98.6%	164	9	98.8%	210					4.8	62	38		
Thursday	10/03/13	73	22.8		25	8.0	0	360	8,407	496	379	76%	11,583	3.9	1.2	2.8	72.3	22.4	6.9	3.4	62	4	98.9%	94	7	98.6%	163		3.2	0.4	11.2	3	63	37		
Friday	10/04/13	72	22.2			7.8	1		8,422	343	307	90%	8,010	4.0	1.1	2.8	72.5	22.5	6.8	3.4	57			107	6	98.3%	140					3	65	78		
Saturday	10/05/13	72	22.2			8.0	1		7,821	641	605	94%	13,899	4.0	1.3	2.6	72.3	22.4	6.9	3.4	60			100	6	99.1%	130									
Sunday	10/06/13	72	22.2			7.8	0	356	7,720	435	406	93%	9,433	4.2	0.9	2.6	72.1	22.3	6.8	3.4	60	3	99.2%	65	4	99.1%	87									
Monday	10/07/13	72	22.2		28	7.7	1	270	6,305	287	258	90%	6,702	4.1	0.9	2.8	73.0	22.8	6.9	3.3	62	3	98.9%	70	7	97.6%	163		2.1	0.4	11.8					
Tuesday	10/08/13	72	22.2			7.9	0	350	8,173	428	400	93%	9,995	4.0	1.0	2.8	72.1	22.3	6.7	3.5	56	3	99.1%	70	6	98.6%	140					3.1	66	11	Y	10/08/13
Wednesday	10/09/13	72	22.2	51	28	8.0	1		8,422	331	294	89%	7,730	4.1	1.1	2.8	72.0	22.2	6.7	3.4	49			107	7	97.9%	163	100	1.7	0.3	13.3	2.6	64	7	Y	10/09/13
Thursday	10/10/13	72	22.2			8.0	0		8,121	361	321	89%	8,129	3.9	1.1	2.7	72.1	22.3	6.7	3.4	46			104	6	98.3%	135					2.2	68	10	Y	10/10/13
Friday	10/11/13	71	21.7			8.1	0		8,121	663	599	90%	14,929	3.9	1.1	2.7	71.6	22	6.7	3.4	46			104	6	99.1%	135									
Saturday	10/12/13	71	21.7			8.0	1		7,520	803	750	93%	16,743	3.9	1.0	2.5	71.6	22	6.8	3.4	50			96	6	99.3%	125									
Sunday	10/13/13	72	22.2			7.9	0		7,520	423	387	91%	8,820	4.2	0.7	2.5	71.8	22.1	6.9	3.4	55			96	8	98.1%	167									
Monday	10/14/13	72	22.2		28	8.1	0	311	7,003	355	324	91%	7,994	4.3	0.8	2.7	72.5	22.5	6.7	2.9	60	5	98.4%	113	8	97.7%	180		1.9	0.2	12.8	4.3	70	11	Y	10/14/13

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Tuesday	10/15/13	71	21.7			8.2	0	332	7,753	379	332	88%	8,850	4.1	0.9	2.8	72.0	22.2	6.8	3.2	56	5	98.5%	117	7	98.2%	163					4.3	68	160	Y	10/15/13
Wednesday	10/16/13	71	21.7		29	8.1	1	410	8,890	409	349	85%	8,869	4.0	1.0	2.6	71.6	22	6.7	3.3	53	6	98.5%	130	10	97.6%	217		2.0	0.3	11.8	3.9		174	Y	10/16/13
Thursday	10/17/13	71	21.7			8.1	1		7,821	351	313	89%	7,611	3.5	1.0	2.6	71.8	22.1	6.6	3.4	46			100	8	97.7%	173									
Friday	10/18/13	71	21.7			8.1	0		7,520	428	387	90%	8,924	3.8	1.0	2.5	71.1	21.7	6.7	3.4	47			96	11	97.4%	229									
Saturday	10/19/13	71	21.7			8.1	0		6,918	553	506	92%	10,608	4.0	1.0	2.3	71.1	21.7	6.7	3.4	49			88	14	97.5%	269									
Sunday	10/20/13	71	21.7			7.7	0		7,219	505	463	92%	10,108	4.1	0.8	2.4	70.9	21.6	6.7	3.4	53			92	9	98.2%	180									
Monday	10/21/13	71	21.7		28	8.0	1	393	8,522	478	437	91%	10,365	4.0	0.7	2.6	72.1	22.3	6.6	3.1	47	4	99.0%	87	10	97.9%	217		5.0	0.4	12.5	4.3	65	400	Y	10/21/13
Tuesday	10/22/13	71	21.7			8.1	1	359	7,785	407	367	90%	8,825	3.7	0.8	2.6	71.8	22.1	6.6	3.6	45	4	98.9%	87	9	97.8%	195					4.5	66	14		
Wednesday	10/23/13	71	21.7		29	8.1	1	397	8,277	496	460	93%	10,342	3.8	1.0	2.5	71.2	21.8	6.7	3.5	49	4	99.0%	84	8	98.4%	167		2.7	0.3	12.3	4.5	67	5	Y	10/23/13
Thursday	10/24/13	71	21.7			8.0	1		7,821	428	394	92%	9,281	3.9	1.0	2.6	71.2	21.8	6.6	3.4	27			100	6	98.6%	130									
Friday	10/25/13	71	21.7			8.2	1		7,219	766	728	95%	15,332	3.8	0.9	2.4	70.9	21.6	6.7	3.5	51			92	5	99.3%	100									
Saturday	10/26/13	70	21.1			7.8	0		6,918	577	543	94%	11,068	3.9	0.8	2.3	70.5	21.4	6.7	3.3	50			88	7	98.8%	134									
Sunday	10/27/13	69	20.6			7.4	1		7,219	434	398	92%	8,687	4.1	0.8	2.4	70.7	21.5	6.7	3.4	54			92	6	98.6%	120									
Monday	10/28/13	70	21.1		28	7.8	1		7,821	569	528	93%	12,338	3.9	0.7	2.6	70.7	21.5	6.7	3.6	55			100	6	98.9%	130		3.9	0.3	11.5					
Tuesday	10/29/13	69	20.6			8.1	1	377	8,175	399	357	89%	8,652	3.8	0.9	2.6	70.2	21.2	6.7	3.5	52	8	97.9%	174	8	98.0%	173					3.4	66	5	Y	10/29/13
Wednesday	10/30/13	69	20.6		28	8.0	1	374	7,798	460	414	90%	9,591	3.7	0.9	2.5	69.8	21	6.6	3.5	47	3	99.2%	63	7	98.5%	146		1.8	0.2	12.6	3.8	66	320	Y	10/30/13
Thursday	10/31/13	69	20.6			7.9	1	189	3,941	503	439	87%	10,488	3.6	0.9	2.5	69.8	21	6.7	3.5	53	4	97.9%	84	7	98.6%	146					3.4	68	13		
Friday	11/01/13	69	20.6			7.9	1		7,203	484	441	91%	9,284	3.6	0.9	2.3	69.4	20.8	6.7	3.5	53			80	10	97.9%	192									
Saturday	11/02/13	69	20.6			8.0	0		8,456	429	390	91%	9,660	4.1	1.2	2.7	69.6	20.9	6.8	3.5	61			94	10	97.7%	225									
Sunday	11/03/13	69	20.6			8.0	0		7,516	381	349	92%	7,626	4.2	0.8	2.4	69.6	20.9	7.0	3.4	60			83	8	97.9%	160	96								
Monday	11/04/13	69	20.6		27	8.1	1		7,829	551	526	95%	11,488	4.2	0.7	2.5	69.4	20.8	6.8	3.4	57			87	10	98.2%	209		1.5	0.2	10.1					
Tuesday	11/05/13	69	20.6			8.2	1	379	8,218	393	352	90%	8,522	3.8	0.9	2.6	68.9	20.5	6.7	3.7	51	4	98.9%	87	8	98.0%	173									
Wednesday	11/06/13	69	20.6	49	26	8.1	1	386	9,014	485	429	88%	11,326	3.9	0.9	2.8	68.7	20.4	6.6	3.4	44	3	99.2%	70	8	98.4%	187		0.8	0.2	10.7	3.2	68	400	Y	11/06/13
Thursday	11/07/13	68	20.0			7.9	1	360	8,106	417	373	89%	9,390	4.3	1.1	2.7	68.2	20.1	6.7	3.6	46	3	99.2%	68	12	97.1%	270					3.2	68	17		
Friday	11/08/13	69	20.6			8.1	1		7,829	393	352	90%	8,194	4.0	0.9	2.5	68.4	20.2	6.6	3.5	42			87	8	98.0%	167					3.6	65	5	Y	11/08/13
Saturday	11/09/13	69	20.6			7.9	1		7,516	450	410	91%	9,007	3.9	0.9	2.4	68.4	20.2	6.7	3.5	45			83	8	98.2%	160									
Sunday	11/10/13	68	20.0			7.1	1		7,516	362	335	93%	7,246	3.8	0.7	2.4	68.4	20.2	6.8	3.4	55			83	10	97.2%	200									
Monday	11/11/13	68	20.0		27	7.8	1		8,142	409	372	91%	8,869	4.1	0.8	2.6	69.1	20.6	6.8	3.5	54			90	11	97.3%	239		1.5	0.4	11.0					
Tuesday	11/12/13	68	20.0			7.9	1	364	8,197	502	443	88%	11,304	4.2	0.9	2.7	69.3	20.7	6.8	3.5	56	5	98.6%	113	11	97.8%	248									
Wednesday	11/13/13	68	20.0		27	7.9	1	390	8,132	414	375	91%	8,632	3.7	0.9	2.5	69.1	20.6	6.8	3.7	62	5	98.7%	104	12	97.1%	250		0.8	0.3	10.6	5.1	66	6	Y	11/13/13
Thursday	11/14/13	68	20.0			7.8	1	410	8,549	384	342	89%	8,006	3.7	0.9	2.5	69.1	20.6	6.8	3.5	63	5	98.8%	104	11	97.1%	229					5.2	66	9	Y	11/14/13
Friday	11/15/13	67	19.4			7.9	1		8,142	454	412	91%	9,845	3.7	0.9	2.6	68.5	20.3	6.8	3.4	66			90	14	96.9%	304					5.7	66	400	Y	11/15/13
Saturday	11/16/13	68	20.0			7.9	1		7,516	391	357	91%	7,826	4.0	1.0	2.4	68.5	20.3	6.8	3.4	67			83	12	96.9%	240									
Sunday	11/17/13	67	19.4			7.4	1		7,516	385	357	93%	7,706	3.9	0.4	2.4	68.5	20.3	6.8	3.3	68			83	12	96.9%	240									
Monday	11/18/13	67	19.4		26	7.9	1	370	8,332	398	351	88%	8,962	3.8	0.8	2.7	68.2	20.1	6.9	3.5	72	4	98.9%	90	11	97.2%	248		0.9	0.2	8.5					
Tuesday	11/19/13	67	19.4			8.0	1	411	8,227	448	408	91%	8,967	3.6	0.9	2.4	68.2	20.1	6.9	3.4	71	4	99.0%	80	11	97.5%	220					4.9	67	400	Y	11/19/13
Wednesday	11/20/13	67	19.4		26	8.2	1	309	6,700	377	329	87%	8,175	5.0	1.0	2.6	67.1	19.5	6.8	3.5	56	4	98.7%	87	12	96.8%	260		1.0	0.3	10.1	6.3	66	48		
Thursday	11/21/13	67	19.4			8.1	1		8,769	447	396	89%	10,438	4.9	0.8	2.8	66.4	19.1	6.7	3.4	46			97	399	10.7%	9317					11.2	62	202	Y	11/21/13
Friday	11/22/13	66	18.9			8.1	1		8,142	470	421	90%	10,191	3.3	0.9	2.6	66.2	19	7.0	3.5	92			90	74	84.3%	1605									
Saturday	11/23/13	66	18.9			8.0	1		6,890	446	411	92%	8,183	4.0	0.8	2.2	66.6	19.2	7.0	3.5	62			76	30	93.3%	550									
Sunday	11/24/13	66	18.9		31	7.7	0	366	7,326	351	319	91%	7,026	3.9	0.7	2.4	65.7	18.7	7.0	3.5	81	5	98.6%	100	14	96.0%	280		1.7	0.5	9.0					
Monday	11/25/13	65	18.3			8.0	2	341	7,394	427	377	88%	9,259	3.8	0.7	2.6	66.2	19	6.9	3.7	72	4	98.8%	87	10	97.7%	217					6.3	68	34		
Tuesday	11/26/13	66	18.9		28		1	420	8,757	415	370	89%	8,653	3.6	0.9	2.5	65.8	18.8	6.7	3.9	57	4	99.0%	84	8	98.1%	167		0.7	0.4	12.6	5.5	64	50		
Wednesday	11/27/13	66	18.9			8.0	1		7,516	401	366	91%	8,026	3.5	0.8	2.4	66.0	18.9	6.8	3.7	51			83	10	97.5%	200					6	67	30		
Thursday	11/28/13	66	18.9			7.8	1		6,890	637	602	95%	11,688	4.1	0.6	2.2	65.7	18.7	6.8	3.8	59			76	6	99.1%	110									
Friday	11/29/13	66	18.9			7.9	1		7,203	539	503	93%	10,339	3.5	0.7	2.3	65.8	18.8	6.8	3.8	61			80	9	98.3%	173									
Saturday	11/30/13	66	18.9			8.0	1		7,203	550	509	93%	10,550	3.7	0.8	2.3	65.7	18.7	6.8	3.9	60			80	10	98.2%	192									
Sunday	12/01/13	66	18.9			7.6	0		8,071	409	375	92%	8,187	3.8	0.9	2.4	65.3	18.5	7.0	3.9	63			82	10	97.6%	200									
Monday	12/02/13	65	18.3	51	29	8.1	2	399	8,652	393	343	87%	8,522	4.4	0.7	2.6	65.5	18.6	6.8	3.5	70	8	98.0%	174	10	97.5%	217		0.5	0.3	10.2					
Tuesday	12/03/13	65	18.3			7.9	1	423	8,820	402	359	89%	8,382	3.9	0.8	2.5	64.9	18.3	6.7	3.8	62	4	99.1%	84	12	97.0%	250									
Wednesday	12/04/13	65	18.3		30	8.1	2	383	7,986	379	332	88%	7,902	3.7	0.8	2.5	64.6	18.1	6.9	3.8	66	4	99.0%	84	9	97.6%	188		0.8	0.4	11.1	6.3	65	11	Y	12/04/13
Thursday	12/05/13	64	17.8			7.6	2		8,071	552	495	90%	11,049	3.7	0.8	2.4	64.0	17.8	6.7	4	57			82	10	98.2%	200					6.5	64	7	Y	12/05/13
Friday	12/06/13	64	17.8			8.0	2		8,071	561	499	89%	11,229	3.7	0.7	2.4	63.7	17.6	6.8	3.9	55			82	10	98.2%	200	101				5.5	65	5	Y	12/06/13
Saturday	12/07/13	64	17.8			7.9	1		7,399	971	926	95%	17,816	3.7	0.8	2.2	63.9	17.7	6.8	3.9	54			75	8	99.2%	147									
Sunday	12/08/13	64	17.8			8.0	1		7,735	842	798	95%	16,151	3.8	0.6	2.3	63.7	17.6	6.7	3.8	62			78	10	98.8%	192									
Monday	12/09/13	64	17.8		28	8.0	1		8,408	770	729	95%	16,055	3.7	0.6	2.5	62.8	17.1	6.8	3.7	59			85	8	99.0%	167		2.2	0.5	10.3	5	66	7	Y	12/09/13
Tuesday	12/10/13	64	17.8			8.0	1	442	8,847	454	417	92%	9,087	3.5	0.8	2.4	62.6	17	6.6	3.7	55	4	99.1%	80	10	97.8%	200					5.8	66	202	Y	12/10/13
Wednesday	12/11/13	63	17.2		30	8.0	2	384	8,006	591	547	93%	12,322	3.6	0.8	2.5	62.8	17.1	6.6	4.1	54	4	99.0%	84	10	98.3%	209		0.7	0.4	12.0	5		208	Y	12/11/13
Thursday	12/12/13	63	17.2			7.9	2	400	8,006	476	435	91%	9,528	3.5	0.8	2.4	62.8	17.1	6.7	4	53	3	99.3%	60	8	98.3%	160									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	12/13/13	63	17.2			8.0	2		8,071	428	381	89%	8,567	3.2	0.8	2.4	62.8	17.1	6.7	3.7	50			82	7	98.4%	140									
Saturday	12/14/13	63	17.2			8.0	2		7,735	730	696	95%	14,003	3.7	0.8	2.3	63.1	17.3	6.7	3.8	51			78	8	98.9%	153									
Sunday	12/15/13	63	17.2			7.7	1		8,071	500	465	93%	10,008	3.9	0.7	2.4	62.6	17	6.8	3.7	63			82	8	98.4%	160									
Monday	12/16/13	63	17.2		28	8.0	2	397	8,277	426	387	91%	8,882	3.8	0.8	2.5	63.0	17.2	6.8	3.8	61	3	99.2%	63	8	98.1%	167		0.9	0.4	11.6					
Tuesday	12/17/13	63	17.2			7.8	1	420	8,757	443	404	91%	9,237	3.9	0.8	2.5	63.0	17.2	6.7	3.7	54	4	99.0%	84	8	98.2%	167					4	68	202	Y	12/17/13
Wednesday	12/18/13	63	17.2		29	7.9	2	388	8,413	450	399	89%	9,758	3.9	0.8	2.6	62.6	17	6.7	3.7	54	3	99.2%	65	7	98.4%	152		0.4	0.2	10.1	3.9	68	105		
Thursday	12/19/13	63	17.2			8.1	2		8,071	421	376	89%	8,427	3.6	0.8	2.4	62.2	16.8	6.7	3.9	54			82	8	98.1%	160					4.3	68	140		
Friday	12/20/13	63	17.2			7.8	1		8,071	375	337	90%	7,506	3.7	0.8	2.4	62.1	16.7	6.7	4	52			82	9	97.6%	180									
Saturday	12/21/13	63	17.2			7.9	1		7,735	490	449	92%	9,399	3.8	0.8	2.3	62.1	16.7	6.7	3.9	55			78	8	98.4%	153									
Sunday	12/22/13	62	16.7		36	7.9	1	357	6,848	348	317	91%	6,675	4.0	0.6	2.3	62.1	16.7	6.7	3.9	63	4	98.9%	77	8	97.7%	153		0.8	0.3	11.0					
Monday	12/23/13	62	16.7		28	7.9	2	384	8,967	544	485	89%	12,703	6.0	0.7	2.8	62.2	16.8	6.7	3.5	57	4	99.0%	94	8	98.5%	187		1.8	0.4	9.3	6.5	67	200	Y	12/23/13
Tuesday	12/24/13	61	16.1			7.6	1		8,071	470	432	92%	9,408	4.2	1.0	2.4	61.0	16.1	6.7	3.7	58			82	8	98.3%	160					5	66	155	Y	12/24/13
Wednesday	12/25/13	62	16.7		34	7.8	1	462	7,706	664	633	95%	11,076	3.2	0.8	2.0	61.5	16.4	6.7	3.6	58	4	99.1%	67	8	98.8%	133		1.1	0.3	9.8					
Thursday	12/26/13	62	16.7			7.9	1		8,408	377	348	92%	7,860	3.9	0.7	2.5	61.3	16.3	6.6	3.7	40			85	8	97.9%	167					4.5	67	500	Y	12/26/13
Friday	12/27/13	62	16.7			7.7	2		8,071	380	349	92%	7,606	3.9	0.9	2.4	61.5	16.4	6.6	3.7	52			82	9	97.6%	180									
Saturday	12/28/13	62	16.7			7.8	1		7,063	739	700	95%	12,943	3.8	1.0	2.1	61.5	16.4	6.6	3.7	55			72	8	98.9%	140									
Sunday	12/29/13	61	16.1			7.6	1		7,735	453	429	95%	8,689	3.8	0.9	2.3	61.7	16.5	6.9	3.8	52			78	10	97.8%	192									
Monday	12/30/13	61	16.1		32	7.9	2		8,744	811	751	93%	17,586	4.0	0.8	2.6	61.5	16.4	6.6	3.9	51			89	18	97.8%	390		2.7	0.6	11.1					
Tuesday	12/31/13	59	15.0			7.6	2		8,408	445	347	78%	9,278	4.0	1.0	2.5	61.3	16.3	6.7	3.6	51			85	11	97.5%	229									
	Average	66.0	18.9	47.2	27.2	7.9	1.2	381	8,365	508	463	0.9	11,089	4.0	1.0	2.6	66.8	19.3	6.8	3.6	70.1	5.1	1.0	113	10.6	1.0	232.3	96.7	4.3	0.4	11.1	4.4	67.0	99.8		
	Max	75.0	23.9	51.6	35.7	8.4	7.5	542	13,141	1,447	1,390	1.0	32,770	10.2	2.2	4.1	76.5	24.7	7.2	6.8	124.0	10.0	1.0	342	399.0	1.0	9317.4	101.0	13.4	1.1	19.6	11.2	73.0	500.0		
	Min	57.0	13.9	40.4	20.3	7.1	0.1	181	3,941	182	159	0.5	4,250	3.2	0.4	2.0	58.3	14.6	6.5	2.8	27.0	3.0	0.9	58	2.0	0.1	46.7	89.8	0.1	0.1	4.6	1.6	62.0	3.0		
	Median													3.9	0.9	2.6	67.1																			
2014																																				
Wednesday	01/01/14	59	15.0		27	7.6	2	469	8,214	434	395	91%	7,601	3.5	0.8	2.1	60.8	16	6.8	3.5	73	4	99.1%	70	11	97.5%	193		0.1	0.1	9.8	6.6	63	400	Y	01/01/14
Thursday	01/02/14	61	16.1			7.9	2	485	10,517	624	575	92%	13,531	3.7	0.8	2.6	61.5	16.4	6.7	4.5	59	5	99.0%	109	13	97.9%	282					6.1	68	7	Y	01/02/14
Friday	01/03/14	61	16.1			7.8	2	449	9,362	594	543	91%	12,385	3.7	0.9	2.5	61.0	16.1	6.8	4.2	56	4	99.1%	84	12	98.0%	250					7.5	63	39		
Saturday	01/04/14	61	16.1		31	7.9	1		9,232	514	476	93%	9,860	4.0	1.0	2.3	61.0	16.1	6.8	4.1	57			77	10	98.1%	192		0.1	0.1	10.8					
Sunday	01/05/14	60	15.6			7.8	1		9,232	492	449	91%	9,438	3.7	0.7	2.3	61.3	16.3	6.8	3.9	69			77	12	97.6%	230									
Monday	01/06/14	61	16.1	54	33	8.0	3		10,034	302	271	90%	6,297	3.6	0.6	2.5	60.6	15.9	6.9	4.8	70			83	10	96.7%	209		0.2	0.2	11.3					
Tuesday	01/07/14	61	16.1			8.1	2	551	11,488	663	605	91%	13,824	3.5	0.8	2.5	60.6	15.9	6.7	4.3	54	2	99.6%	42	4	99.4%	83									
Wednesday	01/08/14	60	15.6		32	7.9	2	718	14,970	884	793	90%	18,431	3.6	0.8	2.5	60.8	16	6.5	4.1	41	3	99.6%	63	11	98.8%	229		0.3	0.2	14.3	5.8	68	20		
Thursday	01/09/14	60	15.6			8.1	2	474	9,883	498	459	92%	10,383	3.4	0.8	2.5	60.3	15.7	6.7	4.2	47	3	99.4%	63	9	98.2%	188					6.1	68	28		
Friday	01/10/14	61	16.1			8.1	1		10,034	621	570	92%	12,948	3.5	0.8	2.5	60.8	16	6.6	3.8	44			83	12	98.1%	250					6.1	67	45		
Saturday	01/11/14	60	15.6			8.1	1		10,436	883	814	92%	19,147	6.6	0.9	2.6	61.0	16.1	6.7	4	46			87	14	98.4%	304									
Sunday	01/12/14	60	15.6			8.0	2	521	10,428	650	606	93%	13,010	4.0	0.7	2.4	61.3	16.3	6.7	3.9	51	4	99.2%	80	10	98.5%	200									
Monday	01/13/14	60	15.6		29	7.9	2	525	10,946	944	892	94%	19,682	4.1	0.7	2.5	60.8	16	6.7	3.4	55	6	98.9%	125	14	98.5%	292		2.1	0.4	13.7	5.6	66	500	Y	01/13/14
Tuesday	01/14/14	61	16.1			8.1	2	674	14,053	1002	944	94%	20,892	3.6	0.8	2.5	61.2	16.2	6.7	3.9	56	4	99.4%	84	14	98.6%	292	96				5.3	68	14	Y	01/14/14
Wednesday	01/15/14	61	16.1		30	8.0	2		10,034	386	355	92%	8,048	3.8	0.7	2.5	61.3	16.3	6.6	4	51			83	12	96.9%	250		1.1	0.4	11.7	4.5	68	26		
Thursday	01/16/14	61	16.1			8.0	2		10,034	655	620	95%	13,657	3.6	0.8	2.5	61.0	16.1	6.6	3.9	50			83	8	98.8%	167									
Friday	01/17/14	61	16.1			8.0	3		10,034	320	290	91%	6,672	3.6	0.8	2.5	60.6	15.9	6.7	4.1	61			83	9	97.2%	188									
Saturday	01/18/14	61	16.1			8.0	2		9,633	620	585	94%	12,410	3.7	1.0	2.4	60.8	16	6.7	4	54			80	12	98.1%	240									
Sunday	01/19/14	60	15.6			8.1	2		9,232	757	729	96%	14,521	3.8	0.7	2.3	61.0	16.1	6.7	3.9	51			77	12	98.4%	230									
Monday	01/20/14	60	15.6		28	8.0	2		10,034	615	586	95%	12,823	3.8	0.7	2.5	60.6	15.9	6.6	4	46			83	11	98.2%	229		1.4	0.6	13.0					
Tuesday	01/21/14	60	15.6			8.0	2	458	9,931	746	709	95%	16,176	3.5	0.7	2.6	60.6	15.9	6.6	3.9	48	4	99.1%	87	9	98.8%	195					4.1	67	13		
Wednesday	01/22/14	60	15.6		29	7.9	2	422	8,799	400	360	90%	8,340	3.6	0.8	2.5	60.6	15.9	6.6	3.9	50	3	99.3%	63	9	97.8%	188		1.8	0.6	13.8	4.4	66	20		
Thursday	01/23/14	60	15.6			8.0	3	415	8,653	398	367	92%	8,298	3.7	0.9	2.5	60.6	15.9	6.6	3.8	48	5	98.8%	104	10	97.5%	209					4.3	66	500	Y	01/23/14
Friday	01/24/14	60	15.6			8.2	2		9,633	402	371	92%	8,046	3.5	0.9	2.4	60.6	15.9	6.6	3.9	44			80	9	97.8%	180									
Saturday	01/25/14	60	15.6			8.0	2		9,633	453	416	92%	9,067	3.7	1.1	2.4	60.8	16	6.6	3.9	47			80	10	97.8%	200									
Sunday	01/26/14	59	15.0			7.6	2	362	6,944	431	403	94%	8,267	3.7	0.8	2.3	60.1	15.6	6.8	4	58	5	98.6%	96	9	97.9%	173									
Monday	01/27/14	60	15.6		31	8.0	3	326	6,797	330	306	93%	6,881	3.6	0.7	2.5	60.3	15.7	6.7	3.9	59	4	98.8%	84	9	97.3%	188		4.0	1.0	13.3					
Tuesday	01/28/14	60	15.6			7.9	2	370	7,715	473	445	94%	9,862	3.4	0.8	2.5	60.4	15.8	6.6	3.8	52	4	98.9%	84	10	97.9%	209									
Wednesday	01/29/14	59	15.0		29	7.9	2		10,436	333	300	90%	7,221	3.7	0.9	2.6	60.3	15.7	6.7	3.6	62			87	9	97.3%	195		7.3	1.1	11.5	4.7	64	10	Y	01/29/14
Thursday	01/30/14	60	15.6			8.0	3		10,034	470	427	91%	9,800	3.7	0.7	2.5	59.7	15.4	6.7	3.5	55			83	10	97.9%	209					5.2	64	295	Y	01/30/14

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	01/31/14	60	15.6			8.0	2		9,633	451	407	90%	9,027	3.4	0.8	2.4	60.1	15.6	6.7	3.9	49			80	8	98.2%	160					4.6	66	11	Y	01/31/14
Saturday	2/1/2014	60	15.6			8.0	2		7,397	980	943	96%	17,981	3.7	0.7	2.2	60.3	15.7	6.7	3.6	53			90	10	99.0%	183									
Sunday	2/2/2014	59	15.0			7.9	3		7,397	503	477	95%	9,229	3.8	0.6	2.2	60.1	15.6	6.9	3.7	58			90	8	98.4%	147									
Monday	2/3/2014	59	15.0		33	7.9	2		8,070	684	643	94%	13,691	3.5	0.6	2.4	59.7	15.4	6.7	3.8	56			98	8	98.8%	160		3.7	1.4	14.4	5	66	19		
Tuesday	2/4/2014	60	15.6			8.1	2		8,070	1070	1007	94%	21,417	3.5	0.7	2.4	59.2	15.1	6.6	4	47			98										38		
Wednesday	2/5/2014	60	15.6		31	8.1	2	510	10,208	650	602	93%	13,010	3.4	0.7	2.4	58.8	14.9	6.6	3.9	44	6	98.8%	120	14	97.8%	280		3.7	1.7	15.6	4.6	66	26		
Thursday	2/6/2014	59	15.0			8.0	3	532	10,649	649	597	92%	12,990	3.5	0.7	2.4	58.1	14.5	6.5	4	41	5	99.1%	100	14	97.8%	280	94								
Friday	2/7/2014	59	15.0			8.0	2		8,070	981	937	96%	19,636	3.5	0.8	2.4	58.1	14.5	6.7	3.8	61			98	13	98.7%	260									
Saturday	2/8/2014	59	15.0			7.9	2	479	9,188	654	616	94%	12,545	3.9	0.8	2.3	57.7	14.3	6.6	3.8	53	5	99.0%	96	12	98.2%	230									
Sunday	2/9/2014	58	14.4			7.8	2		8,070	603	575	95%	12,070	3.8	0.8	2.4	57.6	14.2	6.9	3.8	64			98	8	98.7%	160									
Monday	2/10/2014	59	15.0	49	29	7.9	3	475	9,904	632	593	94%	13,177	3.6	0.7	2.5	58.5	14.7	6.9	3.8	69	5	98.9%	104	12	98.1%	250		3.9	1.8	10.9					
Tuesday	2/11/2014	59	15.0			7.9	3	376	8,153	466	432	93%	10,105	3.6	0.8	2.6	58.6	14.8	6.7	4.1	57	5	98.7%	109	11	97.6%	239					4.7	66	16		
Wednesday	2/12/2014	57	13.9		23	7.8	4	342	9,413	386	340	88%	10,623	5.4	0.9	3.3	59.2	15.1	6.7	4	58	5	98.5%	138	10	97.4%	275		4.4	2.2	12.2	5.7	66	155	Y	02/12/14
Thursday	2/13/2014	56	13.3			8.0	5		10,087	363	323	89%	9,082	4.6	1.5	3.0	57.4	14.1	6.6	3.8	59			123	10	97.2%	250					4.9	66	33		
Friday	2/14/2014	58	14.4			7.7	3		9,079	302	265	88%	6,800	3.5	0.9	2.7	57.7	14.3	6.8	3.9	64			111	9	97.0%	203									
Saturday	2/15/2014	58	14.4			7.9	3		7,734	416	385	93%	7,980	4.1	0.8	2.3	57.6	14.2	6.7	3.9	60			94	13	96.9%	249									
Sunday	2/16/2014	58	14.4			7.9	3		10,423	330	292	88%	8,532	6.2	0.8	3.1	58.3	14.6	7.0	4.1	75			127	10	97.0%	259									
Monday	2/17/2014	58	14.4		29	7.7	3	366	7,936	417	388	93%	9,042	4.1	0.7	2.6	58.5	14.7	6.9	4	70	4	98.9%	87	10	97.6%	217		1.2	1.3	10.9					
Tuesday	2/18/2014	59	15.0			7.9	3	356	7,720	332	301	91%	7,199	3.9	0.8	2.6	58.8	14.9	6.9	3.8	77	4	98.9%	87	12	96.4%	260					5.6	66	9	Y	02/18/14
Wednesday	2/19/2014	58	14.4		28	7.9	3	367	8,264	375	334	89%	8,444	4.4	0.8	2.7	59.4	15.2	6.8	3.9	77	4	98.9%	90	11	97.1%	248		3.9	2.3	11.2	5.7	64	33		
Thursday	2/20/2014	59	15.0			7.7	3		8,406	336	301	90%	7,006	3.9	0.8	2.5	59.4	15.2	6.8	3.9	75			103	10	97.0%	209					5.7	65	13		
Friday	2/21/2014	59	15.0			7.9	3		8,406	406	361	89%	8,465	4.0	0.8	2.5	59.2	15.1	6.9	3.8	72			103	14	96.6%	292									
Saturday	2/22/2014	59	15.0			7.7	3		7,734	355	319	90%	6,810	3.9	0.7	2.3	59.2	15.1	6.9	3.9	76			94	11	96.9%	211									
Sunday	2/23/2014	59	15.0			7.8	3		8,070	389	362	93%	7,786	4.0	0.5	2.4	58.8	14.9	7.0	3.8	69			98	10	97.4%	200									
Monday	2/24/2014	59	15.0		28	8.0	2		8,742	328	299	91%	7,112	3.8	0.7	2.6	59.4	15.2	6.8	3.7	69			107	11	96.6%	239		6.9	3.0	12.7					
Tuesday	2/25/2014	58	14.4			7.9	3	331	7,177	314	288	92%	6,809	3.8	0.8	2.6	58.8	14.9	6.8	3.8	69	6	98.2%	130	11	96.5%	239									
Wednesday	2/26/2014	59	15.0		30	8.1	3	347	7,235	336	305	91%	7,006	3.9	0.8	2.5	59.2	15.1	6.9	4	71	5	98.6%	104	12	96.4%	250		5.5	3.0	13.8	7.3	61	24		
Thursday	2/27/2014	59	15.0			7.9	2	357	7,741	313	279	89%	6,787	3.7	0.8	2.6	59.5	15.3	6.8	3.7	72	5	98.6%	109	10	96.8%	217					7.7	62	12	Y	02/27/14
Friday	2/28/2014	59	15.0			8.1	3		8,742	371	338	91%	8,045	3.5	0.8	2.6	59.9	15.5	6.8	3.9	74			107	10	97.3%	217					3.6	63	15		
Saturday	03/01/14	59	15.0			8.0	2		6,905	498	468	94%	9,137	3.8	0.8	2.2	59.7	15.4	6.8	3.8	74			139	10	98.0%	183									
Sunday	03/02/14	57	13.9			7.6	2		7,533	323	297	92%	6,465	3.8	0.8	2.4	59.0	15	6.9	4	75			152	10	96.9%	200									
Monday	03/03/14	58	14.4		29	7.8	2	306	6,891	309	280	91%	6,958	4.4	0.6	2.7	58.8	14.9	6.8	3.6	73	6	98.0%	135	12	96.1%	270		11.6	2.8	7.7	4.9	64	16		
Tuesday	03/04/14	58	14.4			8.0	3	340	9,074	429	371	86%	11,449	4.0	0.6	3.2	58.5	14.7	6.9	3.7	83	5	98.5%	134	16	96.3%	427					4.9	64	232	Y	03/04/14
Wednesday	03/05/14	57	13.9	35	20	7.8	4	278	8,115	294	227	77%	8,582	7.8	0.9	3.5	56.7	13.7	6.8	4.1	75	6	97.8%	175	12	95.9%	350	95	9.6	2.9	10.8	6	65	92		
Thursday	03/06/14	59	15.0			7.9	3		12,554	311	277	89%	10,375	4.0	0.8	4.0	57.4	14.1	6.8	4	74			253	11	96.5%	367									
Friday	03/07/14	59	15.0			7.9	3		7,847	332	300	90%	6,922	3.7	0.8	2.5	59.4	15.2	6.9	3.9	74			158	12	96.4%	250									
Saturday	03/08/14	60	15.6			7.9	3		7,219	460	429	93%	8,824	3.7	0.8	2.3	59.7	15.4	6.8	4	76			145	12	97.4%	230									
Sunday	03/09/14	59	15.0			7.7	3		7,219	477	443	93%	9,150	3.8	0.7	2.3	59.2	15.1	6.9	3.9	77			145	11	97.7%	211									
Monday	03/10/14	59	15.0		29	7.8	2		7,847	398	368	92%	8,298	3.7	0.7	2.5	60.4	15.8	7.0	3.4	76			158	14	96.5%	292		4.1	4.4	13.0					
Tuesday	03/11/14	59	15.0			8.0	3	411	8,569	328	292	89%	6,839	3.7	0.6	2.5	60.3	15.7	6.9	3.6	71	8	98.1%	167	13	96.0%	271									
Wednesday	03/12/14	60	15.6			7.8	2	388	8,090	415	375	90%	8,653	3.8	0.7	2.5	60.8	16	6.9	3.5	70	7	98.2%	146	14	96.6%	292							667	Y	03/12/14
Thursday	03/13/14	60	15.6		31	8.0	2	444	9,257	496	453	91%	10,342	3.7	0.7	2.5	60.8	16	6.8	3.8	67	8	98.2%	167	10	98.0%	209		5.5	5.0	15.0	6.1	61	108		
Friday	03/14/14	60	15.6			7.8	3		7,847	487	462	95%	10,154	3.7	0.7	2.5	60.4	15.8	6.9	3.7	69			158	9	98.2%	188					7.6	60	168	Y	03/14/14
Saturday	03/15/14	60	15.6			7.9	3		7,219	367	340	93%	7,040	3.8	0.8	2.3	60.8	16	6.9	3.7	71			145	13	96.5%	249									
Sunday	03/16/14	59	15.0			7.8	2		7,219	417	390	94%	7,999	4.0	0.6	2.3	61.0	16.1	6.9	3.7	73			145	10	97.6%	192									
Monday	03/17/14	60	15.6		29	8.0	2	368	7,673	361	330	91%	7,527	4.0	0.7	2.5	60.8	16	6.9	3.7	67	7	98.1%	146	12	96.7%	250		3.6	3.5	15.6					
Tuesday	03/18/14	60	15.6			8.0	3	387	8,069	444	411	93%	9,257	3.8	0.8	2.5	60.6	15.9	6.8	3.7	60	9	97.7%	188	14	96.8%	292									
Wednesday	03/19/14	60	15.6		30	7.9	2	464	9,674	474	445	94%	9,883	3.8	0.7	2.5	61.3	16.3	6.7	3.4	50	8	98.3%	167	14	97.0%	292		5.5	4.2	15.6	8.9	60	118		
Thursday	03/20/14	60	15.6			8.1	2		7,847	476	438	92%	9,925	3.9	0.8	2.5	60.6	15.9	6.6	3.5	45			158	16	96.6%	334					8.7	61	90		
Friday	03/21/14	60	15.6			8.0	2		7,847	318	292	92%	6,630	3.7	0.8	2.5	60.8	16	6.7	3.5	49			158	14	95.6%	292					7.5	60	50		
Saturday	03/22/14	60	15.6			8.0	2		7,219	488	376	77%	9,361	4.0	0.7	2.3	60.8	16	6.7	3.5	50			145	15	96.9%	288									
Sunday	03/23/14	60	15.6			7.7	2	402	7,711	413	388	94%	7,922	3.9	0.6	2.3	60.4	15.8	6.9	3.4	56	10	97.5%	192	14	96.6%	269									
Monday	03/24/14	60	15.6		30	8.0	2	364	7,589	427	401	94%	8,903	3.9	0.7	2.5	61.9	16.6	6.8	3.5	56	9	97.5%	188	15	96.5%	313		4.0	3.2	13.8					
Tuesday	03/25/14	60	15.6			7.8	2	364	7,589	257	238	93%	5,358	3.8	0.8	2.5	61.7	16.5	6.9	3.8	55	8	97.8%	167	13	94.9%	271							44		
Wednesday	03/26/14	61	16.1		31	8.0	2		7,847	419	383	91%	8,736	3.9	0.8	2.5	61.9	16.6	6.7	3.7	53			158	12	97.1%	250		4.0	2.8	15.2	6.4	62	52		
Thursday	03/27/14	61	16.1			8.0	2		7,847	329	290	88%	6,860	4.3	0.8	2.5	62.4	16.9	6.7	3.7	53			158	12	96.4%	250					6.8	61	20		
Friday	03/28/14	61	16.1			8.1	2		7,847	312	280	90%	6,505	4.2	0.8	2.5	61.9	16.6	6.7	3.5	58			158	11	96.5%	229									
Saturday	03/29/14	60	15.6			8.0	2		7,219	532	504	95%	10,205	3.9	0.8	2.3	61.9	16.6	6.7	3.6	56			145	12	97.7%	230									
Sunday	03/30/14	61	16.1			7.7	2		6,905	450	425	94%	8,257	3.9	0.6	2.2	61.5	16.4	6.9	3.5	63			139	9	98.0%	165									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Monday	03/31/14	60	15.6			8.0	2		6,277	545	508	93%	9,091	4.0	0.7	2.0	61.7	16.5	6.8	3.6	47			126	11	98.0%	183									
Tuesday	04/01/14	61	16.1		30	7.9	2	409	8,187	384	356	93%	7,686	3.7	0.8	2.4	62.2	16.8	6.6	3.5	55	13	96.8%	261	15	96.1%	300		3.6	1.8	15.4	6.2	62	302	Y	04/01/14
Wednesday	04/02/14	61	16.1			8.1	2	410	8,207	397	341	86%	7,946	3.7	0.8	2.4	62.4	16.9	6.7	3.6	50	10	97.6%	200	14	96.5%	280					6.2	62	104		
Thursday	04/03/14	61	16.1	47	29	8.0	1	349	6,986	302	267	88%	6,045	3.6	0.8	2.4	62.2	16.8	6.6	3.6	48	10	97.1%	200	15	95.0%	300		2.4	1.4	15.4	6.3	63	53		
Friday	04/04/14	62	16.7			8.0	2		7,535	502	458	91%	10,048	3.8	0.8	2.4	62.6	17	6.7	3.7	49			185	18	96.4%	360									
Saturday	04/05/14	62	16.7			8.1	1		6,907	566	526	93%	10,385	3.6	0.8	2.2	63.0	17.2	6.8	3.6	51			170	15	97.3%	275									
Sunday	04/06/14	61	16.1			7.9	1		7,221	452	418	92%	8,670	3.9	0.7	2.3	62.1	16.7	6.9	3.5	67			178	10	97.8%	192									
Monday	04/07/14	62	16.7		29	7.7	1	358	7,166	463	429	93%	9,267	3.9	0.3	2.4	63.1	17.3	6.9	3.6	78	9	97.5%	180	10	97.8%	200		2.6	1.0	7.5	5.1	66	22		
Tuesday	04/08/14	62	16.7			8.0	2	391	8,152	371	336	91%	7,735	3.8	0.7	2.5	63.9	17.7	6.7	3.7	64	8	98.0%	167	11	97.0%	229	102				5.8	66	47		
Wednesday	04/09/14	61	16.1		34	8.0	2	276	5,985	264	232	88%	5,725	4.0	0.8	2.6	63.3	17.4	6.7	3.8	61	8	97.1%	174	11	95.8%	239		0.2	0.3	10.2	4.3	65	35		
Thursday	04/10/14	61	16.1			7.7	2		8,163	293	266	91%	6,353	3.9	0.8	2.6	62.6	17	6.8	3.8	78			201	12	95.9%	260									
Friday	04/11/14	62	16.7			7.8	2		8,163	492	460	93%	10,669	4.0	0.9	2.6	63.0	17.2	6.8	3.7	66			201	14	97.2%	304									
Saturday	04/12/14	61	16.1			7.8	2		7,535	405	381	94%	8,106	4.0	0.9	2.4	62.6	17	6.9	3.9	67			185	8	98.0%	160									
Sunday	04/13/14	61	16.1			7.7	1		7,849	309	288	93%	6,443	4.2	0.8	2.5	62.6	17	6.9	3.6	81			193	6	98.1%	125									
Monday	04/14/14	61	16.1		28	7.8	2		8,477	291	264	91%	6,553	4.4	0.8	2.7	63.1	17.3	6.9	3.5	81			209	8	97.3%	180		2.5	0.6	8.8					
Tuesday	04/15/14	62	16.7			8.0	2	303	6,570	278	251	90%	6,028	3.9	0.8	2.6	63.0	17.2	6.8	3.9	72	5	98.3%	109	8	97.1%	173					3.8	69	29		
Wednesday	04/16/14	62	16.7		29	7.9	2	336	7,286	311	283	91%	6,744	3.9	0.9	2.6	63.3	17.4	6.8	3.7	67	5	98.5%	109	10	96.8%	217		0.1	0.2	7.8	3.9	67	314	Y	04/16/14
Thursday	04/17/14	62	16.7			7.8	1	557	12,078	613	567	92%	13,292	3.7	0.9	2.6	63.7	17.6	6.9	3.7	75	5	99.1%	109	6	99.0%	130					3.7	67	23		
Friday	04/18/14	62	16.7			8.1	1		7,849	583	527	90%	12,156	3.7	1.0	2.5	63.3	17.4	6.9	3.7	76			193	6	99.0%	125									
Saturday	04/19/14	62	16.7			8.0	2		8,163	476	453	95%	10,322	4.1	0.9	2.6	63.3	17.4	6.9	3.7	79			201	8	98.3%	173									
Sunday	04/20/14	62	16.7			8.0	1	346	6,926	481	456	95%	9,628	4.0	0.9	2.4	63.0	17.2	6.9	3.8	81	6	98.3%	120	8	98.3%	160									
Monday	04/21/14	62	16.7		31	7.8	2	344	7,459	424	392	92%	9,194	4.1	0.8	2.6	64.0	17.8	6.9	3.5	80	7	98.0%	152	8	98.1%	173		3.4	0.7	10.0					
Tuesday	04/22/14	63	17.2			7.9	1	350	7,881	476	439	92%	10,719	4.3	0.9	2.7	64.6	18.1	6.8	3.5	67	6	98.3%	135	10	97.9%	225									
Wednesday	04/23/14	63	17.2		28	8.0	1		8,477	457	419	92%	10,291	4.1	0.9	2.7	64.8	18.2	6.7	3.7	57			209	10	97.8%	225		2.7	0.7	12.8	5.2	61	15		
Thursday	04/24/14	63	17.2			8.0	1		8,477	400	363	91%	9,007	4.1	0.8	2.7	64.6	18.1	6.7	3.5	59			209	15	96.3%	338					6.1	62	20		
Friday	04/25/14	63	17.2			7.9	2		8,163	453	411	91%	9,823	3.9	0.9	2.6	64.9	18.3	6.7	3.3	56			201	16	96.5%	347					9	60	55		
Saturday	04/26/14	63	17.2			8.0	1		7,535	636	597	94%	12,730	4.3	0.9	2.4	64.9	18.3	6.8	3.4	57			185	17	97.3%	340									
Sunday	04/27/14	60	15.6			7.8	2		8,163	531	509	96%	11,514	4.1	0.8	2.6	62.8	17.1	6.8	3.3	60			201	15	97.2%	325									
Monday	04/28/14	63	17.2		29	8.0	1	390	8,782	681	638	94%	15,335	4.2	0.9	2.7	64.4	18	6.9	3.3	78	16	95.9%	361	21	96.9%	473		12.5	0.8	6.9	12.5	58	41		
Tuesday	04/29/14	63	17.2			8.0	2	449	10,111	628	593	94%	14,141	4.5	0.9	2.7	64.8	18.2	7.1	3.4	128	14	96.9%	316	25	96.0%	563					12.6	56	67		
Wednesday	04/30/14	63	17.2		25	8.1	2	379	8,534	340	302	89%	7,656	4.0	1.0	2.7	65.1	18.4	7.1	3.3	121	17	95.5%	383	22	93.5%	495		11.8	0.7	4.6	12.5	56	62		
Thursday	05/01/14	64	17.8			7.9	1		7,563	407	368	90%	8,486	3.8	0.8	2.5	65.1	18.4	7.2	3.4	136			184	23	94.3%	480									
Friday	05/02/14	64	17.8			8.0	1		7,261	371	339	91%	7,426	3.8	0.9	2.4	65.7	18.7	7.2	3.3	149			177	20	94.6%	400									
Saturday	05/03/14	64	17.8			8.0	1		6,958	452	419	93%	8,670	4.4	0.8	2.3	65.7	18.7	7.2	3.4	140			169	22	95.1%	422									
Sunday	05/04/14	64	17.8			8.0	1		7,866	402	351	87%	8,717	5.1	0.8	2.6	65.1	18.4	7.4	3.4	180			192	23	94.3%	499									
Monday	05/05/14	64	17.8		27	8.0	2		7,563	394	355	90%	8,215	4.1	0.7	2.5	65.1	18.4	7.3	3.3	178			184	20	94.9%	417		26.1	0.5	4.7					
Tuesday	05/06/14	64	17.8			7.9	1	400	8,674	466	426	91%	10,105	3.9	0.8	2.6	65.3	18.5	7.4	3.3	194	11	97.3%	239	22	95.3%	477									
Wednesday	05/07/14	64	17.8	48	31	8.0	1	338	6,765	380	346	91%	7,606	4.1	0.9	2.4	65.7	18.7	7.3	3.2	201	11	96.7%	220	20	94.7%	400		33.0	0.7	4.5	11.6	56	367	Y	05/07/14
Thursday	05/08/14	64	17.8			8.0	1	560	13,077	546	483	88%	12,750	5.7	0.9	2.8	65.8	18.8	7.3	3.5	212	14	97.5%	327	20	96.3%	467					11	56	110		
Friday	05/09/14	64	17.8			8.1	1		7,866	489	398	81%	10,603	4.0	0.8	2.6	65.7	18.7	7.3	3.5	183			192	19	96.1%	412					11.1	54	310	Y	
Saturday	05/10/14	64	17.8			8.0	1		6,656	473	439	93%	8,679	3.8	0.9	2.2	65.7	18.7	7.3	3.5	191			162	16	96.6%	294									
Sunday	05/11/14	64	17.8			7.5	0		6,958	395	370	94%	7,577	4.0	0.7	2.3	65.3	18.5	7.2	3.3	160			169	15	96.2%	288									
Monday	05/12/14	64	17.8		30	8.0	1	337	7,308	339	311	92%	7,351	4.0	0.8	2.6	66.0	18.9	7.2	3.4	174	9	97.3%	195	13	96.2%	282		21.3	1.3	6.0					
Tuesday	05/13/14	64	17.8			7.9	1	327	6,818	511	483	95%	10,654	3.7	0.8	2.5	66.4	19.1	7.3	3.5	181	10	96.9%	209	15	97.1%	313					6.7	61	50		
Wednesday	05/14/14	65	18.3		27	7.9	1	287	5,984	349	325	93%	7,277	3.7	0.8	2.5	67.1	19.5	7.2	3.5	156	9	96.9%	188	18	94.8%	375	100	17.9	1.2	7.9	6.7	62	15		
Thursday	05/15/14	65	18.3			8.0	1		7,563	796	757	95%	16,597	3.6	0.8	2.5	67.6	19.8	7.2	3.5	152			184	16	98.0%	334					6.3	62	17		
Friday	05/16/14	65	18.3			7.9	1		7,563	893	853	96%	18,619	3.7	0.9	2.5	67.6	19.8	7.2	3.7	132			184	17	98.1%	354									
Saturday	05/17/14	64	17.8			7.7	0		6,958	721	683	95%	13,830	3.7	0.8	2.3	66.7	19.3	7.0	3.4	110			169	16	97.8%	307									
Sunday	05/18/14	64	17.8			7.8	0	375	7,819	459	431	94%	9,570	3.8	0.7	2.5	66.7	19.3	7.0	3.4	96	8	97.9%	167	15	96.7%	313									
Monday	05/19/14	65	18.3		28	7.9	1	338	7,047	348	318	91%	7,256	3.9	0.8	2.5	66.9	19.4	7.4	3.4	91	5	98.5%	104	16	95.4%	334		6.4	0.8	7.8	6.8	63	38		
Tuesday	05/20/14	65	18.3			7.9	1	304	6,592	341	323	95%	7,394	3.8	0.8	2.6	68.0	20	6.9	3.6	92	8	97.4%	174	18	94.7%	390					5.3	63	20		
Wednesday	05/21/14	65	18.3		26	8.0	1		7,866	502	464	92%	10,885	3.9	0.9	2.6	68.2	20.1	6.8	3.5	76			192	17	96.6%	369		2.3	0.6	7.2	5.6	64	32		
Thursday	05/22/14	66	18.9			8.0	1		7,563	643	597	93%	13,407	3.9	0.9	2.5	68.4	20.2	6.9	3.6	79			184	19	97.0%	396									
Friday	05/23/14	66	18.9			8.0	1		7,563	483	454	94%	10,071	3.6	0.9	2.5	68.2	20.1	6.9	3.5	80			184	22	95.4%	459									
Saturday	05/24/14	66	18.9			8.0	1		7,261	701	658	94%	14,031	3.9	1.0	2.4	68.2	20.1	6.9	3.5	84			177	16	97.7%	320									
Sunday	05/25/14	65	18.3			7.8	1		6,958	602	558	93%	11,548	3.7	0.9	2.3	67.6	19.8	7.0	3.4	84			169	15	97.5%	288									
Monday	05/26/14	65	18.3		33	7.7	0	367	7,958	529	499	94%	11,471	4.1	0.8	2.6	67.8	19.9	7.0	3.4	82	7	98.1%	152	12	97.7%	260		1.4	0.5	9.6					
Tuesday	05/27/14	66	18.9			7.6	1	338	7,611	465	420	90%	10,471	4.0	0.8	2.7	68.7	20.4	6.9	3.6	79	7	97.9%	158	15	96.8%	338					4.6	66	168	Y	05/27/14
Wednesday	05/28/14	66	18.9		26	7.9	2	382	8,602	401	363	91%	9,030	4.2	0.9	2.7	68.2	20.1	6.8	3.4	74	7	98.2%	158	16	96.0%	360		2.6	0.6	9.1	4.2	64	42		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Thursday	05/29/14	66	18.9			7.9	1		7,866	447	410	92%	9,693	4.4	0.9	2.6	68.2	20.1	6.8	3.7	73			192	12	97.3%	260					3.2	66	58		
Friday	05/30/14	67	19.4			7.8	1		7,866	474	442	93%	10,278	3.9	0.9	2.6	68.4	20.2	6.8	3.6	68			192	10	97.9%	217									
Saturday	05/31/14	66	18.9			7.8	1		7,563	378	356	94%	7,881	4.1	0.9	2.5	68.2	20.1	6.9	3.6	71			184	12	96.8%	250									
Sunday	06/01/14	66	18.9			7.7	0		6,901	380	350	92%	7,923	3.9	0.9	2.5	68.5	20.3	7.0	3.6	85			120	10	97.4%	209									
Monday	06/02/14	67	19.4		25	8.0	1		7,453	333	305	92%	7,498	4.1	0.9	2.7	69.6	20.9	6.9	3.6	79			129	8	97.6%	180		1.7	0.6	9.9					
Tuesday	06/03/14	67	19.4			7.8	1	366	8,242	416	379	91%	9,367	3.8	0.9	2.7	69.4	20.8	6.8	3.5	64	4	98.9%	90	9	97.8%	203									
Wednesday	06/04/14	67	19.4	45	29	7.9	1	348	7,836	371	341	92%	8,354	3.9	1.0	2.7	69.1	20.6	6.7	3.6	58	5	98.6%	113	13	96.5%	293		1.1	0.5	8.4	2.7	66	4	Y	06/04/14
Thursday	06/05/14	66	18.9			8.0	1	345	8,344	421	377	90%	10,182	4.0	1.0	2.9	68.9	20.5	6.7	3.6	59	5	98.6%	121	10	97.6%	242	98				3.1	67	15		
Friday	06/06/14	66	18.9			7.9	2		8,006	391	341	87%	9,457	4.2	1.2	2.9	68.2	20.1	6.8	3.6	72			139	12	96.9%	290					2.4	69	13	Y	06/06/14
Saturday	06/07/14	66	18.9			8.0	1		8,006	571	528	92%	13,810	4.2	1.2	2.9	69.3	20.7	6.8	3.6	68			139	16	97.2%	387									
Sunday	06/08/14	66	18.9			7.7	1		8,006	457	414	91%	11,053	4.1	1.2	2.9	67.1	19.5	6.9	3.8	78			139	8	98.2%	193									
Monday	06/09/14	67	19.4		24	7.8	1	353	8,538	405	365	90%	9,795	4.1	1.2	2.9	68.4	20.2	6.9	3.7	81	6	98.3%	145	12	97.0%	290		3.3	0.3	8.1	2.9	69	11	Y	06/09/14
Tuesday	06/10/14	67	19.4			7.9	1	325	8,132	389	355	91%	9,733	3.9	1.3	3.0	68.2	20.1	6.9	3.5	76	6	98.2%	150	10	97.4%	250					3.2	69	54		
Wednesday	06/11/14	67	19.4		23	7.9	1	344	8,607	322	291	90%	8,056	4.3	1.2	3.0	68.2	20.1	6.8	3.8	70	6	98.3%	150	12	96.3%	300		2.7	0.3	9.1	3.1	68	11	Y	06/11/14
Thursday	06/12/14	66	18.9			7.6	1		8,282	301	274	91%	7,531	4.1	1.2	3.0	68.4	20.2	6.8	3.6	68			144	10	96.7%	250									
Friday	06/13/14	66	18.9			7.9	1		9,386	408	353	87%	11,569	5.7	1.4	3.4	68.0	20	6.8	3.6	67			163	10	97.5%	284									
Saturday	06/14/14	66	18.9			7.9	1..0		8,558	418	380	91%	10,807	4.3	1.4	3.1	68.2	20.1	6.8	3.6	68			149	12	97.1%	310									
Sunday	06/15/14	65	18.3			7.6	1		8,282	417	378	91%	10,433	4.1	1.5	3.0	67.1	19.5	6.9	3.8	78	5		125	10	97.6%	250									
Monday	06/16/14	66	18.9		22	7.8	1	427	11,752	360	326	91%	9,908	5.1	1.5	3.3	66.6	19.2	6.9	3.7	76	6	98.6%	165	6	98.3%	165		2.4	0.2	10.1	2.7	70	136	Y	06/16/14
Tuesday	06/17/14	67	19.4			7.8	1	319	8,247	338	307	91%	8,739	4.2	1.4	3.1	66.9	19.4	6.8	3.7	70	7	97.8%	181	15	95.6%	388					3	66	15		
Wednesday	06/18/14	67	19.4		22	7.9	1	186	4,809	382	346	91%	9,876	4.5	1.7	3.1	68.0	20	6.7	3.8	61			149	11	97.1%	284		1.8	0.3	9.8	2.8	66	20		
Thursday	06/19/14	66	18.9			7.7	1		8,558	328	293	89%	8,480	4.2	1.5	3.1	68.0	20	6.8	3.6	65			149	21	93.6%	543									
Friday	06/20/14	66	18.9			7.7	1		8,282	329	293	89%	8,232	4.3	1.6	3.0	68.0	20	6.8	3.7	60			144	10	97.0%	250									
Saturday	06/21/14	65	18.3			7.6	1		8,282	364	332	91%	9,107	3.8	1.5	3.0	66.9	19.4	6.8	3.6	58			144	7	98.1%	175									
Sunday	06/22/14	65	18.3			7.6	1		8,006	398	347	87%	9,626	4.1	1.5	2.9	67.3	19.6	6.9	3.7	72			139	7	98.2%	169									
Monday	06/23/14	66	18.9		22	7.6	1		8,558	462	411	89%	11,945	4.3	1.5	3.1	68.5	20.3	6.8	3.5	71			149	9	98.1%	233		2.5	0.2	8.2					
Tuesday	06/24/14	67	19.4			7.7	1	325	8,674	406	363	89%	10,835	4.4	1.4	3.2	68.7	20.4	6.8	3.5	71	7	97.8%	187	11	97.3%	294					4.8	65	190	Y	06/24/14
Wednesday	06/25/14	68	20.0		24	7.8	1	329	8,506	335	289	86%	8,661	4.0	1.5	3.1	68.5	20.3	6.8	3.3	70	6	98.2%	155	9	97.3%	233		1.5	0.2	8.6	3.4	66	175	Y	06/25/14
Thursday	06/26/14	67	19.4			7.9	1	305	8,394	334	289	87%	9,192	4.8	1.5	3.3	68.9	20.5	6.9	3.4	68	6	98.0%	165	9	97.3%	248							157		
Friday	06/27/14	66	18.9			8.0	1		8,558	386	301	78%	9,980	4.0	1.9	3.1	68.2	20.1	6.9	3.3	69			149	9	97.7%	233									
Saturday	06/28/14	66	18.9			8.0	1		8,558	353	311	88%	9,126	3.5	1.5	3.1	68.4	20.2	6.9	3.4	70			149	10	97.2%	259									
Sunday	06/29/14	66	18.9			7.7	1		8,558	414	375	91%	10,704	4.2	1.5	3.1	67.5	19.7	6.8	3.3	73			149	8	98.1%	207									
Monday	06/30/14	68	20.0			7.7	1		8,558					4.2	1.6	3.1	68.9	20.5	6.8	3.6	74			149	9	#VALUE!	#VALUE!									
Tuesday	07/01/14	68	20.0		24	7.7	1	376	9,721	466	409	88%	12,048	4.4	1.6	3.1	69.4	20.8	6.8	3.7	69	5	98.7%	129	9	98.1%	233		1.0	0.3	10.6	3.4	64	21		
Wednesday	07/02/14	68	20.0			7.8	1	344	9,181	370	319	86%	9,875	4.2	1.4	3.2	69.3	20.7	6.8	3.8	62	6	98.3%	160	9	97.6%	240					2.4	69	13		
Thursday	07/03/14	68	20.0		34	7.9	1	347	8,971	343	299	87%	8,868	4.0	1.4	3.1	69.8	21	6.8	3.9	65	6	98.3%	155	9	97.4%	233		0.4	0.2	12.5	3.2	70	17		
Friday	07/04/14	66	18.9			7.6	1		8,457	381	332	87%	9,215	4.1	1.5	2.9	68.9	20.5	6.8	3.4	64			208	9	97.6%	218									
Saturday	07/05/14	66	18.9			7.5	1		8,749	358	323	90%	8,957	4.1	1.2	3.0	68.9	20.5	7.0	3.4	75			215	12	96.6%	300									
Sunday	07/06/14	67	19.4			7.2	1		9,040	391	351	90%	10,109	4.2	1.4	3.1	69.3	20.7	6.9	3.4	67			222	12	96.9%	310									
Monday	07/07/14	68	20.0		20	7.7	1	309	8,247	342	298	87%	9,127	4.1	1.6	3.2	70.2	21.2	6.9	3.4	75	7	97.7%	187	18	94.7%	480		2.3	0.3	8.3					
Tuesday	07/08/14	69	20.6			7.8	1	320	8,273	395	354	90%	10,212	4.6	1.6	3.1	70.9	21.6	6.8	3.1	69	9	97.2%	233	22	94.4%	569									
Wednesday	07/09/14	69	20.6	38	22	7.7	1	300	8,257	326	283	87%	8,972	4.2	1.5	3.3	70.9	21.6	6.8	3.5	69	9	97.0%	248	24	92.6%	661	97	2.2	0.4	9.5	4.5	66	126	Y	07/09/14
Thursday	07/10/14	69	20.6			7.7	1		9,332	333	293	88%	8,887	4.0	1.6	3.2	70.3	21.3	6.8	3.6	66			230	27	91.9%	721					4.7	66	16		
Friday	07/11/14	69	20.6			7.7	1		9,040	343	299	87%	8,868	4.0	1.6	3.1	70.7	21.5	6.8	3.4	64			222	20	94.2%	517					6	65	11	Y	07/11/14
Saturday	07/12/14	69	20.6			7.7	1		8,749	334	300	90%	8,357	4.0	1.6	3.0	70.9	21.6	6.8	3.5	65			215	32	90.4%	801									
Sunday	07/13/14	68	20.0			7.6	0	326	8,428	333	287	86%	8,609	4.1	1.5	3.1	71.1	21.7	6.9	2.9	70	11	96.6%	285	28	91.6%	724									
Monday	07/14/14	70	21.1		21	7.7	1	344	9,468	432	356	82%	11,890	4.4	1.4	3.3	71.1	21.7	6.9	3.3	94	11	96.8%	303	32	92.6%	881		10.3	0.3	6.2					
Tuesday	07/15/14	70	21.1			7.6	1	368	9,821	456	399	88%	12,170	4.2	1.9	3.2	71.2	21.8	7.0	3.3	120	12	96.7%	321	29	93.6%	774					9.1	64	142	Y	07/15/14
Wednesday	07/16/14	70	21.1		23	7.6	1		9,040	426	360	85%	11,014	4.4	1.5	3.1	71.4	21.9	7.1	3.3	128			222	31	92.7%	801		13.9	0.4	6.2	8.9	63	114		
Thursday	07/17/14	70	21.1			7.7	1		9,040	385	329	85%	9,954	4.1	1.5	3.1	71.6	22	7.1	3.3	132			222	29	92.5%	750					8.9	60	134	Y	07/17/14
Friday	07/18/14	70	21.1			7.7	1		9,040	484	430	89%	12,513	4.2	1.3	3.1	71.4	21.9	7.1	3.4	117			222	28	94.2%	724									
Saturday	07/19/14	70	21.1			7.7	0		9,040	365	335	92%	9,437	4.4	1.6	3.1	71.6	22	7.1	3.4	122			222	28	92.3%	724									
Sunday	07/20/14	69	20.6			7.7	0		8,457	352	325	92%	8,513	4.1	1.5	2.9	71.2	21.8	7.1	3.3	87			208	27	92.3%	653									
Monday	07/21/14	71	21.7		22	7.7	0	320	8,807	437	405	93%	12,027	4.3	1.1	3.3	71.8	22.1	7.0	3.3	97	11	96.6%	303	29	93.4%	798		8.8	1.0	7.6	10.5	63	38		
Tuesday	07/22/14	70	21.1			7.7	0	328	9,301	482	450	93%	13,668	4.6	1.4	3.4	71.2	21.8	7.1	3.2	110	10	97.0%	284	27	94.4%	766					8.5	64	44		
Wednesday	07/23/14	71	21.7		24	7.8	0	410	11,284	868	823	95%	23,889	4.8	1.5	3.3	71.6	22	7.1	3.1	99	10	97.6%	276	27	96.9%	743		9.4	1.0	8.5	8.2	60	61		
Thursday	07/24/14	70	21.1			7.9	1		9,040	267	249	93%	6,903	4.4	1.5	3.1	71.4	21.9	7.2	3.3	126			222	31	88.4%	801									
Friday	07/25/14	71	21.7			7.8	0		8,749	474	442	93%	11,859	4.0	1.3	3.0	72.9	22.7	7.1	3.3	92			215	28	94.1%	701									
Saturday	07/26/14	71	21.7			7.9	1		8,165	705	662	94%	16,463	4.0	1.5	2.8	71.6	22	7.1	3.3	99			201	26	96.3%	607									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	07/27/14	70	21.1			7.6	0		8,749	448	417	93%	11,209	4.2	1.3	3.0	71.4	21.9	7.1	3.3	86			215	24	94.6%	600									
Monday	07/28/14	71	21.7		22	7.7	1		9,040	657	610	93%	16,986	4.3	1.3	3.1	73.6	23.1	7.0	3.4	84			222	19	97.1%	491		3.9	0.8	5.7					
Tuesday	07/29/14	71	21.7			7.7	0	395	9,883	652	607	93%	16,313	4.0	1.4	3.0	73.6	23.1	7.0	3.2	93	7	98.2%	175	17	97.4%	425					4.3	66	20		
Wednesday	07/30/14	72	22.2		24	7.8	0	374	9,357	488	454	93%	12,210	4.0	1.4	3.0	74.3	23.5	6.9	3.2	95	8	97.9%	200	18	96.3%	450		4.4	1.1	10.6	4.1	65	26		
Thursday	07/31/14	72	22.2			7.7	1	384	9,608	461	423	92%	11,534	3.9	1.3	3.0	74.1	23.4	6.9	3.4	90	7	98.2%	175	16	96.5%	400					4.7	66	270	Y	07/31/14
Friday	08/01/14	72	22.2			7.7	0		9,334	502	464	92%	12,141	4.0	1.3	2.9	74.3	23.5	7.0	3.4	84			109	18	96.4%	435									
Saturday	08/02/14	70	21.1			7.4	1		9,656	841	788	94%	21,042	4.9	1.3	3.0	73.6	23.1	7.0	3.6	83			113	14	98.3%	350									
Sunday	08/03/14	71	21.7			7.8	1		9,012	408	375	92%	9,528	4.2	1.3	2.8	73.8	23.2	7.1	3.4	82			105	14	96.6%	327									
Monday	08/04/14	73	22.8		24	7.7	0		9,656	415	386	93%	10,383	4.6	1.1	3.0	75.0	23.9	7.0	2.9	82			113	16	96.1%	400		4.8	0.6	7.6					
Tuesday	08/05/14	73	22.8			7.6	0	364	8,804	493	460	93%	11,924	3.9	1.3	2.9	75.2	24	7.0	3.4	93	5	98.6%	121	15	97.0%	363									
Wednesday	08/06/14	73	22.8	44	23	7.8	1	450	10,884	542	505	93%	13,109	4.2	1.2	2.9	74.8	23.8	7.0	3.5	94	3	99.3%	73	5	99.1%	121	100	7.7	0.2	8.9	2.9	67	7	Y	08/06/14
Thursday	08/07/14	73	22.8			7.7	1	457	11,053	602	554	92%	14,560	3.9	1.1	2.9	75.0	23.9	7.0	3.4	96	5	98.9%	121	11	98.2%	266					2	68	3	Y	08/07/14
Friday	08/08/14	73	22.8			7.6	1		9,012	649	611	94%	15,155	3.9	1.3	2.8	74.8	23.8	6.9	3.5	90			105	8	98.8%	187					1.5	68	7	Y	08/08/14
Saturday	08/09/14	73	22.8			7.7	0		9,012	669	623	93%	15,622	4.0	1.3	2.8	75.0	23.9	7.0	3.5	93			105	9	98.7%	210									
Sunday	08/10/14	73	22.8			7.8	1		8,368	709	666	94%	15,374	4.1	1.0	2.6	74.7	23.7	7.1	3.4	88			98	8	98.9%	173									
Monday	08/11/14	74	23.3		22	7.7	0	397	9,602	525	482	92%	12,698	4.1	1.0	2.9	75.9	24.4	7.0	3.5	91	4	99.0%	97	10	98.1%	242		6.3	0.3	8.0					
Tuesday	08/12/14	74	23.3			7.7	0	390	11,059	863	818	95%	24,471	6.7	1.2	3.4	75.7	24.3	7.0	3.3	103	4	99.0%	114	7	99.2%	198									
Wednesday	08/13/14	74	23.3		16	7.6	0	342	11,124	497	409	82%	16,165	7.2	1.5	3.9	75.7	24.3	7.0	3.4	104	5	98.5%	163	9	98.2%	293		6.5	0.4	7.7	1.6	60	17		
Thursday	08/14/14	73	22.8			7.7	2		10,299	478	431	90%	12,757	10.6	2.1	3.2	73.9	23.3	7.0	3.7	96			120	7	98.5%	187					1.7	64	13		
Friday	08/15/14	74	23.3			7.8	1		9,334	453	429	95%	10,956	5.2	1.2	2.9	74.7	23.7	6.9	3.3	79			109	8	98.2%	193					1.5	66	5	Y	08/15/14
Saturday	08/16/14	74	23.3			7.7	0		8,690	470	436	93%	10,583	4.1	1.3	2.7	74.7	23.7	6.9	3.4	97			101	7	98.5%	158									
Sunday	08/17/14	73	22.8			7.6	1		7,950	464	433	93%	9,558	4.1	1.2	2.5	74.1	23.4	7.0	3.4	87			93	7	98.5%	144									
Monday	08/18/14	74	23.3		24	7.7	1	372	9,307	392	359	92%	9,808	4.2	1.1	3.0	76.8	24.9	7.0	3.2	82	3	99.2%	75	5	98.7%	125		5.1	0.1	4.6	1.8	70	17		
Tuesday	08/19/14	74	23.3			7.8	0	329	8,232	410	375	91%	10,258	4.1	1.3	3.0	76.6	24.8	6.9	3.5	87	4	98.8%	100	7	98.3%	175					2.6	88	14		
Wednesday	08/20/14	74	23.3		23	7.7	0	435	10,884	507	470	93%	12,685	4.0	1.2	3.0	76.3	24.6	7.0	3.5	79	4	99.1%	100	8	98.4%	200		3.1	0.2	5.7	2.2	68	360	Y	08/20/14
Thursday	08/21/14	74	23.3			7.9	0		9,656	480	446	93%	12,010	4.1	1.2	3.0	75.7	24.3	6.9	3.3	76			113	10	97.9%	250									
Friday	08/22/14	74	23.3			7.8	0		9,656	500	464	93%	12,510	4.4	1.3	3.0	75.9	24.4	7.0	3.3	76			113	11	97.8%	275									
Saturday	08/23/14	72	22.2			7.7	1		8,690	996	957	96%	22,428	4.2	1.3	2.7	75.0	23.9	6.9	3.4	74			101	8	99.2%	180									
Sunday	08/24/14	73	22.8			7.5	0		9,012	499	463	93%	11,653	4.8	1.2	2.8	75.2	24	7.1	3.3	128			105	9	98.2%	210									
Monday	08/25/14	74	23.3		29	8.1	1		9,656	642	600	93%	16,063	4.3	1.1	3.0	76.1	24.5	7.2	3.3	132			113	10	98.4%	250		14.9	0.4	7.0					
Tuesday	08/26/14	74	23.3		26	8.0	0	405	9,795	579	541	93%	14,004	4.1	1.1	2.9	76.1	24.5	7.3	3.3	150	6	98.5%	145	9	98.4%	218		17.1	0.4	7.0	3.8	68	21		
Wednesday	08/27/14	74	23.3		27	7.9	0	361	8,731	559	520	93%	13,520	4.0	1.2	2.9	76.5	24.7	7.2	3.2	157	6	98.3%	145	9	98.4%	218		16.8	0.2	4.4	4.2	67	18		
Thursday	08/28/14	73	22.8			8.0	0	329	8,506	540	490	91%	13,961	4.3	1.4	3.1	76.5	24.7	7.2	3.5	142	5	98.5%	129	13	97.6%	336					2.4	72	15		
Friday	08/29/14	74	23.3			7.9	0		9,656	560	519	93%	14,011	4.4	1.3	3.0	75.7	24.3	7.2	3.6	120			113	9	98.4%	225									
Saturday	08/30/14	74	23.3			7.9	0		9,012	633	591	93%	14,782	4.3	1.3	2.8	75.6	24.2	7.2	3.5	130			105	7	98.9%	163									
Sunday	08/31/14	74	23.3			7.8	0		8,690	466	421	90%	10,493	1.3	1.2	2.7	74.5	23.6	7.3	3.4	119			101	7	98.5%	158									
Monday	09/01/14	74	23.3		30	7.9	0	414	10,704	456	416	91%	11,789	4.8	1.1	3.1	74.5	23.6	7.1	3.4	102	4	99.0%	104	6	98.7%	155		5.0	0.2	6.8					
Tuesday	09/02/14	74	23.3			7.9	0	369	9,232	406	367	90%	10,158	4.5	1.2	3.0	75.7	24.3	7.0	3.4	95	3	99.2%	75	6	98.5%	150									
Wednesday	09/03/14	73	22.8	45	25	8.0	1	359	9,581	448	404	90%	11,956	4.4	1.3	3.2	74.8	23.8	7.0	3.5	100	3	99.2%	80	6	98.7%	160		4.3	0.3	10.0	1.6	72	2	Y	09/03/14
Thursday	09/04/14	73	22.8			8.2	1		9,476	527	478	91%	13,186	4.5	1.4	3.0	74.8	23.8	6.9	3.4	75			77	4	99.2%	100	100				1.7	72	9	Y	09/04/14
Friday	09/05/14	74	23.3			8.0	0		9,160	565	502	89%	13,665	4.0	1.2	2.9	74.8	23.8	6.9	3.5	72			75	6	98.9%	145					1.6	72	7	Y	09/05/14
Saturday	09/06/14	73	22.8			8.0	1		8,529	700	644	92%	15,763	4.2	1.3	2.7	75.0	23.9	6.9	3.5	80			69	5	99.3%	113									
Sunday	09/07/14	73	22.8			7.7	1	361	8,129	558	529	95%	12,565	4.3	1.1	2.7	74.7	23.7	7.0	3.4	76	3	99.2%	68	7	98.7%	158									
Monday	09/08/14	74	23.3		21	7.9	0	476	11,513	661	602	91%	15,987	4.3	1.0	2.9	75.6	24.2	6.9	3.5	80	3	99.4%	73	5	99.2%	121		0.8	0.1	11.5					
Tuesday	09/09/14	74	23.3			8.1	0	336	8,407	591	545	92%	14,787	4.2	1.2	3.0	75.0	23.9	6.9	3.6	70	3	99.1%	75	7	98.8%	175					2	71	190	Y	09/09/14
Wednesday	09/10/14	73	22.8		28	8.1	1		9,160	290	264	91%	7,014	4.2	1.2	2.9	74.7	23.7	6.9	3.6	66			75	6	97.9%	145		0.7	0.1	10.6	2.2	70	168	Y	09/10/14
Thursday	09/11/14	74	23.3			8.0	0		9,160	839	795	95%	20,292	4.3	1.3	2.9	74.1	23.4	6.9	3.6	66			75	6	99.3%	145					2	70	175	Y	09/11/14
Friday	09/12/14	73	22.8			7.9	0		9,160	809	760	94%	19,566	4.3	1.1	2.9	73.8	23.2	6.9	3.6	67			75	6	99.3%	145									
Saturday	09/13/14	72	22.2			7.7	0		8,529	783	741	95%	17,632	4.3	1.2	2.7	72.9	22.7	6.8	3.6	64			69	7	99.1%	158									
Sunday	09/14/14	72	22.2			7.6	0		8,845	487	452	93%	11,372	4.5	1.1	2.8	73.2	22.9	6.9	3.6	71			72	6	98.8%	140									
Monday	09/15/14	73	22.8		27	8.0	1	382	9,558	530	474	89%	13,261	4.4	1.1	3.0	74.7	23.7	6.9	3.4	72	3	99.2%	75	6	98.9%	150		0.6	0.1	9.3					
Tuesday	09/16/14	74	23.3			8.0	0	437	10,569	519	476	92%	12,553	4.2	1.2	2.9	75.2	24	6.8	3.3	65	3	99.3%	73	8	98.5%	193					2.7	68	270	Y	09/16/14
Wednesday	09/17/14	74	23.3		27	7.9	0	365	9,132	631	580	92%	15,788	4.4	1.2	3.0	75.0	23.9	6.9	3.6	68	3	99.2%	75	7	98.9%	175		0.7	0.1	10.8	2.3	68	13		
Thursday	09/18/14	74	23.3			7.9	0		9,792	437	400	92%	11,298	4.1	1.2	3.1	75.0	23.9	6.7	3.4	55			80	5	98.9%	129					2.2	68	13	Y	09/18/14
Friday	09/19/14	74	23.3			8.0	0		8,529	435	406	93%	9,795	4.3	1.2	2.7	75.2	24	6.9	3.4	65			69	6	98.6%	135									
Saturday	09/20/14	74	23.3			7.9	1		8,529	984	929	94%	22,158	4.3	1.1	2.7	75.0	23.9	6.8	3.4	62			69	9	99.1%	203									
Sunday	09/21/14	72	22.2			7.6	1		8,845	373	338	91%	8,710	4.3	1.1	2.8	74.8	23.8	6.9	3.4	60			72	8	97.9%	187									
Monday	09/22/14	74	23.3		28	7.8	0		9,160	793	734	93%	19,179	4.2	1.0	2.9	75.7	24.3	6.9	3.3	70			75	7	99.1%	169		1.6	0.3	11.6	3.4	66	9	Y	09/22/14
Tuesday	09/23/14	74	23.3			7.9	0	403	9,747	467	435	93%	11,295	4.1	1.1	2.9	75.4	24.1	6.8	3.2	62	3	99.3%	73	7	98.5%	169					2.4	70	10	Y	09/23/14

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Wednesday	09/24/14	74	23.3		23	7.9	0	272	7,486	412	384	93%	11,339	4.4	1.2	3.3	75.0	23.9	6.8	3.1	59	3	98.9%	83	5	98.8%	138		1.5	0.3	10.8	2.7	64	150	Y	09/24/14
Thursday	09/25/14	73	22.8			8.0	0	371	9,282	539	506	94%	13,486	4.3	1.4	3.0	74.3	23.5	6.8	3.3	62	3	99.2%	75	6	98.9%	150									
Friday	09/26/14	74	23.3			8.1	1		9,476	504	487	97%	12,610	4.2	1.2	3.0	74.3	23.5	6.7	3.4	54			77	6	98.8%	150									
Saturday	09/27/14	73	22.8			8.0	0		8,845	358	336	94%	8,360	4.2	1.3	2.8	74.3	23.5	6.8	3.3	60			72	5	98.6%	117									
Sunday	09/28/14	73	22.8			7.7	0		8,529	347	317	91%	7,814	4.3	1.1	2.7	73.8	23.2	7.0	3.4	72			69	2	99.4%	45									
Monday	09/29/14	74	23.3			7.8	0		9,160	409	379	93%	9,892	4.4	1.0	2.9	74.7	23.7	6.9	3.4	79			75	4	99.0%	97									
Tuesday	09/30/14	73	22.8			8.0	0		9,160	359	332	92%	8,683	4.2	1.2	2.9	74.1	23.4	6.9	3.4	71			75	4	98.9%	97									
Wednesday	10/01/14	73	22.8		28	8.0	0	259	6,264	349	320	92%	8,441	4.3	1.2	2.9	73.6	23.1	6.8	3.6	66	3	98.8%	73	4	98.9%	97		1.5	0.2	10.4	2.1	68	400	Y	10/01/14
Thursday	10/02/14	73	22.8			7.9	0	271	6,328	252	233	92%	5,885	4.3	1.1	2.8	73.6	23.1	6.8	3.5	64	3	98.9%	70	5	98.0%	117					1.7	69	500	Y	10/02/14
Friday	10/03/14	73	22.8			8.0	1	258	6,240	281	274	98%	6,796	3.9	1.1	2.9	73.8	23.2	6.8	3.5	64	4	98.4%	97	4	98.6%	97					1.5	68	7	Y	10/03/14
Saturday	10/04/14	73	22.8		28	8.0	0		6,237	338	326	96%	7,047	4.1	1.2	2.5	73.6	23.1	6.8	3.5	66			51	2	99.4%	42		0.9	0.3	1.2					
Sunday	10/05/14	73	22.8			7.7	0		6,736	254	232	91%	5,720	4.3	1.1	2.7	73.4	23	7.0	3.4	72			56	4	98.4%	90									
Monday	10/06/14	73	22.8	43	31	7.8	0		7,235	249	227	91%	6,022	4.3	0.9	2.9	74.7	23.7	6.9	3.6	78			60	4	98.4%	97		1.4	0.2	11.5	1.5	70	8	Y	10/06/14
Tuesday	10/07/14	73	22.8			7.9	1	284	6,869	331	306	92%	8,006	4.2	1.1	2.9	74.7	23.7	6.9	3.6	72	2	99.3%	48	3	99.1%	73					1.3	70	186	Y	10/07/14
Wednesday	10/08/14	73	22.8		40	7.9	0	263	6,361	264	236	89%	6,385	4.1	1.2	2.9	74.3	23.5	6.8	3.3	67	2	99.2%	48	3	98.9%	73		1.9	0.3	10.7	1.4	68	138		
Thursday	10/09/14	73	22.8			8.1	0	311	7,262	531	495	93%	12,400	4.3	1.2	2.8	73.8	23.2	6.7	3.4	61	2	99.4%	47	5	99.1%	117									
Friday	10/10/14	73	22.8			7.9	1		6,985	488	397	81%	11,396	4.0	1.2	2.8	73.6	23.1	6.8	3.4	62			58	4	99.2%	93									
Saturday	10/11/14	73	22.8			8.0	0		6,736	438	402	92%	9,863	5.2	0.9	2.7	73.4	23	6.9	3.4	65			56	4	99.1%	90									
Sunday	10/12/14	73	22.8			7.8	0	290	6,288	407	385	95%	8,825	4.2	0.9	2.6	72.9	22.7	7.2	3.5	77	2	99.3%	43	4	99.0%	87	97								
Monday	10/13/14	73	22.8		28	7.9	0	301	7,029	663	630	95%	15,482	4.0	0.9	2.8	73.6	23.1	7.0	3.5	82	3	99.0%	70	3	99.5%	70		1.5	0.2	10.7					
Tuesday	10/14/14	73	22.8			8.0	1	269	6,282	363	339	93%	8,477	4.0	1.0	2.8	73.2	22.9	6.9	3.6	73	2	99.3%	47	4	98.9%	93									
Wednesday	10/15/14	73	22.8		29	8.0	0		6,985	573	531	93%	13,381	4.0	1.1	2.8	73.2	22.9	6.9	3.6	68			58	3	99.5%	70		1.3	0.2	10.7	2	68	10	Y	10/15/14
Thursday	10/16/14	72	22.2			8.1	0		6,985	462	427	92%	10,789	4.0	1.0	2.8	72.7	22.6	6.8	3.8	66			58	4	99.1%	93					1.6	68	19		
Friday	10/17/14	72	22.2			8.0	1		6,736	426	376	88%	9,593	3.9	1.1	2.7	72.5	22.5	6.8	3.5	59			56	3	99.3%	68					1.7	68	7	Y	
Saturday	10/18/14	72	22.2			8.0	0		6,486	1180	1117	95%	25,587	4.1	0.8	2.6	72.5	22.5	6.9	3.6	62			53	8	99.3%	173									
Sunday	10/19/14	72	22.2			7.7	1		6,486	852	810	95%	18,475	4.0	1.0	2.6	72.1	22.3	7.0	3.4	73			53	5	99.4%	108									
Monday	10/20/14	72	22.2		27	7.8	0	358	8,360	436	398	91%	10,181	4.0	0.9	2.8	72.9	22.7	7.0	3.4	80	2	99.4%	47	4	99.1%	93		1.4	0.2	12.9					
Tuesday	10/21/14	72	22.2			8.0	0	336	7,566	323	293	91%	7,273	3.9	1.0	2.7	72.9	22.7	6.8	3.7	67	2	99.4%	45	4	98.8%	90					1.6	68	142	Y	10/21/14
Wednesday	10/22/14	72	22.2		28	7.9	1	316	7,906	345	311	90%	8,632	4.3	1.0	3.0	72.3	22.4	6.8	3.3	63	3	99.1%	75	6	98.3%	150		1.7	0.2	15.0	1.7	68	100		
Thursday	10/23/14	72	22.2			8.0	0		6,985	344	314	91%	8,033	4.0	1.1	2.8	71.8	22.1	6.7	3.6	60			58	4	98.8%	93					1.6	68	150		
Friday	10/24/14	71	21.7			8.1	1		7,734	414	370	89%	10,704	6.8	1.0	3.1	71.4	21.9	6.7	3.7	57			64	12	97.1%	310									
Saturday	10/25/14	68	20.0			7.7	1		6,486	431	395	92%	9,346	4.2	1.0	2.6	69.8	21	6.8	3.6	52			53	6	98.6%	130									
Sunday	10/26/14	71	21.7			7.8	0	357	7,443	375	347	93%	7,819	4.1	0.9	2.5	71.2	21.8	6.8	3.6	58	2	99.4%	42	4	98.9%	83									
Monday	10/27/14	71	21.7		26	8.0	1	341	7,963	388	353	91%	9,061	4.1	0.8	2.8	71.2	21.8	6.9	3.6	72	3	99.1%	70	6	98.5%	140		0.8	0.2	12.2					
Tuesday	10/28/14	68	20.0			7.9	1	273	6,830	385	345	90%	9,633	5.0	1.0	3.0	70.9	21.6	6.8	3.3	65	2	99.3%	50	4	99.0%	100					2.5	68	202	Y	10/28/14
Wednesday	10/29/14	71	21.7		29	8.0	1		6,985	406	369	91%	9,481	4.0	1.1	2.8	70.0	21.1	6.8	3.4	60			58	4	99.0%	93		1.2	0.2	14.1	3.6	68	195	Y	10/29/14
Thursday	10/30/14	69	20.6			7.9	1		9,979	477	432	91%	15,913	5.1	1.1	4.0	70.9	21.6	6.8	3.3	61			82	6	98.7%	200					3.7	67	185	Y	10/30/14
Friday	10/31/14	70	21.1			7.8	1		6,486	397	355	89%	8,609	4.4	2.4	2.6	68.2	20.1	6.8	3.4	57			53	6	98.5%	130									
Saturday	11/01/14	73	22.8			7.9	1		7,582	626	582	93%	13,574	4.1	0.8	2.6	73.8	23.2	6.8	3.5	60			63	4	99.4%	87									
Sunday	11/02/14	72	22.2			7.7	0		7,582	520	469	90%	11,276	4.1	0.8	2.6	73.6	23.1	6.9	3.4	69			63	3	99.4%	65									
Monday	11/03/14	70	21.1		33	8.2	0	225	5,254	192	165	86%	4,484	4.2	0.9	2.8	70.7	21.5	6.9	3.1	77	2	99.1%	47	5	97.4%	117		2.9	0.2	14.4	2.1	72	115		
Tuesday	11/04/14	71	21.7			8.0	1	358	8,360	433	379	88%	10,111	4.2	1.1	2.8	70.7	21.5	6.8	3.6	68	2	99.4%	47	4	99.1%	93	96				1.6	71	10	Y	11/04/14
Wednesday	11/05/14	70	21.1	46	30	8.1	1	287	6,702	406	376	93%	9,481	4.2	1.0	2.8	70.5	21.4	6.8	3.6	59	2	99.3%	47	6	98.5%	140		1.3	0.2	18.0	1.4	70	8	Y	11/05/14
Thursday	11/06/14	70	21.1			7.9	0		8,165	584	552	95%	13,638	4.0	1.0	2.8	70.7	21.5	6.8	3.7	65			68	3	99.5%	70									
Friday	11/07/14	69	20.6			8.2	1		7,582	1220	1161	95%	26,454	4.0	1.0	2.6	70.2	21.2	6.8	3.8	63			63	4	99.7%	87									
Saturday	11/08/14	69	20.6			7.8	0		7,291	445	412	93%	9,278	4.0	1.0	2.5	69.3	20.7	6.9	3.7	67			61	4	99.1%	83									
Sunday	11/09/14	69	20.6		34	7.7	0		7,582	361	333	92%	7,828	4.3	0.8	2.6	69.1	20.6	7.1	3.8	73			63	2	99.4%	43		0.3	0.1	12.5					
Monday	11/10/14	69	20.6			8.2	1	375	8,444	523	481	92%	11,777	4.5	0.8	2.7	69.4	20.8	6.9	3.8	71	4	98.9%	90	5	99.0%	113									
Tuesday	11/11/14	69	20.6		32	7.6	0	359	8,084	366	328	90%	8,242	4.0	0.9	2.7	68.2	20.1	6.9	3.7	67	3	99.2%	68	7	98.1%	158		3.1	0.2	14.8					
Wednesday	11/12/14	68	20.0			8.1	1	383	8,305	396	361	91%	8,587	3.8	1.0	2.6	67.6	19.8	6.8	3.5	69	3	99.2%	65	13	96.7%	282					2	70	232	Y	11/12/14
Thursday	11/13/14	69	20.6			8.1	1		7,874	509	468	92%	11,462	3.8	0.8	2.7	67.1	19.5	6.9	3.8	73			66	8	98.4%	180					3.1	69	218	Y	11/13/14
Friday	11/14/14	68	20.0			8.3	1		7,291	384	360	94%	8,006	3.8	0.9	2.5	66.9	19.4	6.9	3.7	91			61	5	98.7%	104					4.8	68	44		
Saturday	11/15/14	68	20.0			8.1	1		7,291	515	477	93%	10,738	4.3	0.9	2.5	66.9	19.4	6.9	3.7	84			61	4	99.2%	83									
Sunday	11/16/14	68	20.0			7.8	1		7,291	652	626	96%	13,594	4.0	0.6	2.5	66.7	19.3	6.9	3.6	80			61	6	99.1%	125									
Monday	11/17/14	68	20.0		32	8.0	1		7,874	477	427	90%	10,741	3.9	0.7	2.7	66.9	19.4	6.9	3.6	82			66	6	98.7%	135		3.1	0.2	12.9					
Tuesday	11/18/14	67	19.4			8.1	1	404	8,760	436	396	91%	9,454	3.8	0.9	2.6	66.2	19	6.8	3.9	78	3	99.3%	65	6	98.6%	130					2.7	70	6	Y	11/18/14
Wednesday	11/19/14	67	19.4		33	8.2	1	419	9,435	459	420	92%	10,336	3.9	0.9	2.7	66.4	19.1	6.8	3.4	78	3	99.3%	68	8	98.3%	180		4.8	0.3	13.9	2.9	69	204	Y	11/19/14
Thursday	11/20/14	67	19.4			8.2	1	398	8,962	391	343	88%	8,805	3.9	1.0	2.7	66.6	19.2	6.8	3.6	74	3	99.2%	68	10	97.4%	225					3	68	155	Y	11/20/14
Friday	11/21/14	67	19.4			8.1	1		7,874	440	397	90%	9,908	4.0	1.0	2.7	66.2	19	6.9	3.4	78			66	8	98.2%	180									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	11/22/14	66	18.9			7.6	1		8,457	353	315	89%	8,538	5.1	1.1	2.9	66.2	19	6.9	3.5	82			71	7	98.0%	169									
Sunday	11/23/14	66	18.9		31	7.9	1	354	8,562	402	361	90%	9,723	6.8	0.9	2.9	64.4	18	7.0	3.7	80	3	99.2%	73	5	98.8%	121		2.6	0.2	8.7					
Monday	11/24/14	66	18.9			8.0	1	347	8,103	431	394	91%	10,065	4.2	0.9	2.8	64.8	18.2	6.9	3.5	80	3	99.1%	70	4	99.1%	93					2	71	253	Y	11/24/14
Tuesday	11/25/14	62	16.7		21	8.1	3	287	9,574	384	328	85%	12,810	7.4	1.1	4.0	65.7	18.7	6.9	3.4	83	4	98.6%	134	7	98.2%	234		6.4	0.3	10.4	3.6	68	290	Y	11/25/14
Wednesday	11/26/14	66	18.9			7.9	1		6,707	366	324	89%	7,021	3.9	1.1	2.3	63.0	17.2	6.8	3.6	75			56	9	97.5%	173							7	Y	11/26/14
Thursday	11/27/14	66	18.9			8.0	1		6,999	727	692	95%	14,552	4.4	0.8	2.4	65.1	18.4	6.8	3.5	77			58	10	98.6%	200									
Friday	11/28/14	66	18.9			8.0	1		6,999	591	529	90%	11,829	3.9	1.0	2.4	65.5	18.6	6.9	3.5	74			58	8	98.6%	160									
Saturday	11/29/14	66	18.9			7.9	1		7,291	642	609	95%	13,386	4.1	0.8	2.5	65.1	18.4	6.8	3.6	80			61	9	98.6%	188									
Sunday	11/30/14	64	17.8			7.8	1		7,291	370	341	92%	7,715	4.0	0.7	2.5	63.5	17.5	7.0	3.6	86			61	9	97.6%	188									
Monday	12/01/14	65	18.3		34	7.8	1	347	7,814	371	329	89%	8,354	3.9	0.8	2.7	63.7	17.6	6.9	3.5	90	6	98.3%	135	11	97.0%	248		4.0	0.5	11.4					
Tuesday	12/02/14	64	17.8			8.1	2	351	7,904	371	335	90%	8,354	3.7	0.9	2.7	63.5	17.5	6.8	3.6	81	6	98.3%	135	12	96.8%	270					6.5	64	500	Y	12/02/14
Wednesday	12/03/14	65	18.3	50	31	8.0	1	353	7,949	575	531	92%	12,948	3.8	0.9	2.7	63.5	17.5	6.8	3.6	78	6	98.3%	135	11	98.1%	248		3.4	0.7	14.0	6.1	64	43		
Thursday	12/04/14	65	18.3			8.2	2		8,307	377	331	88%	8,804	3.9	1.1	2.8	64.2	17.9	6.9	3.8	80			128	12	96.8%	280					6.4	64	13	Y	12/04/14
Friday	12/05/14	64	17.8			8.2	1		8,307	528	483	91%	12,330	3.8	1.1	2.8	64.2	17.9	6.9	3.5	77			128	12	97.7%	280									
Saturday	12/06/14	59	15.0			7.6	3		8,010	579	544	94%	13,038	4.6	1.2	2.7	64.0	17.8	6.9	3.6	74			123	13	97.8%	293									
Sunday	12/07/14	64	17.8			8.0	1		8,010	462	433	94%	10,403	4.2	0.7	2.7	63.3	17.4	6.9	3.7	74			123	17	96.3%	383	96								
Monday	12/08/14	65	18.3		27	7.9	1		8,604	455	415	91%	11,005	4.0	0.9	2.9	64.9	18.3	6.9	3.7	85			132	13	97.1%	314		8.1	1.0	14.4					
Tuesday	12/09/14	64	17.8			7.9	2	346	8,368	369	321	87%	8,925	5.2	1.2	2.9	64.4	18	7.0	3.6	108	4	98.8%	97	11	97.0%	266									
Wednesday	12/10/14	64	17.8		30	8.0	2	365	8,523	432	394	91%	10,088	4.0	1.3	2.8	63.5	17.5	6.9	3.8	97	4	98.9%	94	10	97.7%	234		8.8	1.2	11.6	4.4	66	7	Y	12/10/14
Thursday	12/11/14	58	14.4			8.0	5	340	9,641	390	337	86%	11,059	7.5	1.0	3.4	64.0	17.8	6.9	3.4	112	5	98.5%	142	11	97.2%	312					5.2	64	34		
Friday	12/12/14	64	17.8			8.0	1		8,010	407	353	87%	9,165	3.6	1.1	2.7	62.4	16.9	7.0	3.6	99			123	10	97.5%	225					4.1	67	38		
Saturday	12/13/14	64	17.8			8.0	2		8,010	450	415	92%	10,133	4.2	1.3	2.7	63.1	17.3	7.0	3.4	101			123	10	97.8%	225									
Sunday	12/14/14	64	17.8			7.8	1		7,714	411	384	93%	8,912	4.1	0.9	2.6	63.3	17.4	7.1	3.7	90			119	14	96.6%	304									
Monday	12/15/14	63	17.2		27	7.9	2	344	8,033	434	383	88%	10,135	4.3	0.9	2.8	63.7	17.6	6.9	3.5	95	5	98.5%	117	16	96.3%	374		8.5	1.6	11.2					
Tuesday	12/16/14	63	17.2			7.9	1	339	8,199	390	351	90%	9,433	4.0	1.0	2.9	63.7	17.6	7.0	3.7	105	6	98.2%	145	11	97.2%	266							132	Y	12/16/14
Wednesday	12/17/14	60	15.6		26	7.9	3	306	8,167	493	451	91%	13,157	5.8	1.1	3.2	63.0	17.2	6.9	3.6	90	7	97.7%	187	12	97.6%	320		8.9	1.7	12.9	4.8	64	130	Y	12/17/14
Thursday	12/18/14	64	17.8			8.1	1		8,307	433	396	91%	10,111	5.4	1.0	2.8	62.4	16.9	6.9	3.7	86			128	14	96.8%	327					5	66	52		
Friday	12/19/14	63	17.2			8.1	1		7,714	370	329	89%	8,023	3.9	1.4	2.6	62.6	17	7.0	3.6	81			119	12	96.8%	260									
Saturday	12/20/14	63	17.2			8.1	1		13,054	360	309	86%	13,211	7.4	1.2	4.4	62.6	17	7.0	3.7	87			201	16	95.6%	587									
Sunday	12/21/14	62	16.7			7.8	1	326	8,157	377	338	90%	9,433	7.3	1.6	3.0	61.5	16.4	7.0	3.9	95	5	98.5%	125	9	97.6%	225									
Monday	12/22/14	63	17.2		27	7.8	2	342	8,272	532	487	92%	12,867	4.3	1.0	2.9	60.1	15.6	6.8	3.6	69	7	98.0%	170	15	97.2%	363		4.0	1.4	10.1	4.3	71	25		
Tuesday	12/23/14	63	17.2			7.8	1	400	9,341	470	433	92%	10,975	4.1	1.1	2.8	62.6	17	6.9	3.6	92	6	98.5%	140	19	96.0%	444					4.7	67	38		
Wednesday	12/24/14	62	16.7			7.7	1		7,417	396	344	87%	8,257	4.5	1.0	2.5	63.1	17.3	7.0	3.6	92			114	9	97.7%	188					17.6	60	210	Y	12/24/14
Thursday	12/25/14	62	16.7		35	7.8	1		7,120	1211	1173	97%	24,239	3.5	0.9	2.4	63.0	17.2	6.9	3.6	88			109	13	98.9%	260		3.3	1.5	11.6					
Friday	12/26/14	63	17.2			7.8	1		7,120	651	543	83%	13,030	4.1	0.9	2.4	62.4	16.9	6.9	3.8	82			109	10	98.5%	200									
Saturday	12/27/14	63	17.2			7.8	1		8,010	464	434	94%	10,448	4.3	0.9	2.7	62.2	16.8	6.9	3.7	84			123	11	97.6%	248									
Sunday	12/28/14	62	16.7		32	7.8	1	363	8,477	478	450	94%	11,162	4.9	0.7	2.8	62.4	16.9	7.0	3.6	93	5	98.6%	117	11	97.7%	257		3.6	2.0	9.4					
Monday	12/29/14	61	16.1			8.0	2	370	8,949	499	458	92%	12,069	4.6	1.5	2.9	61.5	16.4	6.9	3.5	83	5	98.6%	121	12	97.6%	290					5.2	67	23		
Tuesday	12/30/14	63	17.2		30	8.0	1	444	9,628	558	520	93%	12,100	3.9	1.0	2.6	60.6	15.9	6.8	3.8	86	5	98.9%	109	10	98.2%	217		8.2	2.3	13.5	5	66	52		
Wednesday	12/31/14	62	16.7			8.0	1		7,714	635	599	94%	13,769	3.9	1.0	2.6	60.6	15.9	6.9	3.6	93			119	10	98.4%	217					4.9	66	49		
	Average	65.9	18.8	45.1	27.7	7.9	1.2	371	8,410	477	438	0.9	10,806	4.2	1.0	2.7	66.9	19.4	6.9	3.6	78.4	5.6	1.0	128	11.2	1.0	257.9	97.7	4.9	0.9	10.5	4.7	65.8	93.7		
	Max	74.0	23.3	53.9	39.7	8.3	5.2	718	14,970	1,220	1,173	1.0	26,454	10.6	2.4	4.4	76.8	24.9	7.4	4.8	212.0	17.0	1.0	383	32.0	1.0	880.7	102.2	33.0	5.0	18.0	17.6	88.0	667.0		
	Min	56.0	13.3	35.0	16.4	7.2	0.1	186	4,809	192	165	0.8	4,484	1.3	0.3	2.0	56.7	13.7	6.5	2.9	41.0	2.0	1.0	42	2.0	0.9	41.7	94.0	0.1	0.1	1.2	1.3	54.0	2.0		
	Median													4.0	0.9	2.7	66.9																		
2015																																			
Thursday	01/01/15	63	17.2			7.9	1		6,965	747	710	95%	13,706	3.5	0.9	2.2	60.6	15.9	6.9	3.5	90			116	12	98.4%	220									
Friday	01/02/15	63	17.2			7.9	1		7,914	618	594	96%	12,885	3.8	0.8	2.5	60.6	15.9	6.9	3.5	81			132	10	98.4%	209									
Saturday	01/03/15	63	17.2			7.9	1		7,598	646	614	95%	12,930	3.9	0.9	2.4	60.6	15.9	6.9	3.5	84			127	12	98.1%	240									
Sunday	01/04/15	62	16.7			7.6	1		8,231	539	508	94%	11,688	4.0	0.8	2.6	60.4	15.8	6.9	3.6	88			137	12	97.8%	260	98								
Monday	01/05/15	61	16.1		26	8.1	2		9,181	507	446	88%	12,262	4.2	1.0	2.9	61.5	16.4	6.9	3.7	84			153	13	97.4%	314			2.8	14.4					
Tuesday	01/06/15	62	16.7			7.9	2	447	10,438	427	379	89%	9,971	4.2	1.0	2.8	61.0	16.1	6.8	3.8	84	6	98.7%	140	12	97.2%	280					4.7	64	25		
Wednesday	01/07/15	62	16.7	46	29	8.0	2	323	7,812	424	388	92%	10,255	4.4	1.0	2.9	61.7	16.5	6.8	3.4	80	6	98.1%	145	14	96.7%	339		7.3	3.2	17.1	7.9	65	32		
Thursday	01/08/15	62	16.7			8.1	2	394	9,201	561	519	93%	13,100	3.8	1.0	2.8	61.5	16.4	6.8	3.6	80	5	98.7%	117	12	97.9%	280					5.4	64	60		
Friday	01/09/15	61	16.1			8.0	1		8,231	442	408	92%	9,584	3.7	1.0	2.6	61.5	16.4	6.8	3.6	81			137	12	97.3%	260									

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Saturday	01/10/15	62	16.7			8.0	2		8,231	516	483	94%	11,189	4.2	0.8	2.6	61.7	16.5	6.8	3.5	82			137	9	98.3%	195									
Sunday	01/11/15	61	16.1			7.8	1	302	6,297	344	318	92%	7,172	3.9	0.8	2.5	61.2	16.2	7.0	3.4	84	6	98.0%	125	8	97.7%	167									
Monday	01/12/15	61	16.1		30	7.9	2	291	6,795	400	361	90%	9,341	3.9	0.9	2.8	61.5	16.4	7.0	3.5	83	9	96.9%	210	9	97.8%	210		2.9	1.5	8.5	5.1	64	320	Y	01/12/15
Tuesday	01/13/15	61	16.1			8.1	3	342	7,701	450	406	90%	10,133	3.8	0.8	2.7	61.5	16.4	6.8	3.9	81	5	98.5%	113	10	97.8%	225					5.6	64	7	Y	01/13/15
Wednesday	01/14/15	62	16.7		30	8.0	2		8,864	482	443	92%	11,256	3.8	0.9	2.8	61.7	16.5	6.9	3.7	80			148	11	97.7%	257		5.9	2.7	13.4	5.3	64	3	Y	01/14/15
Thursday	01/15/15	61	16.1			8.0	2		8,547	418	382	91%	9,413	4.2	1.0	2.7	61.5	16.4	6.8	3.6	77			143												
Friday	01/16/15	61	16.1			8.1	2		8,231	408	389	95%	8,847	4.2	1.2	2.6	61.0	16.1	6.8	3.5	72			137	10	97.5%	217									
Saturday	01/17/15	62	16.7			8.0	2		10,447	462	421	91%	12,715	4.1	1.2	3.3	61.5	16.4	6.8	3.6	75			174	14	97.0%	385									
Sunday	01/18/15	59	15.0			7.7	2		10,763	300	270	90%	8,507	5.9	2.2	3.4	60.8	16	6.9	3.8	70			180	11	96.3%	312									
Monday	01/19/15	61	16.1		26	7.8	1		9,497	380	341	90%	9,508	5.0	0.9	3.0	60.8	16	6.8	3.6	66			158	9	97.6%	225		1.6	1.2	10.4					
Tuesday	01/20/15	61	16.1			7.9	2	358	8,061	372	331	89%	8,377	3.8	1.0	2.7	59.5	15.3	6.8	3.7	74	6	98.3%	135	8	97.8%	180									
Wednesday	01/21/15	61	16.1		30	8.1	2	355	7,994	329	295	90%	7,408	4.0	1.0	2.7	60.3	15.7	6.8	3.8	72	8	97.7%	180	11	96.7%	248		2.5	2.7	17.4	5.6	66	9	Y	01/21/15
Thursday	01/22/15	61	16.1			8.1	2	355	8,290	326	288	88%	7,613	3.9	1.0	2.8	60.8	16	6.7	3.6	61	8	97.7%	187	11	96.6%	257					5.8	64	17		
Friday	01/23/15	61	16.1			8.1	2		8,547	343	307	90%	7,724	3.6	1.0	2.7	61.0	16.1	6.8	3.7	63			143	8	97.7%	180					5.5	65	325	Y	01/23/15
Saturday	01/24/15	61	16.1			8.1	2		7,914	357	318	89%	7,443	4.2	0.9	2.5	61.2	16.2	6.8	3.7	68			132	10	97.2%	209									
Sunday	01/25/15	60	15.6			7.9	1		8,231	453	405	89%	9,823	4.0	0.9	2.6	61.0	16.1	6.9	3.8	74			137	6	98.7%	130									
Monday	01/26/15	61	16.1		30	7.8	2	420	9,458	563	489	87%	12,678	4.0	0.9	2.7	61.3	16.3	6.8	3.6	78	6	98.6%	135	9	98.4%	203		1.9	1.6	15.2	4.1	66	158	Y	01/26/15
Tuesday	01/27/15	61	16.1			7.7	2	479	11,186	720	603	84%	16,813	3.7	1.0	2.8	61.3	16.3	6.9	3.6	66	5	99.0%	117	8	98.9%	187					3.4	66	150		
Wednesday	01/28/15	61	16.1		29	7.7	2	489	11,011	703	599	85%	15,830	3.7	1.0	2.7	61.2	16.2	6.8	3.8	67	6	98.8%	135	10	98.6%	225		1.0	1.4	15.3	4.3	65	160	Y	01/28/15
Thursday	01/29/15	62	16.7			7.8	2		8,231	639	584	91%	13,856	3.8	1.0	2.6	61.3	16.3	6.7	3.8	56			137	8	98.7%	173									
Friday	01/30/15	61	16.1			7.9	2		7,914	584	531	91%	12,176	3.8	0.9	2.5	61.7	16.5	6.7	3.9	51			132	8	98.6%	167									
Saturday	01/31/15	61	16.1			7.8	2		7,914	452	404	89%	9,424	4.2	0.8	2.5	61.7	16.5	6.7	3.9	52			132	7	98.5%	146									
Sunday	02/01/15	61	16.1		32	7.0	2		6,682	320	291	91%	6,405	4.4	0.7	2.4	61.3	16.3	6.9	3.8	66			87	7	97.8%	140	95	14.5	1.4	16.3					
Monday	02/02/15	61	16.1			7.7	2		7,239	367	328	89%	7,958	3.9	0.8	2.6	62.4	16.9	7.0	3.4	128			94	12	96.7%	260									
Tuesday	02/03/15	62	16.7	45	27	7.9	2	342	7,416	406	338	83%	8,804	3.5	0.9	2.6	62.1	16.7	6.5	3.6	41	4	98.8%	87	9	97.8%	195		3.5	1.4	25.3	4.9	63	38		
Wednesday	02/04/15	61	16.1			7.8	3	359	7,785	393	344	88%	8,522	3.7	0.9	2.6	61.7	16.5	6.6	3.9	45	4	98.9%	87	10	97.5%	217					3.9	66	100		
Thursday	02/05/15	62	16.7			7.4	2	347	7,524	367	316	86%	7,958	4.1	1.0	2.6	61.7	16.5	6.8	3.7	56	4	98.8%	87	5	98.6%	108					4.2	66	102		
Friday	02/06/15	61	16.1			7.7	2		7,239	428	361	84%	9,281	3.4	1.0	2.6	61.3	16.3	6.8	3.9	63			94	6	98.6%	130									
Saturday	02/07/15	61	16.1			7.9	2		6,960	337	293	87%	7,026	4.2	1.1	2.5	61.5	16.4	6.8	3.9	57			90	5	98.5%	104									
Sunday	02/08/15	59	15.0			7.6	3	305	7,122	320	273	85%	7,473	6.5	0.6	2.8	60.3	15.7	7.0	4.4	74	5	98.4%	117	6	98.1%	140									
Monday	02/09/15	60	15.6		26	7.9	4	288	6,485	343	302	88%	7,724	4.5	0.9	2.7	60.8	16	6.9	3.8	68	4	98.6%	90	5	98.5%	113		1.6	0.5	14.0					
Tuesday	02/10/15	61	16.1			7.9	2	333	7,498	401	336	84%	9,030	3.6	1.0	2.7	61.7	16.5	6.7	3.8	60	4	98.8%	90	5	98.8%	113									
Wednesday	02/11/15	62	16.7		27	7.9	2		6,960	411	368	90%	8,569	3.7	1.0	2.5	62.2	16.8	6.8	3.8	51			90	6	98.5%	125		1.2	0.3	19.7	3.7	67	426	Y	02/11/15
Thursday	02/12/15	62	16.7			7.7	2		6,960	389	342	88%	8,111	3.5	0.9	2.5	62.4	16.9	6.6	3.6	45			90	6	98.5%	125					2.8	66	612	Y	02/12/15
Friday	02/13/15	62	16.7			7.8	2		6,960	417	379	91%	8,694	3.8	0.9	2.5	62.6	17	6.6	3.7	43			90	8	98.1%	167							6	Y	02/13/15
Saturday	02/14/15	62	16.7			7.8	2		6,960	347	310	89%	7,235	3.9	1.1	2.5	62.8	17.1	6.7	3.7	42			90	8	97.7%	167									
Sunday	02/15/15	61	16.1			7.5	2		6,682	292	262	90%	5,845	4.0	0.6	2.4	62.2	16.8	6.8	3.8	55			87	6	97.9%	120									
Monday	02/16/15	61	16.1		28	7.7	1	317	6,874	393	333	85%	8,522	4.3	0.5	2.6	62.2	16.8	6.8	3.8	60	4	98.7%	87	6	98.5%	130		0.8	0.2	17.2	2.8	68	5	Y	02/16/15
Tuesday	02/17/15	62	16.7			7.8	2	324	7,026	400	350	88%	8,674	3.8	0.9	2.6	62.4	16.9	6.7	3.7	61	4	98.8%	87	5	98.8%	108					2.4	68	2	Y	02/17/15
Wednesday	02/18/15	62	16.7		28	8.0	2	351	7,611	390	349	89%	8,457	3.9	0.9	2.6	61.9	16.6	6.7	3.8	47	4	98.9%	87	6	98.5%	130		1.9	0.3	19.0	2.9	66	7	Y	02/18/15
Thursday	02/19/15	61	16.1			7.6	2		6,960	388	345	89%	8,090	3.8	0.9	2.5	62.1	16.7	6.6	3.8	41			90	6	98.5%	125									
Friday	02/20/15	61	16.1			7.9	2		6,960	354	305	86%	7,381	3.8	0.9	2.5	62.1	16.7	6.6	3.8	35			90	7	98.0%	146									
Saturday	02/21/15	61	16.1			7.7	2		6,682	450	397	88%	9,007	4.0	1.0	2.4	62.1	16.7	6.6	3.8	37			87	5	98.9%	100									
Sunday	02/22/15	61	16.1			7.7	2		6,682	334	301	90%	6,685	3.9	0.6	2.4	61.7	16.5	6.8	3.6	54			87	5	98.5%	100									
Monday	02/23/15	61	16.1		27	8.1	2	348	7,546	399	330	83%	8,652	3.8	0.8	2.6	61.7	16.5	6.7	3.8	59	5	98.6%	109	7	98.2%	152		3.5	0.4	16.0					
Tuesday	02/24/15	62	16.7			7.9	3	356	7,720	349	304	87%	7,568	3.7	0.9	2.6	61.9	16.6	6.7	3.7	51	6	98.3%	130	6	98.3%	130					3.1	66	11	Y	02/24/15
Wednesday	02/25/15	62	16.7		27	8.1	2	336	7,566	356	308	87%	8,016	4.1	0.9	2.7	61.9	16.6	6.6	3.6	49	4	98.8%	90	6	98.3%	135		3.4	0.4	20.8	3.6	65	195	Y	02/25/15
Thursday	02/26/15	62	16.7			7.8	2		8,353	365	321	88%	9,132	3.9	0.9	3.0	62.4	16.9	6.6	3.7	47			108	8	97.8%	200					3.3	65	185	Y	02/26/15
Friday	02/27/15	58	14.4			7.7	5		8,631	322	275	85%	8,325	7.8	1.0	3.1	61.0	16.1	6.7	3.4	45			112	8	97.5%	207									
Saturday	02/28/15	62	16.7			7.8	3		6,960	499	468	94%	10,404	4.2	0.8	2.5	62.4	16.9	6.7	3.7	47			90	6	98.8%	125									
Sunday	03/01/15	61	16.1		29	7.6	4		7,197	276	252	91%	5,755	3.9	0.7	2.5	61.7	16.5	6.7	3.9	54			94	5	98.2%	104		2.5	0.3	15.0					
Monday	03/02/15	63	17.2			7.9	2	310	6,722	353	321	91%	7,654	4.0	0.8	2.6	63.5	17.5	6.8	3.6	62	5	98.4%	109	8	97.7%	173					3.2	66	9	Y	03/02/15
Tuesday	03/03/15	63	17.2		26	8.1	2	340	7,373	486	337	69%	10,538	3.8	0.9	2.6	63.0	17.2	6.8	3.7	66	5	98.5%	109	7	98.6%	152		5.6	0.5	20.2	3.7	66	9	Y	03/03/15
Wednesday	03/04/15	63	17.2	44		7.9	3	359	8,084	401	331	83%	9,030	4.0	0.9	2.7	63.0	17.2	6.7	3.4	63	5	98.6%	113	7	98.3%	158					3.3	63	292	Y	03/04/15
Thursday	03/05/15	63	17.2			7.5	2		7,485	347	310	89%	7,524	3.9	0.9	2.6	63.5	17.5	6.7	3.4	62			98	7	98.0%	152									
Friday	03/06/15	62	16.7			7.8	2		7,485	345	302	88%	7,481	3.7	0.9	2.6	63.1	17.3	6.6	3.8	54			98	7	98.0%	152									
Saturday	03/07/15	63	17.2			7.9	3		7,197	381	350	92%	7,944	4.2	0.9	2.5	63.3	17.4	6.7	3.6	60			94	6	98.4%	125									
Sunday	03/08/15	62	16.7			7.4	2		6,909	303	271	89%	6,065	4.0	0.8	2.4	63.1	17.3	6.8	3.8	55			90	5	98.3%	100	95								
Monday	03/09/15	63	17.2		26	7.6	2	346	7,503	367	325	89%	7,958	3.8	0.8	2.6	64.6	18.1	6.8	3.5	56	5	98.6%	109	6	98.4%	130		4.0	0.6	17.9					

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Tuesday	03/10/15	64	17.8			7.8	2	358	8,061	363	310	85%	8,174	3.7	0.9	2.7	64.4	18	6.7	3.6	54	4	98.9%	90	6	98.3%	135									
Wednesday	03/11/15	64	17.8		28	7.6	2	340	7,656	379	335	88%	8,534	3.9	0.9	2.7	64.9	18.3	6.7	3.4	56	3	99.1%	68	6	98.4%	135		4.9	0.6	21.1	2.1	66	6	Y	03/11/15
Thursday	03/12/15	64	17.8			7.8	2		7,772	337	300	89%	7,589	3.8	0.9	2.7	64.9	18.3	6.6	3.5	53			101	5	98.5%	113					3.4	65	34		
Friday	03/13/15	64	17.8			7.6	1		7,772	336	305	91%	7,566		0.9	2.7	64.6	18.1	6.6	3.6	42			101	6	98.2%	135					2.6	64	19		
Saturday	03/14/15	64	17.8			7.6	2		6,909	396	356	90%	7,926			2.4	64.4	18	6.7	3.7	47			90	5	98.7%	100									
Sunday	03/15/15	61	16.1			7.5	3	247	7,004	281	240	85%	7,968			3.4	64.8	18.2	6.8	3.7	52	4	98.4%	114	5	98.2%	142									
Monday	03/16/15	63	17.2		26	7.4	2	379	8,850	510	451	88%	11,910	4.3		2.8	62.4	16.9	6.7	3.7	56	4	98.9%	94	5	99.0%	117		4.0	0.7	16.4	2.1	69	15		
Tuesday	03/17/15	64	17.8			7.7	2	389	8,760	440	389	88%	9,908	3.8	1.0	2.7	64.0	17.8	6.6	3.5	45	4	99.0%	90	6	98.6%	135					2.8	67	16		
Wednesday	03/18/15	64	17.8		26	7.7	2		7,772	515	437	85%	11,597	4.3	0.9	2.7	64.4	18	6.5	3.6	36			101	8	98.4%	180		3.5	0.8	21.3	3.7	65	29		
Thursday	03/19/15	64	17.8			7.2	2		8,060	469	397	85%	10,952	4.0	1.0	2.8	64.4	18	6.6	3.7	44			105	6	98.7%	140									
Friday	03/20/15	64	17.8			7.5	2		7,772	423	366	87%	9,525	4.0	1.0	2.7	64.4	18	6.6	3.5	48			101	7	98.3%	158									
Saturday	03/21/15	63	17.2			7.6	2		7,197	376	332	88%	7,840	4.2	0.9	2.5	64.6	18.1	6.7	3.6	44			94	8	97.9%	167									
Sunday	03/22/15	64	17.8			7.6	2		7,485	350	295	84%	7,589	4.1	0.8	2.6	64.2	17.9	6.8	3.6	52			98	6	98.3%	130									
Monday	03/23/15	64	17.8		25	7.6	2		9,212	333	285	86%	8,887	4.2	0.8	3.2	64.2	17.9	6.7	3.8	56			120	7	97.9%	187		2.5	0.8	20.1					
Tuesday	03/24/15	63	17.2			7.5	2	327	7,636	333	279	84%	7,776	5.0	1.3	2.8	63.1	17.3	6.5	3.8	48	5	98.5%	117	7	97.9%	163					2.7	66	20		
Wednesday	03/25/15	64	17.8		28	7.6	1	401	9,364	414	344	83%	9,668	3.7	0.9	2.8	64.0	17.8	6.5	3.6	38	5	98.8%	117	8	98.1%	187		3.0	0.8	19.1	3.4	66	19		
Thursday	03/26/15	64	17.8			7.4	1	346	8,080	314	266	85%	7,333	4.0	1.0	2.8	64.9	18.3	6.6	3.6	49	5	98.6%	117	8	97.5%	187					3.2	66	17		
Friday	03/27/15	64	17.8			7.7	2		7,485	431	378	88%	9,346	3.8	1.0	2.6	65.3	18.5	6.7	3.6	54			98	8	98.1%	173									
Saturday	03/28/15	64	17.8			7.6	1		7,485	367	316	86%	7,958	3.9	1.0	2.6	65.5	18.6	6.7	3.6	57			98	6	98.4%	130									
Sunday	03/29/15	62	16.7			7.7	1		7,197	332	290	87%	6,922	3.9	0.7	2.5	64.6	18.1	7.0	4	71			94	6	98.2%	125									
Monday	03/30/15	64	17.8			7.7	1		7,485	346	304	88%	7,503	4.1	0.8	2.6	65.5	18.6	6.7	3.6	68			98	6	98.3%	130									
Tuesday	03/31/15	64	17.8			7.6	1		7,485	319	282	88%	6,917	3.6	0.9	2.6	64.9	18.3	6.8	3.6	62			98	7	97.8%	152									
Wednesday	04/01/15	64	17.8		23	7.6	1	341	7,394	368	326	89%	7,980	3.8	1.0	2.6	64.9	18.3	6.9	3.8	59	3	99.1%	65	6	98.4%	130		1.7	0.7	16.6	2.2	66	38		
Thursday	04/02/15	64	17.8			7.8	1	330	7,431	378	323	85%	8,512	3.8	0.9	2.7	64.9	18.3	6.7	3.7	58	3	99.1%	68	6	98.4%	135					2.4	66	72		
Friday	04/03/15	64	17.8			7.8	1	342	6,845	342	314	92%	6,845	3.7	1.1	2.4	64.8	18.2	6.7	3.7	59	3	99.1%	60	6	98.2%	120					2.5	66	13	Y	04/03/15
Saturday	04/04/15	64	17.8		29	7.7	1		6,204	344	311	90%	6,886	3.9	0.6	2.4	64.9	18.3	6.7	3.7	60			67	7	98.0%	140		0.7	0.6	10.2					
Sunday	04/05/15	64	17.8			7.6	1		6,721	322	288	89%	6,982	3.9	0.6	2.6	64.6	18.1	6.9	3.8	67			72	6	98.1%	130									
Monday	04/06/15	63	17.2	44	26	7.8	2		7,755	364	321	88%	9,107	5.5	0.9	3.0	64.2	17.9	6.7	3.4	67			83	7	98.1%	175	97	3.9	1.1	14.6					
Tuesday	04/07/15	64	17.8			7.8	2	313	7,570	384	338	88%	9,287	4.2	0.9	2.9	64.6	18.1	6.6	3.6	52	4	98.7%	97	8	97.9%	193					3.5	65	19		
Wednesday	04/08/15	65	18.3		26	7.8	2	301	7,280	375	331	88%	9,070	4.5	1.0	2.9	65.5	18.6	6.6	3.7	50	3	99.0%	73	7	98.1%	169		1.9	0.7	17.1	2.6	68	7	Y	04/08/15
Thursday	04/09/15	64	17.8			7.8	2	323	8,081	377	349	93%	9,433	4.4	1.1	3.0	65.3	18.5	6.6	3.8	51	3	99.1%	75	6	98.4%	150					3.4	67	11	Y	04/09/15
Friday	04/10/15	64	17.8			7.8	2		7,238	317	282	89%	7,403	4.3	1.1	2.8	65.1	18.4	6.6	3.6	46			78	8	97.5%	187									
Saturday	04/11/15	66	18.9			7.8	2		7,238	369	342	93%	8,617	4.2	1.1	2.8	65.3	18.5	6.6	3.7	49			78	6	98.4%	140									
Sunday	04/12/15	64	17.8			7.7	2		7,238	350	325	93%	8,173	4.4	1.0	2.8	64.8	18.2	6.8	3.6	64			78	6	98.3%	140									
Monday	04/13/15	65	18.3		24	7.6	1	330	8,257	403	364	90%	10,083	4.4	1.1	3.0	65.3	18.5	6.8	3.6	64	3	99.1%	75	6	98.5%	150		1.5	0.7	18.3					
Tuesday	04/14/15	65	18.3			7.6	2	348	8,417	425	381	90%	10,279	4.2	1.2	2.9	65.5	18.6	6.8	3.8	57	3	99.1%	73	6	98.6%	145									
Wednesday	04/15/15	65	18.3		25	7.8	2	354	8,562	488	434	89%	11,803	4.4	1.1	2.9	65.3	18.5	6.6	3.8	53	3	99.2%	73	5	99.0%	121		0.8	0.5	17.4	2.3	69	11	Y	04/15/15
Thursday	04/16/15	65	18.3			7.7	2		7,496	393	347	88%	9,505	4.5	1.1	2.9	65.7	18.7	6.7	3.5	61			81	7	98.2%	169					2.5	68	38		
Friday	04/17/15	65	18.3			7.8	2		7,496	311	277	89%	7,522	4.4	1.0	2.9	66.2	19	6.7	3.4	57			81	6	98.1%	145					3.1	71	24		
Saturday	04/18/15	65	18.3			7.8	1		6,721	405	363	90%	8,782	4.1	1.2	2.6	66.4	19.1	6.7	3.5	59			72	7	98.3%	152									
Sunday	04/19/15	64	17.8			7.6	2		6,979	351	316	90%	7,904	4.3	0.8	2.7	65.7	18.7	6.8	3.4	69			75	6	98.3%	135									
Monday	04/20/15	65	18.3		28	7.9	1		7,238	283	240	85%	6,609	4.9	1.0	2.8	66.9	19.4	6.8	3.2	71			78	8	97.2%	187		2.5	0.5	13.3					
Tuesday	04/21/15	66	18.9			7.9	1	267	6,458	286	243	85%	6,917	4.4	1.1	2.9	67.3	19.6	6.7	3.5	64	3	98.9%	73	6	97.9%	145					2.6	68	6	Y	04/21/15
Wednesday	04/22/15	65	18.3		26	7.6	1	285	7,131	302	248	82%	7,556	4.3	1.2	3.0	66.9	19.4	6.6	3.6	56	3	98.9%	75	6	98.0%	150		3.9	0.5	18.4	2.4	67	17		
Thursday	04/23/15	66	18.9			7.6	1	289	6,990	291	259	89%	7,038	4.2	1.1	2.9	66.7	19.3	6.7	3.7	57	6	97.9%	145	6	97.9%	145					2.1	68	7	Y	04/23/15
Friday	04/24/15	65	18.3			7.9	1		7,238	417	390	94%	9,738	4.1	1.1	2.8	66.4	19.1	6.7	3.6	59			78	7	98.3%	163									
Saturday	04/25/15	66	18.9			7.6	1		6,721	358	320	89%	7,763	4.4	1.0	2.6	66.4	19.1	6.7	3.7	60			72	6	98.3%	130									
Sunday	04/26/15	64	17.8			7.7	2		6,979	279	250	90%	6,283	4.5	0.9	2.7	65.5	18.6	7.0	3.7	67			75	6	97.8%	135									
Monday	04/27/15	66	18.9		30	8.1	1	276	6,445	286	258	90%	6,679	4.4	1.0	2.8	66.9	19.4	6.8	3.7	72	4	98.6%	94	6	97.9%	140		2.7	0.5	14.4	4.5	68	9	Y	04/27/15
Tuesday	04/28/15	66	18.9			7.9	1	266	6,212	280	250	89%	6,539	4.4	1.0	2.8	67.8	19.9	6.8	3.6	63	3	98.9%	70	5	98.2%	117							10	Y	04/28/15
Wednesday	04/29/15	66	18.9		32	8.2	1	284	6,632	333	292	88%	7,776	4.0	1.1	2.8	67.8	19.9	6.7	3.6	60	3	98.9%	70	6	98.2%	140		1.7	0.4	15.1	3	66	14		
Thursday	04/30/15	66	18.9			8.0	1		7,238	350	316	90%	8,173	4.0	1.1	2.8	67.8	19.9	6.7	3.6	60			78	7	98.0%	163									
Friday	05/01/15	67	19.4			8.0	1		6,269	309	280	91%	6,958	3.8	1.1	2.7	67.8	19.9	6.7	3.7	53			131	8	97.4%	180									
Saturday	05/02/15	67	19.4			7.9	1		5,805	325	295	91%	6,776	4.7	0.8	2.5	67.8	19.9	6.7	3.7	49			122	7	97.8%	146									
Sunday	05/03/15	65	18.3			7.7	2		6,269	279	258	92%	6,283	4.3	0.9	2.7	67.5	19.7	6.8	3.9	58	5		113	8	97.1%	180									
Monday	05/04/15	67	19.4	51	32	8.1	1	356	8,313	356	321	90%	8,313	4.4	1.0	2.8	68.7	20.4	6.8	3.6	62	4	98.9%	94	10	97.2%	234		3.3	0.6	15.9					
Tuesday	05/05/15	67	19.4			7.9	1	317	7,667	310	273	88%	7,498	4.1	1.0	2.9	68.5	20.3	6.7	3.7	60	4	98.7%	97	9	97.1%	218	99								
Wednesday	05/06/15	66	18.9		31	8.1	2	303	7,328	336	293	87%	8,126	4.5	1.1	2.9	67.5	19.7	6.7	3.6	60			141	11	96.7%	266		4.0	0.8	19.2			13		
Thursday	05/07/15	66	18.9			8.1	1		6,502	590	545	92%	13,778	4.3	1.0	2.8	67.6	19.8	6.7	3.5	60			136	11	98.1%	257					5.4	65	18		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Friday	05/08/15	67	19.4			8.1	2		6,502	389	255	66%	9,084	4.2	1.0	2.8	68.0	20	6.7	3.3	58			136	10	97.4%	234					5.4	63	13		
Saturday	05/09/15	67	19.4			8.1	1		6,037	221	210	95%	4,792	4.2	1.4	2.6	68.0	20	6.7	3.5	59			126	10	95.5%	217									
Sunday	05/10/15	66	18.9			7.9	1		6,037	364	331	91%	7,893	4.4	1.0	2.6	67.6	19.8	6.8	3.3	65			126	11	97.0%	239									
Monday	05/11/15	67	19.4		31	8.0	1		6,966	392	346	88%	9,808	4.4	0.9	3.0	69.1	20.6	6.9	3.4	83			146	13	96.7%	325		13.8	1.0	10.3	5	64	17		
Tuesday	05/12/15	67	19.4			8.0	2	309	8,504	329	287	87%	9,055	5.3	1.1	3.3	68.7	20.4	7.0	3.2	110	7	97.7%	193	13	96.0%	358					6.3	57	31		
Wednesday	05/13/15	65	18.3		17	8.0	4	187	8,266	275	227	83%	12,156	8.5	1.2	5.3	67.8	19.9	6.9	2.7	95	8	95.7%	354	16	94.2%	707		10.6	1.1	10.0	7.7	58	36		
Thursday	05/14/15	67	19.4			7.9	3	258	6,670	252	226	90%	6,515	7.7	3.2	3.1	65.1	18.4	6.8	3.3	71	8	96.9%	207	10	96.0%	259									
Friday	05/15/15	68	20.0			7.9	1		6,269	344	328	95%	7,746	4.3	1.1	2.7	68.2	20.1	6.8	3.4	86			131	9	97.4%	203									
Saturday	05/16/15	66	18.9			7.9	2		6,037	363	337	93%	7,871	3.8	1.0	2.6	65.3	18.5	7.0	3.4	92			126	8	97.8%	173									
Sunday	05/17/15	66	18.9			7.7	1	289	6,990	311	278	89%	7,522	6.0	1.1	2.9	68.7	20.4	7.0	3.5	94	6	97.9%	145	8	97.4%	193									
Monday	05/18/15	68	20.0		27	8.0	1	268	6,258	334	303	91%	7,800	4.0	0.9	2.8	69.6	20.9	7.0	3.4	90	6	97.8%	140	11	96.7%	257		9.6	1.5	12.9	5.7	65	17		
Tuesday	05/19/15	68	20.0			7.9	1	311	7,262	422	387	92%	9,855	4.0	1.0	2.8	70.0	21.1	6.9	3.5	96	6	98.1%	140	9	97.9%	210					5.4	66	13		
Wednesday	05/20/15	68	20.0		27	7.9	1		6,502	342	308	90%	7,986	4.1	1.1	2.8	70.5	21.4	7.0	3.5	109			136	11	96.8%	257		16.2	1.9	14.4	5.8	68	21		
Thursday	05/21/15	69	20.6			7.9	1		6,502	312	295	95%	7,286	3.8	1.0	2.8	70.7	21.5	7.0	3.5	114			136	10	96.8%	234									
Friday	05/22/15	69	20.6			7.8	1		6,269	379	343	91%	8,534	3.9	1.2	2.7	70.7	21.5	6.9	3.5	117			131	8	97.9%	180									
Saturday	05/23/15	69	20.6			7.9	1		5,805	296	272	92%	6,172	4.0	0.9	2.5	70.7	21.5	7.0	3.5	112			122	7	97.6%	146									
Sunday	05/24/15	67	19.4			7.8	1		5,805	315	287	91%	6,568	4.1	0.8	2.5	70.5	21.4	7.1	3.5	107			122	9	97.1%	188									
Monday	05/25/15	67	19.4		28	7.8	1	236	5,511	274	246	90%	6,398	4.4	0.9	2.8	70.5	21.4	7.0	3.5	108	5	97.9%	117	7	97.4%	163		8.7	1.6	12.7					
Tuesday	05/26/15	69	20.6			7.8	1	227	5,490	251	221	88%	6,071	4.0	0.9	2.9	71.4	21.9	6.9	3.5	91	5	97.8%	121	8	96.8%	193					4.6	66	102		
Wednesday	05/27/15	69	20.6		28	7.9	1	280	7,006	320	282	88%	8,006	4.5	1.2	3.0	71.1	21.7	6.9	3.2	88	6	97.9%	150	10	96.9%	250		10.2	1.6	14.8	4.5	69	26		
Thursday	05/28/15	70	21.1			8.0	1		6,734	303	267	88%	7,328	4.2	1.1	2.9	71.8	22.1	6.9	3.4	91			141	10	96.7%	242					4.2	64	66		
Friday	05/29/15	70	21.1			7.9	1		6,734	371	329	89%	8,973	4.3	1.2	2.9	71.8	22.1	6.8	3.3	77			141	10	97.3%	242									
Saturday	05/30/15	70	21.1			8.0	1		6,966	232	215	93%	5,805	4.2	1.2	3.0	71.8	22.1	6.9	3.4	87			146	10	95.7%	250									
Sunday	05/31/15	69	20.6			7.8	1		6,734	282	259	92%	6,820	4.1	1.0	2.9	71.6	22	6.9	3.4	66			141	10	96.5%	242									
Monday	06/01/15	69	20.6		26	7.7	1		6,696	239	216	90%	6,179	4.3	1.2	3.1	71.1	21.7	6.8	3.3	70			138	12	95.0%	310		5.9	1.8	15.8					
Tuesday	06/02/15	69	20.6			7.8	1	271	7,006	355	320	90%	9,178	4.5	1.3	3.1	70.3	21.3	6.8	3.3	69	8	97.0%	207	16	95.5%	414	96				5.4	64	120		
Wednesday	06/03/15	69	20.6		25	7.8	2	265	6,851	301	268	89%	7,782	4.6	1.3	3.1	70.3	21.3	6.7	3.3	64	8	97.0%	207	14	95.3%	362		4.0	1.9	17.0	6.6	64	140	Y	06/03/15
Thursday	06/04/15	70	21.1			8.0	1	285	7,368	330	305	92%	8,532	4.2	1.2	3.1	70.3	21.3	6.7	3.3	59	7	97.5%	181	14	95.8%	362					7	64	192	Y	06/04/15
Friday	06/05/15	69	20.6			8.0	1		6,480	333	300	90%	8,332	4.0	1.2	3.0	70.9	21.6	6.8	3.3	62			133	9	97.3%	225									
Saturday	06/06/15	70	21.1			8.0	1		6,480	443	409	92%	11,084	4.3	1.3	3.0	70.9	21.6	6.8	3.3	64			133	17	96.2%	425									
Sunday	06/07/15	69	20.6			7.7	1		6,264	296	272	92%	7,159	4.3	1.3	2.9	70.5	21.4	6.9	3.4	66			129	15	94.9%	363									
Monday	06/08/15	72	22.2		24	7.8	1	243	6,485	296	268	91%	7,900	4.7	1.1	3.2	73.8	23.2	6.8	3.3	65	6	97.5%	160	16	94.6%	427		4.1	1.4	11.3	6	64	98		
Tuesday	06/09/15	72	22.2			7.8	1	279	7,446	319	290	91%	8,513	4.3	1.4	3.2	73.6	23.1	6.8	3.9	69	8	97.1%	214	16	95.0%	427									
Wednesday	06/10/15	71	21.7	41	24	7.9	1	271	7,458	375	341	91%	10,321	4.7	1.6	3.3	72.3	22.4	6.9	3.6	88	6	97.8%	165	13	96.5%	358		4.9	0.9	8.1	4.9	64	178	Y	06/10/15
Thursday	06/11/15	71	21.7			8.0	1		7,128	298	260	87%	8,202	4.6	1.5	3.3	71.8	22.1	7.0	3.7	86			147	11	96.3%	303					3.9	66	86		
Friday	06/12/15	71	21.7			8.0	1		6,480	342	306	89%	8,557	3.9	1.7	3.0	71.4	21.9	6.9	3.6	85			133	10	97.1%	250					3.1	66	50		
Saturday	06/13/15	71	21.7			8.0	1		6,912	303	273	90%	8,086	4.3	1.5	3.2	71.2	21.8	6.9	3.6	82			142	9	97.0%	240									
Sunday	06/14/15	71	21.7			7.7	1		6,696	265	241	91%	6,851	4.4	1.5	3.1	70.9	21.6	6.9	3.4	84			138	11	95.8%	284									
Monday	06/15/15	71	21.7		24	7.8	1	246	6,565	301	275	91%	8,033	4.7	1.5	3.2	73.4	23	6.9	3.6	82	5	98.0%	134	14	95.3%	374		7.6	0.6	6.9	4	68	25		
Tuesday	06/16/15	72	22.2			7.8	1	254	6,779	277	246	89%	7,393	4.1	1.5	3.2	73.2	22.9	6.9	3.7	95	4	98.4%	107	9	96.8%	240					4.7	68	63		
Wednesday	06/17/15	72	22.2		24	7.8	1	263	7,019	317	271	85%	8,460	4.1	1.8	3.2	73.2	22.9	7.0	3.6	100	3	98.9%	80	7	97.8%	187		8.3	0.6	8.2	2.1	68	16		
Thursday	06/18/15	72	22.2			7.7	1		6,912	283	254	90%	7,553	4.2	1.7	3.2	73.4	23	7.0	3.5	89			142	6	97.9%	160									
Friday	06/19/15	73	22.8			7.9	1		6,480	264	237	90%	6,605	4.2	1.6	3.0	73.4	23	6.9	3.7	96			133	7	97.3%	175									
Saturday	06/20/15	72	22.2			7.8	1		6,480	265	237	89%	6,630	4.0	1.4	3.0	73.4	23	6.9	3.6	94			133	7	97.4%	175									
Sunday	06/21/15	72	22.2			7.7	1	268	6,482	295	271	92%	7,135	4.2	1.4	2.9	73.6	23.1	6.8	3.7	75	3	98.9%	73	5	98.3%	121									
Monday	06/22/15	73	22.8		23	7.8	1	224	5,978	257	228	89%	6,859	4.0	1.2	3.2	73.6	23.1	6.9	3.7	74	3	98.7%	80	6	97.7%	160		3.7	0.4	7.3	1.7	69	9	Y	06/22/15
Tuesday	06/23/15	73	22.8			7.8	1	239	6,378	256	231	90%	6,832	4.1	1.8	3.2	73.4	23	6.8	3.4	73	3	98.7%	80	4	98.4%	107							7	Y	06/23/15
Wednesday	06/24/15	72	22.2		23	7.7	1		6,912	299	266	89%	7,980	4.2	1.5	3.2	73.4	23	6.9	3.4	75			142	5	98.3%	133		4.6	0.5	7.4	1.4	70	6	Y	06/24/15
Thursday	06/25/15	72	22.2			7.8	1		6,912	283	249	88%	7,553	4.4	1.6	3.2	73.2	22.9	6.8	3.4	76			142	4	98.6%	107									
Friday	06/26/15	73	22.8			7.8	1		6,912	261	233	89%	6,966	4.0	1.6	3.2	73.6	23.1	6.8	3.6	74			142	7	97.3%	187									
Saturday	06/27/15	73	22.8			7.6	1		6,264	255	224	88%	6,167	3.9	1.3	2.9	74.3	23.5	6.8	3.8	69			129	6	97.6%	145									
Sunday	06/28/15	73	22.8			7.7	1		7,128	287	231	80%	7,899	4.1	1.4	3.3	74.5	23.6	6.8	3.6	72			147	5	98.3%	138									
Monday	06/29/15				19	7.8			7,344	298	254	85%	8,450	5.3	2.3	3.4			6.9		78			151	4	98.7%	113		1.7	0.3	6.8					
Tuesday	06/30/15	74	23.3			7.7	1		6,912	275	245	89%	7,339	4.1	1.6	3.2	75.9	24.4	6.9	3.3	76			142	4	98.5%	107									
Wednesday	07/01/15	74	23.3		21	7.8	1	274	7,084	279	251	90%	7,213	3.8	1.5	3.1	75.9	24.4	7.0	3.4	77	3	98.9%	78	2	99.3%	52		0.8	0.3	7.1	1.5	70	9	Y	07/01/15
Thursday	07/02/15	74	23.3			7.7	1	262	6,774	270	240	89%	6,981	4.1	1.4	3.1	75.9	24.4	7.0	3.3	80	3	98.9%	78	4	98.5%	103					3	68	60		
Friday	07/03/15	74	23.3			7.8	1	284	7,106	255	230	90%	6,380	4.0	1.3	3.0	75.9	24.4	7.0	3.4	81	3	98.9%	75	2	99.2%	50					2.8	70	9	Y	07/03/15
Saturday	07/04/15	74	23.3		24	7.9	1		6,603	235	205	87%	5,684	3.9	1.4	2.9	76.1	24.5	7.0	3.4	91			79	2	99.1%	48		0.9	0.2	7.0					
Sunday	07/05/15	74	23.3			7.8	1		6,830	337	303	90%	8,432	4.1	1.1	3.0	76.3	24.6	6.9	3.5	85			82	4	98.8%	100	100								

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Monday	07/06/15	75	23.9		21	7.7	1		7,514	315	282	90%	8,669	4.6	1.2	3.3	77.2	25.1	6.9	3.5	76			90	4	98.7%	110		1.0	0.3	10.0					
Tuesday	07/07/15	75	23.9			7.6	1	248	6,825	285	244	86%	7,844	6.1	1.3	3.3	76.3	24.6	6.8	3.6	72	3	98.8%	83	4	98.6%	110					1.2	69	24		
Wednesday	07/08/15	76	24.4	37	21	7.8	1	250	6,881	241	216	90%	6,633	4.2	1.3	3.3	77.0	25	6.9	3.9	77	3	98.8%	83	4	98.3%	110		2.7	0.4	8.2	1.2	61	17		
Thursday	07/09/15	76	24.4			7.7	0	239	6,578	269	235	87%	7,403	4.1	1.3	3.3	77.2	25.1	6.9	3.3	79	3	98.7%	83	3	98.9%	83					1.6	68	8	Y	07/09/15
Friday	07/10/15	76	24.4			7.8	0		7,058	254	239	94%	6,567	4.1	1.4	3.1	76.3	24.6	6.9	3.5	78			85	4	98.4%	103									
Saturday	07/11/15	76	24.4			7.8	1		7,058	262	239	91%	6,774	4.4	1.4	3.1	76.1	24.5	6.9	3.6	79			85	4	98.5%	103									
Sunday	07/12/15	75	23.9			7.7	0		6,830	268	228	85%	6,705	4.2	1.4	3.0	76.3	24.6	7.0	3.5	81			82	2	99.3%	50									
Monday	07/13/15	75	23.9		22	7.5	1	217	5,791	244	207	85%	6,512	4.4	1.3	3.2	77.4	25.2	6.9	3.5	79	3	98.6%	80	4	98.4%	107		3.4	0.4	9.8					
Tuesday	07/14/15	76	24.4			7.6	0	243	6,283	278	242	87%	7,187	4.1	1.4	3.1	77.2	25.1	7.0	3.3	77	3	98.8%	78	6	97.8%	155					2.2	69	7	Y	07/14/15
Wednesday	07/15/15	76	24.4		24	7.6	1	305	7,885	383	340	89%	9,902	4.1	1.3	3.1	76.8	24.9	6.9	3.4	76			85	9	97.7%	233		3.7	0.4	9.7	3.1	69	14		
Thursday	07/16/15	76	24.4			7.6	1		6,830	304	274	90%	7,606	4.0	1.3	3.0	77.0	25	6.9	3.7	74			82	8	97.4%	200					3.8	68	30		
Friday	07/17/15	76	24.4			7.6	0		6,830	351	294	84%	8,782	3.8	1.3	3.0	77.0	25	6.9	3.6	81			82	8	97.7%	200									
Saturday	07/18/15	76	24.4			7.6	1		6,603	292	256	88%	7,062	4.0	1.3	2.9	77.0	25	6.9	3.6	78			79	8	97.3%	193									
Sunday	07/19/15	77	25.0			7.5	1		6,375	305	276	90%	7,122	4.2	1.4	2.8	79.0	26.1	7.1	3.6	87			77	7	97.7%	163									
Monday	07/20/15	78	25.6		25	7.8	1		6,830	282	256	91%	7,056	4.2	1.1	3.0	79.9	26.6	7.0	3.4	85			82	9	96.8%	225		5.1	0.3	7.8	3.6	70	3	Y	07/20/15
Tuesday	07/21/15	76	24.4			7.8	1	300	7,756	326	292	90%	8,428	4.0	1.2	3.1	79.2	26.2	7.1	3.5	92	4	98.7%	104	10	96.9%	259					4	68	10	Y	07/21/15
Wednesday	07/22/15	77	25.0		26	7.7	1	287	7,420	333	310	93%	8,609	4.3	1.2	3.1	78.1	25.6	7.0	3.2	87	4	98.6%	104	10	97.0%	259		6.1	0.4	8.3	5.2	70	15		
Thursday	07/23/15	76	24.4			7.8	1	258	6,455	243	219	90%	6,080	4.1	1.2	3.0	77.9	25.5	7.1	3.3	90	3	98.8%	75	9	96.3%	225									
Friday	07/24/15	78	25.6			7.7	0		6,603	221	193	87%	5,345	3.9	1.1	2.9	78.4	25.8	7.0	3.6	86			79	8	96.4%	193									
Saturday	07/25/15	77	25.0			8.1	1		6,603	324	304	94%	7,836	4.1	1.2	2.9	78.1	25.6	7.0	3.4	91			79	10	96.9%	242									
Sunday	07/26/15	76	24.4			7.9	1	372	8,377	337	311	92%	7,589	4.0	1.1	2.7	78.1	25.6	7.1	3.4	88	4	98.9%	90	9	97.3%	203									
Monday	07/27/15	78	25.6		28	8.0	1	273	6,830	234	212	91%	5,855	4.1	1.0	3.0	78.6	25.9	7.0	3.4	87	4	98.5%	100	14	94.0%	350		4.6	0.3	7.6					
Tuesday	07/28/15	78	25.6			7.8	0	283	7,081	327	305	93%	8,182	3.9	1.2	3.0	78.6	25.9	7.0	3.4	87	3	98.9%	75	9	97.2%	225									
Wednesday	07/29/15	78	25.6		23	7.7	0		7,058	264	236	89%	6,825	4.2	1.3	3.1	78.8	26	7.0	3.2	87			85	8	97.0%	207		3.4	0.2	4.7	3.7	79	8	Y	07/29/15
Thursday	07/30/15	77	25.0			8.0	0		7,058	268	242	90%	6,929	4.1	1.3	3.1	79.3	26.3	7.1	3.5	86			85	7	97.4%	181					3.6	69	14		
Friday	07/31/15	78	25.6			7.9	0		6,375	243	223	92%	5,675	3.9	1.2	2.8	79.0	26.1	6.9	3.3	86			77	7	97.1%	163					3.5	72	13		
Saturday	08/01/15	79	26.1			7.8	0		5,943	276	245	89%	5,985	4.1	1.2	2.6	79.5	26.4	6.9	3.5	82			56	9	96.7%	195									
Sunday	08/02/15	78	25.6			7.8	0		5,943	305	277	91%	6,614	4.1	1.0	2.6	78.8	26	7.1	3.4	87			56	6	98.0%	130									
Monday	08/03/15	79	26.1	45	27	7.8	1	283	6,845	337	303	90%	8,151	4.1	1.0	2.9	80.6	27	6.9	3.5	86	3	98.9%	73	6	98.2%	145		5.7	0.3	7.6					
Tuesday	08/04/15	79	26.1			7.9	1	271	6,554	231	209	90%	5,587	4.0	1.1	2.9	80.6	27	7.0	3.4	84	3	98.9%	73	2	99.1%	48									
Wednesday	08/05/15	78	25.6		30	7.9	0	256	6,192	239	213	89%	5,780	3.9	1.1	2.9	79.2	26.2	7.0	3.3	85	3	98.8%	73	6	97.5%	145		4.5	0.3	8.8	1.3	78	44		
Thursday	08/06/15	79	26.1			8.0	0		6,629	247	226	91%	5,974	3.9		2.9	80.2	26.8	6.9	3.1	79			62	7	97.2%	169					2.8	75	400	Y	08/06/15
Friday	08/07/15	79	26.1			7.4	0		6,400	247	228	92%	5,768	3.9	1.0	2.8	80.1	26.7	6.9	3.5	81			60	2	99.2%	47					1.8	70	33		
Saturday	08/08/15	70	21.1			7.7	1		5,943	295	268	91%	6,397	4.0	1.1	2.6	80.4	26.9	6.9	3.7	90			56	4	98.6%	87									
Sunday	08/09/15	79	26.1			7.8	1		6,172	289	267	92%	6,508	4.0	1.0	2.7	80.4	26.9	7.1	3.6	81			58	2	99.3%	45	98								
Monday	08/10/15	80	26.7		27	7.8	0		6,400	291	266	91%	6,795	3.9	1.0	2.8	81.7	27.6	6.9	3.2	80			60	3	99.0%	70		0.5	0.4	9.6	3.1	68	38		
Tuesday	08/11/15	79	26.1			7.8	1	303	7,076	463	436	94%	10,812	3.8	1.0	2.8	80.8	27.1	6.9	3.4	75	2	99.3%	47	2	99.6%	47					1.5	69	8	Y	08/11/15
Wednesday	08/12/15	80	26.7		27	7.9	0	278	6,724	327	300	92%	7,909	4.1	1.1	2.9	81.5	27.5	7.0	3.5	74	2	99.3%	48	4	98.8%	97		1.2	0.4	11.6	1.5	69	10	Y	08/12/15
Thursday	08/13/15	80	26.7			7.9	0	276	6,445	359	328	91%	8,383	3.8	1.1	2.8	81.9	27.7	6.9	3.4	70	2	99.3%	47	4	98.9%	93									
Friday	08/14/15	80	26.7			7.7	1		5,943	311	284	91%	6,744	4.0	1.2	2.6	81.9	27.7	6.9	3.6	75			56	3	99.0%	65									
Saturday	08/15/15	79	26.1			7.5	0		6,400	365	346	95%	8,523	3.9	1.2	2.8	80.2	26.8	6.9	3.8	89			60	3	99.2%	70									
Sunday	08/16/15	79	26.1			7.7	1	299	7,481	305	281	92%	7,631	4.1	1.0	3.0	81.0	27.2	7.1	3.7	88	2	99.3%	50	2	99.3%	50									
Monday	08/17/15	79	26.1		27	7.9	1	275	5,963	375	348	93%	8,132	4.3	1.0	2.6	80.8	27.1	7.0	3.1	85	2	99.3%	43	2	99.5%	43		10.3	0.3	9.2					
Tuesday	08/18/15	80	26.7			7.8	1	272	6,579	404	380	94%	9,771	3.9	1.2	2.9	81.9	27.7	7.0	3.4	92	2	99.3%	48	2	99.5%	48					1.8	66	6	Y	08/18/15
Wednesday	08/19/15	79	26.1		26	7.9	0		6,629	326	300	92%	7,885	3.9	1.1	2.9	80.8	27.1	6.9	3.4	69			62	3	99.1%	73		3.4	0.3	8.8	2.3	68	6	Y	08/19/15
Thursday	08/20/15	80	26.7			7.8	1		6,400	293	266	91%	6,842	4.0	1.1	2.8	81.0	27.2	6.9	3.3	75			60	4	98.6%	93					2.2	68	13		
Friday	08/21/15	79	26.1			7.9	1		5,943	383	357	93%	8,305	3.9	1.1	2.6	79.3	26.3	6.9	3.4	85			56	2	99.5%	43									
Saturday	08/22/15	78	25.6			7.5	1		6,400	405	381	94%	9,458	3.9	1.1	2.8	78.6	25.9	6.8	3.8	76			60	4	99.0%	93									
Sunday	08/23/15	78	25.6			7.7	1		6,400	345	323	94%	8,056	4.3	1.1	2.8	78.4	25.8	6.9	3.6	80			60	4	98.8%	93									
Monday	08/24/15	80	26.7		30	7.9	1		6,629	263	241	92%	6,361	4.1	1.1	2.9	80.6	27	6.9	3.3	73			62	6	97.7%	145		3.6	0.5	10.6	4.1	66	15		
Tuesday	08/25/15	80	26.7			7.9	1	256	5,978	286	260	91%	6,679	4.5	1.1	2.8	79.2	26.2	6.9	3.2	71	4	98.4%	94	8	97.2%	187					4.1	64	62		
Wednesday	08/26/15	80	26.7		27	8.0	1	245	5,721	374	345	92%	8,734	3.8	1.1	2.8	80.8	27.1	6.9	3.1	71	3	98.8%	70	5	98.7%	117		2.0	0.4	10.5	2.8	66	60		
Thursday	08/27/15	80	26.7			7.8	1	275	6,422	300	270	90%	7,006	3.8	1.1	2.8	80.8	27.1	6.9	3.5	67	3	98.9%	70	7	97.7%	163									
Friday	08/28/15	80	26.7			7.7	1		6,172	276	245	89%	6,215	3.7	1.1	2.7	80.6	27	6.9	3.3	65			58	8	97.1%	180									
Saturday	08/29/15	79	26.1			7.6	0		6,172	269	245	91%	6,057	4.0	1.1	2.7	80.2	26.8	6.9	3.3	69			58	7	97.4%	158									
Sunday	08/30/15	78	25.6			7.7	1		6,172	257	236	92%	5,787	4.1	1.0	2.7	80.1	26.7	7.1	3.4	84			58	6	97.7%	135									
Monday	08/31/15	79	26.1			7.8	1		6,629	325	298	92%	7,860	4.0	1.0	2.9	79.7	26.5	6.9	3.1	83			62	6	98.2%	145									
Tuesday	09/01/15	78	25.6		28	8.0	0	276	6,675	267	237	89%	6,458	4.0	1.0	2.9	79.2	26.2	7.0	3.7	78	4	98.6%	97	8	97.0%	193		2.8	0.7	10.7	2.9	68	15		
Wednesday	09/02/15	79	26.1	50		7.9	0	310	7,239	352	317	90%	8,220	4.0	1.1	2.8	79.7	26.5	6.9	3.2	74	4	98.7%	94	6	98.3%	140	101				3	66	42		

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Thursday	09/03/15	79	26.1		29	8.0	0	254	6,143	266	236	89%	6,433	4.0	1.1	2.9	78.8	26	6.9	3.4	65	5	98.0%	121	19	92.9%	460		0.9	0.7	12.5	3.9	66	40		
Friday	09/04/15	79	26.1			8.0	0		7,010	263	235	89%	6,142	3.9	1.0	2.8	79.5	26.4	6.9	3.2	67			70	27	89.7%	631									
Saturday	09/05/15	80	26.7			8.0	0		6,760	316	289	91%	7,116	4.1	1.2	2.7	79.3	26.3	7.0	3.1	68			68	9	97.2%	203									
Sunday	09/06/15	69	20.6			7.7	4		8,512	391	341	87%	11,087	8.3	1.0	3.4	78.4	25.8	7.1	3.2	73			85	4	99.0%	113									
Monday	09/07/15	79	26.1			7.9	0	279	6,748	378	366	97%	9,142	4.5	1.1	2.9	79.3	26.3	7.0	3.2	70	4	98.6%	97	5	98.7%	121									
Tuesday	09/08/15	79	26.1		29	7.9	0	290	7,014	290	267	92%	7,014	3.9	1.0	2.9	79.2	26.2	6.9	3.4	80	3	99.0%	73	6	97.9%	145		1.9	1.1	9.8					
Wednesday	09/09/15	79	26.1			7.6	0	328	7,933	327	296	91%	7,909	4.0	1.1	2.9	79.3	26.3	6.9	3.4	70	3	99.1%	73	8	97.6%	193					3.1	68	34		
Thursday	09/10/15	79	26.1		28	8.0	0		7,511	400	358	90%	10,008	3.9	1.2	3.0	80.2	26.8	6.9	3.4	64			75	8	98.0%	200		1.5	0.9	6.9	3.8	66	24		
Friday	09/11/15	79	26.1			8.0	0		6,760	604	567	94%	13,601	4.1	1.1	2.7	80.4	26.9	7.0	3.1	77			68	7	98.8%	158					3.6	66	20		
Saturday	09/12/15	79	26.1			7.6	1		7,010	336	302	90%	7,846	4.3	1.1	2.8	79.9	26.6	7.0	3.3	80			70	8	97.6%	187									
Sunday	09/13/15	79	26.1			7.8	0	290	7,014	342	316	92%	8,272	4.2	1.1	2.9	80.2	26.8	7.0	3.4	88	3	99.0%	73	7	98.0%	169									
Monday	09/14/15	79	26.1		30	7.9	0	262	6,337	304	276	91%	7,353	4.1	1.1	2.9	79.2	26.2	7.0	3	89	4	98.5%	97	7	97.7%	169		3.9	0.9	9.6					
Tuesday	09/15/15	79	26.1			8.1	0	356	8,610	392	337	86%	9,481	4.0	1.0	2.9	78.8	26	7.0	3	85	3	99.2%	73	9	97.7%	218									
Wednesday	09/16/15	78	25.6		30	8.0	0		7,261	324	289	89%	7,836	4.1	1.0	2.9	79.2	26.2	6.9	3.1	81			73	7	97.8%	169		3.5	0.6	9.2	4.1	66	29		
Thursday	09/17/15	78	25.6			8.0	0		7,261	307	281	92%	7,425	3.9	1.0	2.9	78.4	25.8	6.9	3.2	79			73	7	97.7%	169					3	64	118		
Friday	09/18/15	78	25.6			8.0	0		7,010	286	253	88%	6,679	4.0	1.1	2.8	78.8	26	7.0	3.2	82			70	6	97.9%	140					3.9	66	24		
Saturday	09/19/15	78	25.6			7.9	0		6,510	286	260	91%	6,202	4.1	1.1	2.6	78.6	25.9	6.9	3.4	88			65	8	97.2%	173									
Sunday	09/20/15	78	25.6			7.7	0		7,010	293	267	91%	6,842	4.3	0.9	2.8	78.4	25.8	7.1	3.3	83			70	4	98.6%	93									
Monday	09/21/15	78	25.6		28	7.9	0		7,010	290	258	89%	6,772	4.1	1.0	2.8	79.7	26.5	7.0	3.4	88			70	4	98.6%	93		3.9	0.4	8.8					
Tuesday	09/22/15	77	25.0			8.0	0	352	8,513	301	275	91%	7,280	4.0	0.9	2.9	78.4	25.8	6.9	3.3	81	2	99.4%	48	2	99.3%	48					2.1	68	7	Y	09/22/15
Wednesday	09/23/15	78	25.6		27	8.0	0	307	7,169	324	294	91%	7,566	4.1	1.0	2.8	78.1	25.6	6.9	3.4	77	2	99.3%	47	4	98.8%	93		2.1	0.3	11.3	1.8	68	10	Y	09/23/15
Thursday	09/24/15	78	25.6			7.9	0	281	6,562	285	256	90%	6,655	4.2	1.0	2.8	78.6	25.9	6.9	3.6	72	2	99.3%	47	4	98.6%	93					2.1	68	0		
Friday	09/25/15	77	25.0			7.9	0		7,010	311	284	91%	7,262	4.0	1.1	2.8	78.3	25.7	6.9	3.5	70			70	4	98.7%	93					2.2	68	26		
Saturday	09/26/15	77	25.0			8.0	1		6,510	274	252	92%	5,941	4.1	1.1	2.6	76.1	24.5	7.0	3.3	97			65	3	98.9%	65									
Sunday	09/27/15	77	25.0			7.7	0		7,010	311	288	93%	7,262	4.5	1.0	2.8	75.6	24.2	7.0	3.3	82			70	2	99.4%	47									
Monday	09/28/15	77	25.0		28	8.0	0	325	7,860	356	320	90%	8,610	4.1	1.0	2.9	77.5	25.3	6.9	3.5	82	2	99.4%	48	2	99.4%	48		0.4	0.4	8.6	2.3	70	5	Y	09/28/15
Tuesday	09/29/15	77	25.0			8.0	0	292	7,062	302	274	91%	7,304	4.1	1.1	2.9	77.0	25	6.9	3.6	78	2	99.3%	48	5	98.3%	121					2.9	68	5	Y	09/29/15
Wednesday	09/30/15	77	25.0		32	7.9	0	301	7,280	389	357	92%	9,408	4.2	1.1	2.9	77.2	25.1	6.8	3.3	64	2	99.3%	48	5	98.7%	121		0.7	0.3	7.5	2.8	67	11	Y	09/30/15
Thursday	10/01/15	77	25.0			8.1	0		7,754	316	290	92%	7,643	4.1	1.0	2.9	77.9	25.5	7.0	3.3	66			56	4	98.7%	97									
Friday	10/02/15	76	24.4			7.9	1		7,219	306	278	91%	6,891	4.1	1.0	2.7	77.5	25.3	7.0	3.6	71			53	6	98.0%	135									
Saturday	10/03/15	77	25.0			7.9	0		7,219	267	239	90%	6,012	4.2	1.1	2.7	77.0	25	6.9	3.4	78			53	4	98.5%	90									
Sunday	10/04/15	76	24.4			7.7	1		7,486	273	249	91%	6,375	4.3	0.9	2.8	77.0	25	7.1	3.6	78			54	4	98.5%	93									
Monday	10/05/15	76	24.4		29	8.0	1		7,754	213	189	89%	5,152	4.3	1.0	2.9	77.5	25.3	7.0	3.4	80			56	4	98.1%	97		0.8	0.6	10.4					
Tuesday	10/06/15	76	24.4			8.1	1	397	9,602	383	349	91%	9,263	4.2	1.1	2.9	77.0	25	6.8	3.4	68	2	99.5%	48	4	99.0%	97					2.3	67	124	Y	10/06/15
Wednesday	10/07/15	76	24.4		29	8.0	0	326	7,885	284	257	90%	6,869	4.2	1.1	2.9	77.2	25.1	6.8	3.5	68	2	99.4%	48	4	98.6%	97		0.2	0.3	10.0	2.2	68	42		
Thursday	10/08/15	77	25.0			7.9	0	296	7,406	358	325	91%	8,957	4.2	1.2	3.0	77.7	25.4	6.8	3.4	68	2	99.3%	50	4	98.9%	100	99				1.9	65	148	Y	10/08/15
Friday	10/09/15	77	25.0			7.7	0		7,754	296	275	93%	7,159	3.9	1.1	2.9	77.7	25.4	6.8	3.5	68			56	3	99.0%	73									
Saturday	10/10/15	76	24.4			7.8	1		6,952	346	322	93%	7,503	4.3	1.1	2.6	77.2	25.1	6.9	3.4	79			51	4	98.8%	87									
Sunday	10/11/15	76	24.4			7.6	1		7,219	333	306	92%	7,498	4.3	0.9	2.7	76.8	24.9	7.0	3.5	76			53	2	99.4%	45									
Monday	10/12/15	77	25.0		30	7.9	0	324	7,836	414	364	88%	10,013	4.3	1.0	2.9	77.9	25.5	6.9	3.3	78	2	99.4%	48	3	99.3%	73		0.2	0.1	8.3					
Tuesday	10/13/15	76	24.4			8.3	1	301	7,029	285	252	88%	6,655	3.9	1.0	2.8	77.4	25.2	7.0	3.4	81	2	99.3%	47	5	98.2%	117									
Wednesday	10/14/15	75	23.9		31	8.1	1	305	6,614	351	309	88%	7,611	3.9	1.0	2.6	76.3	24.6	7.0	3.5	84	2	99.3%	43	6	98.3%	130		0.1	0.1	7.5	2.4	68	43		
Thursday	10/15/15	77	25.0			8.2	0		6,684	399	366	92%	8,319	3.6	0.9	2.5	77.2	25.1	6.8	3.7	70			49	2	99.5%	42					2.2	70	3	Y	10/15/15
Friday	10/16/15	77	25.0			7.9	1		6,684	356	330	93%	7,423	3.6	0.9	2.5	77.5	25.3	6.9	3.6	76			49	5	98.6%	104					2.3	68	18		
Saturday	10/17/15	76	24.4			8.0	1		6,417	431	396	92%	8,627	3.9	0.9	2.4	76.8	24.9	7.0	3.4	77			47	4	99.1%	80					2.1	67	5	Y	10/17/15
Sunday	10/18/15	76	24.4			7.8	1	341	7,679	349	316	91%	7,859	4.5	0.8	2.7	77.0	25	7.2	3.6	82	2	99.4%	45	4	98.9%	90									
Monday	10/19/15	77	25.0		27	7.9	1	285	6,180	318	285	90%	6,896	3.8	0.8	2.6	78.6	25.9	6.9	3.3	74	3	98.9%	65	4	98.7%	87		0.1	0.2	9.4	3.2	64	5	Y	10/19/15
Tuesday	10/20/15	78	25.6			8.1	1	315	6,830	378	349	92%	8,197	3.8	0.9	2.6	78.1	25.6	6.9	3.5	78	2	99.4%	43	4	98.9%	87					3	66	3	Y	10/20/15
Wednesday	10/21/15	77	25.0		29	8.1	1		6,952	392	354	90%	8,500	3.7	0.9	2.6	78.6	25.9	6.9	3.3	71			51	6	98.5%	130		0.1	0.2	11.2	2.7	66	7	Y	10/21/15
Thursday	10/22/15	78	25.6			8.1	0		6,952	366	335	92%	7,936	3.8	0.9	2.6	79.0	26.1	6.9	3.3	71			51	5	98.6%	108							5	Y	10/22/15
Friday	10/23/15	78	25.6			8.0	0		6,684	335	299	89%	6,985	3.7	0.9	2.5	77.5	25.3	6.9	3.4	69			49	6	98.2%	125									
Saturday	10/24/15	77	25.0			8.0	0		6,417	346	316	91%	6,926	4.0	0.9	2.4	77.2	25.1	6.9	3.3	77			47	8	97.7%	160									
Sunday	10/25/15	77	25.0			7.7	0		6,952	358	326	91%	7,763	4.9	0.8	2.6	78.8	26	7.0	3.3	80			51	5	98.6%	108									
Monday	10/26/15	78	25.6		30	7.9	0	287	6,223	332	296	89%	7,199	3.9	1.0	2.6	79.0	26.1	6.9	3.3	83	3	99.0%	65	7	97.9%	152		0.2	0.2	9.3					
Tuesday	10/27/15	79	26.1			8.1	0	323	7,004	334	301	90%	7,242	3.7	0.9	2.6	79.0	26.1	6.9	3.2	71	3	99.1%	65	8	97.6%	173									
Wednesday	10/28/15	72	22.2		32	7.8	3	347	7,524	360	308	86%	7,806	3.8	0.9	2.6	71.6	22	6.8	2.6	64	3	99.1%	65	8	97.8%	173		0.2	0.2	10.6	4.3	66	38		
Thursday	10/29/15	71	21.7			8.0	2		6,952	358	324	91%	7,763	3.8	0.9	2.6	71.8	22.1	6.9	4	67			51	9	97.5%	195					4.1	66	30		
Friday	10/30/15	71	21.7			7.8	1		7,219	333	301	90%	7,498	3.9	1.0	2.7	71.6	22	6.9	3.8	70			53	10	97.0%	225					5.2	66	90		
Saturday	10/31/15	71	21.7			7.7	1		6,952	410	379	92%	8,890	4.7	1.3	2.6	71.4	21.9	6.9	3.9	73			51	10	97.6%	217									

		Influent												FINAL EFFLUENT																					
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Sunday	11/01/15	69	20.6			7.7	0		6,801	375	350	93%	7,819	4.2	0.9	2.5	69.8	21	7.2	3.7	84			70	7	98.1%	146									
Monday	11/02/15	71	21.7		28	7.9	1	325	7,318	567	527	93%	12,768	4.2	0.9	2.7	70.9	21.6	6.9	4	81	3	99.1%	68	9	98.4%	203		0.8	0.4	9.3					
Tuesday	11/03/15	71	21.7			8.1	1	359	7,785	373	339	91%	8,088	4.0	0.9	2.6	70.7	21.5	6.9	4.3	72	3	99.2%	65	9	97.6%	195	99								
Wednesday	11/04/15	71	21.7	51	31	8.1	1	348	7,546	414	379	92%	8,977	4.1	0.9	2.6	70.5	21.4	6.9	4.1	70	3	99.1%	65	6	98.6%	130		0.2	0.3	9.9	3.7	68	9	Y	11/04/15
Thursday	11/05/15	70	21.1			8.0	1		7,073	399	366	92%	8,652	4.0	0.9	2.6	70.2	21.2	6.9	3.5	70			72	8	98.0%	173					3.7	65	7	Y	11/05/15
Friday	11/06/15	71	21.7			8.1	0		6,801	413	378	92%	8,611	4.0	1.0	2.5	70.2	21.2	6.9	3.5	73			70	10	97.6%	209					3.4	67	8	Y	11/06/15
Saturday	11/07/15	69	20.6			7.8	0		6,529	478	443	93%	9,568	3.8	0.8	2.4	69.8	21	7.1	3.4	70			67	6	98.7%	120									
Sunday	11/08/15	69	20.6			7.6	1	338	7,047	336	307	91%	7,006	4.0	0.7	2.5	69.6	20.9	7.0	3.3	78	2	99.4%	42	6	98.2%	125									
Monday	11/09/15	65	18.3		26	7.9	3	298	7,456	374	324	87%	9,357	6.8	0.9	3.0	70.2	21.2	7.0	3.2	83	3	99.0%	75	8	97.9%	200		1.4	0.6	9.3	2.7	68	15	Y	11/09/15
Tuesday	11/10/15	69	20.6			8.1	1		7,073	371	331	89%	8,045	3.8	0.9	2.6	68.5	20.3	6.9	3.7	73			72	8	97.8%	173					2.7	68	3	Y	11/10/15
Wednesday	11/11/15	69	20.6		30	7.8	1	360	7,806	353	321	91%	7,654	3.8	0.9	2.6	68.4	20.2	6.8	3.6	58	2	99.4%	43	6	98.3%	130		0.1	0.1	10.8					
Thursday	11/12/15	69	20.6			8.0	1		7,073	347	316	91%	7,524	3.9	1.0	2.6	69.3	20.7	6.9	3.3	69			72	6	98.3%	130					3.1	67	9	Y	11/12/15
Friday	11/13/15	70	21.1			8.0	0		7,073	336	303	90%	7,286	3.9	0.9	2.6	69.1	20.6	6.8	3.4	58			72	8	97.6%	173									
Saturday	11/14/15	71	21.7			8.1	1		6,529	475	450	95%	9,508	4.0	1.0	2.4	69.8	21	6.8	3.3	53			67	8	98.3%	160									
Sunday	11/15/15	69	20.6			7.7	1		7,073	357	328	92%	7,741	4.3	0.8	2.6	68.2	20.1	7.1	3.3	76			72	5	98.6%	108									
Monday	11/16/15	69	20.6		26	7.9	1		8,161	408	360	88%	10,208	3.9	0.8	3.0	68.5	20.3	6.9	3.6	81			83	6	98.5%	150		0.3	0.4	9.6					
Tuesday	11/17/15	67	19.4			7.7	1	207	8,287	248	192	77%	9,928	8.4	1.1	4.8	67.8	19.9	6.9	3.7	73	12	94.2%	481	68	72.6%	2722					2.6	69	12	Y	11/17/15
Wednesday	11/18/15	65	18.3		29	7.8	2	315	7,356	315	274	87%	7,356	4.3	1.9	2.8	61.7	16.5	6.7	3.8	50	3	99.0%	70	7	97.8%	163		1.9	0.5	9.0	3.4	73	17		
Thursday	11/19/15	68	20.0			8.0	1	351	7,611	478	418	87%	10,365	4.0	1.0	2.6	66.0	18.9	6.7	3.9	56	2	99.4%	43	6	98.7%	130					3.4	71	19		
Friday	11/20/15	68	20.0			8.1	1		6,257	338	306	91%	6,484	3.7	1.0	2.3	67.1	19.5	6.9	3.7	68			64	8	97.6%	153									
Saturday	11/21/15	68	20.0			7.5	1		7,073	493	462	94%	10,690	4.1	1.2	2.6	68.0	20	6.8	3.6	81			72	5	99.0%	108									
Sunday	11/22/15	67	19.4		33	7.7	1	380	7,923	413	383	93%	8,611	4.0	0.8	2.5	67.1	19.5	7.1	3.5	85	2	99.5%	42	5	98.8%	104		0.1	0.1	7.4					
Monday	11/23/15	67	19.4			7.7	1	303	6,570	395	359	91%	8,565	4.0	0.9	2.6	66.7	19.3	7.0	3.6	85	3	99.0%	65	7	98.2%	152					2.3	71	42		
Tuesday	11/24/15	66	18.9			8.0	1	330	7,431	440	399	91%	9,908	3.8	0.9	2.7	66.4	19.1	6.8	3.7	72	2	99.4%	45	7	98.4%	158					2.2	71	65		
Wednesday	11/25/15	67	19.4		31	8.1	1		7,073	335	297	89%	7,264	3.8	1.0	2.6	66.4	19.1	6.8	3.8	70			72	8	97.6%	173		0.7	0.3	10.3	2.9		50		
Thursday	11/26/15	66	18.9			8.0	1		6,257	392	358	91%	7,519	4.4	0.8	2.3	66.6	19.2	6.8	3.7	78			64	8	98.0%	153									
Friday	11/27/15	67	19.4			8.0	0		6,257	416	384	92%	7,980	3.9	0.8	2.3	67.1	19.5	6.9	3.9	89			64	7	98.3%	134									
Saturday	11/28/15	65	18.3			8.0	1		6,257	297	278	94%	5,697	3.9	0.8	2.3	65.3	18.5	6.8	3.5	68			64	7	97.6%	134									
Sunday	11/29/15	64	17.8			7.6	1		6,801	311	287	92%	6,484	3.9	0.8	2.5	64.9	18.3	7.2	3.9	75			70	6	98.1%	125									
Monday	11/30/15	65	18.3			7.9	1		7,073	316	283	90%	6,852	3.8	0.9	2.6	65.1	18.4	6.8	3.4	64			72	9	97.2%	195									
Tuesday	12/01/15	66	18.9		43	7.9	1		7,099	393	347	88%	8,522	3.9	0.9	2.6	64.9	18.3	6.7	3.9	56			98	6	98.5%	130		0.7	0.3	13.4					
Wednesday	12/02/15	66	18.9			7.9	1	356	7,720	305	274	90%	6,614	3.5	0.9	2.6	65.1	18.4	6.6	3.9	50	3	99.2%	65	9	97.0%	195					3.9	68	9	Y	12/02/15
Thursday	12/03/15	65	18.3		36	7.9	1	326	7,341	301	268	89%	6,778	3.6	1.0	2.7	64.9	18.3	6.7	3.8	60	3	99.1%	68	6	98.0%	135		0.4	0.3	10.3	2.9	68	3	Y	12/03/15
Friday	12/04/15	65	18.3			8.0	1	311	7,522	331	300	91%	8,006	3.9	1.1	2.9	64.8	18.2	6.8	3.7	55	3	99.0%	73	8	97.6%	193					3.2	68	47		
Saturday	12/05/15	65	18.3			8.1	1		8,738	325	289	89%	8,674	5.2	1.1	3.2	64.9	18.3	6.6	3.5	52			121	7	97.8%	187									
Sunday	12/06/15	62	16.7			7.6	1		7,645	311	286	92%	7,262	4.5	1.6	2.8	64.4	18	6.8	3.6	50			106	8	97.4%	187	83								
Monday	12/07/15	59	15.0		19	7.9	4		12,014	291	217	75%	10,679	8.3	0.9	4.4	63.7	17.6	6.8	2.5	62			166	16	94.5%	587		6.1	0.4	6.0					
Tuesday	12/08/15	59	15.0			7.8	4	244	8,140	354	311	88%	11,809	6.3	2.0	4.0	57.6	14.2	6.6	3.8	55	5	98.0%	167	17	95.2%	567									
Wednesday	12/09/15	62	16.7	41	25	8.0	3	274	7,998	361	293	81%	10,538	6.9	1.9	3.5	60.1	15.6	6.7	3.9	54	4	98.5%	117	12	96.7%	350		3.0	0.6	9.0	6.1	70	12	Y	12/09/15
Thursday	12/10/15	63	17.2			7.6	2	338	8,175	349	307	88%	8,441	8.1	1.1	2.9	60.6	15.9	6.8	3.9	62	6	98.2%	145	11	96.8%	266					5.6	68	15		
Friday	12/11/15	64	17.8			8.1	2		7,372	415	371	89%	9,345	3.7	1.1	2.7	62.1	16.7	6.7	4	49			102	13	96.9%	293					6.8	69	52		
Saturday	12/12/15	63	17.2			8.1	1		7,372	310	261	84%	6,981	4.2	1.1	2.7	63.0	17.2	6.7	3.7	55			102	12	96.1%	270									
Sunday	12/13/15	63	17.2			7.7	1		7,099	369	336	91%	8,001	4.1	0.9	2.6	62.2	16.8	6.8	3.7	61			98	12	96.7%	260									
Monday	12/14/15	64	17.8		31	8.1	1	376	8,780	544	466	86%	12,703	4.0	0.9	2.8	64.0	17.8	6.9	3.8	65	6	98.4%	140	14	97.4%	327		1.6	0.6	10.9					
Tuesday	12/15/15	64	17.8			8.1	1	354	7,676	404	363	90%	8,760	4.2	1.1	2.6	64.2	17.9	6.9	3.5	65	5	98.6%	109	16	96.0%	347					8.8	64	5	Y	12/15/15
Wednesday	12/16/15	64	17.8		32	8.2	1	312	6,765	397	355	89%	8,609	3.8	1.0	2.6	63.9	17.7	6.8	3.8	52	5	98.4%	109	16	96.0%	347		2.8	1.0	13.1	7.5	62	7	Y	12/16/15
Thursday	12/17/15	64	17.8			8.1	1		7,645	401	356	89%	9,364	3.7	1.0	2.8	63.5	17.5	6.7	3.7	52			106	14	96.5%	327					6.6	6.2	7	Y	12/17/15
Friday	12/18/15	63	17.2			7.8	1		7,645	372	338	91%	8,687	3.7	1.0	2.8	63.0	17.2	6.9	3.8	61			106	13	96.5%	304									
Saturday	12/19/15	64	17.8			8.2	1		6,280	338	301	89%	6,484	4.3	1.0	2.3	63.0	17.2	6.8	3.9	67			87	15	95.6%	288									
Sunday	12/20/15	63	17.2		38	7.8	0	318	6,896	326	290	89%	7,069	4.1	0.8	2.6	62.4	16.9	7.0	3.8	75	5	98.4%	109	10	96.9%	217		0.4	0.5	8.2					
Monday	12/21/15	63	17.2			7.8	1	305	7,122	368	331	90%	8,594	4.0	0.9	2.8	62.2	16.8	6.8	3.4	74	5	98.4%	117	13	96.5%	304					7.7	66	8	Y	12/21/15
Tuesday	12/22/15	63	17.2		33	8.1	1	373	8,399	312	274	88%	7,026	3.9	1.1	2.7	62.4	16.9	6.9	3.7	73	4	98.9%	90	12	96.2%	270		0.9	0.8	9.4	5.5	64	38		
Wednesday	12/23/15	63	17.2			8.1	1		7,372	321	283	88%	7,228	3.9		2.7	62.2	16.8	6.9	3.9	72			102	10	96.9%	225					5.1	65	5	Y	12/23/15
Thursday	12/24/15	62	16.7			8.0	0		6,553	318	278	87%	6,365	4.2	1.0	2.4	61.9	16.6	7.0	3.8	76			91	10	96.9%	200									
Friday	12/25/15	62	16.7			8.0	1		6,280	371	336	91%	7,117	3.5	1.2	2.3	61.7	16.5	7.0	3.9	79			87	11	97.0%	211									
Saturday	12/26/15	62	16.7			7.9	0		6,553	447	421	94%	8,947	4.1	0.7	2.4	61.5	16.4	6.9	3.9	77			91	10	97.8%	200									
Sunday	12/27/15	62	16.7		38	7.7	1		6,826	321	294	92%	6,693	4.1	0.7	2.5	61.3	16.3	6.9	3.8	74			95	8	97.5%	167		1.0	1.2	9.1					
Monday	12/28/15	62	16.7			8.0	2	314	7,071	341	309	91%	7,679	4.1	0.9	2.7	61.9	16.6	6.9	3.7	72	5	98.4%	113	6	98.2%	135					3.8	65	40		
Tuesday	12/29/15	62	16.7		32	8.0	1	353	7,949	330	296	90%	7,431	4.1	1.1	2.7	61.9	16.6	6.8	3.9	72	4	98.9%	90	9	97.3%	203		3.8	2.1	9.9	3.9	64	9	Y	12/29/15

		Influent												FINAL EFFLUENT																						
		Temp			mg/L			mg/L	Lbs	mg/L	mg/L	%	LBS	Flow			Q Temp			mg/L	mg/L	mg/L	% BOD	Lbs BOD	mg/L	% TSS	LBS TSS		mg/L	mg/L	mg/L	Fecal Coliform				
Day	Date	Inf F	Inf C	Inf TKN	Inf NH4	Inf pH	Inf DO	Inf BOD mg/L	Inf BOD Lbs	Inf TSS	Inf VSS	VSS	Inf TSS Lbs	Plant Q Max	Plant Q Min	Plant Q Total	Eff F	Eff C	Eff pH	Eff DO	EFF ALK	Eff CBOD	EFF BOD Efficiency	EFF LBs BOD	Eff TSS	EFF TSS Efficiency	Eff LBs TSS	Eff Hrdnss	Eff NH4	Eff Nitrite	Eff Nitrate	NTU	% UVT	Count	Est.Y	Est Date
Wednesday	12/30/15	63	17.2			8.0	1	357	7,354	335	303	90%	6,901	4.1	1.0	2.5	62.1	16.7	6.9	4	70	5	98.6%	103	8	97.6%	165					3.8	66	9	Y	12/30/15
Thursday	12/31/15	62	16.7			8.0	1		6,826	378	351	93%	7,881	4.2	1.0	2.5	61.3	16.3	6.9	4.1	82			95	10	97.4%	209									
	Average	69.2	20.7	45.0	27.7	7.8	1.1	310	7,197	352	315	0.9	8,145	4.2	1.1	2.8	69.9	21.1	6.9	3.6	71.1	4.0	1.0	96	7.7	1.0	182.8	96.7	3.3	0.7	12.1	3.6	66.4	47.1		
	Max	80.0	26.7	51.3	42.5	8.3	4.9	489	12,014	747	710	1.0	16,813	8.5	3.2	5.3	81.9	27.7	7.2	4.4	128.0	12.0	1.0	481	68.0	1.0	2722.2	101.0	16.2	3.2	25.3	8.8	79.0	612.0		
	Min	58.0	14.4	36.6	17.3	7.0	0.1	187	5,490	213	189	0.7	4,792	3.4	0.5	2.2	57.6	14.2	6.5	2.5	35.0	2.0	0.9	42	2.0	0.7	41.7	83.0	0.1	0.1	4.7	1.2	6.2	0.0		
	Median														4.1	1.0	2.8	68.6																		

APPENDIX E

MODELED FLOW INPUT

Model Input for 2015 Scenario

Basin	InputNode	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
1st -1	SSMH0780	18.5	7.45	
1st -2	SSMH1846	10.9	4.72	
1st -3	SSMH1089	3.3	1.07	
1st -4	SSMH1394	52.3	15.36	
1st -5	SSMH1315	38.0	12.86	
1st -5 - Inflow	SSMH1237			17929
2nd -1	SSMH1360	18.1	3.19	
2nd -2	SSMH1345	0.3	2.35	
5th -1	SSMH1573	15.6	15.63	
5th -2	SSMH1601	22.0	35.13	
5th -3	SSMH1577	21.1	20.19	
5th -4	SSMH1525	15.0	11.91	
5th -5	SSMH1893	37.8	14.48	
5th -6	SSMH1862	6.7	2.54	
5th -7	SSMH1905	10.9	2.11	
5th -8	SSMH1910	30.5	9.07	
5th -9	SSMH1950	16.2	7.03	
9th -1	SSMH1659	13.1	9.93	
9th -1 - Inflow	SSMH1779			287
9th -2	SSMH1772	27.8	12.16	
9th -3	SSMH1813	15.9	6.01	
9th -4	SSMH1938	9.6	9.85	
BNSF1	SSMH2947	10.1	4.78	
BNSF2	SSMH2955	8.4	7.61	
Broadview1	SSMH2377	6.6	9.82	
Burch1		0.0	0.00	
Burch2		0.0	0.00	
Burch3		0.0	0.00	
Castle1	SSMH2524	8.4	5.69	
Castle2	SSMH1474	13.1	6.41	
Castle3	SSMH0005	13.8	8.86	
Castle3 - Inflow	SSMH0912			1750
Castle4	SSMH1272	12.8	4.64	555
Central1	SSMH2058	14.0	9.99	
Central2	SSMH2025	14.5	15.78	
Central3	SSMH2061	2.1	3.27	
Chat1		0.0	0.00	
Chat22		0.0	0.00	
Cherry1	SSMH0580	21.5	20.53	
Cherry2	SSMH0562	15.7	12.81	
Cherry3	SSMH1454	16.5	8.13	633
Cherry4	SSMH1075	43.4	8.31	
Cherry5	SSMH1420	14.2	4.70	
Cherry5 - Inflow	SSMH0497			434
Craw1	SSMH1175	19.1	20.66	
Craw2	SSMH2500	17.8	10.41	
Craw3	SSMH0117	6.5	13.56	
Easy1		0.0	0.00	
Easy10		0.0	0.00	
Easy11	SSMH2802	0.6	3.33	
Easy2		0.0	0.00	
Easy3		0.0	0.00	
Easy4		0.0	0.00	
Easy5		0.0	0.00	

Model Input for 2015 Scenario

Basin	InputNode	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Easy6		0.0	0.00	
Easy7		0.0	0.00	
Easy8		0.0	0.00	
Easy9		0.0	0.00	
Hawley1	SSMH2188	4.8	4.57	
HorseLk1	SSMH2217	13.9	7.23	
HorseLk2	SSMH2201	1.9	5.03	
Kitt1	SSMH1254	23.1	9.61	
Kitt1 - Inflow	SSMH1252			483
Kitt2	SSMH0710	50.4	17.26	
Kitt3	SSMH0751	45.1	12.91	
Kitt3 - Inflow	SSMH1332			9084
Maiden1	SSMH2281	0.2	6.35	
Maiden2	SSMH2260	9.5	9.54	
Maiden3	SSMH2244	10.5	12.96	
Maiden4	SSMH2682	8.9	14.59	
Maple0	SSMH2567	0.0	0.00	
Maple1	SSMH2566	6.0	2.98	
Maple2	SSMH2081	17.7	16.76	
Maple3	SSMH2076	19.7	12.85	
Maple4	SSMH2016	9.8	6.84	
McKitt1	SSMH2120	18.0	11.09	
McKitt2	SSMH2125	2.1	3.54	
McKitt3	SSMH2128	7.0	6.80	
McKitt4	SSMH2146	14.4	16.10	
McKitt5	SSMH2153	7.8	8.48	
Met1	SSMH2596	15.9	18.77	
Met2	SSMH0041	27.3	13.57	
Miller1	SSMH2636	18.9	13.10	
Miller2	SSMH0477	12.4	7.38	
Miller3	SSMH1277	11.2	10.71	
N Western1	SSMH2289	6.7	6.88	
N Western1 - Inflow	SSMH2288			1615
Ohme1		0.0	0.00	
Ohme2		0.0	0.00	
Olds1	SSMH2923	4.4	48.67	
Olds1PointFlow	SSMH2836	600.0		
Olds2	SSMH2809	14.9	22.56	
Olds3	SSMH2827	0.4	7.20	
Olds3PointFlow	SSMH2854	600.0		
Olds4	SSMH2885	2.0	10.00	
Olds5	SSMH2873	31.0	20.38	
Olds6	SSMH2882	1.4	3.80	
Orch1	SSMH1501	12.2	13.06	
Orch2	SSMH1506	16.9	10.19	
Orch3	SSMH1507	9.3	6.51	
Peach1	SSMH0391	17.3	6.31	
Peach2	SSMH0321	70.9	24.03	
Quail1	SSMH2603	2.8	3.05	
Quail2	SSMH2599	0.5	0.86	
Red1	SSMH0605	13.9	13.46	
Red2	SSMH1188	15.4	29.15	
Red3	SSMH1430	13.4	8.78	
Red3 - Inflow	SSMH0155			562
Red3 - Inflow	SSMH0153			401

Model Input for 2015 Scenario

Basin	InputNode	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Red4	SSMH0392	37.7	20.46	
Red4 - Inflow	SSMH0240			531
Red4 - Inflow	SSMH0228			497
River1	SSMH2159	4.1	13.14	
River2	SSMH1001	2.3	5.72	
S Wen1	SSMH0262	3.1	9.70	
S Wen2	SSMH0234	3.0	3.53	
S Wen3	SSMH1192	6.3	6.44	
S Wen4	SSMH0643	3.7	2.66	
S Wen5	SSMH0955	11.2	10.78	
Spring0	SSMH1751	0.0	0.00	
Spring1	SSMH1732	6.0	15.65	
Spring2	SSMH2366	12.6	12.45	
Spring3	SSMH1735	14.8	9.66	
Spring4	SSMH1744	42.8	12.84	
Spring5	SSMH1824	2.7	3.39	
Squil1	SSMH0032	34.7	14.83	
Squil2	SSMH0248	8.0	5.70	
Squil3	SSMH2743	29.1	14.61	
Squil4	SSMH0072	4.3	16.98	
Squil5	SSMH2754	2.4	3.66	
SR 2 -1		0.0	0.00	
SR 2 -10	SSMH2803	0.6	0.63	
SR 2 -2		0.0	0.00	
SR 2 -4		0.0	0.00	
SR 2 -5		0.0	0.00	
SR 2 -6		0.0	0.00	
SR 2 -7		0.0	0.00	
SR 2 -8		0.0	0.00	
SR 2 -9		0.0	0.00	
SR 2-3		0.0	0.00	
SWen3 - Inflow	SSMH1191			48
SWen4 - Inflow	SSMH0954			717
US 97A		0.0	0.00	
Walla1	SSMH1024	19.8	9.44	
Walla2	SSMH2720	4.7	8.01	
Walla3	SSMH1960	1.3	2.04	
Walnut1	SSMH2792	2.6	12.30	
Walnut2	SSMH2170	39.2	9.41	
Warm1		0.0	0.00	
Warm2		0.0	0.00	
Wash1	SSMH1482	17.9	16.47	
Wash2	SSMH1496	20.5	8.49	
Wash3	SSMH0814	27.7	9.12	
Wash3 - Inflow	SSMH0859			347
Wash4	SSMH1083	17.5	5.98	
Wash4 - Inflow	SSMH1281			123

EXISTING FLOWS - MODEL INPUT							
Subbasin	Sum of Assigned ERUs	Sum of Area (Ac)	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
1st -1	179.0	35.8	26,671	18.5	36	10,729	7.45
1st -2	105.0	22.7	15,645	10.9	23	6,801	4.72
1st -3	32.0	5.2	4,768	3.3	5	1,546	1.07
1st -4	505.0	63.9	75,245	52.3	74	22,121	15.36
1st -5	367.0	61.7	54,683	38.0	62	18,520	12.86
2nd -1	175.4	15.3	26,135	18.1	15	4,599	3.19
2nd -2	3.0	11.3	447	0.3	11	3,383	2.35
5th -1	151.0	74.9	22,499	15.6	75	22,512	15.63
5th -2	213.0	168.6	31,737	22.0	169	50,587	35.13
5th -3	204.0	96.9	30,396	21.1	97	29,081	20.19
5th -4	145.0	57.2	21,605	15.0	57	17,150	11.91
5th -5	365.0	69.5	54,385	37.8	69	20,850	14.48
5th -6	65.0	12.2	9,685	6.7	12	3,652	2.54
5th -7	105.0	10.1	15,645	10.9	10	3,042	2.11
5th -8	295.2	39.5	43,985	30.5	44	13,067	9.07
5th -9	157.0	33.7	23,393	16.2	34	10,121	7.03
9th -1	126.2	47.7	18,810	13.1	48	14,299	9.93
9th -2	268.2	58.3	39,962	27.8	58	17,504	12.16
9th -3	154.0	28.8	22,946	15.9	29	8,651	6.01
9th -4	93.2	47.3	13,887	9.6	47	14,186	9.85
BNSF 1	97.2	23.0	14,483	10.1	23	6,889	4.78
BNSF 2	81.0	36.4	12,069	8.4	37	10,959	7.61
Broadview1	64.0	47.2	9,536	6.6	47	14,148	9.82
Burch1	-	95.2	-	0.0		-	0.00
Burch2		47.4	-	0.0		-	0.00
Burch3	-	54.5	-	0.0		-	0.00
Castle1	81.0	27.3	12,069	8.4	27	8,200	5.69
Castle2	127.0	30.8	18,923	13.1	31	9,233	6.4
Castle3	133.0	42.5	19,817	13.8	43	12,759	8.9
Castle4	124.0	22.3	18,476	12.8	22	6,677	4.6
Central1	135.0	66.5	20,115	14.0	48	14,385	10.0
Central2	140.0	75.7	20,860	14.5	76	22,722	15.8
Chat1	-	49.8	-	0.0		-	0.0
Cherry1	208.0	98.6	30,992	21.5	99	29,567	20.5
Cherry2	152.0	61.5	22,648	15.7	62	18,453	12.8
Cherry3	159.0	39.0	23,691	16.5	39	11,714	8.1
Cherry4	419.0	39.9	62,431	43.4	40	11,961	8.3
Cherry5	137.0	22.5	20,413	14.2	23	6,762	4.7
Craw1	185.0	99.1	27,565	19.1	99	29,744	20.7
Craw2	172.0	49.9	25,628	17.8	50	14,990	10.4
Craw3	63.0	65.1	9,387	6.5	65	19,533	13.6
Easy1	-	92.7	-	0.0		-	0.0
Easy10	-	30.3	-	0.0		-	0.0
Easy11	6.0	74.3	894	0.6	16	4,800	3.3
Easy2		27.3	-	0.0		-	0.0
Easy3	-	61.3	-	0.0		-	0.0
Easy4		14.2	-	0.0		-	0.0
Easy5	-	51.4	-	0.0		-	0.0
Easy6		9.0	-	0.0		-	0.0
Easy7		35.2	-	0.0		-	0.0
Easy8		33.1	-	0.0		-	0.0

EXISTING FLOWS - MODEL INPUT							
Subbasin	Sum of Assigned ERUs	Sum of Area (Ac)	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
Easy9	-	16.1	-	0.0		-	0.0
Hawley1	46.0	21.9	6,854	4.8	22	6,575	4.6
HorseLk1	134.0	34.7	19,966	13.9	35	10,418	7.2
HorseLk2	18.0	24.2	2,682	1.9	24	7,248	5.0
Kitt1	223.2	60.0	33,254	23.1	46	13,840	9.6
Kitt2	487.0	82.9	72,563	50.4	83	24,858	17.3
Kitt3	436.0	62.0	64,964	45.1	62	18,590	12.9
Maiden1	2.0	30.5	298	0.2	30	9,140	6.3
Maiden2	92.0	45.8	13,708	9.5	46	13,742	9.5
Maiden3	101.0	62.2	15,049	10.5	62	18,665	13.0
Maiden4	86.0	70.0	12,814	8.9	70	21,012	14.6
Maple1	58.0	14.3	8,642	6.0	14	4,288	3.0
Maple2	171.0	46.3	25,479	17.7	80	24,139	16.8
Maple3	190.0	61.7	28,310	19.7	62	18,508	12.9
Maple4	95.0	32.8	14,155	9.8	33	9,855	6.8
McKitt1	174.0	53.2	25,926	18.0	53	15,967	11.1
McKitt2	20.0	17.0	2,980	2.1	17	5,097	3.5
McKitt3	68.0	32.6	10,132	7.0	33	9,793	6.8
McKitt4	139.2	77.3	20,735	14.4	77	23,184	16.1
McKitt5	75.0	40.7	11,175	7.8	41	12,214	8.5
Met1	154.0	90.1	22,946	15.9	90	27,029	18.8
Met2	264.0	65.1	39,336	27.3	65	19,541	13.6
Miller1	183.0	62.9	27,267	18.9	63	18,862	13.1
Miller2	120.0	35.4	17,880	12.4	35	10,626	7.4
Miller3	108.3	51.4	16,134	11.2	51	15,428	10.7
N Western1	65.0	33.0	9,685	6.7	33	9,914	6.9
Ohme1		114.6	-	0.0		-	0.0
Ohme2		209.3	-	0.0		-	0.0
Olds1	43.0	233.6	6,407	4.4	234	70,088	48.7
Olds2	144.0	108.3	21,456	14.9	108	32,481	22.6
Olds3	4.0	34.5	596	0.4	35	10,364	7.2
Olds4	19.0	48.0	2,831	2.0	48	14,399	10.0
Olds5	300.0	97.8	44,700	31.0	98	29,351	20.4
Olds6	14.0	18.2	2,086	1.4	18	5,467	3.8
Orch1	118.0	62.7	17,582	12.2	63	18,803	13.1
Orch2	163.0	48.9	24,287	16.9	49	14,667	10.2
Orch3	89.7	31.3	13,362	9.3	31	9,381	6.5
Peach1	167.0	30.3	24,883	17.3	30	9,090	6.3
Peach2	685.0	115.3	102,065	70.9	115	34,604	24.0
Quail1	27.0	14.6	4,023	2.8	15	4,387	3.0
Quail2	5.0	4.1	745	0.5	4	1,237	0.9
Red1	134.0	64.6	19,966	13.9	65	19,389	13.5
Red2	149.0	139.9	22,201	15.4	140	41,969	29.1
Red3	129.6	42.1	19,310	13.4	42	12,637	8.8
Red4	364.0	98.2	54,242	37.7	98	29,458	20.5
River1	40.0	63.0	5,960	4.1	63	18,915	13.1
River2	22.0	27.4	3,278	2.3	27	8,231	5.7
S Wen1	30.0	46.6	4,470	3.1	47	13,974	9.7
S Wen2	29.0	16.9	4,321	3.0	17	5,083	3.5
S Wen3	61.0	30.9	9,089	6.3	31	9,268	6.4
S Wen4	36.0	12.7	5,364	3.7	13	3,824	2.7

EXISTING FLOWS - MODEL INPUT							
Subbasin	Sum of Assigned ERUs	Sum of Area (Ac)	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
S Wen5	108.0	51.7	16,092	11.2	52	15,522	10.8
Spring1	58.0	75.1	8,642	6.0	75	22,534	15.6
Spring2	122.0	59.8	18,178	12.6	60	17,933	12.5
Spring3	143.1	46.4	21,325	14.8	46	13,906	9.7
Spring4	414.0	61.6	61,686	42.8	62	18,483	12.8
Spring5	26.0	16.3	3,874	2.7	16	4,888	3.4
Squil1	335.0	70.8	49,915	34.7	71	21,360	14.8
Squil2	77.7	27.4	11,583	8.0	27	8,215	5.7
Squil3	281.0	70.1	41,869	29.1	70	21,035	14.6
Squil4	42.0	81.5	6,258	4.3	81	24,448	17.0
Squil5	23.0	17.6	3,427	2.4	18	5,276	3.7
SR 2 -1	-	46.7	-	0.0		-	0.0
SR 2 -10	6.1	39.9	909	0.6	3	900	0.6
SR 2 -2	-	29.4	-	0.0		-	0.0
SR 2 -4		44.4	-	0.0		-	0.0
SR 2 -5	-	54.3	-	0.0		-	0.0
SR 2 -6	-	49.5	-	0.0		-	0.0
SR 2 -7	-	47.7	-	0.0		-	0.0
SR 2 -8		9.7	-	0.0		-	0.0
SR 2 -9		45.0	-	0.0		-	0.0
US 97A		212.6	-	0.0		-	0.0
Walla1	191.0	45.3	28,459	19.8	45.3	13,593	9.4
Walla2	45.0	38.4	6,705	4.7	38.4	11,531	8.0
Walla3	13.0	9.8	1,937	1.3	9.8	2,933	2.0
Walnut1	25.0	59.0	3,725	2.6	59.0	17,713	12.3
Walnut2	378.8	45.2	56,441	39.2	45.2	13,546	9.4
Warm1		64.9	-	0.0		-	0.0
Warm2		29.9	-	0.0		-	0.0
Wash1	173.0	79.0	25,777	17.9	79.0	23,712	16.5
Wash2	197.6	40.8	29,448	20.5	40.8	12,228	8.5
Wash3	268.0	43.8	39,932	27.7	43.8	13,138	9.1
Wash4	169.0	28.7	25,181	17.5	28.7	8,607	6.0
Chat22	-	30.3	-	0.0		-	0.0
Central3	20.0	15.7	2,980	2.1	15.7	4,705	3.3
SR 2 -3		18.6	-	0.0		-	0.0
Maple0		212.1	-	0.0		-	0.0
Spring0		69.9	-	0.0		-	0.0
Grand Total	15,590.8	7,410.9	**2,323,026**	1613.2	5,426	1,627,700	1,130

1) Based on 149 gpd/ERU
2) Based on 300 gpad

Model Input for 2035 Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
1st -1	SSMH0780	18.5	7.45	
1st -2	SSMH1846	11.2	4.72	
1st -3	SSMH1089	3.3	1.07	
1st -4	SSMH1394	52.4	13.31	
1st -5	SSMH1315	58.7	12.86	
1st -5 - Inflow	SSMH1237			17929
2nd -1	SSMH1360	18.3	3.19	
2nd -2	SSMH1345	0.3	2.35	
5th -1	SSMH1573	21.3	15.60	
5th -2	SSMH1601	54.9	35.13	
5th -3	SSMH1577	32.0	20.19	
5th -4	SSMH1525	17.2	11.91	
5th -5	SSMH1893	40.9	14.48	
5th -6	SSMH1862	6.7	2.54	
5th -7	SSMH1905	11.0	2.11	
5th -8	SSMH1910	30.6	8.24	
5th -9	SSMH1950	16.2	7.03	
9th -1	SSMH1659	13.4	9.93	
9th -1 - Inflow	SSMH1779			287
9th -2	SSMH1772	27.9	12.2	
9th -3	SSMH1813	16.0	6.0	
9th -4	SSMH1938	9.6	9.9	
BNSF1	SSMH2947	10.1	4.8	
BNSF2	SSMH2955	8.4	7.6	
Broadview1	SSMH2377	8.5	9.8	
Burch1		0.0	0.0	
Burch2		0.0	0.0	
Burch3	Burch3-4	13.6	11.4	
Castle1	SSMH2524	9.1	5.7	
Castle2	SSMH1474	13.6	6.4	
Castle3	SSMH0005	13.9	8.9	
Castle3 - Inflow	SSMH0912			1750
Castle4	SSMH1272	12.9	4.6	555
Central1	SSMH2058	14.3	13.8	
Central2	SSMH2025	15.4	15.8	
Central3	SSMH2061	10.9	3.3	
Chat1	Chat1-12	11.7	10.4	
Chat22	Chat2-4	8.3	6.3	
Cherry1	SSMH0580	28.5	20.5	
Cherry2	SSMH0562	17.3	12.8	
Cherry3	SSMH1454	16.8	8.1	633
Cherry4	SSMH1075	43.5	8.3	
Cherry5	SSMH1420	14.8	4.7	
Cherry5 - Inflow	SSMH0497			434
Craw1	SSMH1175	25.3	20.7	
Craw2	SSMH2500	20.7	10.4	
Craw3	SSMH0117	7.0	13.6	
Easy1		0.0	0.0	
Easy10	Easy8-1	14.2	6.3	
Easy11	Easy11-3	14.7	15.5	
Easy2		0.0	0.0	
Easy3		0.0	0.0	
Easy4		0.0	0.0	
Easy5	Easy5-4	11.8	10.7	

Model Input for 2035 Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Easy6		0.0	0.0	
Easy7		0.0	0.0	
Easy8	Easy8-8	13.6	6.9	
Easy9	Easy6-1	4.6	3.3	
Hawley1	SSMH2188	5.1	4.6	
HorseLk1	SSMH2217	14.5	7.2	
HorseLk2	SSMH2201	2.0	5.0	
Kitt1	SSMH1254	23.2	12.5	
Kitt1 - Inflow	SSMH1252			483
Kitt2	SSMH0710	50.6	17.3	
Kitt3	SSMH0751	45.3	12.9	
Kitt3 - Inflow	SSMH1332			9084
Maiden1	SSMH2281	4.3	6.3	
Maiden2	SSMH2260	11.5	9.5	
Maiden3	SSMH2244	13.3	13.0	
Maiden4	SSMH2682	11.9	14.6	
Maple0	SSMH2567	38.0	44.2	
Maple1	SSMH2566	6.6	3.0	
Maple2	SSMH2081	18.4	9.6	
Maple3	SSMH2076	26.0	12.9	
Maple4	SSMH2016	15.2	6.8	
McKitt1	SSMH2120	21.4	11.1	
McKitt2	SSMH2125	4.2	3.5	
McKitt3	SSMH2128	7.6	6.8	
McKitt4	SSMH2146	24.1	16.1	
McKitt5	SSMH2153	59.6	8.5	
Met1	SSMH2596	24.8	18.8	
Met2	SSMH0041	34.7	13.6	
Miller1	SSMH2636	20.9	13.1	
Miller2	SSMH0477	13.0	7.4	
Miller3	SSMH1277	11.2	10.7	
N Western1	SSMH2289	8.5	6.9	
N Western1 - Inflow	SSMH2288			1615
Ohme1	Ohme1-9	17.0	23.9	
Ohme2		0.0	0.0	
Olds1	SSMH2923	44.9	48.7	
Olds1PointFlow	SSMH2836	600.0		
Olds1NorthPointFlow	SSMH2846	600.0		
Olds2	SSMH2809	14.9	22.6	
Olds3	SSMH2827	63.4	7.2	
Olds3PointFlow	SSMH2854	600.0		
Olds4	SSMH2885	105.4	10.0	
Olds5	SSMH2873	134.5	20.4	
Olds6	SSMH2882	1.4	3.8	
Orch1	SSMH1501	19.8	13.1	
Orch2	SSMH1506	22.2	10.2	
Orch3	SSMH1507	9.4	6.5	
Peach1	SSMH0391	19.1	6.3	
Peach2	SSMH0321	71.6	24.0	
Quail1	SSMH2603	4.6	3.0	
Quail2	SSMH2599	0.7	0.9	
Red1	SSMH0605	16.0	13.5	
Red2	SSMH1188	21.1	29.1	
Red3	SSMH1430	15.5	8.8	
Red3 - Inflow	SSMH0155			562

Model Input for 2035 Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Red3 - Inflow	SSMH0153			401
Red4	SSMH0392	40.2	20.5	
Red4 - Inflow	SSMH0240			531
Red4 - Inflow	SSMH0228			497
River1	SSMH2159	4.1	13.1	
River2	SSMH1001	2.3	5.7	
S Wen1	SSMH0262	3.7	9.7	
S Wen2	SSMH0234	3.1	3.5	
S Wen3	SSMH1192	6.4	6.4	
S Wen4	SSMH0643	34.8	2.7	
S Wen5	SSMH0955	42.2	10.8	
Spring0	SSMH1751	0.0	0.0	
Spring1	SSMH1732	19.7	15.6	
Spring2	SSMH2366	15.5	12.5	
Spring3	SSMH1735	17.4	9.7	
Spring4	SSMH1744	43.5	12.8	
Spring5	SSMH1824	2.7	3.4	
Squil1	SSMH0032	38.9	14.8	
Squil2	SSMH0248	8.1	5.7	
Squil3	SSMH2743	31.3	14.6	
Squil4	SSMH0072	76.5	17.0	
Squil5	SSMH2754	2.4	3.7	
SR 2 -1		0.0	0.0	
SR 2 -10	SSMH2803	17.7	8.3	
SR 2 -2	SR2-4-4	6.5	6.1	
SR 2-3	SR2-3-2	4.1	3.9	
SR 2 -4	SR2-4-2	19.2	9.2	
SR 2 -5	SR2-5-5	13.6	11.3	
SR 2 -6	SR2-6-3	28.5	10.3	
SR 2 -7	SR2-7-1	24.8	9.9	
SR 2 -8	SR2-5-1	7.8	2.0	
SR 2 -9	SR2-6-2	21.4	9.4	
SWen3 - Inflow	SSMH1191			48
SWen4 - Inflow	SSMH0954			717
US 97A	SSMH2847	2.3	44.3	
Walla1	SSMH1024	61.2	9.4	
Walla2	SSMH2720	35.7	8.0	
Walla3	SSMH1960	11.7	2.0	
Walnut1	SSMH2792	14.3	12.3	
Walnut2	SSMH2170	91.2	9.4	
Warm1		0.0	0.0	
Warm2		0.0	0.0	
Wash1	SSMH1482	18.0	16.5	
Wash2	SSMH1496	20.7	8.5	
Wash3	SSMH0814	31.8	9.1	
Wash3 - Inflow	SSMH0859			347
Wash4	SSMH1083	17.5	6.0	
Wash4 - Inflow	SSMH1281			123

2035 FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
1st -1	35.8	179.0	26,671	18.5	35.8	10,729	7.5
1st -2	22.7	108.2	16,127	11.2	22.7	6,801	4.7
1st -3	5.2	32.0	4,768	3.3	5.2	1,546	1.1
1st -4	63.9	506.0	75,394	52.4	63.9	19,162	13.3
1st -5	61.7	567.0	84,483	58.7	61.7	18,520	12.9
2nd -1	15.3	176.4	26,284	18.3	15.3	4,599	3.2
2nd -2	11.3	3.0	447	0.3	11.3	3,383	2.3
5th -1	74.9	205.9	30,682	21.3	74.9	22,465	15.6
5th -2	168.6	530.1	78,989	54.9	168.6	50,587	35.1
5th -3	96.9	309.5	46,123	32.0	96.9	29,081	20.2
5th -4	57.2	165.8	24,702	17.2	57.2	17,150	11.9
5th -5	69.5	395.5	58,923	40.9	69.5	20,850	14.5
5th -6	12.2	65.0	9,685	6.7	12.2	3,652	2.5
5th -7	10.1	106.0	15,794	11.0	10.1	3,042	2.1
5th -8	39.5	296.2	44,134	30.6	39.5	11,864	8.2
5th -9	33.7	157.0	23,393	16.2	33.7	10,121	7.0
9th -1	47.7	129.8	19,346	13.4	47.7	14,299	9.9
9th -2	58.3	269.2	40,111	27.9	58.3	17,504	12.2
9th -3	28.8	155.0	23,095	16.0	28.8	8,651	6.0
9th -4	47.3	93.2	13,887	9.6	47.3	14,186	9.9
BNSF 1	23.0	97.2	14,483	10.1	23.0	6,889	4.8
BNSF 2	36.4	81.0	12,069	8.4	36.4	10,921	7.6
Broadview1	47.2	82.1	12,228	8.5	47.2	14,148	9.8
Burch1	95.2	0.0	-	0.0		-	-
Burch2	47.4	0.0	-	0.0		-	-
Burch3	54.5	131.2	19,551	13.6	54.5	16,360	11.4
Castle1	27.3	87.5	13,033	9.1	27.3	8,200	5.7
Castle2	30.8	131.4	19,582	13.6	30.8	9,233	6.4
Castle3	42.5	134.0	19,966	13.9	42.5	12,759	8.9
Castle4	22.3	125.0	18,625	12.9	22.3	6,677	4.6
Central1	66.5	137.9	20,552	14.3	66.5	19,940	13.8
Central2	75.7	148.6	22,143	15.4	75.7	22,722	15.8
Central3	15.7	105.1	15,659	10.9	15.7	4,705	3.3
Chat1	49.8	112.7	16,797	11.7	49.8	14,943	10.4
Chat2	30.3	80.4	11,976	8.3	30.3	9,083	6.3
Cherry1	98.6	275.7	41,075	28.5	98.6	29,567	20.5
Cherry2	61.5	167.2	24,916	17.3	61.5	18,453	12.8
Cherry3	39.0	162.0	24,139	16.8	39.0	11,714	8.1
Cherry4	39.9	420.0	62,580	43.5	39.9	11,961	8.3
Cherry5	22.5	143.4	21,360	14.8	22.5	6,762	4.7
Craw1	99.1	244.8	36,477	25.3	99.1	29,744	20.7
Craw2	49.9	199.6	29,737	20.7	49.9	14,976	10.4
Craw3	65.1	68.0	10,132	7.0	65.1	19,533	13.6
Easy1	92.7	0.0	-	0.0		-	-
Easy10	30.3	136.8	20,386	14.2	30.3	9,077	6.3
Easy11	74.3	142.4	21,225	14.7	74.3	22,291	15.5
Easy2	27.3	0.0	-	0.0		-	-
Easy3	61.3	0.0	-	0.0		-	-
Easy4	14.2	0.0	-	0.0		-	-
Easy5	51.4	114.1	16,999	11.8	51.4	15,426	10.7
Easy6	9.0	0.0	-	0.0		-	-

2035 FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
Easy7	35.2	0.0	-	0.0		-	-
Easy8	33.1	131.1	19,528	13.6	33.1	9,932	6.9
Easy9	16.1	44.8	6,673	4.6	16.1	4,823	3.3
Hawley1	21.9	49.0	7,301	5.1	21.9	6,575	4.6
HorseLk1	34.7	140.2	20,888	14.5	34.7	10,418	7.2
HorseLk2	24.2	19.0	2,831	2.0	24.2	7,248	5.0
Kitt1	60.0	224.2	33,403	23.2	60.0	18,002	12.5
Kitt2	82.9	489.0	72,861	50.6	82.9	24,858	17.3
Kitt3	62.0	438.1	65,271	45.3	62.0	18,590	12.9
Maiden1	30.5	41.9	6,248	4.3	30.5	9,140	6.3
Maiden2	45.8	111.6	16,630	11.5	45.8	13,742	9.5
Maiden3	62.2	128.6	19,160	13.3	62.2	18,665	13.0
Maiden4	70.0	114.9	17,126	11.9	70.0	21,012	14.6
Maple0	212.1	367.6	54,771	38.0	212.1	63,627	44.2
Maple1	14.3	63.8	9,510	6.6	14.3	4,288	3.0
Maple2	46.3	178.3	26,561	18.4	46.3	13,878	9.6
Maple3	61.7	251.1	37,415	26.0	61.7	18,508	12.9
Maple4	32.8	147.1	21,911	15.2	32.8	9,855	6.8
McKitt1	53.2	206.4	30,755	21.4	53.2	15,967	11.1
McKitt2	17.0	40.2	5,991	4.2	17.0	5,097	3.5
McKitt3	32.6	73.0	10,877	7.6	32.6	9,793	6.8
McKitt4	77.3	232.9	34,699	24.1	77.3	23,184	16.1
McKitt5	40.7	576.0	85,824	59.6	40.7	12,214	8.5
Met1	90.1	239.3	35,661	24.8	90.1	27,029	18.8
Met2	65.1	335.6	49,997	34.7	65.1	19,541	13.6
Miller1	62.9	201.7	30,058	20.9	62.9	18,862	13.1
Miller2	35.4	125.7	18,729	13.0	35.4	10,626	7.4
Miller3	51.4	108.3	16,134	11.2	51.4	15,428	10.7
N Western1	33.0	81.8	12,184	8.5	33.0	9,914	6.9
Ohme1	114.6	164.6	24,530	17.0	114.6	34,369	23.9
Ohme2	209.3	0.0	-	0.0		-	-
Olds1	233.6	434.0	64,666	44.9	233.6	70,088	48.7
Olds2	108.3	144.0	21,456	14.9	108.3	32,481	22.6
Olds3	34.5	613.0	91,337	63.4	34.5	10,364	7.2
Olds4	48.0	1019.0	151,831	105.4	48.0	14,399	10.0
Olds5	97.8	1300.0	193,700	134.5	97.8	29,351	20.4
Olds6	18.2	14.0	2,086	1.4	18.2	5,467	3.8
Orch1	62.7	191.6	28,551	19.8	62.7	18,803	13.1
Orch2	48.9	214.7	31,992	22.2	48.9	14,667	10.2
Orch3	31.3	90.7	13,511	9.4	31.3	9,381	6.5
Peach1	30.3	184.9	27,551	19.1	30.3	9,090	6.3
Peach2	115.3	692.0	103,108	71.6	115.3	34,604	24.0
Quail1	14.6	44.5	6,633	4.6	14.6	4,387	3.0
Quail2	4.1	6.7	996	0.7	4.1	1,237	0.9
Red1	64.6	154.9	23,086	16.0	64.6	19,389	13.5
Red2	139.9	203.8	30,369	21.1	139.9	41,969	29.1
Red3	42.1	149.8	22,323	15.5	42.1	12,637	8.8
Red4	98.2	388.5	57,887	40.2	98.2	29,458	20.5
River1	63.0	40.0	5,960	4.1	63.0	18,915	13.1
River2	27.4	22.0	3,278	2.3	27.4	8,231	5.7
S Wen1	46.6	35.7	5,315	3.7	46.6	13,974	9.7

2035 FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
S Wen2	16.9	30.0	4,470	3.1	16.9	5,083	3.5
S Wen3	30.9	62.0	9,238	6.4	30.9	9,268	6.4
S Wen4	12.7	336.0	50,064	34.8	12.7	3,824	2.7
S Wen5	51.7	408.0	60,792	42.2	51.7	15,522	10.8
Spring0	69.9	0.0	-	0.0		-	-
Spring1	75.1	190.0	28,316	19.7	75.1	22,534	15.6
Spring2	59.8	150.3	22,388	15.5	59.8	17,933	12.5
Spring3	46.4	168.1	25,049	17.4	46.4	13,906	9.7
Spring4	61.6	420.1	62,600	43.5	61.6	18,483	12.8
Spring5	16.3	26.0	3,874	2.7	16.3	4,888	3.4
Squil1	70.8	375.5	55,947	38.9	70.8	21,253	14.8
Squil2	27.4	78.7	11,732	8.1	27.4	8,215	5.7
Squil3	70.1	302.9	45,131	31.3	70.1	21,035	14.6
Squil4	81.5	739.5	110,180	76.5	81.5	24,448	17.0
Squil5	17.6	23.0	3,427	2.4	17.6	5,276	3.7
SR 2 -1	46.7	0.0	-	0.0		-	-
SR 2 -10	39.9	170.6	25,421	17.7	39.9	11,977	8.3
SR 2 -2	29.4	62.8	9,356	6.5	29.4	8,830	6.1
SR 2 -3	18.6	40.0	5,955	4.1	18.6	5,571	3.9
SR 2 -4	44.4	185.4	27,618	19.2	44.4	13,316	9.2
SR 2 -5	54.3	131.9	19,652	13.6	54.3	16,304	11.3
SR 2 -6	49.5	275.2	41,000	28.5	49.5	14,845	10.3
SR 2 -7	47.7	239.5	35,685	24.8	47.7	14,296	9.9
SR 2 -8	9.7	75.0	11,180	7.8	9.7	2,897	2.0
SR 2 -9	45.0	207.1	30,858	21.4	45.0	13,496	9.4
US 97A	212.6	22.0	3,278	2.3	212.6	63,769	44.3
Walla1	45.3	591.0	88,059	61.2	45.3	13,593	9.4
Walla2	38.4	345.0	51,405	35.7	38.4	11,531	8.0
Walla3	9.8	113.0	16,837	11.7	9.8	2,933	2.0
Walnut1	59.0	137.9	20,542	14.3	59.0	17,713	12.3
Walnut2	45.2	881.8	131,388	91.2	45.2	13,546	9.4
Warm1	64.9	0.0	-	0.0		-	-
Warm2	29.9	0.0	-	0.0		-	-
Wash1	79.0	174.4	25,991	18.0	79.0	23,712	16.5
Wash2	40.8	199.6	29,746	20.7	40.8	12,228	8.5
Wash3	43.8	307.0	45,749	31.8	43.8	13,138	9.1
Wash4	28.7	169.0	25,181	17.5	28.7	8,607	6.0
Grand Total	7410.9	26885.9	4,006,000	2,782	6,608	1,982,320	1,377

1) Based on 149 gpd/ERU
2) Based on 300 gpad

Model Input for Buildout Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
1st -1	SSMH0780	18.5	7.5	
1st -2	SSMH1846	11.2	4.7	
1st -3	SSMH1089	3.3	1.1	
1st -4	SSMH1394	52.4	13.3	
1st -5	SSMH1315	58.7	12.9	
1st -5 - Inflow	SSMH1237			17929
2nd -1	SSMH1360	18.3	3.2	
2nd -2	SSMH1345	0.3	2.3	
5th -1	SSMH1573	21.3	15.6	
5th -2	SSMH1601	54.9	35.1	
5th -3	SSMH1577	32.0	20.2	
5th -4	SSMH1525	17.2	11.9	
5th -5	SSMH1893	40.9	14.5	
5th -6	SSMH1862	6.7	2.5	
5th -7	SSMH1905	11.0	2.1	
5th -8	SSMH1910	30.6	8.2	
5th -9	SSMH1950	16.2	7.0	
9th -1	SSMH1659	13.4	9.9	
9th -1 - Inflow	SSMH1779			287
9th -2	SSMH1772	27.9	12.2	
9th -3	SSMH1813	16.0	6.0	
9th -4	SSMH1938	9.6	9.9	
BNSF1	SSMH2947	10.1	4.8	
BNSF2	SSMH2955	8.4	7.6	
Broadview1	SSMH2377	8.5	9.8	
Burch1	Burch1-11	15.2	19.8	
Burch2	Burch2-6	10.8	9.9	
Burch3	Burch3-4	13.6	11.4	
Castle1	SSMH2524	9.1	5.7	
Castle2	SSMH1474	13.6	6.4	
Castle3	SSMH0005	13.9	8.9	
Castle3 - Inflow	SSMH0912			1750
Castle4	SSMH1272	12.9	4.6	555
Central1	SSMH2058	14.3	13.8	
Central2	SSMH2025	15.4	15.8	
Central3	SSMH2061	10.9	3.3	
Chat1	Chat1-12	11.7	10.4	
Chat22	Chat2-4	8.3	6.3	
Cherry1	SSMH0580	28.5	20.5	
Cherry2	SSMH0562	17.3	12.8	
Cherry3	SSMH1454	16.8	8.1	633
Cherry4	SSMH1075	43.5	8.3	
Cherry5	SSMH1420	14.8	4.7	
Cherry5 - Inflow	SSMH0497			434
Craw1	SSMH1175	25.3	20.7	
Craw2	SSMH2500	20.7	10.4	
Craw3	SSMH0117	7.0	13.6	
Easy1	Easy1-5	16.1	19.3	
Easy10	Easy8-1	14.2	6.3	
Easy11	Easy11-3	14.7	15.5	
Easy2	Easy2-4	6.3	5.7	
Easy3	Easy3-4	7.7	12.8	
Easy4	Easy4-1	2.9	3.0	
Easy5	Easy5-4	11.8	10.7	

Model Input for Buildout Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Easy6	Easy6-2	1.4	1.9	
Easy7	Easy7-3	7.2	7.3	
Easy8	Easy8-8	13.6	6.9	
Easy9	Easy6-1	4.6	3.3	
Hawley1	SSMH2188	5.1	4.6	
HorseLk1	SSMH2217	14.5	7.2	
HorseLk2	SSMH2201	2.0	5.0	
Kitt1	SSMH1254	23.2	12.5	
Kitt1 - Inflow	SSMH1252			483
Kitt2	SSMH0710	50.6	17.3	
Kitt3	SSMH0751	45.3	12.9	
Kitt3 - Inflow	SSMH1332			9084
Maiden1	SSMH2281	4.3	6.3	
Maiden2	SSMH2260	11.5	9.5	
Maiden3	SSMH2244	13.3	13.0	
Maiden4	SSMH2682	11.9	14.6	
Maple0	SSMH2567	38.0	44.2	
Maple1	SSMH2566	6.6	3.0	
Maple2	SSMH2081	18.4	9.6	
Maple3	SSMH2076	26.0	12.9	
Maple4	SSMH2016	15.2	6.8	
McKitt1	SSMH2120	21.4	11.1	
McKitt2	SSMH2125	4.2	3.5	
McKitt3	SSMH2128	7.6	6.8	
McKitt4	SSMH2146	24.1	16.1	
McKitt5	SSMH2153	59.6	8.5	
Met1	SSMH2596	24.8	18.8	
Met2	SSMH0041	34.7	13.6	
Miller1	SSMH2636	20.9	13.1	
Miller2	SSMH0477	13.0	7.4	
Miller3	SSMH1277	11.2	10.7	
N Western1	SSMH2289	8.5	6.9	
N Western1 - Inflow	SSMH2288			1615
Ohme1	Ohme1-9	17.0	23.9	
Ohme2	Ohme2-6	3.0	43.6	
Olds1	SSMH2923	44.9	48.7	
Olds1PointFlow	SSMH2836	600.0		
Olds1NorthPointFlow	SSMH2846	600.0		
Olds2	SSMH2809	14.9	22.6	
Olds3	SSMH2827	63.4	7.2	
Olds3PointFlow	SSMH2854	600.0		
Olds4	SSMH2885	105.4	10.0	
Olds5	SSMH2873	134.5	20.4	
Olds6	SSMH2882	1.4	3.8	
Orch1	SSMH1501	19.8	13.1	
Orch2	SSMH1506	22.2	10.2	
Orch3	SSMH1507	9.4	6.5	
Peach1	SSMH0391	19.1	6.3	
Peach2	SSMH0321	71.6	24.0	
Quail1	SSMH2603	4.6	3.0	
Quail2	SSMH2599	0.7	0.9	
Red1	SSMH0605	16.0	13.5	
Red2	SSMH1188	21.1	29.1	
Red3	SSMH1430	15.5	8.8	
Red3 - Inflow	SSMH0155			562

Model Input for Buildout Scenario

Basin	Input Node	Avg.Domestic/ Commercial Flow (gpm) [Load 1]	Base I/I (gpm) [Load 2]	Inflow (gpm) [Load 3]
Red3 - Inflow	SSMH0153			401
Red4	SSMH0392	40.2	20.5	
Red4 - Inflow	SSMH0240			531
Red4 - Inflow	SSMH0228			497
River1	SSMH2159	4.1	13.1	
River2	SSMH1001	2.3	5.7	
S Wen1	SSMH0262	3.7	9.7	
S Wen2	SSMH0234	3.1	3.5	
S Wen3	SSMH1192	6.4	6.4	
S Wen4	SSMH0643	34.8	2.7	
S Wen5	SSMH0955	42.2	10.8	
Spring0	SSMH1731	4.1	14.6	
Spring1	SSMH1732	19.7	15.6	
Spring2	SSMH2366	15.5	12.5	
Spring3	SSMH1735	17.4	9.7	
Spring4	SSMH1744	43.5	12.8	
Spring5	SSMH1824	2.7	3.4	
Squil1	SSMH0032	38.9	14.8	
Squil2	SSMH0248	8.1	5.7	
Squil3	SSMH2743	31.3	14.6	
Squil4	SSMH0072	76.5	17.0	
Squil5	SSMH2754	2.4	3.7	
SR 2 -1	SR2-1-3	4.0	9.7	
SR 2 -10	SSMH2803	17.7	8.3	
SR 2 -2	SR2-4-4	6.5	6.1	
SR 2-3	SR2-3-2	4.1	3.9	
SR 2 -4	SR2-4-2	19.2	9.2	
SR 2 -5	SR2-5-5	13.6	11.3	
SR 2 -6	SR2-6-3	28.5	10.3	
SR 2 -7	SR2-7-1	24.8	9.9	
SR 2 -8	SR2-5-1	7.8	2.0	
SR 2 -9	SR2-6-2	21.4	9.4	
SWen3 - Inflow	SSMH1191			48
SWen4 - Inflow	SSMH0954			717
US 97A	SSMH2847	2.3	44.3	
Walla1	SSMH1024	61.2	9.4	
Walla2	SSMH2720	35.7	8.0	
Walla3	SSMH1960	11.7	2.0	
Walnut1	SSMH2792	14.3	12.3	
Walnut2	SSMH2170	91.2	9.4	
Warm1	Warm1-11	7.3	13.5	
Warm2	Warm1-1	9.3	6.2	
Wash1	SSMH1482	18.0	16.5	
Wash2	SSMH1496	20.7	8.5	
Wash3	SSMH0814	31.8	9.1	
Wash3 - Inflow	SSMH0859			347
Wash4	SSMH1083	17.5	6.0	
Wash4 - Inflow	SSMH1281			123

BUILDOUT FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
1st -1	36	179	26,671	18.5	35.8	10,729	7.5
1st -2	23	108	16,127	11.2	22.7	6,801	4.7
1st -3	5	32	4,768	3.3	5.2	1,546	1.1
1st -4	64	506	75,394	52.4	63.9	19,162	13.3
1st -5	62	567	84,483	58.7	61.7	18,520	12.9
2nd -1	15	176	26,284	18.3	15.3	4,599	3.2
2nd -2	11	3	447	0.3	11.3	3,383	2.3
5th -1	75	206	30,682	21.3	74.9	22,465	15.6
5th -2	169	530	78,989	54.9	168.6	50,587	35.1
5th -3	97	310	46,123	32.0	96.9	29,081	20.2
5th -4	57	166	24,702	17.2	57.2	17,150	11.9
5th -5	69	395	58,923	40.9	69.5	20,850	14.5
5th -6	12	65	9,685	6.7	12.2	3,652	2.5
5th -7	10	106	15,794	11.0	10.1	3,042	2.1
5th -8	40	296	44,134	30.6	39.5	11,864	8.2
5th -9	34	157	23,393	16.2	33.7	10,121	7.0
9th -1	48	130	19,346	13.4	47.7	14,299	9.9
9th -2	58	269	40,111	27.9	58.3	17,504	12.2
9th -3	29	155	23,095	16.0	28.8	8,651	6.0
9th -4	47	93	13,887	9.6	47.3	14,186	9.9
BNSF 1	23	97	14,483	10.1	23.0	6,889	4.8
BNSF 2	36	81	12,069	8.4	36.4	10,921	7.6
Broadview1	47	82	12,228	8.5	47.2	14,148	9.8
Burch1	95	146	21,822	15.2	95.2	28,559	19.8
Burch2	47	104	15,540	10.8	47.4	14,231	9.9
Burch3	55	131	19,551	13.6	54.5	16,360	11.4
Castle1	27	87	13,033	9.1	27.3	8,200	5.7
Castle2	31	131	19,582	13.6	30.8	9,233	6.4
Castle3	43	134	19,966	13.9	42.5	12,759	8.9
Castle4	22	125	18,625	12.9	22.3	6,677	4.6
Central1	66	138	20,552	14.3	66.5	19,940	13.8
Central2	76	149	22,143	15.4	75.7	22,722	15.8
Central3	16	105	15,659	10.9	15.7	4,705	3.3
Chat1	50	113	16,797	11.7	49.8	14,943	10.4
Chat2	30	80	11,976	8.3	30.3	9,083	6.3
Cherry1	99	276	41,075	28.5	98.6	29,567	20.5
Cherry2	62	167	24,916	17.3	61.5	18,453	12.8
Cherry3	39	162	24,139	16.8	39.0	11,714	8.1
Cherry4	40	420	62,580	43.5	39.9	11,961	8.3
Cherry5	23	143	21,360	14.8	22.5	6,762	4.7
Craw1	99	245	36,477	25.3	99.1	29,744	20.7
Craw2	50	200	29,737	20.7	49.9	14,976	10.4
Craw3	65	68	10,132	7.0	65.1	19,533	13.6
Easy1	93	156	23,184	16.1	92.7	27,822	19.3
Easy10	30	137	20,386	14.2	30.3	9,077	6.3
Easy11	74	142	21,225	14.7	74.3	22,291	15.5
Easy2	27	61	9,096	6.3	27	8,179	5.7
Easy3	61	74	11,034	7.7	61	18,385	12.8
Easy4	14	28	4,155	2.9	14	4,272	3.0
Easy5	51	114	16,999	11.8	51.4	15,426	10.7
Easy6	9	13	1,962	1.4	9	2,695	1.9

BUILDOUT FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
Easy7	35	70	10,423	7.2	35	10,558	7.3
Easy8	33	131	19,528	13.6	33.1	9,932	6.9
Easy9	16	45	6,673	4.6	16.1	4,823	3.3
Hawley1	22	49	7,301	5.1	21.9	6,575	4.6
HorseLk1	35	140	20,888	14.5	34.7	10,418	7.2
HorseLk2	24	19	2,831	2.0	24.2	7,248	5.0
Kitt1	60	224	33,403	23.2	60.0	18,002	12.5
Kitt2	83	489	72,861	50.6	82.9	24,858	17.3
Kitt3	62	438	65,271	45.3	62.0	18,590	12.9
Maiden1	30	42	6,248	4.3	30.5	9,140	6.3
Maiden2	46	112	16,630	11.5	45.8	13,742	9.5
Maiden3	62	129	19,160	13.3	62.2	18,665	13.0
Maiden4	70	115	17,126	11.9	70.0	21,012	14.6
Maple0	212	368	54,771	38.0	212.1	63,627	44.2
Maple1	14	64	9,510	6.6	14.3	4,288	3.0
Maple2	46	178	26,561	18.4	46.3	13,878	9.6
Maple3	62	251	37,415	26.0	61.7	18,508	12.9
Maple4	33	147	21,911	15.2	32.8	9,855	6.8
McKitt1	53	206	30,755	21.4	53.2	15,967	11.1
McKitt2	17	40	5,991	4.2	17.0	5,097	3.5
McKitt3	33	73	10,877	7.6	32.6	9,793	6.8
McKitt4	77	233	34,699	24.1	77.3	23,184	16.1
McKitt5	41	576	85,824	59.6	40.7	12,214	8.5
Met1	90	239	35,661	24.8	90.1	27,029	18.8
Met2	65	336	49,997	34.7	65.1	19,541	13.6
Miller1	63	202	30,058	20.9	62.9	18,862	13.1
Miller2	35	126	18,729	13.0	35.4	10,626	7.4
Miller3	51	108	16,134	11.2	51.4	15,428	10.7
N Western1	33	82	12,184	8.5	33.0	9,914	6.9
Ohme1	115	165	24,530	17.0	114.6	34,369	23.9
Ohme2	209	29	4,275	3.0	209	62,793	43.6
Olds1	234	434	64,666	44.9	233.6	70,088	48.7
Olds2	108	144	21,456	14.9	108.3	32,481	22.6
Olds3	35	613	91,337	63.4	34.5	10,364	7.2
Olds4	48	1,019	151,831	105.4	48.0	14,399	10.0
Olds5	98	1,300	193,700	134.5	97.8	29,351	20.4
Olds6	18	14	2,086	1.4	18.2	5,467	3.8
Orch1	63	192	28,551	19.8	62.7	18,803	13.1
Orch2	49	215	31,992	22.2	48.9	14,667	10.2
Orch3	31	91	13,511	9.4	31.3	9,381	6.5
Peach1	30	185	27,551	19.1	30.3	9,090	6.3
Peach2	115	692	103,108	71.6	115.3	34,604	24.0
Quail1	15	45	6,633	4.6	14.6	4,387	3.0
Quail2	4	7	996	0.7	4.1	1,237	0.9
Red1	65	155	23,086	16.0	64.6	19,389	13.5
Red2	140	204	30,369	21.1	139.9	41,969	29.1
Red3	42	150	22,323	15.5	42.1	12,637	8.8
Red4	98	389	57,887	40.2	98.2	29,458	20.5
River1	63	40	5,960	4.1	63.0	18,915	13.1
River2	27	22	3,278	2.3	27.4	8,231	5.7
S Wen1	47	36	5,315	3.7	46.6	13,974	9.7

BUILDOUT FLOWS - MODEL INPUT							
Row Labels	Sum of Area (Ac)	Sum of Total Future ERUs	Flow[1] (gpd)	Avg. Domestic /Comm. Flow into Model (gpm)	Acres (Copied)	I/I[2] (gpd)	Base I/I to insert into Model (gpm)
S Wen2	17	30	4,470	3.1	16.9	5,083	3.5
S Wen3	31	62	9,238	6.4	30.9	9,268	6.4
S Wen4	13	336	50,064	34.8	12.7	3,824	2.7
S Wen5	52	408	60,792	42.2	51.7	15,522	10.8
Spring0	70	40	5,960	4.1	70	21,000	14.6
Spring1	75	190	28,316	19.7	75.1	22,534	15.6
Spring2	60	150	22,388	15.5	59.8	17,933	12.5
Spring3	46	168	25,049	17.4	46.4	13,906	9.7
Spring4	62	420	62,600	43.5	61.6	18,483	12.8
Spring5	16	26	3,874	2.7	16.3	4,888	3.4
Squil1	71	375	55,947	38.9	70.8	21,253	14.8
Squil2	27	79	11,732	8.1	27.4	8,215	5.7
Squil3	70	303	45,131	31.3	70.1	21,035	14.6
Squil4	81	739	110,180	76.5	81.5	24,448	17.0
Squil5	18	23	3,427	2.4	17.6	5,276	3.7
SR 2 -1	47	39	5,809	4.0	47	14,024	9.7
SR 2 -10	40	171	25,421	17.7	39.9	11,977	8.3
SR 2 -2	29	63	9,356	6.5	29.4	8,830	6.1
SR 2 -3	19	40	5,955	4.1	18.6	5,571	3.9
SR 2 -4	44	185	27,618	19.2	44.4	13,316	9.2
SR 2 -5	54	132	19,652	13.6	54.3	16,304	11.3
SR 2 -6	49	275	41,000	28.5	49.5	14,845	10.3
SR 2 -7	48	239	35,685	24.8	47.7	14,296	9.9
SR 2 -8	10	75	11,180	7.8	9.7	2,897	2.0
SR 2 -9	45	207	30,858	21.4	45.0	13,496	9.4
US 97A	213	22	3,278	2.3	212.6	63,769	44.3
Walla1	45	591	88,059	61.2	45.3	13,593	9.4
Walla2	38	345	51,405	35.7	38.4	11,531	8.0
Walla3	10	113	16,837	11.7	9.8	2,933	2.0
Walnut1	59	138	20,542	14.3	59.0	17,713	12.3
Walnut2	45	882	131,388	91.2	45.2	13,546	9.4
Warm1	65	71	10,534	7.3	65	19,470	13.5
Warm2	30	89	13,334	9.3	30	8,979	6.2
Wash1	79	174	25,991	18.0	79.0	23,712	16.5
Wash2	41	200	29,746	20.7	40.8	12,228	8.5
Wash3	44	307	45,749	31.8	43.8	13,138	9.1
Wash4	29	169	25,181	17.5	28.7	8,607	6.0
Grand Total	7,411	27,806	4,143,129	2,877	7,411	2,223,289	1,544

1) Based on 149 gpd/ERU
2) Based on 300 gpad

APPENDIX F

MODEL RESULTS

2015 Scenario Pipe Capacity Deficiencies

Pipe ID	From MH	To MH	Maximum Flow (gpm)	Maximum Velocity (ft/s)	Maximum q/Q	Upstream Surcharge Depth (ft)
ssgm2149	SSMH1237	SSMH1241	3,045	12.4	5.82	12.6
ssgm2065	SSMH1251	SSMH1250	140	0.6	4.50	0.1
ssgm0836	SSMH1007	SSMH1005	60	0.4	3.47	0.0
ssgm1104	SSMH1981	SSMH2730	3,041	12.4	3.26	14.8
ssgm1196	SSMH0328	SSMH02995	713	4.6	2.36	4.3
ssgm2318	SSMH0869	SSMH0942	394	1.1	2.15	0.1
ssgm2148	SSMH2734	SSMH1981	3,044	12.4	2.08	13.4
ssgm2960	SSMH1241	SSMH2734	3,045	12.4	2.03	11.5
SS01375A	SSMH02995	SSMH0640	713	4.6	1.97	0.4
ssgm3095	SSMH2831	SSMH2830	610	1.7	1.66	0.0
ssgm3090	SSMH2854	SSMH2855	962	2.7	1.43	0.6
SS06849	SSMH2610	SSMH1333	2,577	7.3	1.37	0.1
SS06851	SSMH2610	SSMH1334	459	2.9	1.37	0.1
ssgm3088	SSMH2856	SSMH2857	962	2.7	1.33	0.0
ssgm3089	SSMH2855	SSMH2856	962	2.7	1.32	0.2
ssgm3087	SSMH2857	SSMH2858	962	2.7	1.30	-0.2
not found	SSMH2988	SSMH2003	59	0.2	1.17	0.0
ssgm2725	SSMH1337	SSMH2610	3,037	8.6	1.15	1.4
ssgm2544	SSMH2730	SSMH2614	3,039	5.5	1.14	3.0
ssgm2543	SSMH2614	SSMH1337	3,037	5.5	1.13	2.2
ssgm0683	SSMH2288	SSMH2287	374	2.4	1.05	1.6
ssgm2553	SSMH1960	SSMH1967	2,843	5.2	1.04	-0.2
ssgm0961	SSMH1315	SSMH1330	841	5.4	1.03	-0.1

1) SSMH02995 is a node within the model that differs from the City's GIS data. It is located immediately NE of SSMH0638 at Walker Ave./Peachey St.

2035 Scenario Pipe Capacity Deficiencies

Pipe ID	From MH	To MH	Maximum Flow (gpm)	Maximum Velocity (ft/s)	Maximum q/Q	Upstream Surcharge Depth (ft)
ssgm0301	SSMH2243	SSMH2244	360	2.3	4.21	0.1
ssgm0683	SSMH2288	SSMH2287	378	2.4	1.06	1.7
ssgm0836	SSMH1007	SSMH1005	77	0.5	4.46	0.1
ssgm0961	SSMH1315	SSMH1330	878	5.6	1.08	0.0
ssgm1104	SSMH1981	SSMH2730	3,041	12.4	3.26	14.8
ssgm1196	SSMH0328	SSMH02995	729	4.7	2.41	4.6
SS01375A	SSMH02995	SSMH0640	729	4.7	2.01	0.5
ssgm2065	SSMH1251	SSMH1250	146	0.6	4.67	0.1
ssgm2148	SSMH2734	SSMH1981	3,044	12.4	2.08	13.4
ssgm2149	SSMH1237	SSMH1241	3,045	12.4	5.82	12.6
ssgm2318	SSMH0869	SSMH0942	397	1.1	2.17	0.1
ssgm2543	SSMH2614	SSMH1337	3,037	5.5	1.13	2.2
ssgm2544	SSMH2730	SSMH2614	3,039	5.5	1.14	3.0
ssgm2553	SSMH1960	SSMH1967	3,354	6.1	1.23	1.3
ssgm2725	SSMH1337	SSMH2610	3,037	8.6	1.15	1.4
ssgm2960	SSMH1241	SSMH2734	3,045	12.4	2.03	11.5
ssgm3087	SSMH2857	SSMH2858	1,008	2.9	1.37	-0.2
ssgm3088	SSMH2856	SSMH2857	1,008	2.9	1.39	0.1
ssgm3089	SSMH2855	SSMH2856	1,008	2.9	1.39	0.3
ssgm3090	SSMH2854	SSMH2855	1,008	2.9	1.49	0.8
ssgm3095	SSMH2831	SSMH2830	620	1.8	1.69	0.0
ssgm3189	SSMH2911	SSMH2882	290	3.3	1.28	0.3
SS06849	SSMH2610	SSMH1333	2,577	7.3	1.37	0.1
SS06851	SSMH2610	SSMH1334	459	2.9	1.37	0.1
SS06856	SSMH2988	SSMH2003	77	0.2	1.51	0.0

1) SSMH02995 is a node within the model that differs from the City's GIS data. It is located immediately NE of SSMH0638 at Walker Ave./Peachey St.

Buildout Scenario Pipe Capacity Deficiencies

Pipe ID	From MH	To MH	Maximum Flow (gpm)	Maximum Velocity (ft/s)	Maximum q/Q	Upstream Surcharge Depth (ft)
ssgm0301	SSMH2243	SSMH2244	360	2.3	4.21	0.1
ssgm0683	SSMH2288	SSMH2287	378	2.4	1.06	1.7
ssgm0836	SSMH1007	SSMH1005	77	0.5	4.46	0.1
ssgm0961	SSMH1315	SSMH1330	878	5.6	1.08	0.0
ssgm1104	SSMH1981	SSMH2730	3,041	12.4	3.26	14.8
ssgm1196	SSMH0328	SSMH02995	729	4.7	2.41	4.6
SS01375A	SSMH02995	SSMH0640	729	4.7	2.01	0.5
ssgm2065	SSMH1251	SSMH1250	146	0.6	4.67	0.1
ssgm2148	SSMH2734	SSMH1981	3,044	12.4	2.08	13.4
ssgm2149	SSMH1237	SSMH1241	3,045	12.4	5.82	12.6
ssgm2318	SSMH0869	SSMH0942	397	1.1	2.17	0.1
ssgm2543	SSMH2614	SSMH1337	3,037	5.5	1.13	2.2
ssgm2544	SSMH2730	SSMH2614	3,039	5.5	1.14	3.0
ssgm2553	SSMH1960	SSMH1967	3,387	6.1	1.24	1.4
ssgm2602	SSMH0995	SSMH2938	2,606	3.3	1.22	0.2
ssgm2603	SSMH0980	SSMH0995	2,606	3.3	1.16	0.6
ssgm2604	SSMH1023	SSMH0980	2,607	3.3	1.19	1.0
ssgm2605	SSMH1024	SSMH1023	2,609	3.3	1.22	1.0
ssgm2607	SSMH1029	SSMH1028	2,566	3.2	1.15	0.5
ssgm2608	SSMH1030	SSMH1029	2,566	3.2	1.16	0.6
ssgm2609	SSMH1031	SSMH1030	2,567	3.2	1.16	0.5
ssgm2610	SSMH1032	SSMH1031	2,568	3.2	1.10	0.5
ssgm2611	SSMH1033	SSMH1032	2,568	3.2	1.07	0.5
ssgm2613	SSMH2177	SSMH2178	2,570	3.2	1.18	0.7
ssgm2614	SSMH2176	SSMH2177	2,571	3.2	1.16	0.9
ssgm2615	SSMH2175	SSMH2176	2,571	3.2	1.17	14.2
ssgm2725	SSMH1337	SSMH2610	3,037	8.6	1.15	1.4

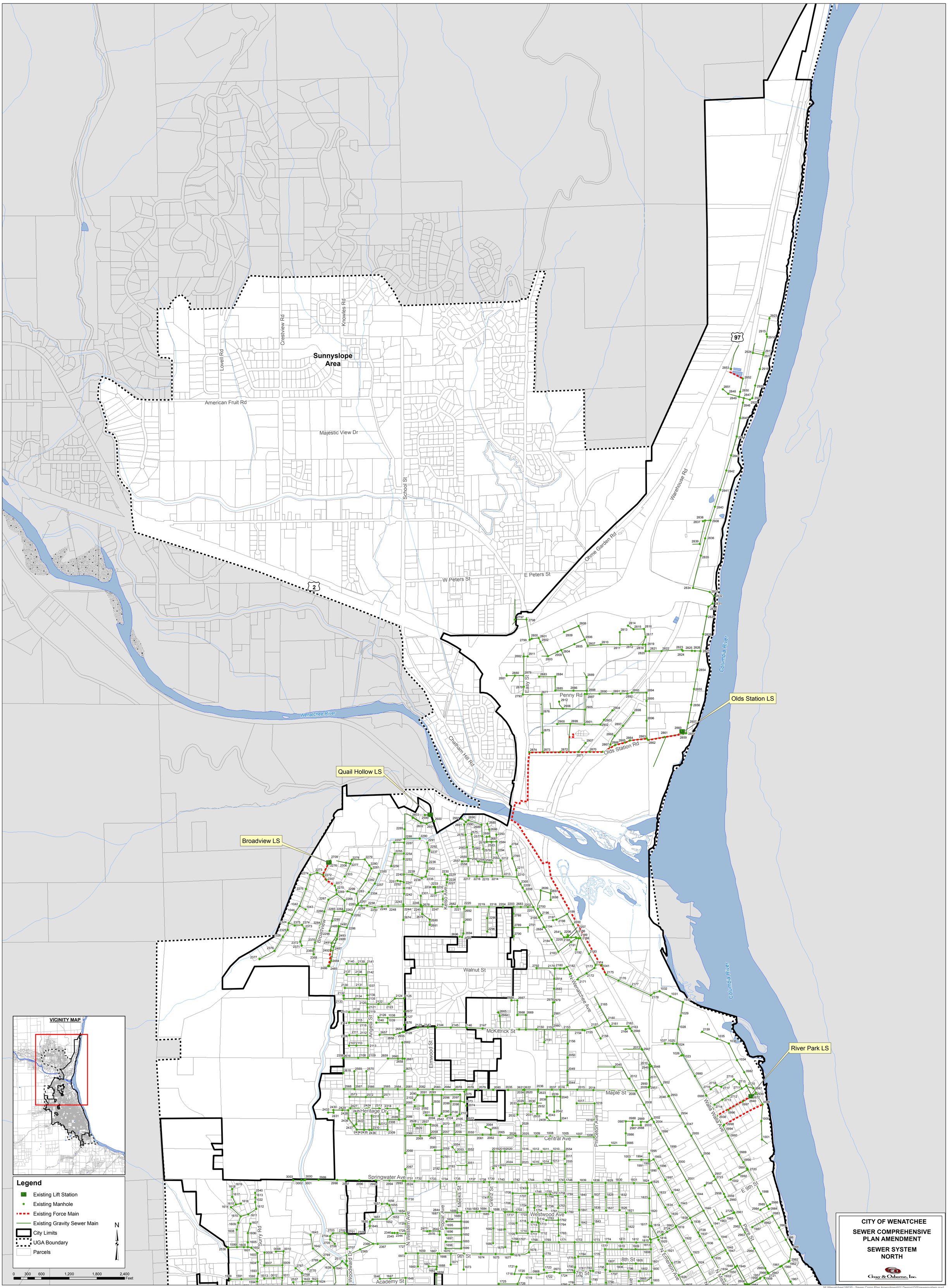
Buildout Scenario Pipe Capacity Deficiencies

	From MH	To MH	Maximum Flow (gpm)	Maximum Velocity (ft/s)	Maximum q/Q	Upstream Surcharge Depth (ft)
ssgm3089	SSMH2855	SSMH2856	1,005	2.9	1.38	0.3
ssgm3090	SSMH2854	SSMH2855	1,005	2.9	1.49	0.8
ssgm3095	SSMH2831	SSMH2830	620	1.8	1.69	0.0
ssgm3188	SSMH2882	SSMH2879	714	8.1	1.25	6.1
ssgm3189	SSMH2911	SSMH2882	713	8.1	3.16	6.6
SS06849	SSMH2610	SSMH1333	2,577	7.3	1.37	0.1
SS06851	SSMH2610	SSMH1334	459	2.9	1.37	0.1
SS06856	SSMH2988	SSMH2003	77	0.2	1.51	0.0

1) SSMH02995 is a node within the model that differs from the City's GIS data. It is located immediately NE of SSMH0638 at Walker Ave./Peachey St.

APPENDIX G

SEWER BASE MAPS


Sunnyslope Area
Lovell Rd
Crestview Rd
Knowles Rd
American Fruit Rd
Majestic View Dr
School St
W Peters St
E Peters St
Ohme Garden Rd
Warehouse Rd
Easy St
Penny Rd
Olds Station Rd
Olds Station LS
Columbia River
Wenatchee River
Chatham Hill Rd
Quail Hollow LS
Broadview LS
Kalso Rd
Walnut St
N Wenatchee Ave
McKittrick St
Elmwood St
Angela St
Maple St
Heritage Dr
Central Ave
Princeton Ave
Walla Walla Ave
River Park LS
Springwater Ave
Meeks St
Grenz St
Westwood Ave
N Western Ave
Poplar Ave
Woodward Dr
Academy St
9th St
8th St
7th St
E 9th St
Pierce St
N Emerson Ave
Surry Rd
VICINITY MAP
Legend
Existing Lift Station
Existing Manhole
Existing Force Main
Existing Gravity Sewer Main
City Limits
UGA Boundary
Parcels
N
0 300 600 1,200 1,800 2,400 Feet
CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
SEWER SYSTEM NORTH
Gray & Osborne, Inc.
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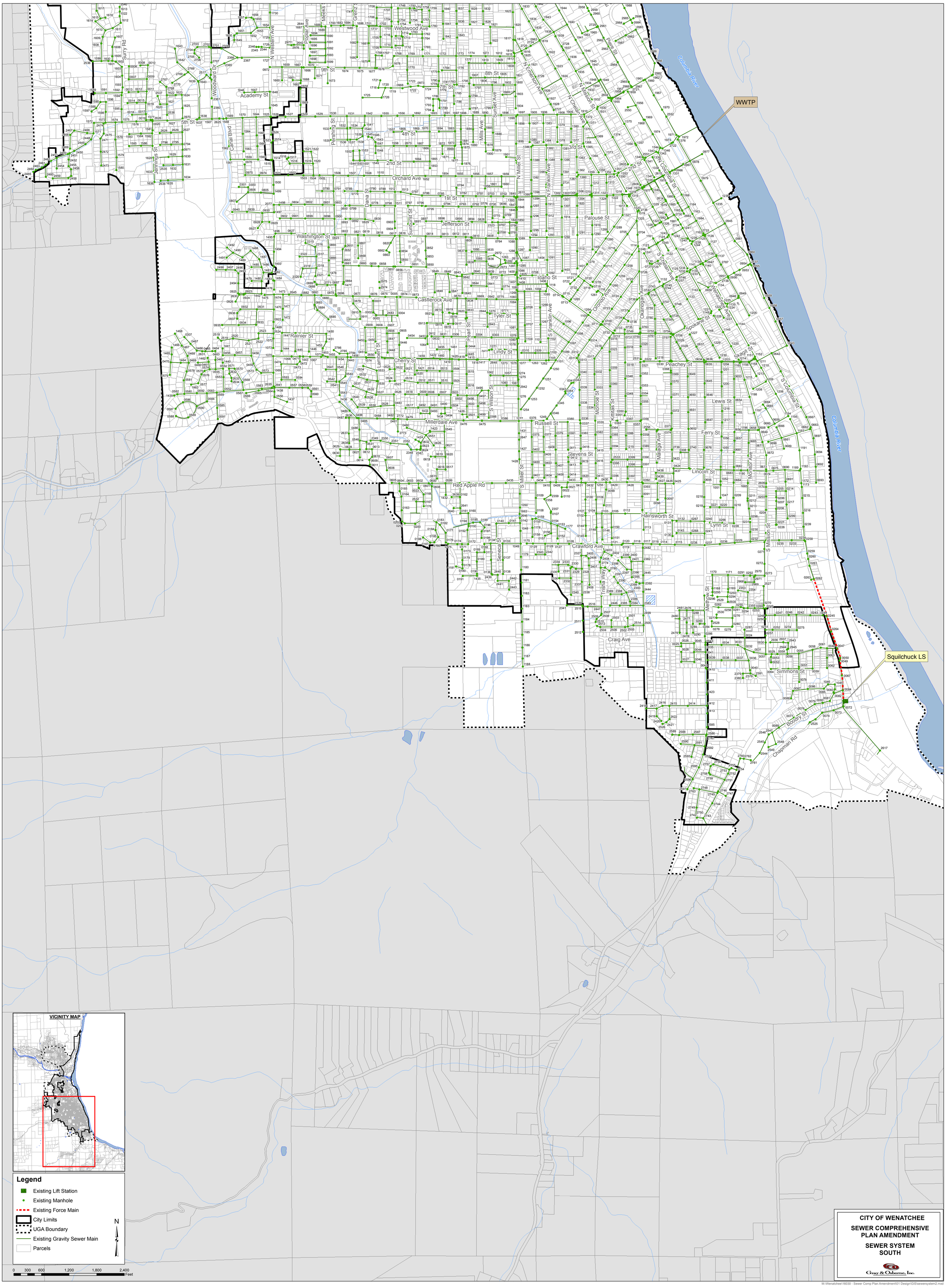
WWTP
Squilchuck LS
Columbia River
Columbia River
Westwood Ave
9th St
8th St
7th St
Academy St
5th St
4th St
3rd St
2nd St
Orchard Ave
1st St
Palouse St
Washington St
Jefferson St
Idaho St
Castlerock Ave
Tyler St
Rainier St
Lindy St
Cherry St
Peachey St
Lewis St
Ferry St
Millerdale Ave
Russell St
Stevens St
Lincoln St
Red Apple Rd
Hainsworth St
Lynn St
Crawford Ave
Craig Ave
Simmons St
Boody St
Chapman Rd
Surry Rd
Woodward Dr
Canal Blvd
Jennings St
N Western Ave
Poplar Ave
Meeks
Grenz
Pershing St
Dana St
Sunburst St
Sunset Ave
Mills Ave
N Miller St
N Franklin Ave
N Emerson Ave
N Chelan Ave
N Mission St
N Columbia St
Pierce St
S Franklin Ave
Pearl St
S Wilson St
Lambert St
Monroe St
Kittitas St
Malaga Ave
S Miller St
Seneca
Tristra Way
Methow St
S Mission St
Monitor Ave
Okanogan Ave
Orondo Ave
S Chelan Ave
S Wenatchee Ave
Spokane St
Skagit St
S Columbia St
VICINITY MAP
Legend
Existing Lift Station
Existing Manhole
Existing Force Main
City Limits
UGA Boundary
Existing Gravity Sewer Main
Parcels
N
0 300 600 1,200 1,800 2,400 Feet
CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
SEWER SYSTEM SOUTH
Gray & Osborne, Inc.
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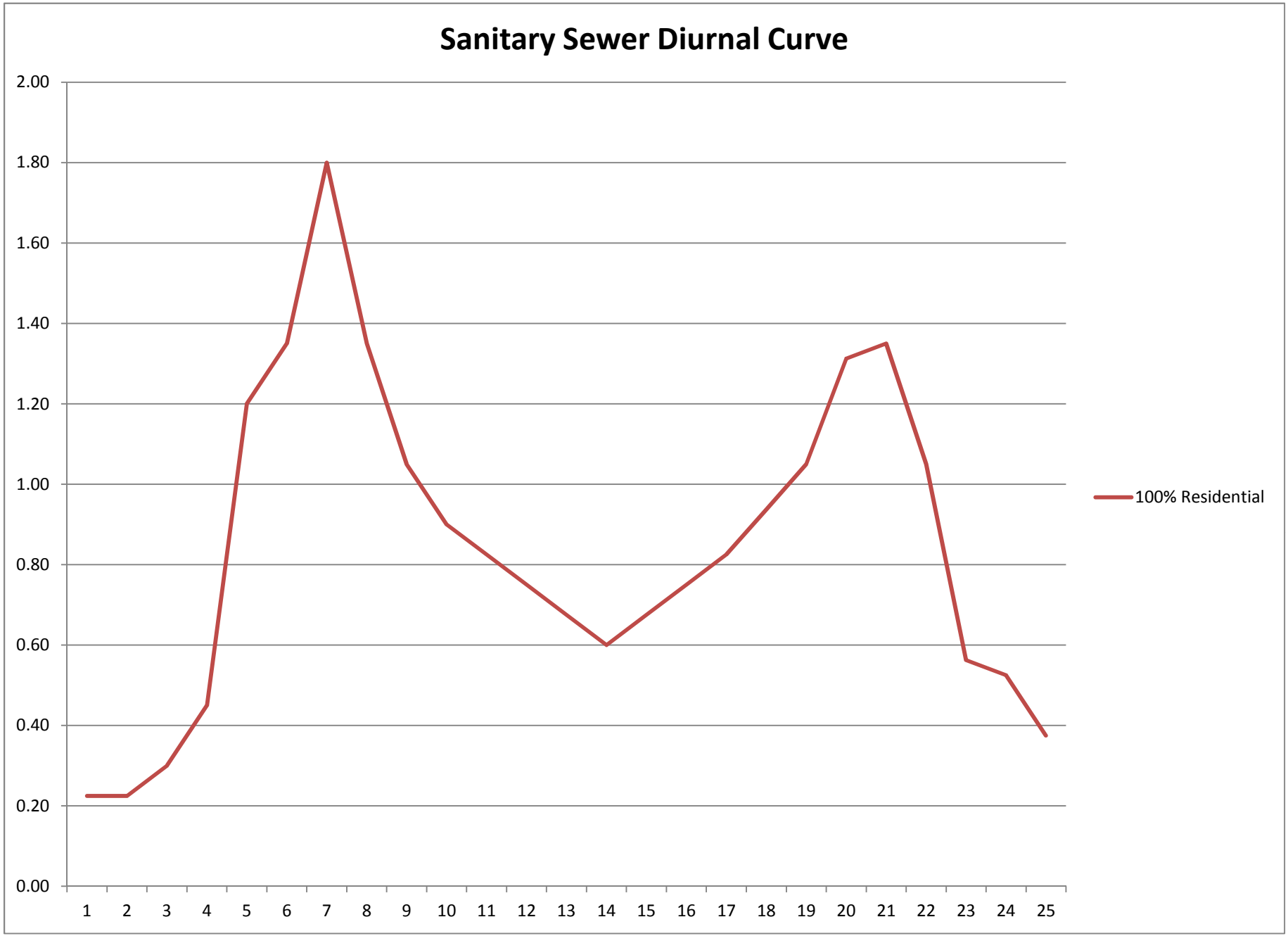
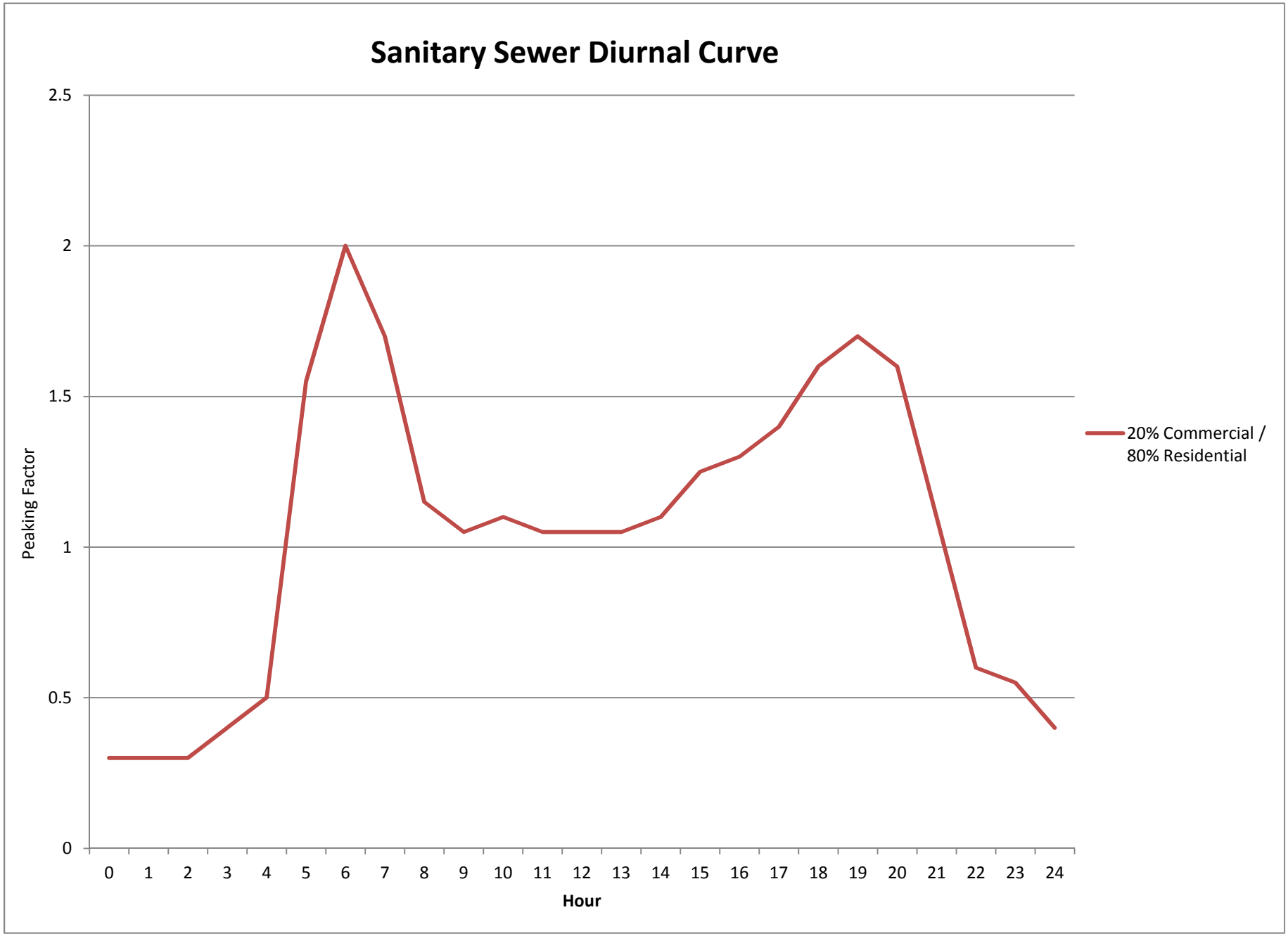
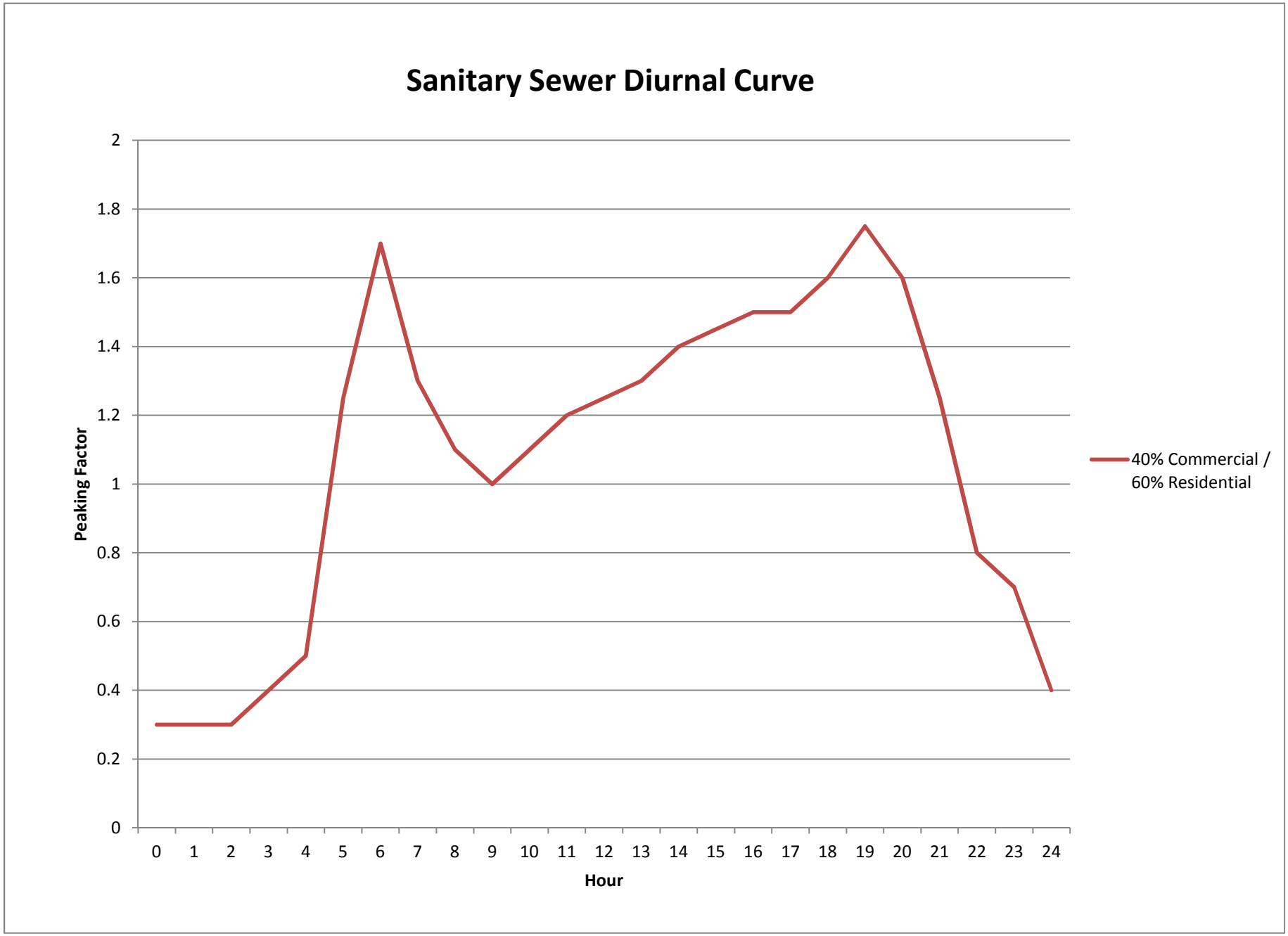
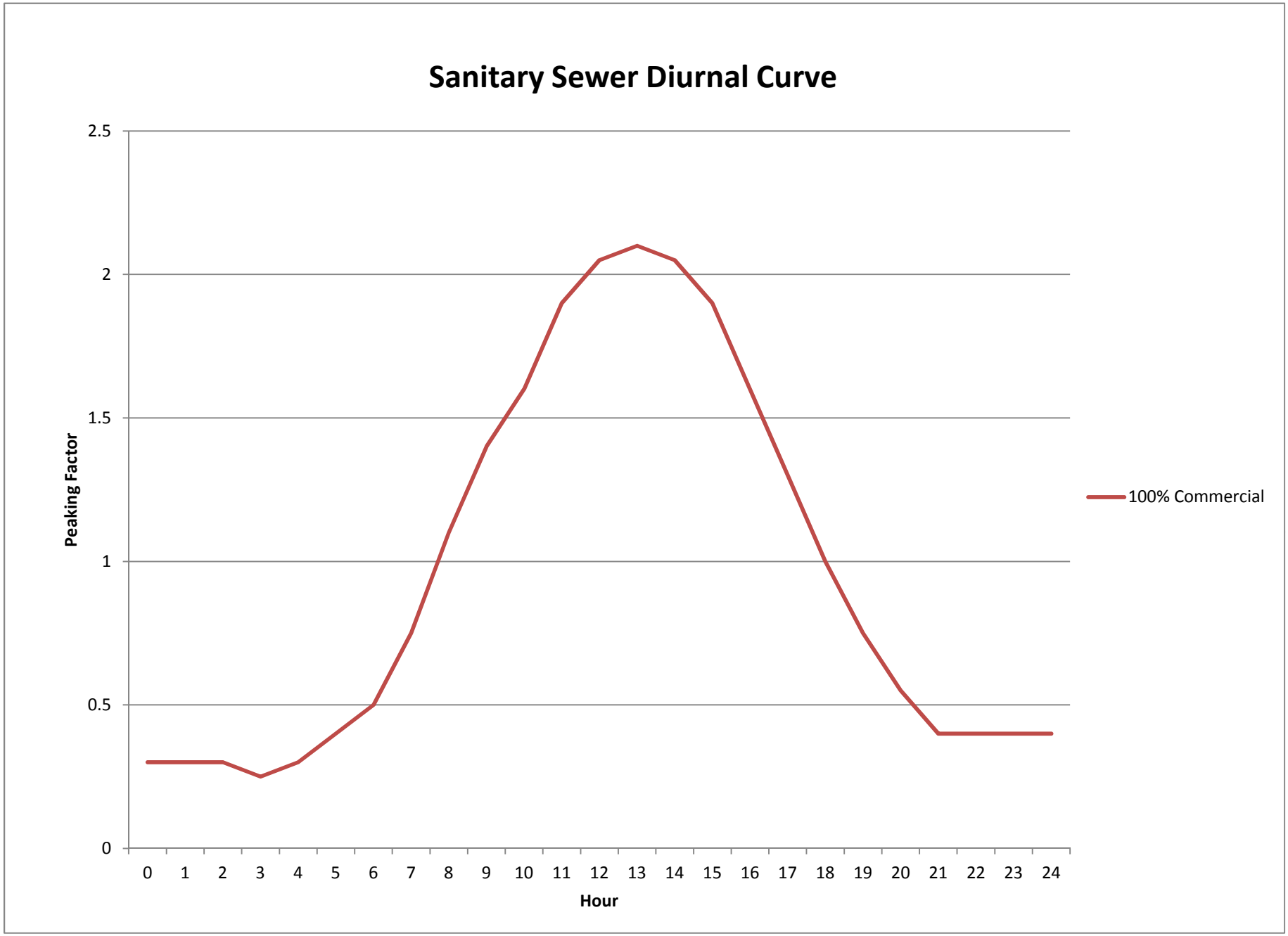
APPENDIX H

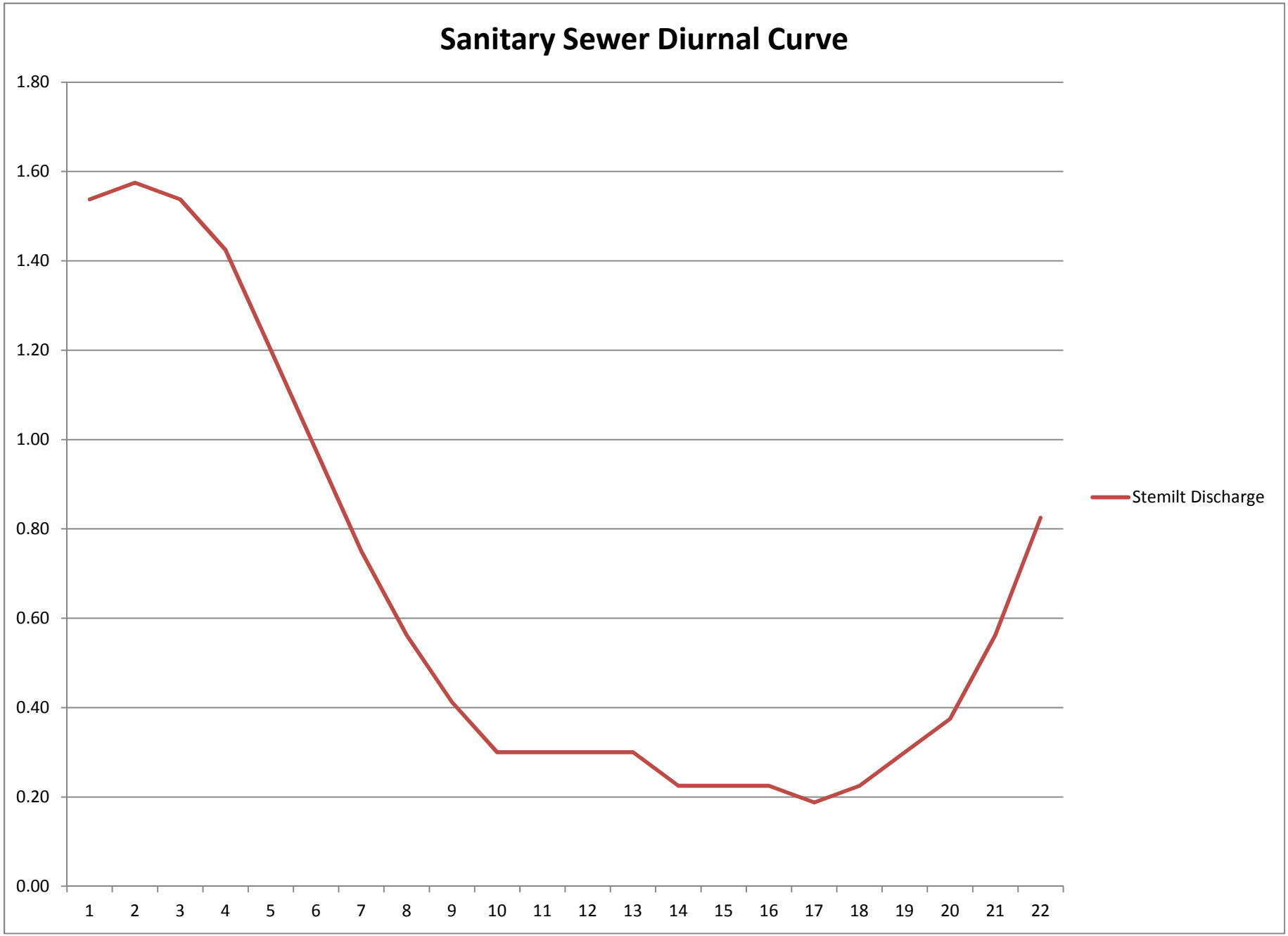
DIURNAL CURVES


Sanitary Sewer Diurnal Curve
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
100% Residential


Sanitary Sewer Diurnal Curve
Peaking Factor
2.5
2
1.5
1
0.5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
20% Commercial / 80% Residential


Sanitary Sewer Diurnal Curve
Peaking Factor
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
40% Commercial / 60% Residential


Sanitary Sewer Diurnal Curve
Peaking Factor
2.5
2
1.5
1
0.5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
100% Commercial


Sanitary Sewer Diurnal Curve
1.80
1.60
1.40
1.20
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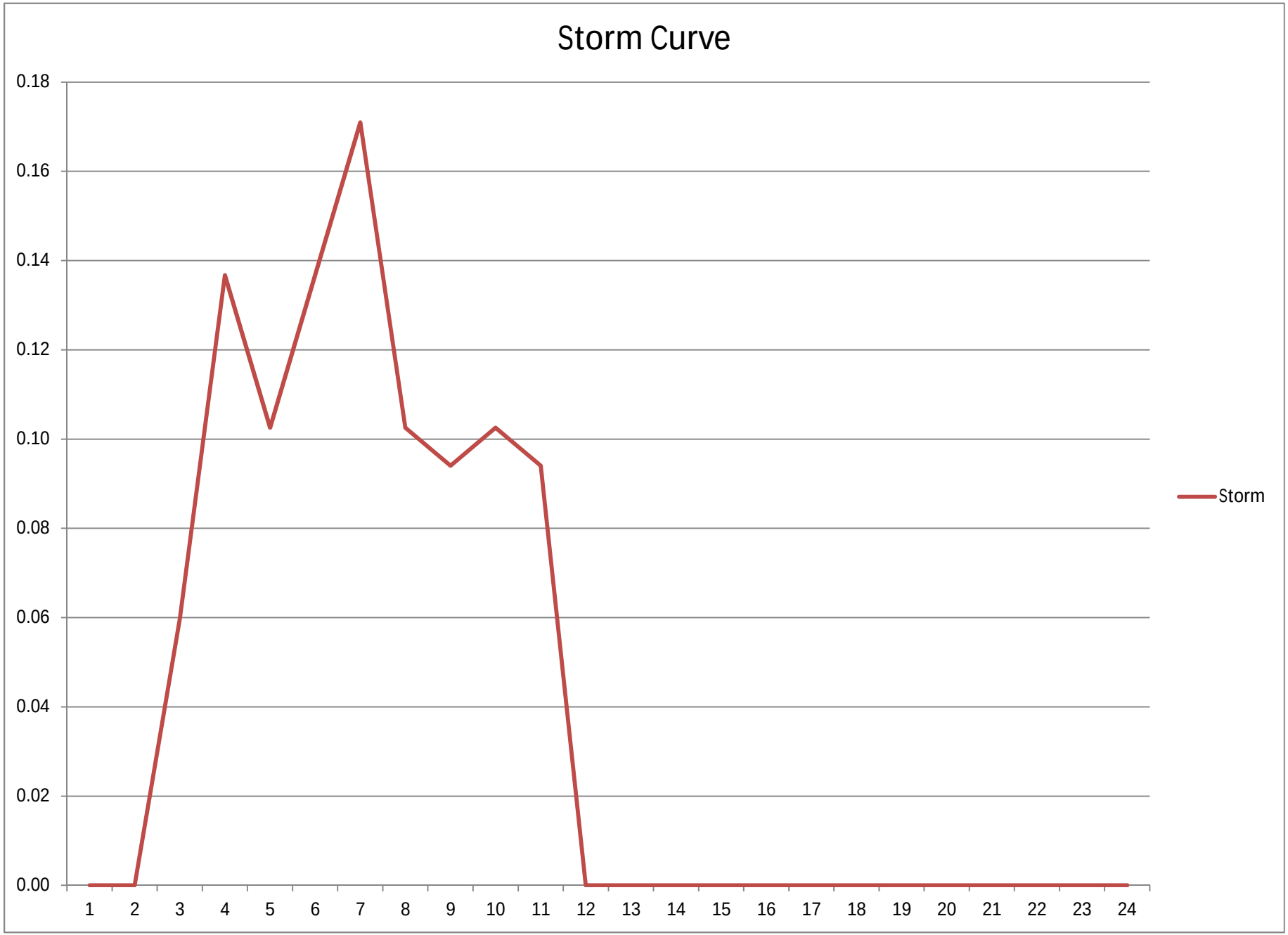
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Stemilt Discharge


Storm Curve
0.18
0.16
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Storm

APPENDIX I

COST ESTIMATES

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G1 - Olds Station (E. of Euclid Ct.) Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 30,000	$ 30,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	2,800	LF	$ 3	$ 8,400
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	330	TN	$ 25	$ 8,250
10	HMA Cl. 1/2 IN. PG 64-22	210	TN	$ 170	$ 35,700
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 29,829
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	130	CY	$ 50	$ 6,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,320	TN	$ 25	$ 58,000
16	PVC Sanitary Sewer Pipe 12 In. Diam.	1,390	LF	$ 80	$ 111,200
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 326,879
		Sales Tax (8.4%)			$ 27,458
	Total Construction Cost (rounded)				**$ 354,000**
	Construction Contingency (20%)				$ 70,800
	Engineering, Permitting, Administration (25%):				$ 106,200
	Total Project Cost (rounded)				**$ 531,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G2 - Easy St. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 14,000	$ 14,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,020	LF	$ 3	$ 3,060
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	120	TN	$ 25	$ 3,000
10	HMA Cl. 1/2 IN. PG 64-22	80	TN	$ 170	$ 13,600
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 18,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	50	CY	$ 50	$ 2,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	840	TN	$ 25	$ 21,000
16	PVC Sanitary Sewer Pipe 12 In. Diam.	500	LF	$ 80	$ 40,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 152,160
		Sales Tax (8.4%)			$ 12,781
	Total Construction Cost (rounded)				**$ 165,000**
	Construction Contingency (20%)				$ 33,000
	Engineering, Permitting, Administration (25%):				$ 49,500
	Total Project Cost (rounded)				**$ 248,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G3 - Penny Rd. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 11,000	$ 11,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	810	LF	$ 3	$ 2,430
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	100	TN	$ 25	$ 2,500
10	HMA Cl. 1/2 IN. PG 64-22	60	TN	$ 170	$ 10,200
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 12,771
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	40	CY	$ 50	$ 2,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	660	TN	$ 25	$ 16,500
16	PVC Sanitary Sewer Pipe 8 In. Diam.	395	LF	$ 60	$ 23,700
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 117,101
		Sales Tax (8.4%)			$ 9,837
	Total Construction Cost (rounded)				**$ 127,000**
	Construction Contingency (20%)				$ 25,400
	Engineering, Permitting, Administration (25%):				$ 38,100
	Total Project Cost (rounded)				**$ 191,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G4 - N. Worthen St. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 14,000	$ 14,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	800	LF	$ 3	$ 2,400
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	100	TN	$ 25	$ 2,500
10	HMA Cl. 1/2 IN. PG 64-22	60	TN	$ 170	$ 10,200
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 12,686
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	40	CY	$ 50	$ 2,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	650	TN	$ 25	$ 16,250
16	ADS SaniTite Sanitary Sewer Pipe 36 In. Diam.	390	LF	$ 140	$ 54,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 150,636
		Sales Tax (8.4%)			$ 12,653
	Total Construction Cost (rounded)				**$ 163,000**
	Construction Contingency (20%)				$ 32,600
	Engineering, Permitting, Administration (25%):				$ 48,900
	Total Project Cost (rounded)				**$ 245,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G5 - S. Walker Ave. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 13,000	$ 13,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	700	LF	$ 3	$ 2,100
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	80	TN	$ 25	$ 2,000
10	HMA Cl. 1/2 IN. PG 64-22	50	TN	$ 170	$ 8,500
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 18,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	40	CY	$ 50	$ 2,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	570	TN	$ 25	$ 14,250
16	PVC Sanitary Sewer Pipe 24 In. Diam.	340	LF	$ 130	$ 44,200
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 140,050
		Sales Tax (8.4%)			$ 11,764
	Total Construction Cost (rounded)				**$ 152,000**
	Construction Contingency (20%)				$ 30,400
	Engineering, Permitting, Administration (25%):				$ 45,600
	Total Project Cost (rounded)				**$ 228,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G6 - Methow St. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 17,000	$ 17,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,400	LF	$ 3	$ 4,200
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	170	TN	$ 25	$ 4,250
10	HMA Cl. 1/2 IN. PG 64-22	110	TN	$ 170	$ 18,700
11	Manhole 48 In. Diam. Type 2	4	EA	$ 6,000	$ 24,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	70	CY	$ 50	$ 3,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,150	TN	$ 25	$ 28,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	690	LF	$ 60	$ 41,400
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 178,800
		Sales Tax (8.4%)			$ 15,019
	Total Construction Cost (rounded)				**$ 194,000**
	Construction Contingency (20%)				$ 38,800
	Engineering, Permitting, Administration (25%):				$ 58,200
	Total Project Cost (rounded)				**$ 291,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. G7 - Oakanogan Ave. Gravity Sewer Replacement
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 10,000	$ 10,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	640	LF	$ 3	$ 1,920
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	80	TN	$ 25	$ 2,000
10	HMA Cl. 1/2 IN. PG 64-22	50	TN	$ 170	$ 8,500
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 12,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	30	CY	$ 50	$ 1,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	520	TN	$ 25	$ 13,000
16	PVC Sanitary Sewer Pipe 10 In. Diam.	310	LF	$ 70	$ 21,700
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 106,620
		Sales Tax (8.4%)			$ 8,956
	Total Construction Cost (rounded)				**$ 116,000**
	Construction Contingency (20%)				$ 23,200
	Engineering, Permitting, Administration (25%):				$ 34,800
	Total Project Cost (rounded)				**$ 174,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG1 - Easy St. Gravity Sewer Trunkline
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 97,000	$ 97,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 11,000	$ 11,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	8,160	LF	$ 3	$ 24,480
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	950	TN	$ 25	$ 23,750
10	HMA Cl. 1/2 IN. PG 64-22	600	TN	$ 170	$ 102,000
11	Manhole 48 In. Diam. Type 2	12	EA	$ 6,000	$ 74,914
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	80	CY	$ 50	$ 4,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	7,290	TN	$ 25	$ 182,250
16	Boring PVC Sanitary Sewer Pipe 12 In. Diam.	320	LF	$ 675	$ 216,000
17	PVC Sanitary Sewer Pipe 8 In. Diam.	3,555	LF	$ 60	$ 213,300
18	PVC Sanitary Sewer Pipe 12 In. Diam.	815	LF	$ 80	$ 65,200
19	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
20	Seeding, Fertilizing and Mulching	160	SY	$ 10	$ 1,600
21	Topsoil Type A	20	CY	$ 60	$ 1,200
		Subtotal			$ 1,063,894
		Sales Tax (8.4%)			$ 89,367
	Total Construction Cost (rounded)				**$ 1,153,000**
	Construction Contingency (20%)				$ 230,600
	Engineering, Permitting, Administration (25%):				$ 345,900
	Total Project Cost (rounded)				**$ 1,730,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE

CIP No. FG2 - Chattam Hill Gravity Sewer Trunkline
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 131,000	$ 131,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 15,000	$ 15,000
5	Clearing and Grubbing	1	LS	$ 5,000	$ 5,000
6	Sawcutting Existing Pavement	7,040	LF	$ 3	$ 21,120
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	40	TN	$ 40	$ 1,600
9	Crushed Surfacing Base Course	820	TN	$ 25	$ 20,500
10	HMA Cl. 1/2 IN. PG 64-22	520	TN	$ 170	$ 88,400
11	Manhole 48 In. Diam. Type 2	17	EA	$ 6,000	$ 104,743
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	570	CY	$ 50	$ 28,500
14	Trench Excavation Safety Systems	1	LS	$ 20,000	$ 20,000
15	Temporary Sewer Bypass Pumping	0	LS	$ 10,000	$ -
16	Bank Run Gravel for Trench Backfill	10,190	TN	$ 25	$ 254,750
17	Boring PVC Sanitary Sewer Pipe 10 In. Diam.	390	LF	$ 650	$ 253,500
18	PVC Sanitary Sewer Pipe 10 In. Diam.	6,110	LF	$ 70	$ 427,700
19	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
20	Seeding, Fertilizing and Mulching	1,600	SY	$ 10	$ 16,000
21	Topsoil Type A	180	CY	$ 60	$ 10,800
22	Cement Concrete Traffic Curb and Gutter	5	LF	$ 40	$ 200
23	Cement Concrete Sidewalk	10	SY	$ 75	$ 750
		Subtotal			$ 1,431,563
		Sales Tax (8.4%)			$ 120,251
	Total Construction Cost (rounded)				**$ 1,552,000**
	Construction Contingency (20%)				$ 310,400
	Engineering, Permitting, Administration (25%):				$ 465,600
	Total Project Cost (rounded)				**$ 2,328,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG3 - South Sunnyslope Gravity Sewer Trunkline
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 99,000	$ 99,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 14,000	$ 14,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	11,540	LF	$ 3	$ 34,620
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	1,350	TN	$ 25	$ 33,750
10	HMA Cl. 1/2 IN. PG 64-22	850	TN	$ 170	$ 144,500
11	Manhole 48 In. Diam. Type 2	16	EA	$ 6,000	$ 98,743
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	540	CY	$ 50	$ 27,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	9,600	TN	$ 25	$ 240,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	5,760	LF	$ 60	$ 345,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 1,087,213
		Sales Tax (8.4%)			$ 91,326
	Total Construction Cost (rounded)				**$ 1,179,000**
	Construction Contingency (20%)				$ 235,800
	Engineering, Permitting, Administration (25%):				$ 353,700
	Total Project Cost (rounded)				**$ 1,769,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG4 - North Sunnyslope Gravity Sewer Trunkline
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 72,000	$ 72,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 10,000	$ 10,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	8,250	LF	$ 3	$ 24,750
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	970	TN	$ 25	$ 24,250
10	HMA Cl. 1/2 IN. PG 64-22	610	TN	$ 170	$ 103,700
11	Manhole 48 In. Diam. Type 2	12	EA	$ 6,000	$ 70,543
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	390	CY	$ 50	$ 19,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	6,860	TN	$ 25	$ 171,500
16	PVC Sanitary Sewer Pipe 8 In. Diam.	4,115	LF	$ 60	$ 246,900
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 788,143
		Sales Tax (8.4%)			$ 66,204
	Total Construction Cost (rounded)				**$ 854,000**
	Construction Contingency (20%)				$ 170,800
	Engineering, Permitting, Administration (25%):				$ 256,200
	Total Project Cost (rounded)				**$ 1,281,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG5 - Horan Rd. Gravity Sewer Trunkline
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 23,000	$ 23,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	100	LF	$ 3	$ 300
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	10	TN	$ 25	$ 250
10	HMA Cl. 1/2 IN. PG 64-22	10	TN	$ 170	$ 1,700
11	Manhole 48 In. Diam. Type 2	4	EA	$ 6,000	$ 22,971
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	130	CY	$ 50	$ 6,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,240	TN	$ 25	$ 56,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,340	LF	$ 60	$ 80,400
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
18	Seeding, Fertilizing and Mulching	1,020	SY	$ 10	$ 10,200
19	Topsoil Type A	120	CY	$ 60	$ 7,200
		Subtotal			$ 245,121
		Sales Tax (8.4%)			$ 20,590
	Total Construction Cost (rounded)				**$ 266,000**
	Construction Contingency (20%)				$ 53,200
	Engineering, Permitting, Administration (25%):				$ 79,800
	Total Project Cost (rounded)				**$ 399,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG6 - Dawn Terrace Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 32,000	$ 32,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	3,380	LF	$ 3	$ 10,140
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	400	TN	$ 25	$ 10,000
10	HMA Cl. 1/2 IN. PG 64-22	250	TN	$ 170	$ 42,500
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 28,800
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	160	CY	$ 50	$ 8,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,800	TN	$ 25	$ 70,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,680	LF	$ 60	$ 100,800
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 342,240
		Sales Tax (8.4%)			$ 28,748
	Total Construction Cost (rounded)				**$ 371,000**
	Construction Contingency (20%)				$ 74,200
	Engineering, Permitting, Administration (25%):				$ 111,300
	Total Project Cost (rounded)				**$ 557,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG7 -Harbel St. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 18,000	$ 18,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,690	LF	$ 3	$ 5,070
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	200	TN	$ 25	$ 5,000
10	HMA Cl. 1/2 IN. PG 64-22	130	TN	$ 170	$ 22,100
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 14,314
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	80	CY	$ 50	$ 4,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,400	TN	$ 25	$ 35,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	835	LF	$ 60	$ 50,100
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 194,584
		Sales Tax (8.4%)			$ 16,345
	Total Construction Cost (rounded)				**$ 211,000**
	Construction Contingency (20%)				$ 42,200
	Engineering, Permitting, Administration (25%):				$ 63,300
	Total Project Cost (rounded)				**$ 317,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG8 -Locust St. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 24,000	$ 24,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	2,420	LF	$ 3	$ 7,260
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	280	TN	$ 25	$ 7,000
10	HMA Cl. 1/2 IN. PG 64-22	180	TN	$ 170	$ 30,600
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 20,571
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	120	CY	$ 50	$ 6,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,000	TN	$ 25	$ 50,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,200	LF	$ 60	$ 72,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 258,431
		Sales Tax (8.4%)			$ 21,708
	Total Construction Cost (rounded)				**$ 280,000**
	Construction Contingency (20%)				$ 56,000
	Engineering, Permitting, Administration (25%):				$ 84,000
	Total Project Cost (rounded)				**$ 420,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG9 -Walnut St. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 85,000	$ 85,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 12,000	$ 12,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	9,820	LF	$ 3	$ 29,460
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	1,150	TN	$ 25	$ 28,750
10	HMA Cl. 1/2 IN. PG 64-22	720	TN	$ 170	$ 122,400
11	Manhole 48 In. Diam. Type 2	14	EA	$ 6,000	$ 84,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	460	CY	$ 50	$ 23,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	8,170	TN	$ 25	$ 204,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	4,900	LF	$ 60	$ 294,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 932,860
		Sales Tax (8.4%)			$ 78,360
	Total Construction Cost (rounded)				**$ 1,011,000**
	Construction Contingency (20%)				$ 202,200
	Engineering, Permitting, Administration (25%):				$ 303,300
	Total Project Cost (rounded)				**$ 1,517,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG10 -Stella Ave. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 14,000	$ 14,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,210	LF	$ 3	$ 3,630
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	140	TN	$ 25	$ 3,500
10	HMA Cl. 1/2 IN. PG 64-22	90	TN	$ 170	$ 15,300
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 10,200
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	60	CY	$ 50	$ 3,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,000	TN	$ 25	$ 25,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	595	LF	$ 60	$ 35,700
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 147,330
		Sales Tax (8.4%)			$ 12,376
	Total Construction Cost (rounded)				**$ 160,000**
	Construction Contingency (20%)				$ 32,000
	Engineering, Permitting, Administration (25%):				$ 48,000
	Total Project Cost (rounded)				**$ 240,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG11 -Harris Pl. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 19,000	$ 19,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,790	LF	$ 3	$ 5,370
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	210	TN	$ 25	$ 5,250
10	HMA Cl. 1/2 IN. PG 64-22	130	TN	$ 170	$ 22,100
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 15,171
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	90	CY	$ 50	$ 4,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,480	TN	$ 25	$ 37,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	885	LF	$ 60	$ 53,100
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 199,491
		Sales Tax (8.4%)			$ 16,757
	Total Construction Cost (rounded)				**$ 216,000**
	Construction Contingency (20%)				$ 43,200
	Engineering, Permitting, Administration (25%):				$ 64,800
	Total Project Cost (rounded)				**$ 324,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG12 -Pershing St. & Mulberry Ln. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 32,000	$ 32,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	3,390	LF	$ 3	$ 10,170
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	400	TN	$ 25	$ 10,000
10	HMA Cl. 1/2 IN. PG 64-22	250	TN	$ 170	$ 42,500
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 28,886
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	160	CY	$ 50	$ 8,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,810	TN	$ 25	$ 70,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,685	LF	$ 60	$ 101,100
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 345,906
		Sales Tax (8.4%)			$ 29,056
	Total Construction Cost (rounded)				**$ 375,000**
	Construction Contingency (20%)				$ 75,000
	Engineering, Permitting, Administration (25%):				$ 112,500
	Total Project Cost (rounded)				**$ 563,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG13 -Poplar Ave. (North of Maple) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 14,000	$ 14,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,170	LF	$ 3	$ 3,510
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	140	TN	$ 25	$ 3,500
10	HMA Cl. 1/2 IN. PG 64-22	90	TN	$ 170	$ 15,300
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 9,857
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	60	CY	$ 50	$ 3,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	960	TN	$ 25	$ 24,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	575	LF	$ 60	$ 34,500
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 144,667
		Sales Tax (8.4%)			$ 12,152
	Total Construction Cost (rounded)				**$ 157,000**
	Construction Contingency (20%)				$ 31,400
	Engineering, Permitting, Administration (25%):				$ 47,100
	Total Project Cost (rounded)				**$ 236,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG14 -Elmwood St., Crabapple Ln., Bluegrass Ln., & Huckleberry Ln. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 35,000	$ 35,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	3,720	LF	$ 3	$ 11,160
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	440	TN	$ 25	$ 11,000
10	HMA Cl. 1/2 IN. PG 64-22	280	TN	$ 170	$ 47,600
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 31,714
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	180	CY	$ 50	$ 9,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	3,090	TN	$ 25	$ 77,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,850	LF	$ 60	$ 111,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 376,724
		Sales Tax (8.4%)			$ 31,645
	Total Construction Cost (rounded)				**$ 408,000**
	Construction Contingency (20%)				$ 81,600
	Engineering, Permitting, Administration (25%):				$ 122,400
	Total Project Cost (rounded)				**$ 612,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG15 -Maple St. (North) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 45,000	$ 45,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 7,000	$ 7,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	5,040	LF	$ 3	$ 15,120
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	590	TN	$ 25	$ 14,750
10	HMA Cl. 1/2 IN. PG 64-22	370	TN	$ 170	$ 62,900
11	Manhole 48 In. Diam. Type 2	7	EA	$ 6,000	$ 43,029
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	240	CY	$ 50	$ 12,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	4,190	TN	$ 25	$ 104,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,510	LF	$ 60	$ 150,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 493,149
		Sales Tax (8.4%)			$ 41,424
	Total Construction Cost (rounded)				**$ 535,000**
	Construction Contingency (20%)				$ 107,000
	Engineering, Permitting, Administration (25%):				$ 160,500
	Total Project Cost (rounded)				**$ 803,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG16 -Princeton Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 16,000	$ 16,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,440	LF	$ 3	$ 4,320
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	170	TN	$ 25	$ 4,250
10	HMA Cl. 1/2 IN. PG 64-22	110	TN	$ 170	$ 18,700
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 12,171
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	70	CY	$ 50	$ 3,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,190	TN	$ 25	$ 29,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	710	LF	$ 60	$ 42,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 168,291
		Sales Tax (8.4%)			$ 14,136
	Total Construction Cost (rounded)				**$ 182,000**
	Construction Contingency (20%)				$ 36,400
	Engineering, Permitting, Administration (25%):				$ 54,600
	Total Project Cost (rounded)				**$ 273,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG17 -Poplar (South of Springwater) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 8,000	$ 8,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	540	LF	$ 3	$ 1,620
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	70	TN	$ 25	$ 1,750
10	HMA Cl. 1/2 IN. PG 64-22	40	TN	$ 170	$ 6,800
11	Manhole 48 In. Diam. Type 2	1	EA	$ 6,000	$ 4,457
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	30	CY	$ 50	$ 1,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	440	TN	$ 25	$ 11,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	260	LF	$ 60	$ 15,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 86,727
		Sales Tax (8.4%)			$ 7,285
	Total Construction Cost (rounded)				**$ 94,000**
	Construction Contingency (20%)				$ 18,800
	Engineering, Permitting, Administration (25%):				$ 28,200
	Total Project Cost (rounded)				**$ 141,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG18 -Cypress Lane Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 9,000	$ 9,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 1,000	$ 1,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	650	LF	$ 3	$ 1,950
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	80	TN	$ 25	$ 2,000
10	HMA Cl. 1/2 IN. PG 64-22	50	TN	$ 170	$ 8,500
11	Manhole 48 In. Diam. Type 2	1	EA	$ 6,000	$ 5,400
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	30	CY	$ 50	$ 1,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	530	TN	$ 25	$ 13,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	315	LF	$ 60	$ 18,900
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 96,500
		Sales Tax (8.4%)			$ 8,106
	Total Construction Cost (rounded)				**$ 105,000**
	Construction Contingency (20%)				$ 21,000
	Engineering, Permitting, Administration (25%):				$ 31,500
	Total Project Cost (rounded)				**$ 158,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG19 -Westwick Rd. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 41,000	$ 41,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 6,000	$ 6,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	4,520	LF	$ 3	$ 13,560
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	530	TN	$ 25	$ 13,250
10	HMA Cl. 1/2 IN. PG 64-22	330	TN	$ 170	$ 56,100
11	Manhole 48 In. Diam. Type 2	6	EA	$ 6,000	$ 38,571
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	210	CY	$ 50	$ 10,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	3,750	TN	$ 25	$ 93,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,250	LF	$ 60	$ 135,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 445,731
		Sales Tax (8.4%)			$ 37,441
	Total Construction Cost (rounded)				**$ 483,000**
	Construction Contingency (20%)				$ 96,600
	Engineering, Permitting, Administration (25%):				$ 144,900
	Total Project Cost (rounded)				**$ 725,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG20 -Lester Rd., Day Rd., and Day Dr. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 43,000	$ 43,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 6,000	$ 6,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	4,810	LF	$ 3	$ 14,430
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	560	TN	$ 25	$ 14,000
10	HMA Cl. 1/2 IN. PG 64-22	360	TN	$ 170	$ 61,200
11	Manhole 48 In. Diam. Type 2	7	EA	$ 6,000	$ 41,057
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	230	CY	$ 50	$ 11,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	4,000	TN	$ 25	$ 100,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,395	LF	$ 60	$ 143,700
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 472,887
		Sales Tax (8.4%)			$ 39,723
	Total Construction Cost (rounded)				**$ 513,000**
	Construction Contingency (20%)				$ 102,600
	Engineering, Permitting, Administration (25%):				$ 153,900
	Total Project Cost (rounded)				**$ 770,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG21 -Skyline North Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 34,000	$ 34,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	3,640	LF	$ 3	$ 10,920
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	430	TN	$ 25	$ 10,750
10	HMA Cl. 1/2 IN. PG 64-22	270	TN	$ 170	$ 45,900
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 31,029
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	170	CY	$ 50	$ 8,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	3,020	TN	$ 25	$ 75,500
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,810	LF	$ 60	$ 108,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 365,199
		Sales Tax (8.4%)			$ 30,677
	Total Construction Cost (rounded)				**$ 396,000**
	Construction Contingency (20%)				$ 79,200
	Engineering, Permitting, Administration (25%):				$ 118,800
	Total Project Cost (rounded)				**$ 594,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG22 -Skyline South Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 30,000	$ 30,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	3,220	LF	$ 3	$ 9,660
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	380	TN	$ 25	$ 9,500
10	HMA Cl. 1/2 IN. PG 64-22	240	TN	$ 170	$ 40,800
11	Manhole 48 In. Diam. Type 2	5	EA	$ 6,000	$ 27,429
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	150	CY	$ 50	$ 7,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,670	TN	$ 25	$ 66,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,600	LF	$ 60	$ 96,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 326,639
		Sales Tax (8.4%)			$ 27,438
	Total Construction Cost (rounded)				**$ 354,000**
	Construction Contingency (20%)				$ 70,800
	Engineering, Permitting, Administration (25%):				$ 106,200
	Total Project Cost (rounded)				**$ 531,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG23 -Methow St. (North) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 21,000	$ 21,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	2,120	LF	$ 3	$ 6,360
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	250	TN	$ 25	$ 6,250
10	HMA Cl. 1/2 IN. PG 64-22	160	TN	$ 170	$ 27,200
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 18,000
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	100	CY	$ 50	$ 5,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,750	TN	$ 25	$ 43,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,050	LF	$ 60	$ 63,000
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 228,560
		Sales Tax (8.4%)			$ 19,199
	Total Construction Cost (rounded)				**$ 248,000**
	Construction Contingency (20%)				$ 49,600
	Engineering, Permitting, Administration (25%):				$ 74,400
	Total Project Cost (rounded)				**$ 372,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG24 -Gehr St. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 19,000	$ 19,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,880	LF	$ 3	$ 5,640
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	220	TN	$ 25	$ 5,500
10	HMA Cl. 1/2 IN. PG 64-22	140	TN	$ 170	$ 23,800
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 15,891
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	90	CY	$ 50	$ 4,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,550	TN	$ 25	$ 38,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	927	LF	$ 60	$ 55,620
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 206,701
		Sales Tax (8.4%)			$ 17,363
	Total Construction Cost (rounded)				**$ 224,000**
	Construction Contingency (20%)				$ 44,800
	Engineering, Permitting, Administration (25%):				$ 67,200
	Total Project Cost (rounded)				**$ 336,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG25 -Circle St. (S. Miller St. to Saddle Rock Trailhead) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 26,000	$ 26,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	2,630	LF	$ 3	$ 7,890
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	310	TN	$ 25	$ 7,750
10	HMA Cl. 1/2 IN. PG 64-22	200	TN	$ 170	$ 34,000
11	Manhole 48 In. Diam. Type 2	4	EA	$ 6,000	$ 22,371
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	130	CY	$ 50	$ 6,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,180	TN	$ 25	$ 54,500
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,305	LF	$ 60	$ 78,300
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 279,311
		Sales Tax (8.4%)			$ 23,462
	Total Construction Cost (rounded)				**$ 303,000**
	Construction Contingency (20%)				$ 60,600
	Engineering, Permitting, Administration (25%):				$ 90,900
	Total Project Cost (rounded)				**$ 455,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG26 -Circle St. (S. Miller to Okanogan) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 49,000	$ 49,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 7,000	$ 7,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	5,430	LF	$ 3	$ 16,290
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	640	TN	$ 25	$ 16,000
10	HMA Cl. 1/2 IN. PG 64-22	400	TN	$ 170	$ 68,000
11	Manhole 48 In. Diam. Type 2	8	EA	$ 6,000	$ 46,371
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	260	CY	$ 50	$ 13,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	4,510	TN	$ 25	$ 112,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,705	LF	$ 60	$ 162,300
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 535,711
		Sales Tax (8.4%)			$ 45,000
	Total Construction Cost (rounded)				**$ 581,000**
	Construction Contingency (20%)				$ 116,200
	Engineering, Permitting, Administration (25%):				$ 174,300
	Total Project Cost (rounded)				**$ 872,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG27 -Methow St. (South) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 13,000	$ 13,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,140	LF	$ 3	$ 3,420
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	140	TN	$ 25	$ 3,500
10	HMA Cl. 1/2 IN. PG 64-22	90	TN	$ 170	$ 15,300
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 9,600
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	60	CY	$ 50	$ 3,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	940	TN	$ 25	$ 23,500
16	PVC Sanitary Sewer Pipe 8 In. Diam.	560	LF	$ 60	$ 33,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 141,920
		Sales Tax (8.4%)			$ 11,921
	Total Construction Cost (rounded)				**$ 154,000**
	Construction Contingency (20%)				$ 30,800
	Engineering, Permitting, Administration (25%):				$ 46,200
	Total Project Cost (rounded)				**$ 231,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG28 -Canyon Breeze Lane Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 19,000	$ 19,000
2	Survey	1	LS	$ 5,000	$ 5,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 3,000	$ 3,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,840	LF	$ 3	$ 5,520
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	220	TN	$ 25	$ 5,500
10	HMA Cl. 1/2 IN. PG 64-22	140	TN	$ 170	$ 23,800
11	Manhole 48 In. Diam. Type 2	3	EA	$ 6,000	$ 15,600
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	90	CY	$ 50	$ 4,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,520	TN	$ 25	$ 38,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	910	LF	$ 60	$ 54,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 204,520
		Sales Tax (8.4%)			$ 17,180
	Total Construction Cost (rounded)				**$ 222,000**
	Construction Contingency (20%)				$ 44,400
	Engineering, Permitting, Administration (25%):				$ 66,600
	Total Project Cost (rounded)				**$ 333,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG29 -Hidden Meadow Dr. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 24,000	$ 24,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	20	LF	$ 3	$ 60
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	310	TN	$ 40	$ 12,400
9	Crushed Surfacing Base Course	0	TN	$ 25	$ -
10	HMA Cl. 1/2 IN. PG 64-22	0	TN	$ 170	$ -
11	Manhole 48 In. Diam. Type 2	4	EA	$ 6,000	$ 22,714
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	130	CY	$ 50	$ 6,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,210	TN	$ 25	$ 55,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,325	LF	$ 60	$ 79,500
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 254,424
		Sales Tax (8.4%)			$ 21,372
	Total Construction Cost (rounded)				**$ 276,000**
	Construction Contingency (20%)				$ 55,200
	Engineering, Permitting, Administration (25%):				$ 82,800
	Total Project Cost (rounded)				**$ 414,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG30 -Hidden Meadow Dr. (South) Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 17,000	$ 17,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,360	LF	$ 3	$ 4,080
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	160	TN	$ 25	$ 4,000
10	HMA Cl. 1/2 IN. PG 64-22	100	TN	$ 170	$ 17,000
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 11,486
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	70	CY	$ 50	$ 3,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,120	TN	$ 25	$ 28,000
16	PVC Sanitary Sewer Pipe 8 In. Diam.	670	LF	$ 60	$ 40,200
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 177,266
		Sales Tax (8.4%)			$ 14,890
	Total Construction Cost (rounded)				**$ 192,000**
	Construction Contingency (20%)				$ 38,400
	Engineering, Permitting, Administration (25%):				$ 57,600
	Total Project Cost (rounded)				**$ 288,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG31 -Kray Ike Ct. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 18,000	$ 18,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 2,000	$ 2,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	1,540	LF	$ 3	$ 4,620
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	180	TN	$ 25	$ 4,500
10	HMA Cl. 1/2 IN. PG 64-22	120	TN	$ 170	$ 20,400
11	Manhole 48 In. Diam. Type 2	2	EA	$ 6,000	$ 13,029
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	80	CY	$ 50	$ 4,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	1,270	TN	$ 25	$ 31,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	760	LF	$ 60	$ 45,600
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 193,899
		Sales Tax (8.4%)			$ 16,287
	Total Construction Cost (rounded)				**$ 210,000**
	Construction Contingency (20%)				$ 42,000
	Engineering, Permitting, Administration (25%):				$ 63,000
	Total Project Cost (rounded)				**$ 315,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG32 -Jeffrey Ct. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 28,000	$ 28,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 4,000	$ 4,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	2,790	LF	$ 3	$ 8,370
7	Locate Existing Utilities for Sewer	1	LS	$ 10,000	$ 10,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	330	TN	$ 25	$ 8,250
10	HMA Cl. 1/2 IN. PG 64-22	210	TN	$ 170	$ 35,700
11	Manhole 48 In. Diam. Type 2	4	EA	$ 6,000	$ 23,743
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	130	CY	$ 50	$ 6,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	2,310	TN	$ 25	$ 57,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	1,385	LF	$ 60	$ 83,100
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 305,413
		Sales Tax (8.4%)			$ 25,655
	Total Construction Cost (rounded)				**$ 331,000**
	Construction Contingency (20%)				$ 66,200
	Engineering, Permitting, Administration (25%):				$ 99,300
	Total Project Cost (rounded)				**$ 497,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG33 -Chapman Rd. Sewer Extension
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 41,000	$ 41,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 6,000	$ 6,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	4,470	LF	$ 3	$ 13,410
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	520	TN	$ 25	$ 13,000
10	HMA Cl. 1/2 IN. PG 64-22	330	TN	$ 170	$ 56,100
11	Manhole 48 In. Diam. Type 2	6	EA	$ 6,000	$ 38,126
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	210	CY	$ 50	$ 10,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	3,710	TN	$ 25	$ 92,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,224	LF	$ 60	$ 133,440
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 442,326
		Sales Tax (8.4%)			$ 37,155
	Total Construction Cost (rounded)				**$ 479,000**
	Construction Contingency (20%)				$ 95,800
	Engineering, Permitting, Administration (25%):				$ 143,700
	Total Project Cost (rounded)				**$ 719,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG34 -Confluence Parkway Phase I Sewer Extension
January 2017
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 45,000	$ 45,000
2	Survey	1	LS	$ 8,000	$ 8,000
3	Force Account	1	CALC	$ 5,000	$ 5,000
4	Project Temporary Traffic Control	1	LS	$ 7,000	$ 7,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	5,070	LF	$ 3	$ 15,210
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	590	TN	$ 25	$ 14,750
10	HMA Cl. 1/2 IN. PG 64-22	370	TN	$ 170	$ 62,900
11	Manhole 48 In. Diam. Type 2	7	EA	$ 6,000	$ 43,286
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	240	CY	$ 50	$ 12,000
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	4,210	TN	$ 25	$ 105,250
16	PVC Sanitary Sewer Pipe 8 In. Diam.	2,525	LF	$ 60	$ 151,500
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 494,896
		Sales Tax (8.4%)			$ 41,571
	Total Construction Cost (rounded)				**$ 536,000**
	Construction Contingency (20%)				$ 107,200
	Engineering, Permitting, Administration (16%):				$ 106,771
	Total Project Cost (rounded)				**$ 750,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FG35 - Remaining Sunnyslope Sewer Collectors (Non-Trunks)
October 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1	Mobilization/Demobilization	1	LS	$ 1,649,000	$ 1,649,000
2	Survey	1	LS	$ 10,000	$ 10,000
3	Force Account	1	CALC	$ 10,000	$ 10,000
4	Project Temporary Traffic Control	1	LS	$ 243,000	$ 243,000
5	Clearing and Grubbing	1	LS	$ 1,000	$ 1,000
6	Sawcutting Existing Pavement	202,370	LF	$ 3	$ 607,110
7	Locate Existing Utilities for Sewer	1	LS	$ 5,000	$ 5,000
8	Crushed Surfacing Top Course	0	TN	$ 40	$ -
9	Crushed Surfacing Base Course	23,610	TN	$ 25	$ 590,250
10	HMA Cl. 1/2 IN. PG 64-22	14,790	TN	$ 170	$ 2,514,300
11	Manhole 48 In. Diam. Type 2	289	EA	$ 6,000	$ 1,734,429
12	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
13	Removal of Unsuitable Material (Trench)	9,370	CY	$ 50	$ 468,500
14	Trench Excavation Safety Systems	1	LS	$ 10,000	$ 10,000
15	Bank Run Gravel for Trench Backfill	168,630	TN	$ 25	$ 4,215,750
16	PVC Sanitary Sewer Pipe 8 In. Diam.	101,175	LF	$ 60	$ 6,070,500
17	Erosion/Water Pollution Control	1	LS	$ 5,000	$ 5,000
		Subtotal			$ 18,137,839
		Sales Tax (8.4%)			$ 1,523,578
	Total Construction Cost (rounded)				**$ 19,661,000**
	Construction Contingency (20%)				$ 3,932,200
	Engineering, Permitting, Administration (25%):				$ 5,898,300
	Total Project Cost (rounded)				**$ 29,492,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. LS1 - Olds Station Lift Station Upgrades (Pumps and Electrical)
December 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Demobilization and Cleanup	1	LS	$ 31,000	$ 31,000
2.	Force Account	1	CALC	$ 10,000	$ 10,000
3.	Pumps	2	EA	$ 60,000	$ 120,000
4.	Electrical, Telemetry, and Instrumentation	1	LS	$ 95,000	$ 95,000
5.	Generator	1	LS	$ 75,000	$ 75,000
6.	Startup, Training, Etc.	1	LS	$ 10,000	$ 10,000
	Subtotal				$ 341,000
	Sales Tax (8.4%)				$ 28,644
	Total Construction Cost (rounded)				**$ 370,000**
	Construction Contingency (20%)				$ 74,000
	Engineering, Permitting, Administration (25%):				$ 111,000
	Total Project Cost (rounded)				**$ 555,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. LS2 - Broadview Lift Station Relocation and Force Main
September 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
GENERAL					
1.	Mobilization, Demobilization and Cleanup	1	LS	$ 40,500	$ 40,500
2.	Survey	1	LS	$ 15,000	$ 15,000
3.	Locate Existing Utilities	1	LS	$ 5,000	$ 5,000
4.	Temporary Erosion and Sediment Control	1	LS	$ 10,000	$ 10,000
5.	Dewatering	1	LS	$ 5,000	$ 5,000
6.	Bypass Pumping	1	LS	$ 5,000	$ 5,000
7.	Force Account	1	CALC	$ 15,000	$ 15,000
LIFT STATION					
8.	Pumps	2	EA	$ 38,000	$ 76,000
9.	6' Dia. Wet Well	1	LS	$ 35,000	$ 35,000
10.	Piping and Valves	1	LS	$ 35,000	$ 35,000
11.	Electrical, Telemetry, Generator and Instrumentation	1	LS	$ 75,000	$ 75,000
12.	Electrical Service	1	LS	$ 10,000	$ 10,000
13.	Valve Vault	1	EA	$ 10,000	$ 10,000
14.	Excavation for Utility Structures	200	CY	$ 35	$ 7,000
15.	Bank Run Gravel for Trench Backfill	150	CY	$ 25	$ 3,750
16.	Unsuitable Excavation	10	CY	$ 50	$ 500
17.	Foundation Gravel	20	TN	$ 30	$ 600
18.	Crushed Surfacing Top Course	35	TN	$ 40	$ 1,400
19.	HMA Cl. 1/2 IN. PG 64-22	25	TN	$ 170	$ 4,250
20.	Restoration	1	LS	$ 20,000	$ 20,000
21.	Startup, Training, Etc.	1	LS	$ 10,000	$ 10,000
22.	Decommission Exist. LS	1	LS	$ 10,000	$ 10,000
FORCE MAIN					
23.	Traffic Control	1	LS	$ 1,000	$ 1,000
24.	Clearing and Grubbing	1	LS	$ 5,000	$ 5,000
25.	Sawcutting Existing Pavement	90	LF	$ 3	$ 270
26.	Trench Excavation Safety Systems	1	LS	$ 20,000	$ 20,000
27.	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
28.	Removal of Unsuitable Material (Trench)	10	CY	$ 50	$ 500
29.	HDPE Force Main, 4 in. Diam., Incl. Bedding	250	LF	$ 40	$ 10,000
30.	Crushed Surfacing Top Course	0	TN	$ 40	$ -
31.	Crushed Surfacing Base Course	10	TN	$ 25	$ 250
32.	Bank Run Gravel for Trench Backfill	170	TN	$ 25	$ 4,250
33.	HMA Cl. 1/2 IN. PG 64-22	10	TN	$ 170	$ 1,700
34.	Seeding, Fertilizing and Mulching	170	SY	$ 10	$ 1,700

35. Topsoil Type A	20	CY	$	60	$	1,200
36. Cement Concrete Traffic Curb and Gutter	5	LF	$	40	$	200
37. Cement Concrete Sidewalk	10	SY	$	75	$	750
Subtotal					$	444,820
Sales Tax (8.4%)					$	37,365
Total Construction Cost (rounded)					**$**	**482,000**
Construction Contingency (20%)					$	96,400
Land Acquisition Cost					$	15,000
Engineering, Permitting, Administration (25%):					$	144,600
Total Project Cost (rounded)					**$**	**738,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FLS1 - New Sunnyslope Lift Station, 8" FM, 12" Emerg. FM
September 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
GENERAL					
1.	Mobilization, Demobilization and Cleanup	1	LS	$ 242,800	$ 242,800
2.	Survey	1	LS	$ 15,000	$ 15,000
3.	Locate Existing Utilities	1	LS	$ 5,000	$ 5,000
4.	Temporary Erosion and Sediment Control	1	LS	$ 10,000	$ 10,000
5.	Dewatering	1	LS	$ 5,000	$ 5,000
6.	Bypass Pumping	1	LS	$ 5,000	$ 5,000
7.	Force Account	1	CALC	$ 15,000	$ 15,000
LIFT STATION					
8.	30 hp Flygt NP3171 Submersible Pumps	2	EA	$ 56,000	$ 112,000
9.	8' Dia. Wet Well	1	LS	$ 50,000	$ 50,000
10.	Piping and Valves	1	LS	$ 50,000	$ 50,000
11.	Electrical, Telemetry, Generator and Instrumentation	1	LS	$ 80,000	$ 80,000
12.	Electrical Service	1	LS	$ 20,000	$ 20,000
13.	Valve Vault	1	EA	$ 15,000	$ 15,000
14.	Excavation for Utility Structures	200	CY	$ 35	$ 7,000
15.	Bank Run Gravel for Trench Backfill	150	CY	$ 25	$ 3,750
16.	Unsuitable Excavation	10	CY	$ 50	$ 500
17.	Foundation Gravel	20	TN	$ 30	$ 600
18.	Crushed Surfacing Top Course	35	TN	$ 40	$ 1,400
19.	HMA Cl. 1/2 IN. PG 64-22	25	TN	$ 170	$ 4,250
20.	Restoration	1	LS	$ 20,000	$ 20,000
21.	Startup, Training, Etc.	1	LS	$ 10,000	$ 10,000
FORCE MAIN					
22.	Traffic Control	1	LS	$ 16,000	$ 16,000
23.	Clearing and Grubbing	1	LS	$ 5,000	$ 5,000
24.	Sawcutting Existing Pavement	130	LF	$ 3	$ 390
25.	Trench Excavation Safety Systems	1	LS	$ 20,000	$ 20,000
26.	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
27.	Removal of Unsuitable Material (Trench)	8,450	CY	$ 50	$ 422,500
28.	Boring HDPE Sanitary Sewer Pipe 8 In. Diam.	105	LF	$ 650	$ 68,250
29.	HDPE Force Main, 12 in. Diam., Incl. Bedding	9,120	LF	$ 100	$ 912,000
30.	Pipe Hangers (for Bridge)	1	LS	$ 400,000	$ 400,000
31.	Crushed Surfacing Top Course	80	TN	$ 40	$ 3,200
32.	Crushed Surfacing Base Course	20	TN	$ 25	$ 500
33.	Bank Run Gravel for Trench Backfill	3,380	TN	$ 25	$ 84,500
34.	HMA Cl. 1/2 IN. PG 64-22	20	TN	$ 170	$ 3,400

35. Seeding, Fertilizing and Mulching	3,480	SY	$	10	$	34,800
36. Topsoil Type A	390	CY	$	60	$	23,400
Subtotal					$	2,670,240
Sales Tax (8.4%)					$	224,300
Total Construction Cost (rounded)					**$**	**2,895,000**
Construction Contingency (20%)					$	579,000
Land Acquisition Cost					$	15,000
Engineering, Permitting, Administration (25%):					$	868,500
Total Project Cost (rounded)					**$**	**4,358,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FLS2 - Warm Springs Lift Station and Force Main
September 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
GENERAL					
1.	Mobilization, Demobilization and Cleanup	1	LS	$ 82,600	$ 82,600
2.	Survey	1	LS	$ 15,000	$ 15,000
3.	Locate Existing Utilities	1	LS	$ 5,000	$ 5,000
4.	Temporary Erosion and Sediment Control	1	LS	$ 10,000	$ 10,000
5.	Dewatering	1	LS	$ 5,000	$ 5,000
6.	Bypass Pumping	1	LS	$ 5,000	$ 5,000
7.	Force Account	1	CALC	$ 15,000	$ 15,000
LIFT STATION					
8.	Pumps	2	EA	$ 38,000	$ 76,000
9.	6' Dia. Wet Well	1	LS	$ 35,000	$ 35,000
10.	Piping and Valves	1	LS	$ 35,000	$ 35,000
11.	Electrical, Telemetry, Generator and Instrumentation	1	LS	$ 70,000	$ 70,000
12.	Electrical Service	1	LS	$ 10,000	$ 10,000
13.	Valve Vault	1	EA	$ 10,000	$ 10,000
14.	Excavation for Utility Structures	200	CY	$ 35	$ 7,000
15.	Bank Run Gravel for Trench Backfill	150	CY	$ 25	$ 3,750
16.	Unsuitable Excavation	10	CY	$ 50	$ 500
17.	Foundation Gravel	20	TN	$ 30	$ 600
18.	Crushed Surfacing Top Course	35	TN	$ 40	$ 1,400
19.	HMA Cl. 1/2 IN. PG 64-22	25	TN	$ 170	$ 4,250
20.	Restoration	1	LS	$ 20,000	$ 20,000
21.	Startup, Training, Etc.	1	LS	$ 10,000	$ 10,000
FORCE MAIN					
22.	Traffic Control	1	LS	$ 14,000	$ 14,000
23.	Clearing and Grubbing	1	LS	$ 5,000	$ 5,000
24.	Sawcutting Existing Pavement	2,640	LF	$ 3	$ 7,920
25.	Trench Excavation Safety Systems	1	LS	$ 20,000	$ 20,000
26.	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
27.	Removal of Unsuitable Material (Trench)	220	CY	$ 50	$ 11,000
28.	HDPE Force Main, 4 in. Diam., Incl. Bedding	5,755	LF	$ 40	$ 230,200
29.	Crushed Surfacing Top Course	0	TN	$ 40	$ -
30.	Crushed Surfacing Base Course	310	TN	$ 25	$ 7,750
31.	Bank Run Gravel for Trench Backfill	3,840	TN	$ 25	$ 96,000
32.	HMA Cl. 1/2 IN. PG 64-22	200	TN	$ 170	$ 34,000
33.	Seeding, Fertilizing and Mulching	3,440	SY	$ 10	$ 34,400
34.	Topsoil Type A	380	CY	$ 60	$ 22,800

Subtotal	$	908,170
Sales Tax (8.4%)	$	76,286
Total Construction Cost (rounded)	**$**	**984,000**
Construction Contingency (20%)	$	196,800
Land Acquisition Cost	$	15,000
Engineering, Permitting, Administration (25%):	$	295,200
Total Project Cost (rounded)	**$**	**1,491,000**

CITY OF WENATCHEE
SEWER COMPREHENSIVE PLAN AMENDMENT
PRELIMINARY COST ESTIMATE
CIP No. FLS3 - Ohme Lift Station and Force Main
September 2016
G&O# 16030

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
GENERAL					
1.	Mobilization, Demobilization and Cleanup	1	LS	$ 66,900	$ 66,900
2.	Survey	1	LS	$ 15,000	$ 15,000
3.	Locate Existing Utilities	1	LS	$ 5,000	$ 5,000
4.	Temporary Erosion and Sediment Control	1	LS	$ 10,000	$ 10,000
5.	Dewatering	1	LS	$ 5,000	$ 5,000
6.	Bypass Pumping	1	LS	$ 5,000	$ 5,000
7.	Force Account	1	CALC	$ 15,000	$ 15,000
LIFT STATION					
8.	Pumps	2	EA	$ 38,000	$ 76,000
9.	6' Dia. Wet Well	1	LS	$ 35,000	$ 35,000
10.	Piping and Valves	1	LS	$ 35,000	$ 35,000
11.	Electrical, Telemetry, Generator and Instrumentation	1	LS	$ 70,000	$ 70,000
12.	Electrical Service	1	LS	$ 10,000	$ 10,000
13.	Valve Vault	1	EA	$ 10,000	$ 10,000
14.	Excavation for Utility Structures	200	CY	$ 35	$ 7,000
15.	Bank Run Gravel for Trench Backfill	150	CY	$ 25	$ 3,750
16.	Unsuitable Excavation	10	CY	$ 50	$ 500
17.	Foundation Gravel	20	TN	$ 30	$ 600
18.	Crushed Surfacing Top Course	35	TN	$ 40	$ 1,400
19.	HMA Cl. 1/2 IN. PG 64-22	25	TN	$ 170	$ 4,250
20.	Restoration	1	LS	$ 20,000	$ 20,000
21.	Startup, Training, Etc.	1	LS	$ 10,000	$ 10,000
FORCE MAIN					
22.	Traffic Control	1	LS	$ 8,000	$ 8,000
23.	Clearing and Grubbing	1	LS	$ 5,000	$ 5,000
24.	Sawcutting Existing Pavement	6,150	LF	$ 3	$ 18,450
25.	Trench Excavation Safety Systems	1	LS	$ 20,000	$ 20,000
26.	Connection to Existing Manhole	1	EA	$ 4,000	$ 4,000
27.	Removal of Unsuitable Material (Trench)	120	CY	$ 50	$ 6,000
28.	HDPE Force Main, 4 in. Diam., Incl. Bedding	3,065	LF	$ 40	$ 122,600
29.	Crushed Surfacing Top Course	0	TN	$ 40	$ -
30.	Crushed Surfacing Base Course	720	TN	$ 25	$ 18,000
31.	Bank Run Gravel for Trench Backfill	2,050	TN	$ 25	$ 51,250
32.	HMA Cl. 1/2 IN. PG 64-22	450	TN	$ 170	$ 76,500
33.	Seeding, Fertilizing and Mulching	0	SY	$ 10	$ -
34.	Topsoil Type A	0	CY	$ 60	$ -

Subtotal	$	735,200
Sales Tax (8.4%)	$	61,757
Total Construction Cost (rounded)	**$**	**797,000**
Construction Contingency (20%)	$	159,400
Land Acquisition Cost	$	15,000
Engineering, Permitting, Administration (25%):	$	239,100
Total Project Cost (rounded)	**$**	**1,211,000**