CITY OF EDGEWOOD

PIERCE COUNTY **WASHINGTON**

GENERAL SEWER PLAN

G&O #19614
JULY 2024

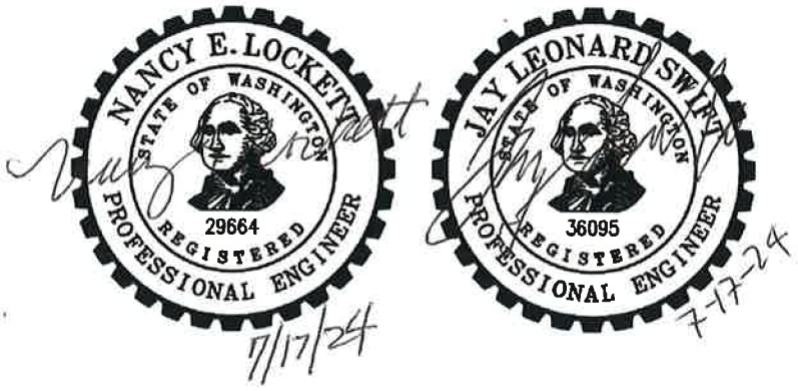
Gray & Osborne, Inc.
CONSULTING ENGINEERS

CITY OF EDGEWOOD

PIERCE COUNTY **WASHINGTON**

EDGEWOOD
Washington

GENERAL SEWER PLAN



G&O #19614
JULY 2024

Gray & Osborne, Inc.
CONSULTING ENGINEERS

TABLE OF CONTENTS

EXECUTIVE SUMMARY

CHAPTER 1 – INTRODUCTION

SCOPE OF WORK 1-1
RELATED PLANNING DOCUMENTS 1-2

CHAPTER 2 – LAND USE, POPULATION PROJECTIONS, AND SERVICE AREA CHARACTERISTICS

SEWER SERVICE AREAS 2-1
CITY OF EDGEWOOD 2-2
- Adjacent Sewer Service Areas 2-2

NATURAL ENVIRONMENT 2-3
- Topography 2-3
- Soils and Geology 2-3
- Climate 2-3
- Site Sensitive Areas 2-4
  - Steel Slopes/Landslide and Geologic Hazards 2-5
  - Surface Water 2-5
  - Wetlands 2-5
  - Frequently Flooded Areas 2-6
  - Vulnerable Aquifer Recharge Areas 2-6
  - Fish and Wildlife Habitat Conservation Areas 2-6

EDGEWOOD WATER SYSTEM 2-8
PLANNING PERIOD 2-9
LAND USE, ZONING, AND POPULATION 2-9
- Current Land Use and Zoning 2-9
- Current Population 2-10
- Updated Capacity Analysis 2-11
- Projected Future City Population 2-13

SEWER EQUIVALENT RESIDENTIAL UNITS (ERUS) 2-15

CHAPTER 3 – REGULATORY REQUIREMENTS

FEDERAL AND STATE STATUTES, REGULATIONS, AND PERMITS 3-1
- Federal Clean Water Act 3-1
- NPDES and State Waste Discharge Permits 3-1
  - Puget Sound Nutrient Source Reduction 3-2
- Federal Endangered Species Act 3-3
- National Environmental Policy Act 3-3
- State Water Pollution Control Act 3-4
  - Criteria for Sewage Works Design, Washington State Department of Ecology 3-4
- State Environmental Policy Act 3-4

Wetlands 3-5
Dredging and Filling Activities in Natural Wetlands (Section 404 of the Federal Water Pollution Control Act) 3-5
Wetlands Executive Order 11990 3-5
Shoreline Management Act 3-5
Floodplain Development Permit 3-5
Hydraulic Project Approval 3-5

CHAPTER 4 – EXISTING FACILITIES

AGREEMENTS 4-1
Lakehaven Water and Sewer District 4-1
City of Fife 4-2
Pierce County 4-2
Cherrywood Mobile Home Park 4-3
WASTEWATER COLLECTION SYSTEM 4-3
City of Edgewood Phase I Sewer System 4-3
Pump Stations 4-4
City of Fife Sewer Collection System 4-6
Pierce County Sewer Collection System 4-6
WASTEWATER TREATMENT PLANTS 4-6
Lakota Wastewater Treatment Plant 4-7
Tacoma Central Treatment Plant 4-9
Cherrywood Mobile Home Manor WWTP 4-11
Puyallup Water Pollution Control Plant 4-11

CHAPTER 5 – WASTEWATER FLOW AND LOADING PROJECTIONS

INTRODUCTION 5-1
Definitions of Terms 5-1
Average Annual Flow 5-1
Biochemical Oxygen Demand 5-1
Domestic Wastewater 5-2
Equivalent Residential Unit 5-2
Infiltration/Inflow 5-2
Maximum Month Flow (Treatment Design Flow) 5-2
Non-Residential Wastewater 5-3
Peak Hour Flow 5-3
Total Suspended Solids 5-3
Total Kjeldahl Nitrogen 5-3
Wastewater 5-4
POPULATION 5-4
Existing and Projected Future Population 5-4
HISTORICAL WASTEWATER FLOWS 5-5
WASTEWATER FLOW PROJECTIONS 5-9
Base Wastewater Flow Rate 5-9

Infiltration/Inflow 5-10
Basin Flow Projections 5-12
Projected Wastewater Loadings 5-19

CHAPTER 6 – COLLECTION SYSTEM EVALUATION

INTRODUCTION 6-1
EVALUATION OF CAPACITY AND CONDITION OF EXISTING COLLECTION SYSTEM 6-1
SEWER DESIGN CRITERIA 6-2
Gravity Sewers 6-2
Pressure Sewers 6-3
Pump Stations 6-3
Force Main 6-3
Grinder Pump Systems 6-4
SEWER SYSTEM MODELING 6-4
New Sewer System Model 6-4
Existing Sewer System Hydraulic Model 6-4
SEWER SYSTEM CONFIGURATION 6-5
PROPOSED COLLECTION SYSTEM CONFIGURATION 6-9
Basin Tributary to Pierce County Sewer System 6-10
Basin Tributary to the City of Fife Sewer System 6-11
Basin Tributary to the City of Puyallup Sewer System 6-15
Basin Tributary to the Existing City of Edgewood Sewer System 6-21
Basin Tributary to Phase I Basin 18 6-22
Basin Tributary to Phase I Basin 8 6-23
Basin Tributary to Phase I Basins 5, 6 and 7 6-24
Basin Tributary to Basin 4 6-27
Basin Tributary to Basin 3 6-30
Basin Tributary to Basin 2 6-30
Basin Tributary to Basin 1 6-30
Basin Tributary to the Force Mains to LWSD 6-31

CHAPTER 7 – OPERATION AND MAINTENANCE PROGRAM

EXISTING SYSTEM OPERATION AND MAINTENANCE 7-1
Phase I Collection System 7-1
Basin 10 Collection System 7-2
FUTURE EDGEWOOD PREVENTIVE MAINTENANCE PROGRAM 7-2
Operator Certification 7-3
Equipment 7-4
Manholes and Gravity Sewer Lines 7-4
Side Sewers 7-5
Force Mains 7-5
Lift Station and Generator Maintenance 7-5
Daily Data Collection 7-5
Weekly Lift Station Maintenance 7-5
Equipment 7-6

Monthly Lift Station Maintenance 7-6
Quarterly Lift Station Maintenance 7-6
Annual Lift Station Maintenance 7-6
EMERGENCY RESPONSE PROGRAM 7-6
Emergency Procedures 7-7
Power Failure 7-7
Severe Earthquake 7-7
Sewage Spills and System Failures 7-8
SAFETY PROCEDURES 7-10
INDUSTRIAL PRETREATMENT/SOURCE CONTROL 7-10
STAFFING ANALYSIS 7-11
ASSET AND MAINTENANCE MANAGEMENT SYSTEMS 7-15

CHAPTER 8 – CAPITAL IMPROVEMENT PLAN

INTRODUCTION 8-1
PROPOSED SYSTEM IMPROVEMENTS 8-1
CIP PRIORITY 8-2

CHAPTER 9 – FINANCIAL PROGRAM

INTRODUCTION 9-1
SCENARIO 1 FUNDING PLAN 9-2
SCENARIO 2 FUNDING PLAN 9-2
REVENUE AND RATE SCHEDULE SUMMARY 9-3
RATE COMPARISON 9-5
AVAILABLE CAPITAL FUNDING RESOURCES 9-6
Internal Utility Resources 9-6
Sewer Service Revenue 9-6
Conveyance Development Charge 9-6
Local Facilities Charge 9-7
GOVERNMENT PROGRAMS AND RESOURCES 9-8
Grants and Low-Cost Loans Overview 9-8
Water Quality Combined Funding Program 9-8
Public Works Trust Fund (PWTF) 9-9
Community Economic Revitalization Board 9-9
Infrastructure Assistance Coordinating Council (IACC) 9-9
Community Development Block Grant (CDBG) 9-10
PUBLIC DEBT FINANCING 9-10
General Obligation Bonds 9-10
Revenue Bonds 9-11
CAPITAL RESOURCE FUNDING SUMMARY 9-11

LIST OF TABLES

No.	Table	Page
2-1	Existing Sewer Service Areas	2-1
2-2	Average Monthly Climate Data	2-4
2-3	Priority Anadromous and Resident Fish Species	2-7
2-4	Existing Land Use	2-10
2-5	Historical Population 2010 to 2020	2-11
2-6	Revised Zoning Buildout Capacity Analysis	2-12
2-7	Comparison of Growth Targets and Available Capacity	2-13
2-8	Population, Housing and Employment Projections	2-14
2-9	Billed Connections and ERUs by Customer Class	2-15
4-1	Phase I Sewer Pipe Summary	4-3
4-2	Phase I Pump Stations – Initial Pump Schedule	4-5
4-3	Phase I Pump Stations – Future Interim Pump Schedule	4-5
4-4	Phase I Pump Stations – Future Buildout Pump Schedule	4-6
4-5	Lakota WWTP Design Criteria and Wastewater Influent and Effluent Characterization	4-8
4-6	Tacoma Central Treatment Plant Design Criteria and Wastewater Influent and Effluent Characterization	4-10
4-7	Puyallup Water Pollution Control Plant Design Criteria and Wastewater Influent and Effluent Characterization	4-12
5-1	Population Projections	5-4
5-2	Lift Station Flow (2019-2021)	5-5
5-3	Winter Water Consumption (2015-2019)	5-10
5-4	Infiltration/Inflow Rates (10-Year Storm Event – January 12, 2021)	5-11
5-5	Infiltration/Inflow Design Rates	5-11
5-6	Estimated ERU Growth	5-13
5-7	Peaking Factor Estimate	5-16
5-8	Estimated Wastewater Flow per Basin	5-17
5-9	Projected Wastewater Loadings per Basin	5-19
6-1	Minimum Slope of Sewer, by Size (Assuming Full Flow) (Table C1-1, Ecology *Criteria for Sewage Works Design*, 2023)	6-3
6-2	Estimated 2041 and Buildout Flows to Adjacent Sewer Providers	6-8
6-3	Lift Station Buildout Capacity Evaluation	6-9
6-4	Lift Station 18 Estimated Capacity and Design Criteria	6-11
6-5	Lift Station 16 Estimated Capacity and Design Criteria	6-14
6-6	Lift Station 17 Estimated Capacity and Design Criteria	6-14
6-7	Lift Station 15 Estimated Capacity and Design Criteria	6-17
6-8	Lift Station 12 Estimated Capacity and Design Criteria	6-19
6-9	Lift Station 13 Estimated Capacity and Design Criteria	6-21
6-10	Lift Station 14 Estimated Capacity and Design Criteria	6-23
6-11	Lift Station 8 Estimated Capacity and Design Criteria	6-26
6-12	Projected Lift Station 3 Peak Hour Flow	6-27

No.	Table	Page
6-13	Lift Station 7 Estimated Capacity and Design Criteria	6-29
6-14	Projected Lift Station 2 Peak Hour Flow	6-29
6-15	Projected Lift Station 1 Peak Hour Flow	6-31
6-16	Lift Station 11 Estimated Capacity and Design Criteria	6-32
6-17	Lift Station 10 Estimated Capacity and Design Criteria	6-33
6-18	Lift Station 9 Estimated Capacity and Design Criteria	6-35
6-19	Lift Station 5 Estimated Capacity and Design Criteria	6-39
6-20	Lift Station 6 Estimated Capacity and Design Criteria	6-40
6-21	Lift Station 4 Estimated Capacity and Design Criteria	6-41
7-1	Emergency Response Procedures for an Earthquake	7-7
7-2	Required Labor Hours for Sewer Utility Operation, Maintenance and Administration (2030)	7-12
7-3	Required Labor Hours for Sewer Utility Operation, Maintenance and Administration (2050)	7-13
7-4	Sewer Utility Staffing Analysis (2030)	7-14
7-5	Sewer Utility Staffing Analysis (2050)	7-15
8-1	Pipe Unit Price Cost Estimate	8-2
8-2	CIP Priority List	8-5
9-1	Scenario 1a: 100 Annual ERUs and Funding 25 Percent of CIP by 2050	9-2
9-2	Scenario 2a: 200 Annual ERUs and Fund 50 Percent of CIP by 2050	9-3
9-3	Scenario 1a Rate Increases	9-4
9-4	Scenario 2a Rate Increases	9-4
9-5	Sewer Utility Rate Comparisons	9-5

LIST OF FIGURES

No.	Figure	Follows Page
E-1	Sewer Service Areas	E-2
E-2	Proposed Collection System and Sewer Service Provider	E-4
1-1	Vicinity Map	1-2
2-1	Sewer Service Area	2-2
2-2	Topography	2-4
2-3	Soils	2-4
2-4	Surface Water Bodies	2-6
2-5	Wetlands	2-6
2-6	Frequently Flooded Areas	2-6
2-7	Wellhead Protection Areas	2-6
2-8	Water Systems	2-8
2-9	Existing Zoning	2-10
2-10	Future Land Use	2-10
2-11	Potential Buildout Zoning Designations	2-10
2-12	Sewer Basins	2-16

No.	Figure	Follows Page
2-13	Adjacent Treatment Providers	2-18
2-14	Wastewater Treatment Providers	2-18
4-1	Sewer Base Map	4-4
5-1	Lift Station 1 Average Daily Flow (mgd)	5-6
5-2	Sanitary Sewer Diurnal Curve	5-8
5-3	Peak Hour/Average Annual Peaking Factor (as a Function of Population)	5-9
6-1	Proposed Collection System and Sewer Service Provider	6-6
6-2	Basin Timeline	6-6
6-3	Collection System Improvements Service Area to Pierce County Sewer System (Treatment Provided by Tacoma Central Treatment Plant)	6-10
6-4	Collection System Improvements Service Area to City of Fife Sewer System (Treatment Provided by Tacoma Central Treatment Plant)	6-12
6-5	Collection System Improvements Service Area to City of Puyallup Sewer System (Treatment Provided by City of Puyallup)	6-16
6-6	Collection System Improvements Service Area to City of Edgewood Sewer System (Treatment Provided by LWSD)	6-22
8-1	CIP Priority	8-4
8-2	6-Year CIP Priority (2023-2029)	8-4
8-3	CIP Priority (2029-2050)	8-4
8-4	CIP Priority (Beyond 2050)	8-4

APPENDICES

Appendix A – SEPA Checklist
Appendix B – Capacity Analysis
Appendix C – Sewer Ordinances
Appendix D – Interlocal Agreements
Appendix E – LID Assessment Roll Figure
Appendix F – Cost Estimates
Appendix G – Rate Study
Appendix H – Connection Charge Study
Appendix I – Ordinance 20-0590
Appendix J – Letter of Concurrence from Adjacent Providers

LIST OF ACRONYMS

AAF	Average Annual Flow
BOD	Biological Oxygen Demand
CBOD	Carbonaceous Biochemical Oxygen Demand
CCTV	Closed Circuit Television
CDBG	Community Development Block Grant
CDC	Conveyance Development Charge
CEU	Continuing Education Unit
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CSWMP	Comprehensive Stormwater Management Plan
CWWTP	Central Wastewater Treatment Plant
CWA	Clean Water Act
DNS	Determination of Non-Significance
DPS	Distinct Population Segment
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMC	Edgewood Municipal Code
EPA	Environmental Protection Agency
ERU	Equivalent Residential Unit
ESA	Endangered Species Act
ESU	Evolutionarily Significant Units
FEMA	Federal Emergency Management Agency
FOG	Fats, Oil and Grease
FONSI	Finding of No Significant Impact
FTE	Full-time Employee
GO	General Obligation
GPAD	Gallons Per Acre Per Day
HPA	Hydraulic Projects Approval
IACC	Infrastructure Assistance Coordinating Council
I/I	Infiltration and Inflow
ILA	Interlocal Agreement
LFC	Local Facilities Charge
LID	Local Improvement District
LWSD	Lakehaven Water and Sewer District
MMDF	Maximum Month Design Flow
MMF	Maximum Month Flow
NBOD	Nitrogenous Oxygen Demand
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
OFM	Washington State Office of Financial Management
PDF	Peak Daily Flow
PHF	Peak Hour Flow

LIST OF ACRONYMS - continued

PHS	Priority Habitats and Species
PM	Preventative Maintenance
PNCWA	Pacific Northwest Clean Water Association
POTW	Publicly Owned Treatment Works
PSIU	Potential Signficant Industrial User
PSNGP	Puget Sound Nutrient General Permit
PWTF	Public Works Trust Fund
PWWT	Peak Wet Weather Flow Treatment
RCW	Revised Cost of Washington
SCADA	Supervisory Control and Data Acquisition
SEPA	State Environmental Policy Act
SIU	Significant Industrial User
SMA	Shoreline Management Act
SRF	Water Pollution Control State Revolving Fund
SWDP	State Waste Discharge Permit
TIN	Total Inorganic Nitrogen
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
UGA	Urban Growth Area
ULID	Utility Local Improvement District
UV	Ultraviolet Light
VARA	Vulnerable Aquifer Recharge Areas
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WEF	Water Environment Federation
WETRC	Washington Environmental Training Center
WHPA	Wellhead Protection Area
WPCP	Water Pollution Control Plant
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

This *General Sewer Plan* (*Sewer Plan*) for the City of Edgewood addresses the City's planning needs for wastewater collection and transmission for the 6-, 10- and 20-year planning period. In addition, the *Sewer Plan* provides a conceptual plan for providing sanitary sewers for buildout conditions with the goal of providing sewers to the entirety of the City. The *Sewer 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 *Sewer Plan* has been coordinated with the City of Edgewood 2015 *Comprehensive Plan* and more recent planning efforts.

EXISTING SEWER SERVICE AREAS

Currently the City of Edgewood sewer service areas (shown in Figure E-1) include the following:

- Approximately 280 acres in the north central portion of the City centered along Meridian Way designated in the 2007 *General Sewer Plan* as the Phase I Core, including the Puyallup School District Edgemont/Hilltop Campus identified in the "First Amendment to the Agreement Between City of Edgewood and Lakehaven Water and Sewer District" dated September 2021, and Non-Core East areas. Sewers and pump stations located in this service area are owned by the City of Edgewood. Wastewater collected in this service area is conveyed to the Lakehaven Water and Sewer District (LWSD) for treatment at the LWSD Lakota Wastewater Treatment Plant (WWTP). The "Interlocal Agreement Between City of Edgewood and Puyallup School District No. 3 Relating to Edgewood LID No. 1," 2008, included the Northwood Elementary School property located east of the Meridian corridor into the LID No. 1 (Phase I) service area.

- Approximately 186 acres located in the west central portion of the City. This area was designated as the Edgewood Non-Core West Phase I sewer area in the 2013 Interlocal Agreement between the City of Fife and the City of Edgewood regarding Sanitary Sewer Service, 2007 *General Sewer Plan*. The sewers in this area are currently owned by the City of Fife. Wastewater collected in this service area is conveyed through the City of Fife for treatment at the City of Tacoma Central Wastewater Treatment Plant (CWWTP).

- Approximately 34 acres located in the northern portion of the City west of Meridian Avenue North. Sewers in this area are owned by Pierce County. Wastewater collected in this service area is conveyed through the City of Milton via Pierce County-owned sewers to the Tacoma CWWTP.

- Approximately 10 acres in the Cherrywood Mobile Home Park located in the southwest portion of the City. The Cherrywood Mobile Home Park owns and operates the collection and treatment systems for the Mobile Home Park.

POPULATION AND FLOW FORECASTS

Chapter 2 provides detailed information regarding City planning and population projections. An annual growth rate of 2.5 percent was selected to project the future City of Edgewood service population, housing and employment.

Table E-1 presents population projections for the City.

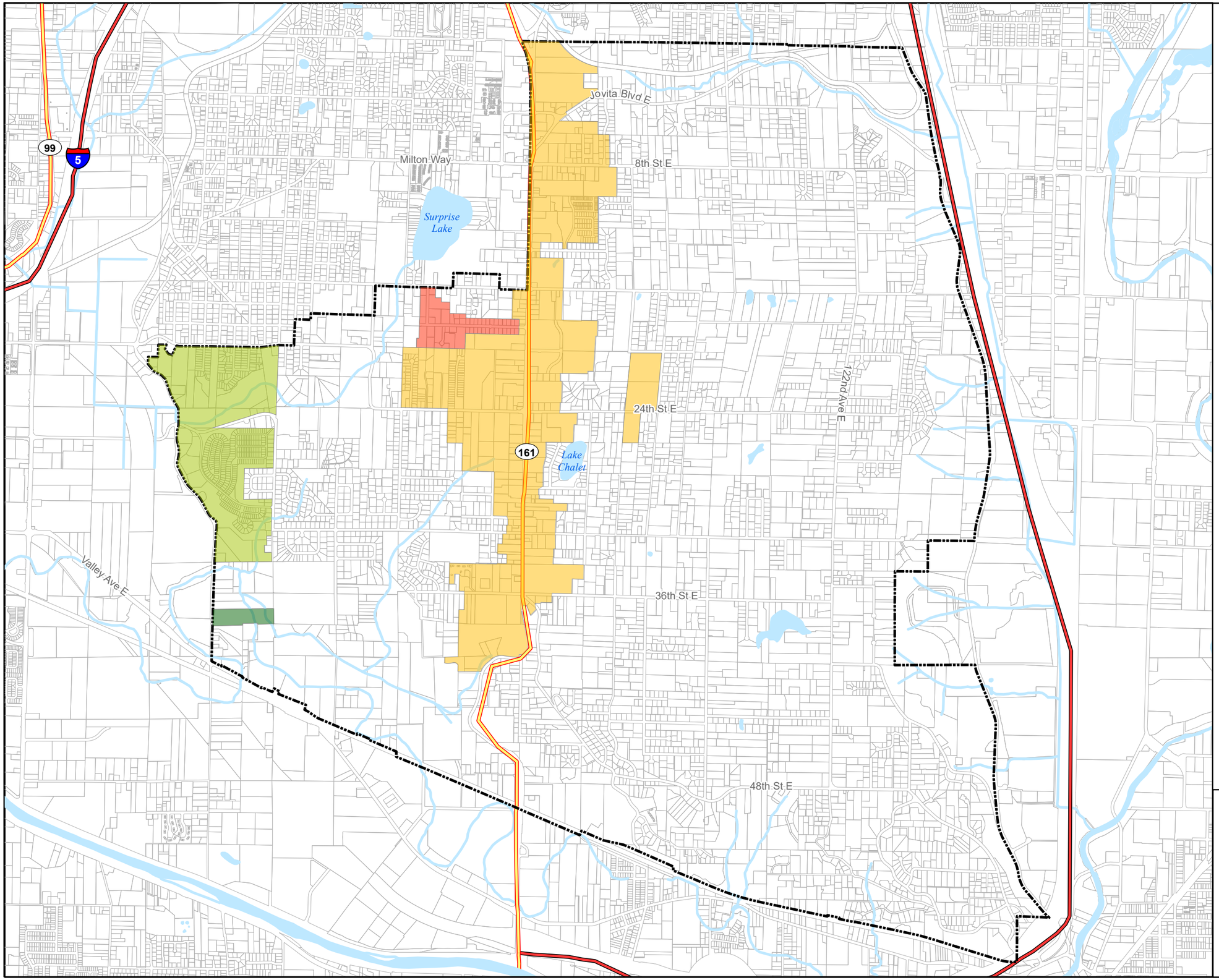
TABLE E-1

Projected Population, Housing and Employment in City of Edgewood
2.5 Percent Annual Growth Rate

Year	Population	Housing Units	Employees
2020	12,237 (1)	5,125	1,805
2022	12,951	5,384	1,896
2027	14,653	6,092	2,146
2031	16,174	6,724	2,368
2041	20,704	8,608	3,032
Buildout	36,181	--	--

(1) 2020 Census population, OFM.

Chapter 5 provides a detailed evaluation of past flows from the City of Edgewood sewer system and provides projections for the future based on the assumption that over time the entire City will be provided sewer service. Lift station records for the period from 2019 through 2021 and water use records for the properties located within the Edgewood sewer system service area were reviewed and analyzed to determine current wastewater flow characteristics including infiltration and inflow (I/I) estimates. Current wastewater flows and Department of Ecology recommended design loading criteria were used in conjunction with projected population data to determine projected future wastewater flows and loadings. Areal I/I rates (in gallons per acre per day, gpad) are assumed to be constant throughout the 20-year planning period. It is assumed I/I rates will increase in the future to account for the aging of the sewer system; therefore, higher I/I rates were used to determine buildout flows.



Provider

- Cherrywood MHP
- Fife
- Edgewood (LWSD)
- Pierce County
- Edgewood City Limits
- Parcels

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE E-1
SEWER SERVICE AREAS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Source: CIty of Edgewood GIS Data

L:\EDGEWOOD\19614 General Sewer Plan\GIS\APPRXs\SewerPlanFigureAdjustments\SewerPlanFigureAdjustments.aprx

Tables E-2 and E-3 summarize the 10- and 20-year influent flow and loading projections, respectively.

TABLE E-2

City of Edgewood Flow Projections

Flow Type	Projected Flow Rate (mgd)			
	Average Annual Flow (mgd)	Maximum Month Flow (mgd)	Peak Day Flow (mgd)	Peak Hour Flow (mgd)
2027	0.58	0.69	0.96	2.43
2031	0.78	0.92	1.29	3.16
2036	1.05	1.25	1.73	4.06
2041	1.35	1.59	2.20	4.91
Buildout	2.72	3.26	4.78	9.69

TABLE E-3

City of Edgewood Loading Projections

Loading (lb/d)	Maximum Month BOD	Maximum Month TSS
2027	2,009	2,009
2031	2,725	2,725
2036	3,690	3,690
2041	4,746	4,746
Buildout	9,118	9,118

COLLECTION SYSTEM EVALUATION

COLLECTION SYSTEM MODELING

Chapter 4 summarizes the collection system and its condition and provides information regarding the three WWTPs that have been identified as the treatment providers for specific areas of the City. The three treatment providers are LWSD (at the Lakota WWTP), the City of Tacoma (at the Tacoma CWWTP) and the City of Puyallup (at the Water Pollution Control Plant, WPCP).

The proposed future collection system and basins that would discharge to each of the proposed service providers is illustrated in Figure E-2. In general, wastewater collected in the existing City of Edgewood sewer service area and the eastern part of the City east of the Phase I Core area and north of approximately 36th Street East will be directed to

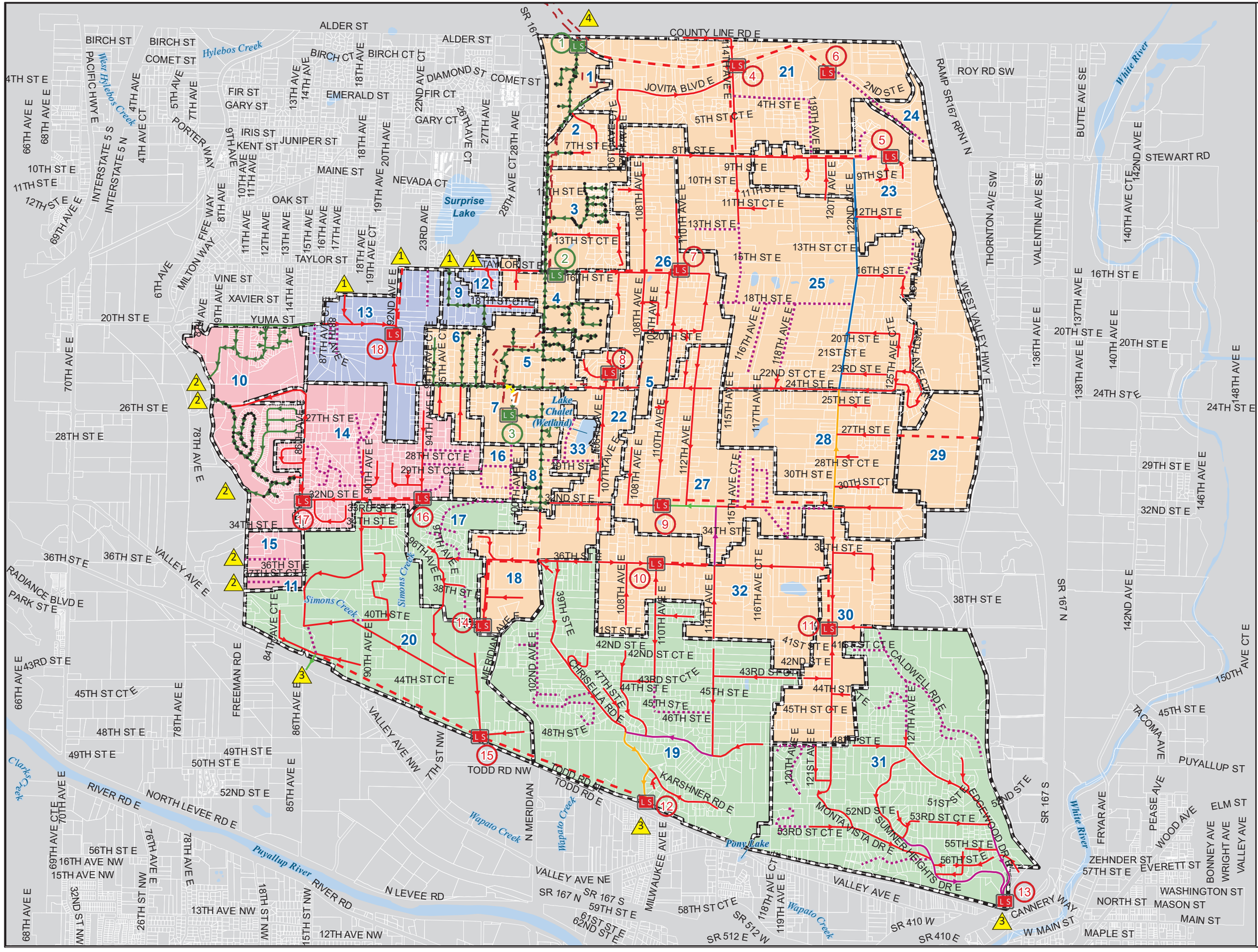
the LWSD for treatment at the Lakota WWTP. Wastewater collected in the eastern portion of the City that currently discharges to the City of Fife and the area bounded on the north by Yuma Street, on the south by 34th Street East, on the east by 86th Avenue East and the west by Freeman Road would be conveyed through the City of Fife and treated at the Tacoma CWWTP. Wastewater collected in the northwestern portion of the City west of Meridian Avenue North and bounded on the north by the City limits, the west by 86th Avenue East and approximately 24th Street East would be conveyed through the City of Milton (Pierce County owned sewers) and treated at the Tacoma CWWTP. Wastewater collected in the southern portion of the City located approximately south of 36th Street East would be conveyed via City of Puyallup sewers and treated at the Puyallup WPCP.

Chapter 6 evaluates the capacity of the existing system to accept project future flows and provides recommendation for collection system improvements to provide capacity to ensure adequate wastewater collection and conveyance over the next 20 years and buildout of the entire City. The City is divided into basins and subbasins based on the existing collection system configuration, topography and the proposed wastewater treatment provider.

The topography of the City will require the use of multiple lift stations to allow conveyance of wastewater, as shown in Figure E-2. The proposed system includes 18 larger lift stations and 26 areas that could be served either by individual grinder pumps that discharge to a small diameter force main or small lift stations (less than 100 gpm capacity) that will convey flow to a point of connection with the City's existing sewer system or the proposed system.

The *Sewer Plan* assumes that new sewers in the basins in the Phase I area (Basins 3 and 4), adjacent to the existing City sewer system (Basins 18 and 26), Pierce County sewer (Basin 12), the City of Fife sewers (Basin 11), the northern portion of Basin 21 and the southwest portion of Basin 20 (Prologics development) will be constructed within the 6-year planning period. Basins 13, 14, 16, the remainder of Basin 20, 21, 22, 24 and 33 will be sewered by the year 2050. Basins 15, 17, 19, 25, 27, 28, 29, 30, 31 and 32 would not begin to be sewered until 2050.

The estimated 2041 and buildout average annual day (AAF), maximum month (MMF), peak day (PDF) and peak hour (PHF) flows that would be conveyed to the adjacent treatment providers are shown in Table E-4. The City has existing agreements with LWSD and the City of Fife to accept wastewater from the Phase I basins and the Phase I West Non-Core basins, respectively. LWSD will accept up to 0.692 mgd (average day flow) from the Phase I basins per an MOU with Lakehaven (Memorandum of Understanding, O&M Conditional Acceptance of Edgewood Sewer System Agreement), dated July 27, 2011 including the Puyallup School District property known as the Edgemont/Hilltop Campus that was included in the Phase I LID by the "First Amendment to the Agreement Between City of Edgewood and Lakehaven Water and Sewer District" dated September 2021). The City of Fife will accept wastewater from a



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Project No. Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

- 1 Discharge to Pierce County
- 2 Discharge to Fife
- 3 Discharge to Puyallup
- 4 Discharge to LWSD

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE E-2
Proposed Collection System and Sewer Service Provider

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig 6-1_0628.mxd

maximum of 600 ERUs (estimated flow of 0.138 mgd based on 230 gpd, per the Interlocal Agreement with Fife dated November 5, 2013. The estimated 2041 and buildout flows for the Phase I and Phase I West Non-Core basins are shown separately in Table E-4.

TABLE E-4

Estimated 2041 and Buildout Flows to Adjacent Sewer Providers

Treatment Provider	2041					Buildout				
	AAF (mgd)	MMF (mgd)	PDF (mgd)	PHF (mgd)	PHF (gpm)	AAF (mgd)	MMF (mgd)	PDF (mgd)	PHF (mgd)	PHF (gpm)
Flow to LWSD – Phase I Basins (Basins 1 – 8)	0.36	0.39	0.47	1.05	730	0.52	0.57	0.71	1.33	926
Flow to LWSD – All Basins (Basins 1 – 8, 16, 18, 21 – 30, 32 and 33)	0.64	0.73	0.95	2.07	1,436	1.58	1.89	2.82	5.40	3,751
Flow to Pierce County (Basins 9, 12 and 13)	0.04	0.05	0.08	0.21	149	0.10	0.12	0.18	0.50	348
Flow to Fife – Phase I West Non-Core Basins (Basin 10)	0.09	0.10	0.13	0.38	264	0.17	0.19	0.25	0.66	459
Flow to Fife – All Basins (Basins 10, 11, 14 and 15)	0.16	0.19	0.14	0.69	476	0.31	0.36	0.49	1.27	881
Flow to Puyallup (Basins 17, 19, 20 and 31)	0.05	0.07	0.11	0.28	198	0.73	0.89	1.38	3.71	2,574

The City will negotiate agreements with LWSD, the Cities of Fife and Puyallup and Pierce County to accept future wastewater flows from the City.

CAPITAL IMPROVEMENT PLAN AND FINANCIAL ANALYSIS

Chapters 8 and 9, respectively, summarize the capital improvement plan and financial analysis. The proposed system improvements in the CIP are shown below in Table E-5. Each estimate is for a total project cost, including Washington State sales tax, construction contingency, and design engineering, construction management and permitting. All project costs are based on 2022 dollars.

All projects included in the CIP list will be necessary to provide sewer service to the entire City. The projects described generally include the entire infrastructure backbone that will be required in the basins. In a few cases, the CIP projects include a portion of the infrastructure for an entire basin completed as a separate project based on current development pressure or to complete a project in conjunction with adjacent transportation or utility projects.

A preliminary prioritization of projects is based on the following hierarchy:

1. Known development pressure (Basin 18 and portions of Basin 20);

2. Cherrywood Mobile Home Park connection to Fife (Ecology priority) (Basin 11);

3. Coordination with other planned or warranted capital improvements;

4. Proposed discharge into the existing Edgewood sewer system (Basins 16, 18, 21 through 30, 32 and 33);

5. Proposed discharge into the Fife sewer system (Basins 14 and 15);

6. Proposed discharge into the Pierce County sewer system (Basins 9, 12 and 13); and

7. Proposed discharge into the City of Puyallup sewer system (Basins 17, 19, 20 and 31).

TABLE E-5

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
6-Year CIP (2023 – 2029)				
LWSD - 1	18	LWSD	Lift Station 14 (190 gpm), 3,000 LF 6-inch force main. (Wolf Point)[(1)]	$2,563,400
Puy - 1	20	Puyallup	600 LF of 12-inch sewer main.[(2)]	$552,100
Fife-1	11	Fife/Tacoma	Cherrywood Lift Station, 800 LF 6-inch force main.[(3)]	$565,600
LWSD - 2	1	LWSD	Install three 75-hp pumps in Lift Station 1- 2025[(4)]	$1,087,300
LWSD-3	3	LWSD	2,600 LF 8-inch sewer main.	$2,000,100
LWSD-4	2	LWSD	1,200 LF 8-inch sewer main.	$923,100
LWSD-5	4	LWSD	1,500 LF 8-inch sewer main.	$1,153,900
PC-1	9	Pierce County/Tacoma	1,100 LF 8-inch sewer main.	$846,200
PC-2	12	Pierce County/Tacoma	1,000 LF 8-inch sewer main.	$769,300
LWSD-6	26	LWSD	11,500 LF 8-inch sewer main, Lift Station 7 (280 gpm), 2,400 6-inch force main.[(5)]	$11,518,200
LWSD - 7	21	LWSD	2,400 LF 4-inch force main, 500 LF 6-inch force main, 3,600 LF 10- and 12-inch force main, 2,600 LF small diameter force main.[(6)]	$4,689,900
LWSD - 8	4	LWSD	Install 3rd 25-hp pump in Lift Station 2- 2027 (surplus pump from LS 1).[(7)]	$50,000
Subtotal				**$26,719,100**
2029 – 2050 CIP				
LWSD - 9	7	LWSD	Install 3rd 25-hp pump in Lift Station 3 - 2029 (surplus pump from LS 1).[(8)]	$50,000
LWSD - 10	16	LWSD	1,800 LF 8-inch sewer main (north or 28th Street East)	$1,384,700
PC-3	13	Pierce County/Tacoma	4,050 LF 8-inch sewer main, 2,400 LF small diameter force main and grinders, Lift Station 18 (260 gpm), 1,510 LF 6-inch force main.	$6,613,100
LWSD-11	33	LWSD	1,550 LF small diameter force main and grinder pumps.	$982,900
LWSD-12	22	LWSD	4,450 LF 8-inch sewer main, Lift Station 8 (170 gpm), 1,560 LF 6-inch force main.	$5,304,800
LWSD-13	16	LWSD	2,260 LF small diameter force main and grinder pumps.	$1,433,100
LWSD- 14	18	LWSD	5,450 LF 8-inch sewer main	$4,192,400
LWSD - 15	4	LWSD	Install three 75-hp pumps in Lift Station 2 - 2036	$1,087,300
LWSD - 16	7	LWSD	Install three 75-hp pumps in Lift Station 3 - 2036	$1,087,300

TABLE E-5 – (continued)

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
Puy-2	20	Puyallup	18,500 LF 8-inch sewer main, 940 LF small diameter force main and grinder pumps, LS 15 (330 gpm), 4,100 LF 6-inch force main, railroad crossing.	$18,590,000
Fife-2	10	Fife/Tacoma	200 LF 8-inch sewer main, 480 LF 6-inch force main.	$343,300
Fife-3	14	Fife/Tacoma	14,400 LF 8-inch sewer main, 5,200 LF small diameter force main and grinder pumps, Lift Station 16 (150 gpm), Lift Station 17 (380 gpm), 1,750 LF 6-inch force main.	$18,170,000
LWSD-17	23	LWSD	5,600 LF 8-inch sewer main, 2,300 LF 18-inch sewer main, 650 LF 21-inch sewer main, 650 LF small diameter force main and grinder pumps, Lift Station 5 (2,070 gpm), 5,100 LF 10- and 12-inch parallel force main, 4,800 LF 12-inch force main (from Edgewood to LWSD)[9]	$19,455,400
LWSD-18	21	LWSD	6,100 LF 8-inch sewer main, grinder pumps, Lift Station 4 (610 gpm), Lift Station 6 (70 gpm).[(10)]	$7,912,500
LWSD-19	24	LWSD	1,490 LF small diameter force main and grinder pumps.	$944,900
LWSD-20	7	LWSD	200 LF of 10-inch sewer main, 643 LF 12-inch sewer main. (2041+)	$760,300
Subtotal				$87,551,700
Beyond 2050 CIP				
LWSD-21	25	LWSD	16,950 LF 8-inch sewer main, 3,800 LF 18-inch sewer main, 9,900 LF small diameter force main and grinder pumps, 480 LF 10- and 12-inch parallel force main.	$23,882,600
Puy-3	17	Puyallup	8,700 LF 8-inch sewer main, 3,500 LF small diameter force main and grinder pumps.	$4,296,500
Puy-4	19	Puyallup	18,860 LF 8-inch sewer main, 2,000 LF 10-inch sewer main, 2,600 LF 15-inch sewer main, 4,330 LF small diameter force main and grinder pumps, Lift Station 12 (930 gpm), 500 LF 8- and 10-inch parallel force mains, railroad crossing.	$25,824,400
Puy-5	31	Puyallup	13,800 LF 8-inch sewer main, 1,800 LF 10-inch sewer main, 8,850 LF small diameter force main and grinder pumps, Lift Station 13 (830 gpm), 500 LF 8-inch and 10-inch parallel force mains, railroad crossing.	$22,550,800

TABLE E-5 – (continued)

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
LWSD-22	28	LWSD	4,850 LF 8-inch sewer main, 2,600 LF 15-inch sewer main.	$6,175,600
LWSD-23	27	LWSD	10,850 LF 8-inch sewer main, 1,300 LF 10-inch sewer main, 1,300 LF 12-inch sewer main, 5,350 LF small diameter force main and grinder pumps, Lift Station 9 (450 gpm), 4,000 LF 8- and 10-inch parallel force mains.	$19,291,000
LWSD-24	32	LWSD	8,440 LF 8-inch sewer main, 20 LF 10-inch sewer main, Lift Station 10 (130 gpm), 1,300 LF 6-inch force main.	$8,287,200
LWSD-25	30	LWSD	8,250 LF 8-inch sewer main, 470 LF small diameter force main and grinder pumps, Lift Station 11 (240 gpm), 1,400 LF 6-inch force main.	$8,576,700
Fife-4	15	Fife/Tacoma	960 LF small diameter force main and grinder pumps.	$608,800
LWSD - 26	29	LWSD	1,820 LF 6-inch force main	$718,000
Subtotal				**$120,970,900**
Total				**$235,241,700**

(1) Project funded by developer. The City may incur costs for oversizing of the lift station to accommodate the future extension of sewers to the remainder of the basin.
(2) Gravity sewer from Prologics development to the existing sewer in Puyallup at approximately 27th Avenue Court NW. The City may incur costs for oversizing of the sewer to accommodate the future extension of sewers to the remainder of the basin.
(3) Ecology recommendation to connect Cherrywood Mobile Home Park to the City of Fife.
(4) Lift Station 1 current capacity with two 25-hp pumps exceeded in 2027 (Table 6-15). A third 25-hp pump could be installed or the existing pumps replaced with three 75-hp pumps which would allow the use of the existing 25-hp pumps at Lift Stations 2 and 3.
(5) Pair project with Stormwater Capital Improvement SW-10.
(6) Pair installation of the force mains along the Interurban Urban Trail with the project.
(7) Lift Station 2 capacity with two 25-hp pumps exceeded in 2027 (Table 6-14).
(8) Lift Station 3 capacity with two 25-hp pumps exceeded in 2029 (Table 6-12).
(9) 10- and 12-inch force along Interurban Trail installed in conjunction with trail project.
(10) 4-inch, 6-inch and small diameter force mains along Interurban Trail installed in conjunction with Interurban Trail construction capital project.

Chapter 9, Financial Program, summarizes the information provided in the *Sewer Utility Rate Study* (November 2022) and the *Conveyance Development Charge Update Report* (November 2022) prepared by the FCS GROUP. The Sewer Utility Rate Study assumed a conveyance development charge (CDC) of $14,000 per ERU would be in effect for new connections to the sewer system.

Projected rates were developed for two scenarios. The two scenarios differ based on the assumed capital funding strategies.

Scenario 1 assumed that 25 percent of the CIP list would be completed by the year 2050 by the following capital funding strategy:

- Cash Funded capital of $19 million by 2050 (17 percent of the scenarios 2022-2050 capital plan).
- Borrowing of $55 million by 2050 (48 percent of the scenarios 2022-2050 capital plan).
- CDC revenue of $40 million by 2050 (35 percent of the scenarios 2022-2050 capital plan, based on 100 ERUs per year and a CDC charge of $14,000.

Scenario 2 assumed that 50 percent of the CIP list would be completed by the year 2050 by the following capital funding strategy:

- Cash Funded capital of $27 million by 2050 (12 percent of the scenarios 2022-2050 capital plan).
- Borrowing of $119 million by 2050 (53 percent of the scenarios 2022-2050 capital plan).
- CDC revenue of $80 million by 2050 (35 percent of the scenarios 2022-2050 capital plan, based on 200 ERUs per year and a CDC charge of $14,000.

Tables E-6 and E-7 show the estimated rates per ERU needed to support expansion and operation and maintenance of the sewer system in accordance with Scenario 1 and 2, respectively.

TABLE E-6

Scenario 1a Projected Rates

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase (for capital projects only)	-	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	8.00%	2.50%
Monthly Base Rate per ERU (for capital projects only)	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.60	$10.47	$11.41	$26.77	$38.04
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.82	$1.99	$2.17	$5.09	$7.23
Estimated Monthly O&M Cost per ERU(1)	-	-	-	-	-	-	-	-	$16.84	$14.51	$16.21
Estimated Monthly Cost for Treatment per ERU(3)	$62.80	$64.68	$64.63	$68.62	$70.68	$72.80	$74.98	$77.23	$79.55	$103.42	$165.47
Total Monthly Rate per ERU(4)	$67.80	$70.28	$72.89	$75.64	$78.55	$81.61	$84.59	$87.71	$107.80	$144.70	$219.73

(1) Assumes (a) an O&M program begins in 2023; (b) O&M base rate is $397,280 (Chapter 7); (c) 1,166 ERU in 2022 (Table 2-9); (d) Addition of 100 ERUs/year; and (e) O&M cost inflation of 3 percent per year.
(2) Estimated cost of the O&M program in 2050 is $771,680 (Chapter 7).
(3) Based on cost of LWSD monthly cost for Edgewood residents, assumed cost inflation of 3 percent.
(4) Does not include Usage Rate.

TABLE E-7

Scenario 2a Proposed Rates

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase (for capital projects only)	--	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	6.00%
Monthly Base Rate per ERU	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.87	$11.05	$12.38	$28.74	$51.48
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.88	$2.10	$2.35	$5.46	$9.78
Estimated Monthly O&M Cost per ERU(1)	-	-	-	-	-	-	-	-	$11.97	$9.03	$9.50[2]
Estimated Monthly Cost for Treatment per ERU(3)	$62.80	$64.68	$64.63	$68.62	$70.68	$72.80	$74.98	$77.23	$79.55	$103.42	$165.47
Total Monthly Rate Per ERU(4)	$67.80	$70.28	$72.89	$75.64	$78.55	$81.61	$84.59	$87.71	$102.93	$139.22	$213.01

(1) Assumes (a) an O&M program begins in 2023; (b) O&M base rate is $397,280 (Chapter 7); (c) 1,166 ERU in 2022 (Table 2-9); (d) Addition of 200 ERUs/year; and (e) O&M cost inflation of 3 percent per year.
(2) Estimated cost of the O&M program in 2050 is $771,680 (Chapter 7).
(3) Based on cost of LWSD monthly cost for Edgewood residents. Assumed cost inflation of 3 percent.
(4) Does not include Usage Rate.

CHAPTER 1

INTRODUCTION

This *General Sewer Plan (Sewer Plan)* for the City of Edgewood (City) addresses the City's planning needs for wastewater collection and transmission for the 6-, 10- and beyond 20-year planning periods. The *Sewer 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 *Sewer Plan* has been coordinated with the City of Edgewood *2015 Comprehensive Plan* and more recent planning efforts.

The *Sewer Plan* provides proposed conceptual designs, cost estimates, a schedule, and a financing plan for recommended system improvements. A State Environmental Policy Act (SEPA) checklist is provided in Appendix A. The projects described in the *Sewer Plan* are consistent with Washington State regulations and guidelines for General Sewer Plans, as well as other relevant State regulations and guidance.

The City of Edgewood is located within Pierce County and is surrounded by the cities of Sumner, Puyallup, Fife, Milton and Pacific and a portion of unincorporated Pierce County as shown in Figure 1-1.

SCOPE OF WORK

The *Sewer Plan* updates the City's *2007 General Sewer Plan* and addresses the City's wastewater collection system expansion to service the entire City at buildout. This evaluation includes collection system modeling, analysis, a capital improvement plan with an associated cost analysis and schedule. The scope of work for the *Sewer Plan* includes the following items:

- 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 Projections and Design Criteria
- Chapter 6 – Collection System Analysis
- Chapter 7 – Operation and Maintenance
- Chapter 8 – Capital Improvement Plan
- Chapter 9 – Financial Plan

RELATED PLANNING DOCUMENTS

The following documents were consulted in the preparation of this Plan:

City of Edgewood Comprehensive Plan, 2015.

The *City of Edgewood Comprehensive Plan (2015 Comp Plan)* provides a vision, goals, policies, and specific actions for the community's development and quality of life through the planning period of 2015-2035. This comprehensive vision for Edgewood will be used as a guide for the development of future goals and policies to be enacted. The vision addresses two major areas concerning Edgewood's future including economic development and quality of life.

The Sewer element of the *2015 Comp Plan* states that the estimated time frame for completing connection to Phase I of the service area is 20 years after its installation in 2008 via a local improvement district (LID). The *2015 Comp Plan* notes that Phase II is planned to be sewered between the years 2028 and 2058. Phase III is planned to be sewered after the year 2058.

Lakehaven Comprehensive Wastewater System Plan, 2017

The *Comprehensive Wastewater Plan* (*2017 LWSD Plan*) provides an analysis of the existing wastewater collection and treatment systems operated by Lakehaven Water and Sewer District (LWSD) (formerly known as Lakehaven Utility District). It provides flow projections for the year 2020 and for Buildout.

Lakehaven Utility District Sewer Standards, 2015

This document outlines standard construction methods and specifications for sanitary sewer construction in the LWSD service area, including Edgewood.

City of Fife Comprehensive Sewer Plan Amendment, 2014

The *Comprehensive Sewer Plan* (*2014 Fife Amendment*) updated the City of Fife Comprehensive Sewer Plan to include sewer service to approximately 186 acres within the City of Edgewood city limits.

Pierce County Unified Sewer Plan, 2010

The *Unified Sewer Plan (2010 Pierce County Plan)* provides an analysis of the sewer collection system operated by Pierce County. It provides flow projections for the year 2022.

Federal Way
Auburn
Tacoma
Algona
Milton
Pacific
Fife
Edgewood
Sumner
Puyallup
Bonney Lake
99
5
161
162
410

Legend

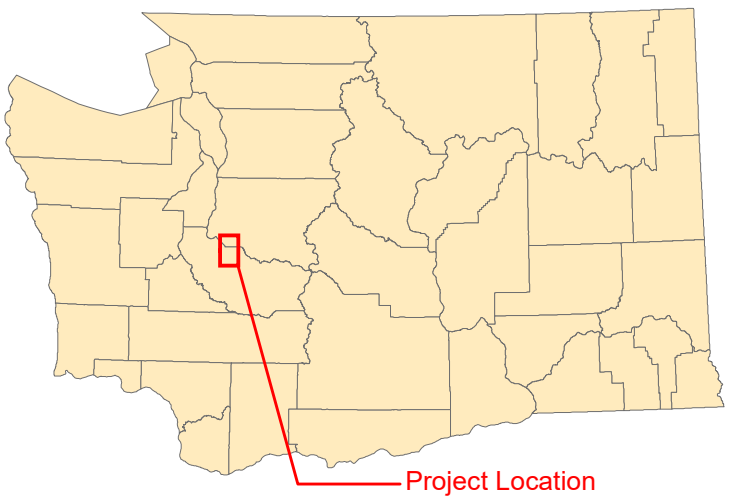
Pierce County Boundary

Edgewood

N

0 2,500 5,000 10,000 Feet

Vicinity



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CITY OF EDGEWOOD

GENERAL SEWER PLAN

FIGURE 1-1

VICINITY MAP

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\1-1 VICINITY MAP.mxd

Mt. View-Edgewood Water System Plan, 2017

The *Mt. View-Edgewood Water System Plan (2017 Mt. View Plan)* assesses the current and future capabilities of the Mt. View-Edgewood Water Company's water system and recommended needed improvements to provide water service through the 20-year planning period.

CHAPTER 2

LAND USE, POPULATION PROJECTIONS, AND SERVICE AREA CHARACTERISTICS

The City of Edgewood is located in northern Pierce County just north of the City of Puyallup, east of the City of Milton, northwest of the City of Sumner and about 10 miles east of the City of Tacoma. Eighty percent of the City is located on North Hill and twenty percent in the Puyallup Valley. The western portion of the City of Edgewood lies within the boundaries of the Puyallup Indian Reservation.

SEWER SERVICE AREAS

The City of Edgewood currently has four sewer service providers; City of Edgewood with treatment provided by the Lakehaven Water and Sewer District (LWSD) Lakota Wastewater Treatment Plant (WWTP), the City of Fife with treatment provided by the City of Tacoma Central Wastewater Treatment Plant (CWWTP), Pierce County with treatment provided by the Tacoma CWWTP and Cherrywood Mobile Home Park (Cherrywood) with treatment at an on-site wastewater treatment plant. The service areas are shown in Figure 2-1. The City has sewer service agreements with LWSD (January 2007) and the City of Fife (November 2013). Table 2-1 shows the area serviced by each of the sewer providers with the maximum number of connections allowed for each provider.

TABLE 2-1

Existing Sewer Service Areas

Provider	Area (ac)	Maximum Number of Connections	Average Flow (mgd)
City of Edgewood (Phase I Core and Non-Core East)	282.23[(1)]	2,724[(2)]	0.692[(3)]
City of Fife (Phase I Non-Core West)	186[(8)]	600[(4)]	0.138[(5)]
Pierce County	33.8	8[(6)]	--
Cherrywood Mobile Home Park	10.1	80[(7)]	.016[(7)]
Total	**386.09**		

(1) *2007 General Sewer Plan*, Table ES-1.
(2) Calculated based on 254 gpd/ERU, *2007 General Sewer Plan* Table ES-3.
(3) Memorandum of Understanding, O&M Conditional Acceptance of Edgewood Sewer System (7/27/2011).
(4) 2013 Fife/Edgewood Interlocal Agreement for Sanitary Sewer Service (11/5/2013).
(5) Based on maximum number of ERUs defined as 230 gallons per day flow (Fife ILA).
(6) Current number of connections (S. Hartwig email 4/21/23).
(7) Fact Sheet, NPDES Permit No. WA0037079 – Cherrywood Mobile Home Park.

(8) 2014 City of Fife Sewer Plan Amendment.

The *2007 General Sewer Plan* identified three phases for providing sewer service within City limits. Phase I areas would be connected to sewers within 20 years of the adoption of the *2007 General Sewer Plan*. Sewer Service would be provided to Phase II areas between 20- and 50-years after adoption of the *2007 General Sewer Plan* and Phase III areas would be provided sewer service beyond 50 years from the adoption of the *2007 General Sewer Plan*.

The boundaries of the proposed sewer service phases have been revised twice since the original agreement. The first amendment to the Interlocal Agreement (ILA) between the City and LWSD dated September 23, 2021 is based on Ordinance No. 21-0610. The first amendment updated the Phase I boundaries identified in the *2007 General Sewer Plan* that were inconsistent with the boundaries of the zoning districts established in 2015 with the adoption of the City's current Comprehensive Plan and concurrent rezoning effort. In addition, the revised boundary included two properties owned by the Puyallup School District that are collectively known as Edgemont/Hilltop Campus immediately north and south of 24th Street East, at or near the intersection of 24th Street East and 110th Avenue East. Sewer service to these properties is currently provided by a grinder pump system (owned and operated by the School District) and a small diameter force main connection to the Phase I sewer system at approximately 24th Street East and Meridian Avenue.

The second amendment to the ILA between the City and LWSD dated April 26, 2022 is based on Ordinance No. 22-0626. The second amendment updated the Phase I boundary to include the Wolf Point Subdivision, located south of the original Basin 18, and adjacent tributary areas. This amendment also removed some of the Phase II areas previously considered for future inclusion in the Phase I conveyance network. The current boundaries are shown in Figure 2-1.

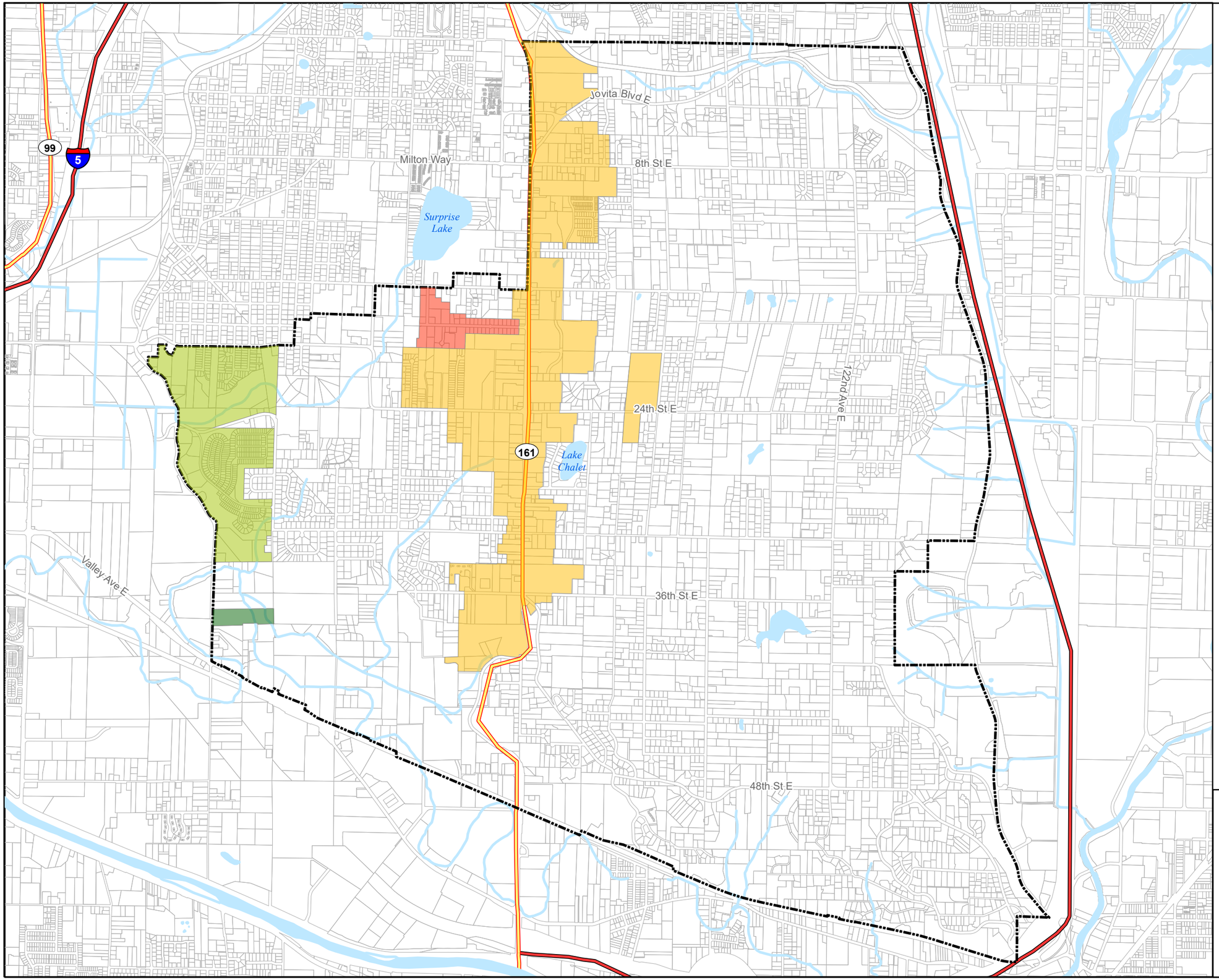
CITY OF EDGEWOOD

The City of Edgewood covers an area of approximately 5,400 acres. The boundary of the City's Urban Growth Area (UGA) coincides with the city limits.

ADJACENT SEWER SERVICE AREAS

The cities of Fife, Puyallup, Sumner and Pacific own and operate their own wastewater collection systems. Pierce County provides sewer service within the City of Milton. Wastewater collected by the City of Fife and Pierce County is treated at the City of Tacoma CWWTP.

LWSD owns and operates wastewater collection systems to the north of the City of Edgewood in unincorporated King County and portions of the Cities of Federal Way, Pacific, Auburn and Des Moines. All wastewater collected by LWSD is treated at LWSD owned wastewater treatment plants, the Lakota WWTP and the Redondo WWTP.



Provider

- Cherrywood MHP
- Fife
- Edgewood (LWSD)
- Pierce County
- Edgewood City Limits
- Parcels

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-1
SEWER SERVICE AREAS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Source: CIty of Edgewood GIS Data

L:\EDGEWOOD\19614 General Sewer Plan\GIS\APPRXs\SewerPlanFigureAdjustments\SewerPlanFigureAdjustments.aprx

NATURAL ENVIRONMENT

TOPOGRAPHY

Much of the City of Edgewood is informally known as North Hill and sits on a plateau above the Puyallup River to the south and White River to the east. Elevations on the plateau range between 300 and 500 feet. There are several closed depressions within the plateau area, known as "potholes." The plateau is surrounded by steep slopes to the west, south and east above the river valley. The elevation of the river valley plain is between 40 and 70 feet. The topography of the City is shown in Figure 2-2.

SOILS AND GEOLOGY

The North Hill plateau is overlain with till from the Vashon glaciation (15,000 to 13,500 years ago), over which outwash was deposited during glacial retreat. This till layer, approximately 2 to 4 feet below the ground surface on the plateau, prevents water from infiltrating deeper. The steep valley walls that border the plateau contain exposed outcrops that predate the Vashon glacial period.

The soils on the plateau are predominately Alderwood and Kapowsin soils with pockets of Everett, Indianola and Neilton soils. These soils have the potential for infiltration, however, the infiltration on the plateau is limited by the presence of glacial till below the surface soils. The soils in the east and south of the City near the valley floor are predominately Snohomish, Briscot, Puyallup, Shalcar and Sultan soils. These predominately clayey and loamy soils have higher runoff potential and lower infiltration potential, than the soils on the plateau. A detailed overview of soil classifications within the City is presented in Figure 2-3.

CLIMATE

The climate of the Puget Sound lowlands is heavily influenced by the Pacific Ocean to the west and other nearby large water bodies, as well as the Olympic and Cascade mountains. The local water bodies, including Puget Sound, moderate temperatures in Edgewood, typically keeping winter temperatures above freezing (32 degrees F) and summer temperatures below 80 degrees F. During the summer, rainfall is typically light. Table 2-2 summarizes the historical average climate and rainfall data for the Edgewood area.

TABLE 2-2

Average Monthly Climate Data

Month	High Temp.	Low Temp.	Precipitation (in.)
Jan	46	34	6.0
Feb	49	33	4.3
Mar	53	36	4.5
Apr	58	39	3.5
May	64	45	2.9
Jun	69	49	2.4
Jul	75	52	1.0
Aug	76	52	1.0
Sep	70	48	1.6
Oct	59	42	3.8
Nov	50	37	7.0
Dec	44	33	5.7
Total			**43.7**

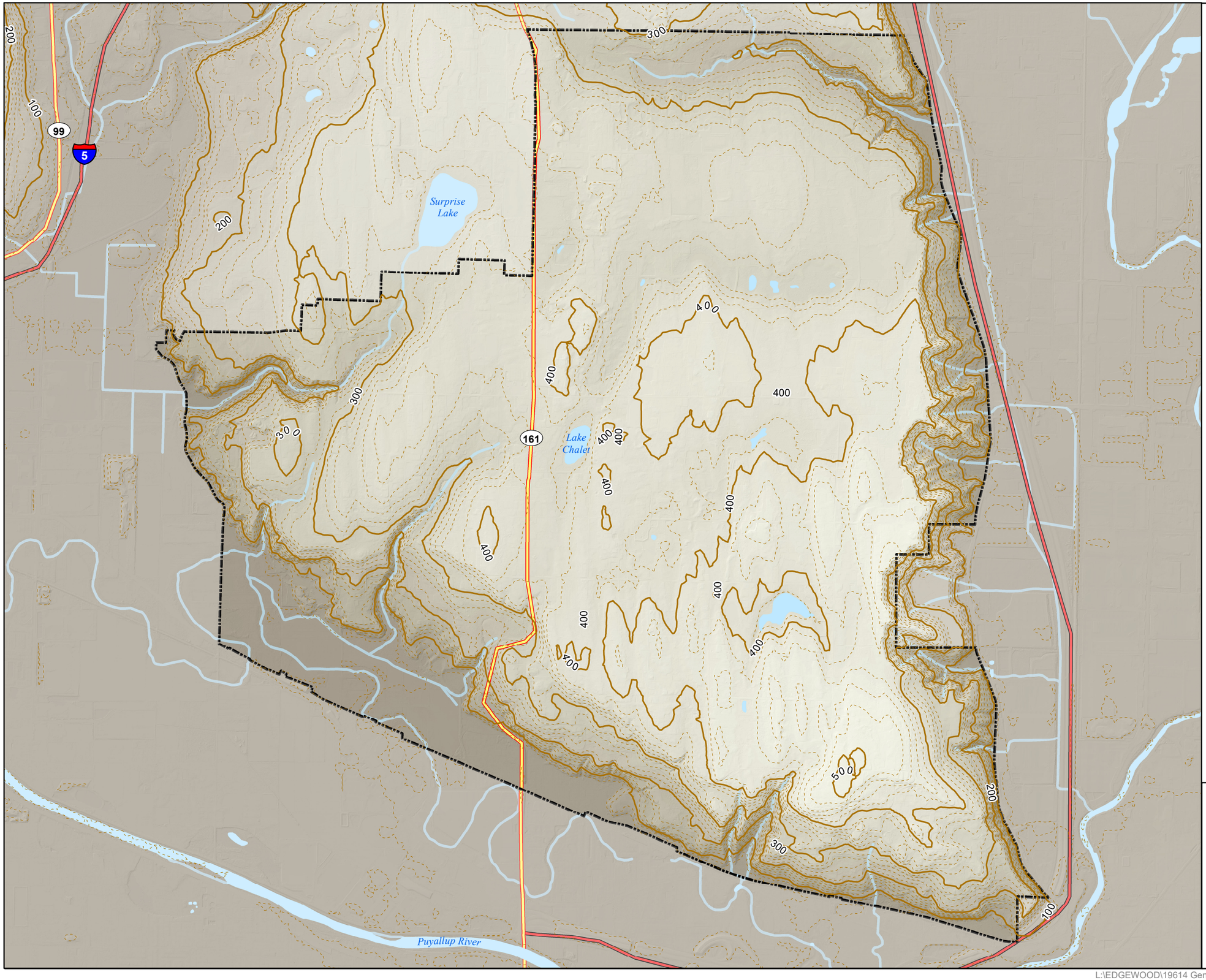
SITE-SENSITIVE AREAS

The following section summarizes information contained in the *2015 Comp Plan* regarding site-sensitive/critical areas that may impact the location of development and sewers. The *2015 Comp Plan* states that protecting the values of environmentally critical areas is an environmental preservation and conservation goal of the City.

Critical areas within the sewer service area include streams and watercourses, wetlands, frequently flooded areas, critical aquifer recharge areas, geologically hazardous areas, and fish and wildlife habitat conservation areas. Edgewood Municipal Code (EMC) Title 14, Critical Areas Regulation, provides protection to site-sensitive areas.

Policies implemented by the City to meet the environmental preservation and conservation goal include encouraging developments to be located away from environmentally sensitive areas, requiring clearing and grading practices to avoid or mitigate any harm to streams, lakes, steep slopes, and other critical areas, initiating planning efforts to address water quality, and providing flexibility in applying critical area protection to allow an economic use of property or a creative approach that provides equivalent protection.

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



Legend

Contours

- 100'
- 20'
- Edgewood City Limits

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

GENERAL SEWER PLAN

FIGURE 2-2

TOPOGRAPHY

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-2 TOPOGRAPHY.mxd

SOILS

- Alderwood gravelly sandy loam, 0 to 8 percent
- Alderwood gravelly sandy loam, 15 to 30 percent
- Alderwood gravelly sandy loam, 8 to 15 percent
- Bellingham silty clay loam
- Briscot loam
- Dupont muck
- Everett very gravelly sandy loam, 15 to 30 percent
- Everett very gravelly sandy loam, 8 to 15 percent
- Indianola loamy sand, 0 to 5 percent slopes
- Indianola loamy sand, 15 to 30 percent
- Indianola loamy sand, 5 to 15 percent slopes
- Kapowsin gravelly ashy loam, 0 to 6 percent
- Kapowsin gravelly ashy loam, 15 to 30 percent
- Kapowsin gravelly ashy loam, 6 to 15 percent
- Kitsap silt loam, 15 to 30 percent slopes
- Kitsap silt loam, 2 to 8 percent slopes
- Kitsap silt loam, 30 to 65 percent slopes
- Kitsap silt loam, 8 to 15 percent slopes
- McKenna gravelly loam
- Neilton gravelly loamy sand, 8 to 25 percent
- Norma fine sandy loam
- Pits
- Puget silty clay loam
- Puyallup fine sandy loam
- Ragnar sandy loam, 0 to 6 percent slopes
- Ragnar sandy loam, 6 to 15 percent slopes
- Semiahmoo muck
- Shalcar muck
- Snohomish silty clay loam
- Sultan silt loam
- Water
- Xerochrepts, 45 to 70 percent slopes
- Xerorthents, fill areas

Milton Way
Surprise Lake
Jovita Blvd E
8th St E
24th St E
36th St E
48th St E
122nd Ave E
Lake Chalet W
Valley Ave E
161
PITS

Soils

- Edgewood City Limits
- Parcels

Source: CIty of Edgewood GIS Data, ASEI Inc

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-3
SOILS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-3 SOILS.mxd

Steep Slopes/Landslide and Geologic Hazards

There are steep slopes along the southern, eastern and western areas of the City. Generally, they are associated with stream and drainage corridors that convey water from the plateau to the valley floor. Figure 2-2, Topography, shows the areas of steep slopes in the City.

Surface Water

The City of Edgewood has four perennial streams and six closed depression basins, referred to as potholes. Figure 2-4 shows the location of the surface water bodies and drainage subbasins in the City. The City's *2018 Comprehensive Stormwater Management Plan (2018 CSWMP)* describes the following major stream basins: White River, Jovita Creek, Puyallup River, Wapato Creek, Simons Creek and Hylebos Creek (includes Surprise Lake Creek). The streams generally start on the plateau and have steeply sloped, ravine-like channels that extend down to the floodplain. Many of the creeks have erosion problems when flows are high.

There are six closed depressions identified in the *2018 CSWMP*: Edgewood Bowl, Lake Chalet, Pinedale Pond, 108th Avenue, 122nd Avenue, and Surprise Lake. These basins have no natural flow paths that connect the potholes to a stream system. The basins are created by the undulating topography of the plateau. There are wetlands, ponds and other surface water features within the potholes. Many of the potholes experience regular flooding. Future development, resulting in an increase in the amount of impervious surface, is expected to exacerbate this flooding.

The City of Edgewood has no surface waters that are large enough for the City to be required to comply with the Shoreline Management Act.

Wetlands

Wetlands and riparian corridors perform valuable functions within the ecosystem. Clearing of vegetation, grading, filling, draining, and other activities associated with land development may decrease the ability of the riparian zone to provide drainage, stabilize stream banks, provide wildlife habitat, and filter pollutants from runoff. Wetlands receiving surface water from surrounding areas can filter entering pollutants by a combination of physical, chemical, and biological processes.

Wetlands also play a major role in flood control. During flooding, rivers and streams overflow their banks and spread out across the floodplain. Wetlands attenuate the peak flows from storm events by storing water during wet periods and discharging this stored water later during drier periods. Wetlands also provide habitat and a source of food for fish and wildlife.

Figure 2-5 shows the approximate location of wetlands within the city limits as identified by the City's GIS database. These areas include stream corridors, floodplains and potholes and cover approximately 6.5 percent of the area of the City.

Development proposals submitted to the City are required to identify wetlands and other critical areas. Protection of these areas is important to the City because of the critical habitat for salmon spawning and rearing that the streams and wetlands provide. Within Edgewood, the following streams have documented fish presence: Surprise Lake Creek, Jovita Creek, Simons Creek and Wapato Creek.

Frequently Flooded Areas

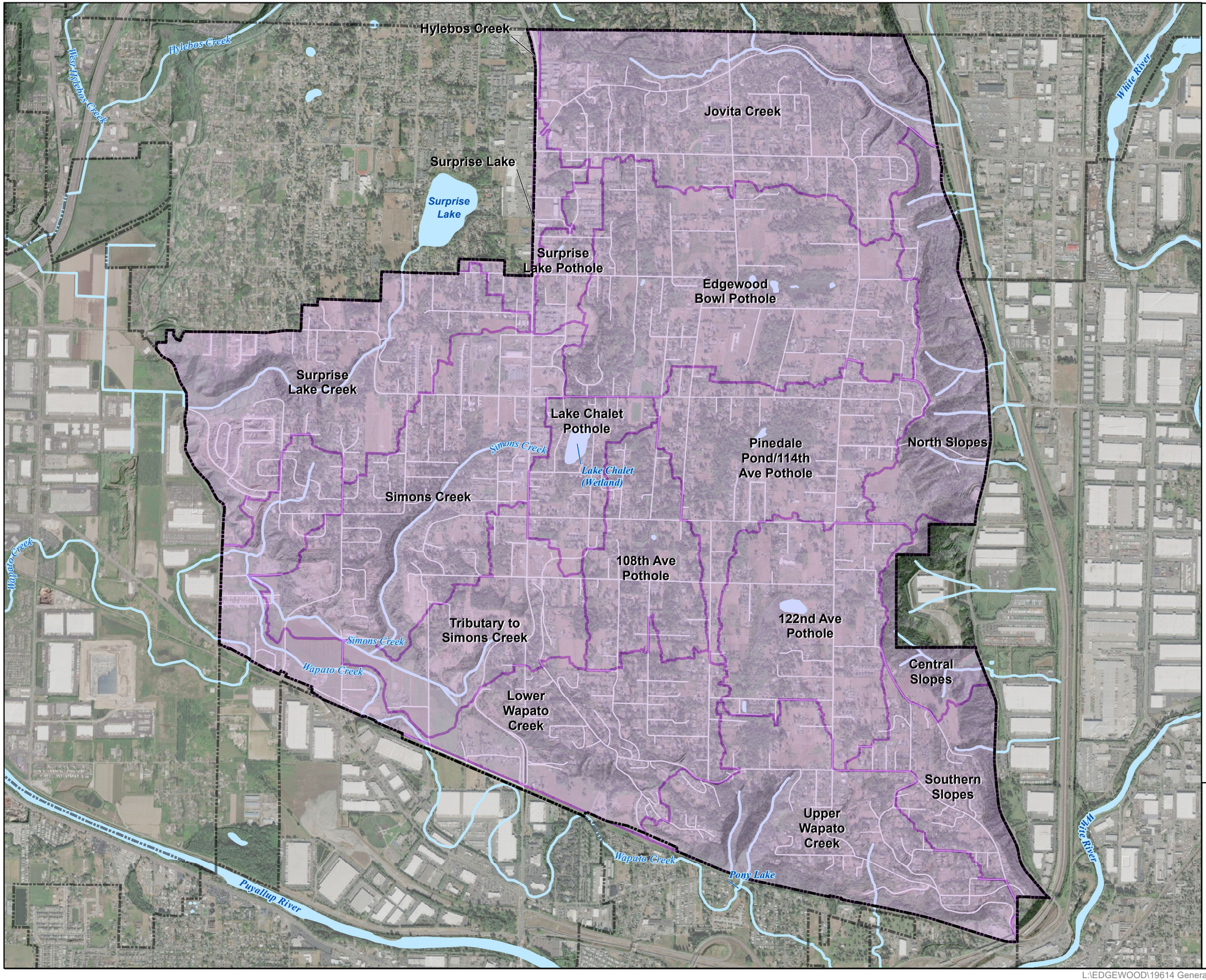
Frequently flooded areas serve multiple critical functions in urban environments. They store and convey stormwater during storm events, increase the ability of surface water to permeate soil and recharge groundwater, provide riparian habitat, and provide areas of recreation, education, scientific study, and aesthetic appreciation. 100-year flood areas, as identified by the Federal Emergency Management Agency (FEMA), are located along Jovita, Simons and Surprise Lake Creeks (Figure 2-6). FEMA mapping does not include flooding within the City's pothole basins.

Vulnerable Aquifer Recharge Areas

Vulnerable aquifer recharge areas (VARAs) are areas that have a critical effect on aquifers used for potable water as defined by WAC 365-190-030(2). Groundwater is the primary source of water for the water supplier, Mt. View-Edgewood Water Company. The Mt. View-Edgewood Water Company Wellhead Protection Plan lays out a source protection plan that includes a susceptibility assessment, identifies a wellhead protection area (WHPA) and provides a spill response plan. EMC 14.20.010 item 97 defines WHPA as "the area with the 10-year time-of-travel zone boundary or zone of contribution area of a Group A public water system well." Figure 2-7, reproduced from the *2017 Water System Plan*, identifies the location of the VARAs in the City. The *2017 Water System Plan* identified Wells 1R and 8, at the southern end of the City near Meridian Avenue as particularly vulnerable to traffic accidents on the Meridian transportation corridor which could contribute spilled materials toward the wells located at the foot of the hill. Well 9, the most productive well in the Mt. View-Edgewood system, was also noted as susceptible to contamination from activities at the Josties Pit.

Fish and Wildlife Habitat Conservation Areas

Sensitive fish and wildlife habitat are defined as areas meeting the definition of a "Fish and Wildlife Habitat Critical Area" pursuant to WAC 365-190-080(5) that are 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 Washington Department of Fish and Wildlife (WDFW) produced a map of Priority Habitats and Species (PHS) with



Legend

- Edgewood City Limits
- City Limits
- Subbasin
- Waterbody
- Creek/Stream
- Road

Source: CIty of Edgewood GIS Data

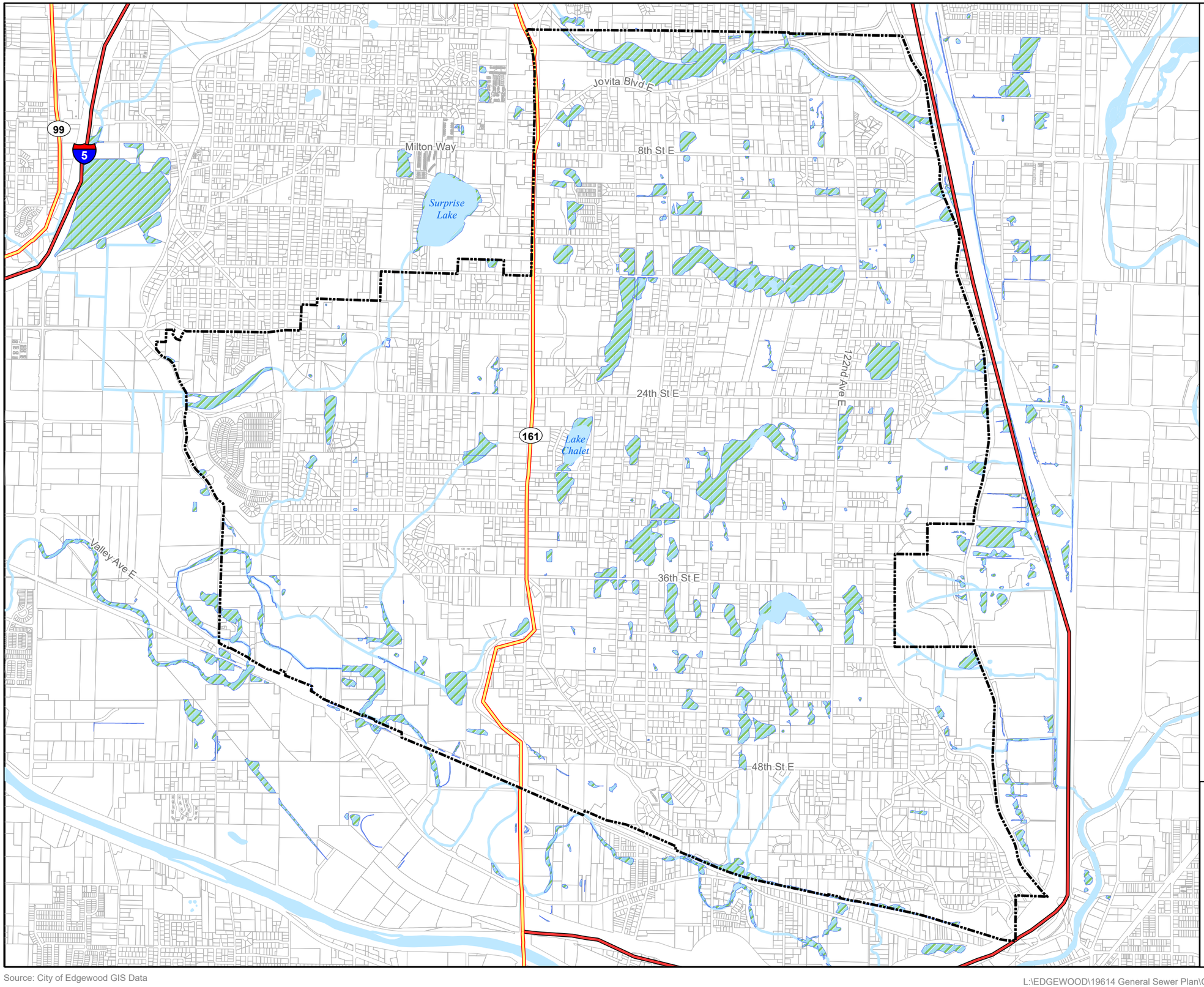
N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-4
SURFACE WATER BODIES

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-4 SURFACE WATER BODIES.mxd



Edgewood City Limits

Potential Wetland Critical Area

Parcels

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

GENERAL SEWER PLAN

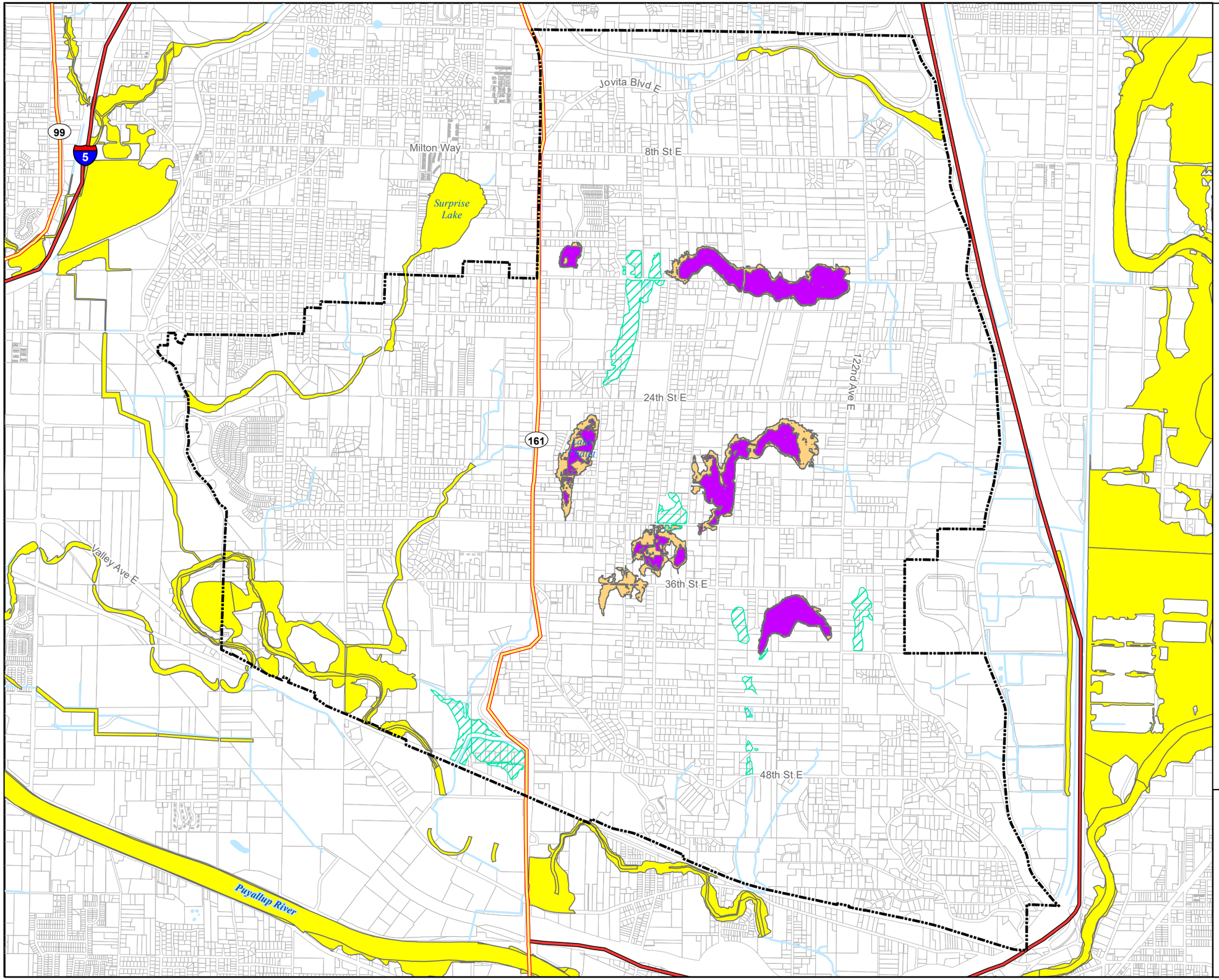
FIGURE 2-5

WETLANDS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Source: City of Edgewood GIS Data

L:\EDGEWOOD\19614 General Sewer Plan\GIS\APPRXs\SewerPlanFigureAdjustments\SewerPlanFigureAdjustments.aprx



Legend

- Edgewood City Limits
- City 100yr Floodplain
- City Flood Hazard
- City Floodway
- FEMA 100yr Floodplain
- FEMA Floodway
- Waterbody
- Water Lines
- Parcels

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

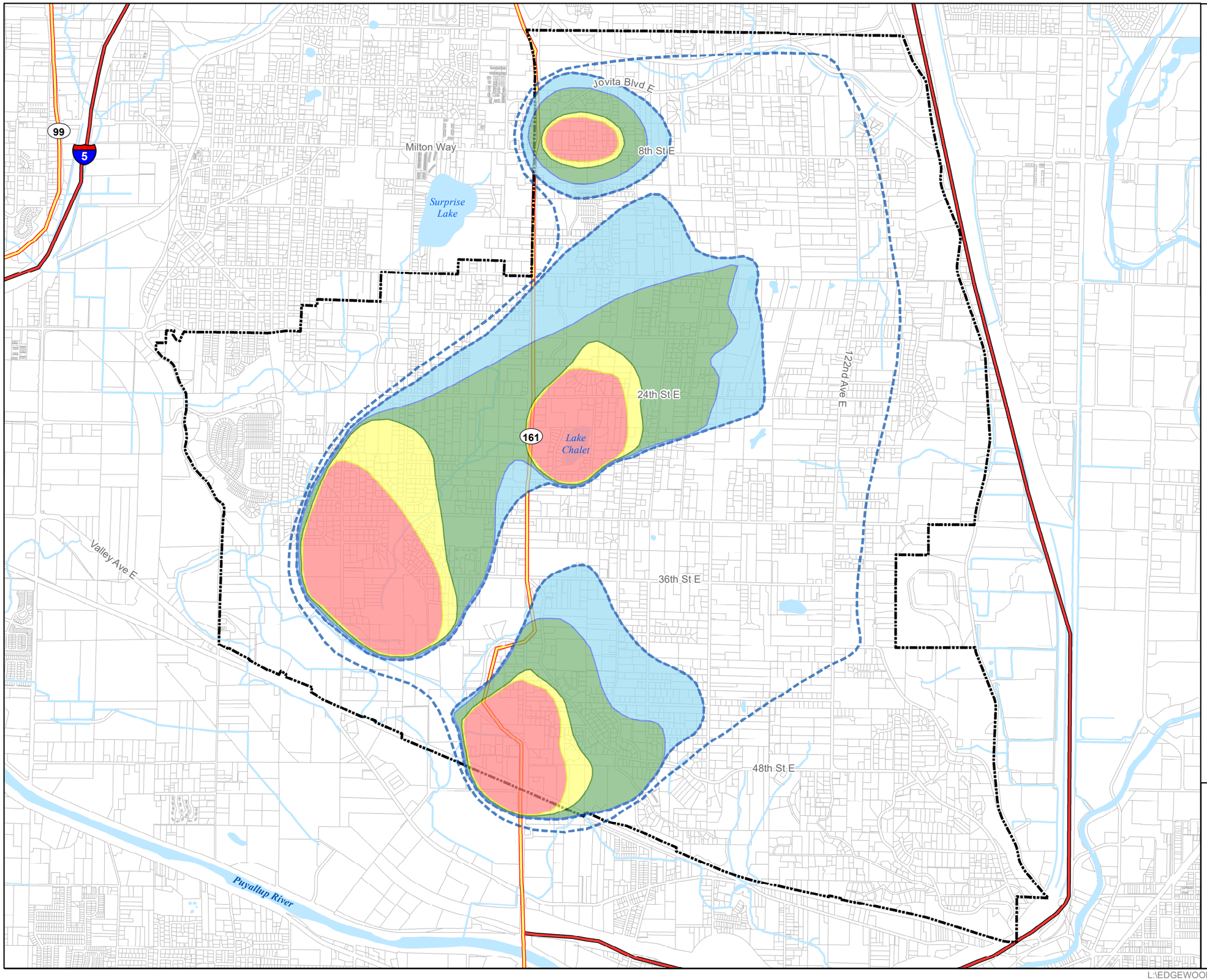
GENERAL SEWER PLAN

FIGURE 2-6

FREQUENTLY FLOODED AREAS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-6 FREQUENTLY FLOODED.mxd



Legend

- 6-Month
- 1 Year
- 5 Year
- 10 Year
- Zone of Contribution
- Edgewood City Limits
- Waterbody
- Water Lines
- Parcels

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

GENERAL SEWER PLAN

FIGURE 2-7

WELLHEAD PROTECTION AREAS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-7 WELLHEAD.mxd

data provided by agency biologists and other scientific sources. The City of Edgewood is included in this map, and has priority areas for aquatic and terrestrial habitat, breeding, species concentration, migration, and occurrence. The main areas of fish and wildlife habitat within the city are within riparian corridors, located along waterways and wetlands.

A majority of the City's natural landscape has been converted to suburban uses. Converted areas sustain commercially available landscape plants typically associated with suburban residential development.

Because of human activity and limited biological diversity, the habitat value of these areas is low, relative to natural communities. Areas that have been cleared but left vacant are often invaded by non-native species such as Himalayan blackberry; scotch broom, and reed canary grass.

The waters in the area are home to a number of species of trout and salmon, both year-round and some seasonally. The suburban areas contain a variety of small mammals, such as mice, squirrels, skunk, opossum, and raccoon. The *2015 Comp Plan* stated the following:

> *Aerial photos show that the Community is a mosaic of various types of vegetation. The largest, most contiguous areas of native vegetation in Edgewood are primarily found on the southern, western and eastern hillsides. These areas, together with wetlands and depressional areas, provide the highest quality wildlife habitat found in the City. However, areas of less intensive development contain mature trees and other vegetation, which provide secondary wildlife habitat and substantially contribute to the quality of life in our City.*

Table 2-3 summarizes the priority anadromous and resident fish species that have the potential for residing in the Edgewood area (WDFW Salmonscape Database). In reality, barriers within the creeks may make it difficult for these species to get to these respective locations.

TABLE 2-3

Priority Anadromous and Resident Fish Species[(1)]

Species	Jovita Creek	Simons Creek	Surprise Lake Creek	Wapato Creek
Chinook	✓[(2)]	✓	✓	✓
Pink Salmon	✓	✓	✓	✓
Chum	✓	✓	✓	✓
Coho		✓	✓	✓
Steelhead	✓	✓	✓	✓

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

EDGEWOOD WATER SYSTEM

Four public water utilities provide water service to the City of Edgewood: the Mt. View-Edgewood Water Company, the City of Milton Water Utility, LWSD and the City of Sumner. Approximately 80 percent of the City is served by the Mt. View-Edgewood Water Company. The City of Milton Water Utility serves the majority of the remainder of the City. There are water system wells owned by the LWSD, Mountain View Water Edgewood Water Company, the Cherrywood Mobile Home Park and private residential wells located within City limits. Wells are located in Sections 3, 8, 9, 11, 14 and 16 in Township 20 N Range 4 E. The water service boundaries for the water purveyors in Edgewood are shown in Figure 2-8.

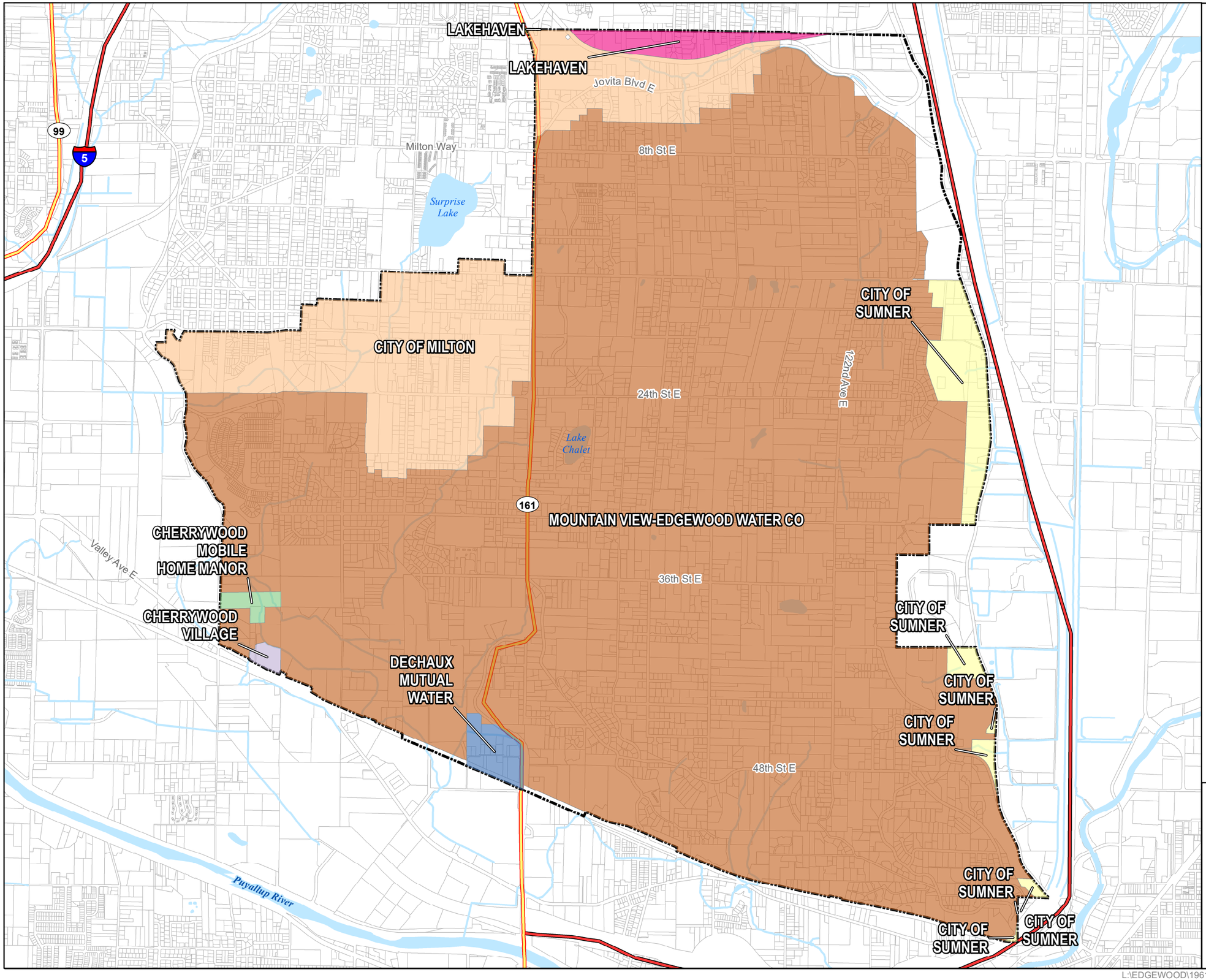
The Mt. View-Edgewood Water Company owns the water system that provides untreated groundwater sources to the majority of the City. Its facilities include nine wells, three steel reservoirs and eight booster stations, in addition to the distribution system. The *2017 Water System Plan* indicates that the Company has adequate capacity to meet demand through the planning period of 2036.

The City of Milton owns and operates a water system that serves Milton and adjacent areas, including portions of the Cities of Edgewood and Fife and unincorporated areas of King and Pierce Counties. The City of Milton has seven groundwater wells, three reservoirs and three pumping stations, in addition to the distribution system. The City of Milton chlorinates all sources, provides sodium hydroxide treatment for corrosion control for Wells Nos. 3, 10R and 12 and aeration for corrosion control, and pyrolusite filtration for manganese treatment for the two Corridor wells, Although the City of Milton has sufficient water rights for buildout of its service area, the groundwater sources are limited by aquifer constraints. Because of this, the City of Milton constructed an emergency intertie with the Mt. View-Edgewood Water Company.

LWSD provides water service to a small area in the northern-most portion of the City of Edgewood. The District's water system includes 24 wells, 12 reservoirs and three booster stations, in addition to the distribution system.

The City of Sumner provides water service to approximately 30 acres, with approximately 6 connections, within the easternmost area of the City of Edgewood.

The Mt. View-Edgewood Water Company, City of Milton water utility, LWSD water utility and the City of Sumner water utility are required to implement Water Use Efficiencies (WUE) programs in accordance with WAC 246-290. The water use information included in this Plan assume the following conservation measures followed by the water purveyors are effective in ensuring minimum excess water is discharged to the sewer system.



Legend

Water Providers

- CHERRYWOOD MOBILE HOME MANOR
- CHERRYWOOD VILLAGE
- CITY OF MILTON
- CITY OF SUMNER
- DECHAUX MUTUAL WATER
- LAKEHAVEN
- MOUNTAIN VIEW-EDGEWOOD WATER CO

- Edgewood City Limits
- Waterbody
- Water Lines
- Parcels

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-8
WATER SYSTEMS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-8 WATER SYSTEMS.mxd

The key elements of the Mt. View-Edgewood Water Company WUE are planning requirements such as establishing long-term forecast demand and data collection, meeting a Distribution System Leakage (DSL) Standard and setting goals and reporting performance. The City of Milton WUE program includes metering of all active sources and calibration of meters every 3 years, a leak detection and repair program, a customer education program that includes water use issues such as lawn watering, conservation tips, water saving devices, and continuation of the City's conservation rate structure. The LWSD WUE program includes supply-side and demand-side conservation measures. Supply side measures focus on efficiently meeting demand through leak detection and repair, metering all services, calibrating meters and planned use of reclaimed water. Demand-side strategies focus on decreasing the amount of water used through rate structures, public education, promotion of water saving devices and the publication of annual Consumer Confidence Reports. The City of Sumner WUE program includes enhanced billing history information on customer bills, conservation rate structures, comprehensive supply and demand side metering, reduction of the 3-year running average DSL to 10 percent or less by 2025, elimination of the potential unauthorized connection associated with two commercial/industrial properties, reduction of unauthorized withdrawals from City fire hydrants, upgrades to the supply side instrumentation and telemetry to accurately quantify water production totals and water main replacement that target leaking mains.

PLANNING PERIOD

In order to provide wastewater services for future growth, the wastewater system is in need of frequent evaluation and improvements. 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. The planning period for this *Sewer Plan* is from 2021 through 2041, coinciding with a 20-year planning interval.

LAND USE, ZONING, AND POPULATION

CURRENT LAND USE AND ZONING

Table 2-4 shows a summary of existing land use in the City of Edgewood. Currently, residential land use makes up more than 85 percent of Edgewood’s total land area. Commercial services, and industrial areas consist of approximately 3 percent of the City’s land use while the remaining area is designated for public facilities such as schools and recreation areas. Figure 2-9 shows the existing zoning and Figure 2-10 shows the future land use within Edgewood.

TABLE 2-4

Existing Land Use

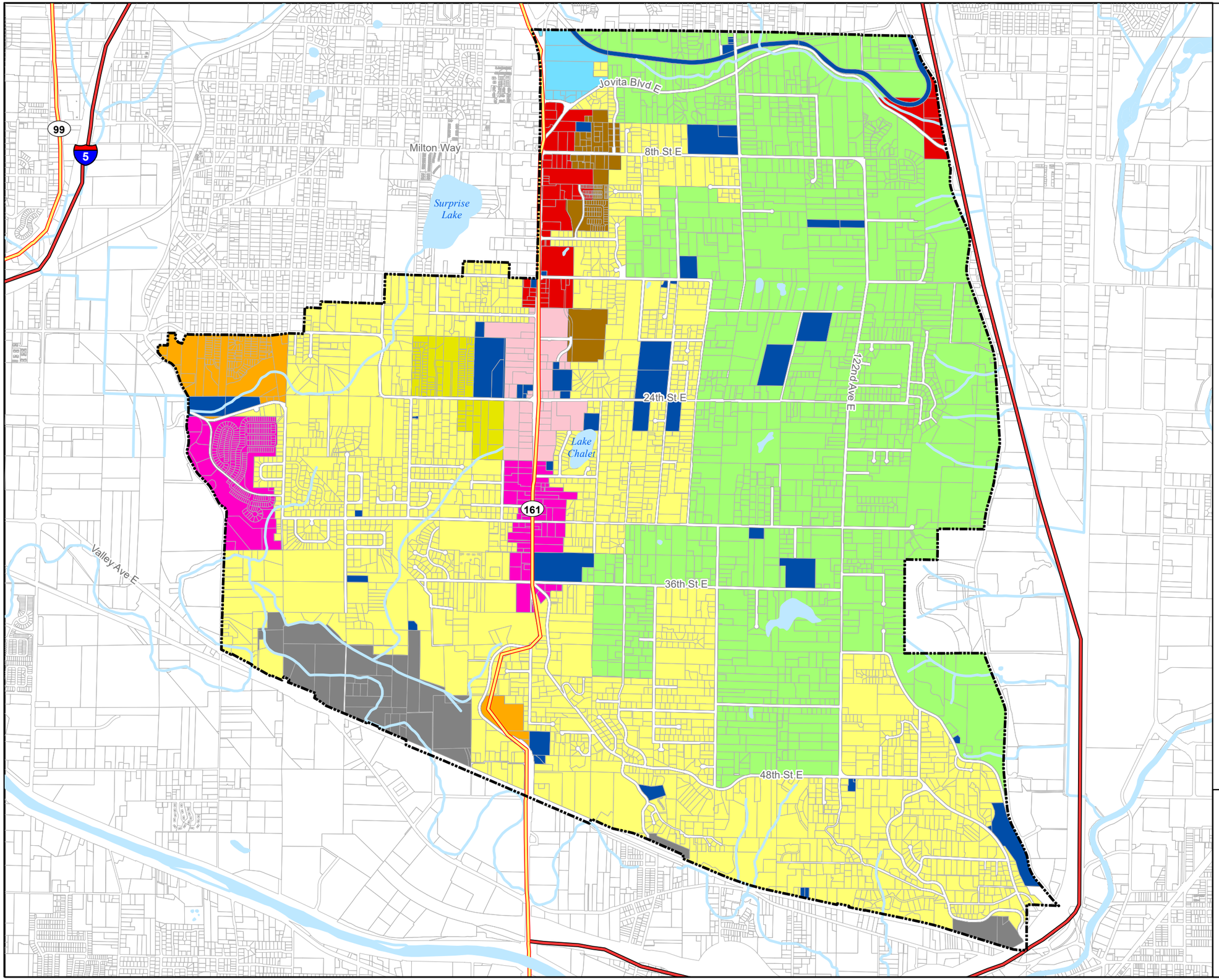
Land Use Category	Area[(1)] (ac)	Percentage
Single-Family	3,152	58.6%
Multi-Family	246	4.6%
Retail	33	0.6%
Services	84	1.6%
Industrial	16	0.3%
Civic	9	0.2%
Parks & Open Space	111	2.1%
Schools	56	1.0%
Utilities	41	0.8%
Resource Lands	303	5.6%
Unimproved Lands	883	16.4%
All Other Uses (Including Roads)	448	8.3%
Total	**5,382**	**100%**

(1) From 2015 Comp Plan.

The City of Edgewood conducted a land use capacity analysis in 2011, updated in 2015, which showed that the city has adequate capacity to meet the 2035 growth targets in the *2015 Comp Plan* for population of 13,700, 6,003 dwelling units and 3,094 employees.

CURRENT POPULATION

Table 2-5 provides a history of the population and housing units in Edgewood from 2010 to 2020, based on data from the Washington State Office of Financial Management (OFM). The average number of people per housing unit during this period is 2.48.



Legend

- Edgewood City Limits
- Parcels

Zoning

- SF-2 - Single Family Residential
- SF-3 - Single Family Residential
- SF-5 - Single Family Residential
- C - Commercial
- MR-1 - Mixed Residential
- MR-2 -Mixed Residential
- MUR - Mixed Use Residential
- TC - Town Center
- BP - Business Park
- I - Industrial
- P - Public

Source: CIty of Edgewood GIS Data

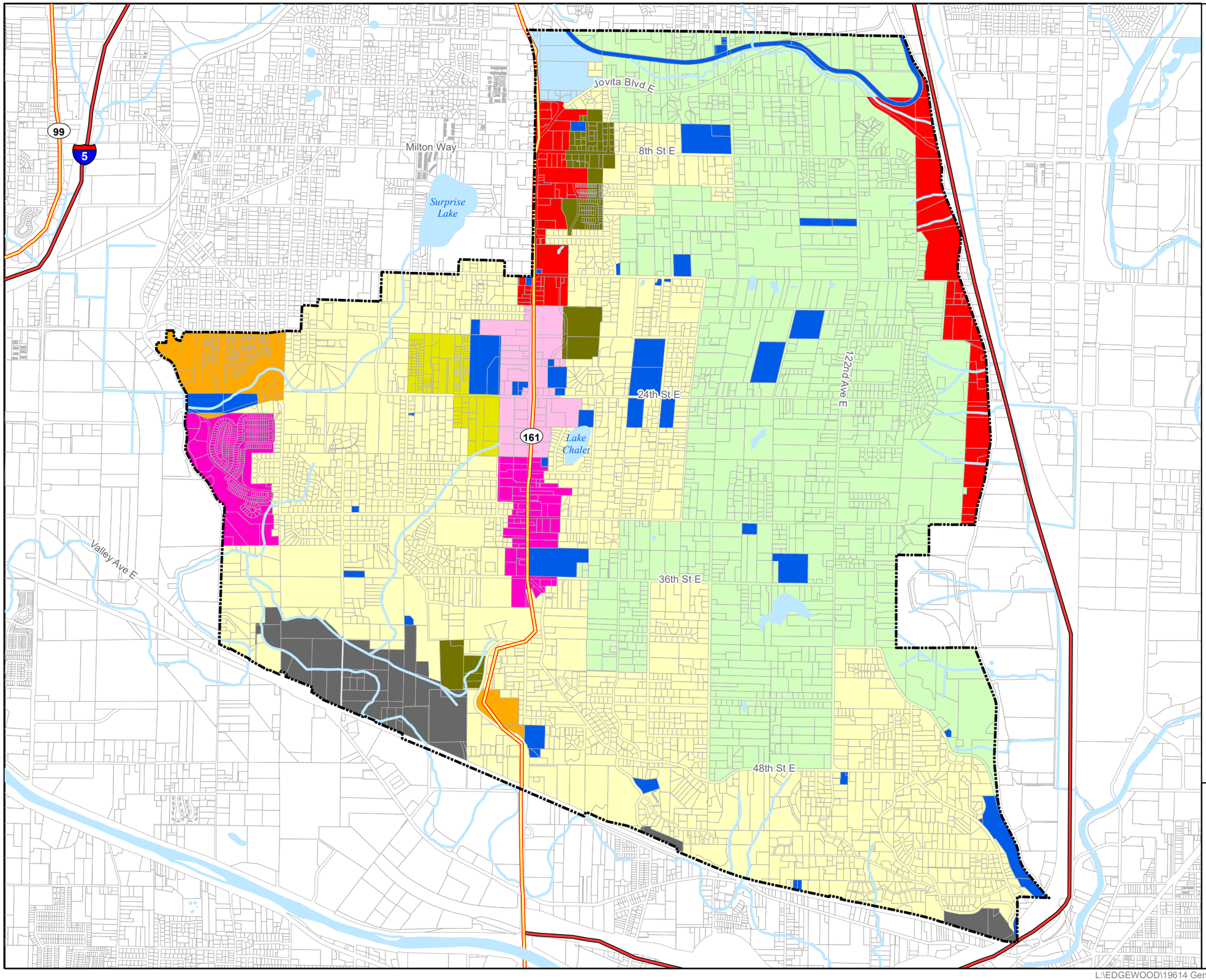
N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-9
EXISTING ZONING

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-9 EXISTING ZONING.mxd



Legend

- Edgewood City Limits
- Parcels

Future Land Use

- Single Family Low
- Single Family Moderate
- Single Family High
- Commercial
- Mixed Residential Low
- Mixed Residential Moderate
- Mixed Use Residential
- Town Center
- Business Park
- Industrial
- Public

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

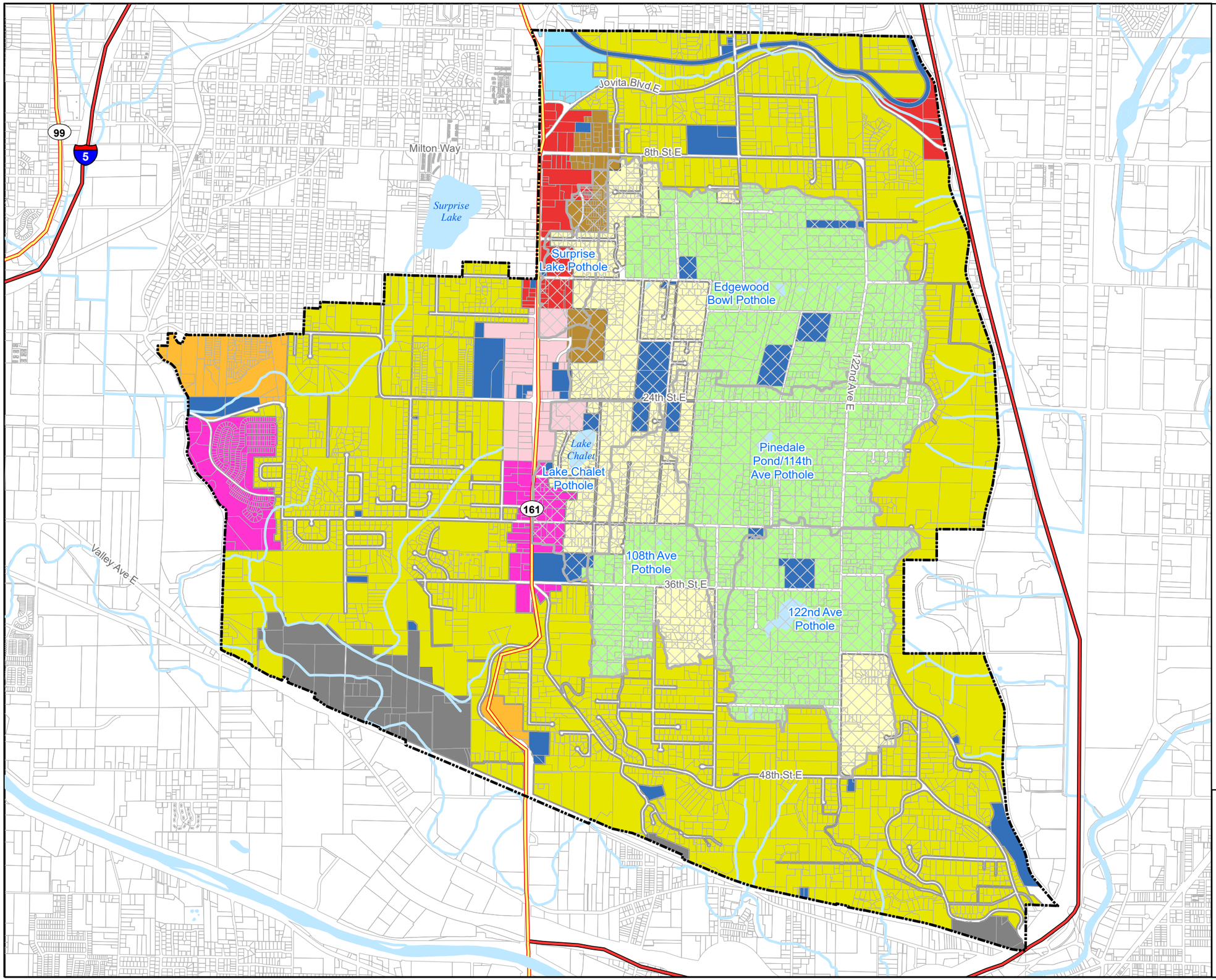
GENERAL SEWER PLAN

FIGURE 2-10

FUTURE LAND USE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-10 FUTURE LAND USE.mxd



Pothole Basins

Edgewood City Limits

Parcels

Zoning

- SF-2 - Single Family Residential
- SF-3 - Single Family Residential
- SF-5 - Single Family Residential
- C - Commercial
- MR-1 - Mixed Residential
- MR-2 -Mixed Residential
- MUR - Mixed Use Residential
- TC - Town Center
- BP - Business Park
- I - Industrial
- P - Public

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-11
POTENTIAL BUILDOUT ZONING DESIGNATIONS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Source: City of Edgewood GIS Data

L:\EDGEWOOD\19614 General Sewer Plan\GIS\APPRXs\SewerPlanFigureAdjustments\SewerPlanFigureAdjustments.aprx

TABLE 2-5

Historical Population 2010 to 2020[(1)]

Year	Population	Population Growth	Housing Units	Housing Unit Growth	Persons Per Housing Unit
2010	9,387		3,801		2.47
2011	9,405	0.2%	3,805	0.1%	2.47
2012	9,425	0.2%	3,812	0.2%	2.47
2013	9,460	0.4%	3,824	0.3%	2.47
2014	9,525	0.7%	3,853	0.8%	2.47
2015	9,615	0.9%	3,878	0.6%	2.48
2016	9,735	1.2%	3,892	0.4%	2.50
2017	10,420	7.0%	4,184	7.5%	2.49
2018	10,990	5.5%	4,458	6.5%	2.47
2019	11,390	3.6%	4,576	2.6%	2.49
2020	**12,327[2]**	**8.2%**	**4,858**	**6.2%**	2.48
Average		**2.8%**		**2.3%**	**2.48**

(1) Source: OFM. Population estimated as of April 1 of each year.
(2) Source: OFM, 2020 Census.

UPDATED CAPACITY ANALYSIS

The City requested an updated capacity analysis of build-out capacity of the City for this *Sewer Plan* based on future zoning for the existing SF-2 and SF-3 zoning areas. The City's proposed future revisions to zoning included revising all currently zoned SF-2 areas that are not in a pothole basin to SF-5 zoning, all currently zoned SF-3 areas that are located in the Surprise Lake and Lake Chalet pothole basins to SF-5 zoning and all currently zoned SF-3 areas located outside of the remaining pothole basins to SF-5 zoning. The potential buildout zoning designations assumed for the capacity analysis are shown in Figure 2-11.

The build out capacity analysis based on the future zoning indicates that institution of these zoning changes would create the potential of 9,194 additional housing units and 3,404 jobs as shown in Table 2-6. The complete capacity analysis tables are included in Appendix B.

The City selected a growth rate of 5 percent growth in population, housing and employment through the 20-year planning period for the comparison of the 20-year growth targets to available buildout capacity. Table 2-7 identifies the existing population, housing units and jobs, the 20-year projected population, housing units and jobs assuming 5 percent annual growth and the surplus capacity that would be available in the year 2042 assuming the future zoning revisions. As shown in Table 2-7, the City will have a deficit of 673 housing units and 71 jobs in 2042 if 5 percent annual growth occurs.

TABLE 2-6

Future Zoning Buildout Capacity Analysis

Zoning Designation	*2015 Comprehensive Plan* Estimated Net Developable Area[1][2] (ac)	Potential Buildout Zoning Estimated Net Developable Area[2] (ac)	Residential Density (unit/ac)	Dwelling Units	Estimated Build Out Population[3]	Estimated Net Employment Acres[1] (ac)	Employment Density (employee/acre)	Employment
Single Family 2 (SF-2)	665	370	2	740	1,835			
Single Family 3 (SF-3)	489	71	3	213	528			
Single Family 5 (SF-5)	18	1,067	5	5,334	13,228			
Mixed Residential 1 (MR-1)	43	38	4	153	379			
Mixed Residential 2 (MR-2)	27	24	8	189	469			
Town Center (TC)	22	24	48	1,133	2,810	17	19.37	332
Commercial (C)	10	11	48	547	1,357	30	19.37	584
Mixed Use Residential (MUR)	31	69.137	24	886	2,197	44	19.37	849
Business Park (BP)	20	19.7				20	19.37	390
Industrial (I)	7	7.0				33	11.15	367
Public (P)						79		881
Unzoned Areas (Including Roads)								
Total Additional Capacity				**9,194**	**22,803**			**3,404**

(1) Table 14, Adjusted Developable Land Capacity Inventory *2015 Comprehensive Plan*. Net developable area includes vacant and underdeveloped lands as identified in the 2015 Land Capacity Analysis, and removes area with constraints such as roads, critical areas, and parks/open spaces. Land Inventory was conducted in 2011.

(2) Net developable area methodology applied to revised zoning area.

(3) Assumes 2.48 persons per dwelling unit per Table 2-5.

TABLE 2-7

Comparison of Growth Targets and Available Capacity

	Existing	Growth Rate	2042 Target Based on Growth Rate	Available Capacity	Net Capacity
Dwelling Units	5,125(1)	5%	14,992	9,194	(673)
Population	12,327(2)	5%	36,060	22,803	(930)
Employment	1,805(3)	5%	5,280	3,404	(71)

(1) April 2020 OFM Population and Housing Postcensal Estimates.
(2) 2020 Census
(3) *2015 Comp Plan* employment estimate escalated by 1.16 percent.

PROJECTED FUTURE CITY POPULATION

The *2015 Comp Plan* assumed that the Pierce County Countywide Planning Policies 2030 growth targets of 13,700 population, 6,003 housing units and 3,094 employment positions would occur in the year 2035. The OFM population estimates provided in Table 2-5, indicate that population growth in Edgewood has exceeded 1.16 percent since 2016. Based on the 2013 census population estimate of 9,591, the assumed population growth rate in the *2015 Comp Plan* was 1.16 percent and the housing and employment growth rates were 2.6 percent and 3.4 percent, respectively to meet the growth targets in 2035. A growth rate which follows the rates presented in the 2015 *Comp Plan* represents the low range of growth projections.

As discussed above, City staff recommended using a 5 percent growth rate for population and housing for the 20-year planning period in the capacity analysis presented above. Five percent growth in population, housing and jobs represents the high range of growth projections.

A mid-range growth, housing and employment projection of 2.5 percent for each category was also evaluated.

Population, housing and employment growth may actually fall somewhere in the range of the projected growth rates. Table 2-8 illustrates the range of population, housing and employment projections through 2042 assuming the growth rates used in the *2015 Comp Plan* (low range), the projected population, housing and employment growth rate of 5 percent per year assumed in the capacity analysis (high range) and a mid-range growth rate for population, housing and employment growth of 2.5 percent per year.

TABLE 2-8

Population, Housing and Employment Projections

Growth Rate	1.16% Population, 2.6% Housing, 3.4 % Employment[1]			2.5% Population, Housing and Employment			5% Population, Housing and Employment		
Year	Population	Housing Units	Employees	Population	Housing Units	Employees	Population	Housing Units	Employees
2020	12,327[2]	5,125[3]	1,805[4]	12,327[2]	5,125[3]	1,805[4]	12,327[2]	5,125[3]	1,805[4]
2021	12,470	5,258	1,866	12,635	5,253	1,850	12,943	5,381	1,895
2022	12,610	5,395	1,930	12,951	5,384	1,896	13,591	5,650	1,990
2023	12,760	5,535	1,995	13,275	5,519	1,944	14,270	5,933	2,090
2024	12,910	5,679	2,063	13,607	5,657	1,992	14,984	6,229	2,194
2025	13,060	5,827	2,133	13,947	5,798	2,042	15,733	6,541	2,304
2026	13,210	5,979	2,206	14,296	5,943	2,093	16,519	6,868	2,419
2027	13,360	6,134	2,281	14,653	6,092	2,146	17,345	7,211	2,540
2028	13,510	6,293	2,359	15,019	6,244	2,199	18,213	7,572	2,667
2029	13,670	6,457	2,439	15,395	6,400	2,254	19,123	7,951	2,800
2030	13,830	6,625	2,522	15,780	6,560	2,311	20,079	8,348	2,940
2031	13,990	6,797	2,607	16,174	6,724	2,368	21,083	8,765	3,087
2032	14,150	6,974	2,696	16,578	6,892	2,428	22,138	9,204	3,242
2033	14,310	7,155	2,788	16,993	7,064	2,488	23,244	9,664	3,404
2034	14,480	7,341	2,882	17,418	7,241	2,550	24,407	10,147	3,574
2035	14,650	7,532	2,980	17,853	7,422	2,614	25,627	10,655	3,752
2036	14,820	7,728	3,082	18,300	7,608	2,680	26,908	11,187	3,940
2037	14,990	7,929	3,187	18,757	7,798	2,747	28,254	11,747	4,137
2038	15,160	8,135	3,295	19,226	7,993	2,815	29,666	12,334	4,344
2039	15,340	8,347	3,407	19,707	8,193	2,886	31,150	12,951	4,561
2040	15,520	8,564	3,523	20,199	8,398	2,958	32,707	13,598	4,789
2041	15,700	8,787	3,643	20,704	8,608	3,032	34,343	14,278	5,029
2042	15,880	9,015	3,766	21,222	8,823	3,107	36,060	14,992	5,280

(1) Growth estimate from *2015 Comp Plan.*
(2) 2020 Census population, OFM.
(3) Postcensal Estimates of Housing Units, April 1, 2020 to April 1, 2021 (Revised), OFM
(4) Extrapolated from *2015 Comp Plan* Employee estimate 1,379 employees (year 2011) with annual growth rate of 3.4 percent (*2015 Comp Plan*) to 2020.

Based on the growth projections shown in Table 2-8 the estimated range of 2042 population in Edgewood is 17,479 to 36,060 people. The *Sewer Plan* will assume the mid-range annual population housing and employment growth rate of 2.5 percent through the planning period for sewer planning purposes.

SEWER EQUIVALENT RESIDENTIAL UNITS (ERUS)

Table 2-9 provides an estimate of the average number of sewer connections and ERUs in the City of Edgewood in 2020. Further information regarding the sanitary flows related to these ERUs is provided in Chapter 5.

TABLE 2-9

Billed Connections and ERUs by Customer Class

Customer Class	LWSD Connections[(1)]	LWSD ERUs[(1)]	Pierce County Connections[(2)]	Pierce County ERUs[(2)]	Fife Connections[(3)]	Fife ERUs[(3)]
Residential	121	169	13	5	197	197
Multi-Family	52	698.48				
Commercial	50	81.28				
Public Authority[(4)]	4	19.99				
Non-Billing[(5)]	2	0				
Total	**306**	**968.75**	**13**	**5**	**197**	**197**

(1) LWSD November 2011 Billing Report. Connections based on completed and billed accounts.
(2) Parcel connections information from Pierce County, email 12/01/21.
(3) Fife August 2020 Billing Report.
(4) Includes Northwood Elementary School, Edgemont Junior High, City Hall and Fire Station.
(5) Edgewood Bible Church/School and Edgewood Memory Care Facility stubs.

Businesses in the service area generally consist of retail outlets, service oriented business, professional offices and restaurants. At this time there does not appear to be a single business that would place extraordinary demand on the sewer system. There are relatively few industries within the City of Edgewood. No businesses within city limits currently hold a State Waste Discharge permit and the businesses and industries are not anticipated to have much of an effect on the projected loadings to the collection system or wastewater treatment plant downstream.

SEWER BASINS

The *2007 Sewer Plan* divided the City into sewer basins for the development of future flows. The configuration of the basins and designation of the basins as Phase I, II or III service hierarchy was identified in Figure ES-3 in the *2007 General Sewer Plan*. Phase I basins were assumed to be completely sewered by 2027; Phase II basins were assumed to be sewered between 2027 and 2057; and Phase III basins were not assumed to be sewered until after 2057.

This Plan will identify the backbone of a sewer system for the entire City. Figure 2-12 illustrates the basins identified for this *Sewer Plan.* Basins outside of the original Phase I basins are not identified as having specific timeframes for development. Basins are defined by existing infrastructure and/or service agreements, topography, and potential wastewater treatment service providers.

Basins that were delineated based on existing service agreements include:

- The basins identified as Phase I basins in the *2007 General Sewer Plan*, Basins 1 through 8 and 18, have been maintained. These basins are included in the sewer service area identified in the 2007 agreement between the City and LWSD. The First Amendment to the 2007 agreement between the City and LWSD (September 2021) incorporated the non-contiguous portion of Basin 5, Parcels 0420102037, 0420102018, and 0420103132, which are owned by the Puyallup School District #3, into the Phase I service area.

- Basin 9 flows to the north into the collection system in Milton managed by Pierce County.

- Basin 10 is the service area that was included in the interlocal agreement between the City of Fife and the City of Edgewood in 2013. This area was identified as the Phase I – Non-Core West area in the *2007 General Sewer Plan*. (Note: This basin is identified as Basin 13 in the 2014 City of Fife Sewer Plan Amendment.)

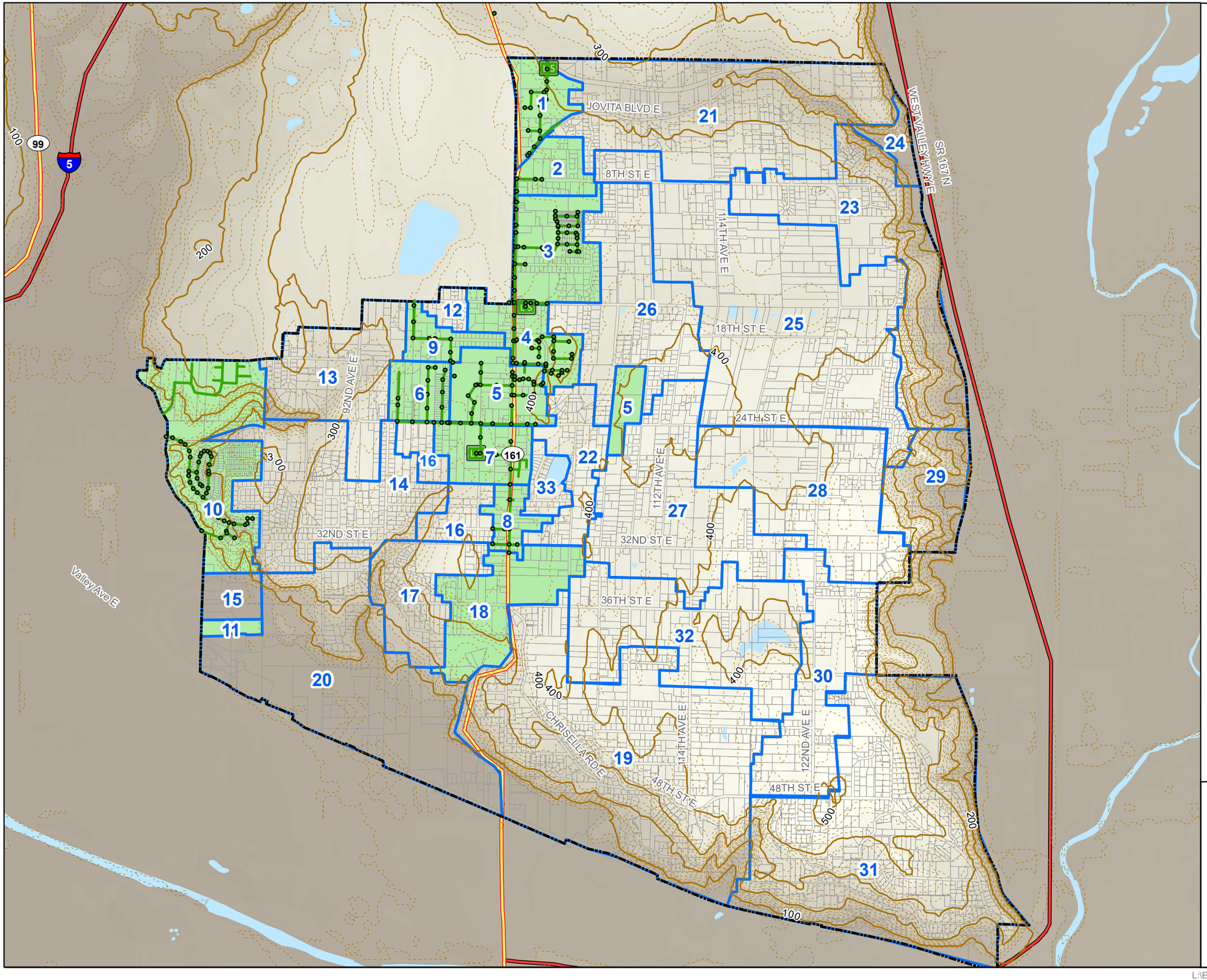
The remainder of the City has been divided into smaller basins defined by topography and potential treatment providers.

Basins 22 and 33 and portions of Basins 25, 26 and 27 generally include the areas east of the Phase I core area that were included in the schematic design calculations for sizing the Phase I conveyance system in the *2007 General Sewer Plan*.

Basins 12, 16 and 17 are located immediately west of the Phase I core area. Basin 12 and portions of Basins 16 and 17 were included in the schematic design calculations for sizing the Phase I conveyance system in the *2007 General Sewer Plan*.

Basins 11, 13, 14, 15, and 20 are located west of the Phase I area. Basin 11 is the Cherrywood Mobile Home Park on the far west side of the City. Cherrywood Mobile Home Park has a private sewer collection and treatment system.

Basins 19, 21, 23, 24, 25, 28, 29, 30 and 31 are located east of the Phase I basins.



Legend

- Manhole
- Pipe
- Pump Station
- Edgewood City Limit
- Basin
- Parcel

Phase

- Phase 1

Contours

- 100 ft
- 20 ft

Source: City of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD

GENERAL SEWER PLAN

FIGURE 2-12
SEWER BASINS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\5-3 Sewer Basins.mxd

WASTEWATER TREATMENT PROVIDERS

As discussed above, 12 of the 33 sewer basins in the City are currently served by a sewer system. Basins 1 through 8 and a portion of Basin 18 are included in the LWSD service agreement. Wastewater collected in these basins is treated at the LWSD Lakota WWTP. Wastewater collected in Basin 9 is conveyed via the Pierce County collection system through the City of Milton to the Tacoma CTP. The collection system in Basin 10 is owned and operated by the City of Fife and wastewater collected in Basin 10 is conveyed through Fife to the Tacoma CTP.

In order to design future collection systems that would serve the entire City, potential treatment providers were identified. Potential providers include; LWSD, City of Tacoma via City of Fife or Pierce County, King County Metro via City of Pacific, City of Sumner and City of Puyallup. Figure 2-13 shows the service areas of adjacent providers.

Lakehaven Water and Sewer District – The 2007 Interlocal Agreement between the City and LWSD allows the City to send up to 0.692 MGD (average annual) of wastewater from the Phase I Core area to LWSD. The City met with representatives of LWSD in December 2021 regarding the potential to transfer wastewater from additional areas within the City to LWSD. LWSD indicated that this was a possibility. LWSD will evaluate capacity constraints and improvements that would be required in their system to accommodate additional flows from Edgewood in their upcoming Comprehensive Wastewater System Plan Update. The 2007 Interlocal Agreement would need to be revised to allow wastewater flow from areas of Edgewood that were not included in the Phase I Core area to be transferred to LWSD.

City of Fife – The 2013 Interlocal Agreement between the City and the City of Fife allows up to 600 ERUs located in the Edgewood Non-Core West Phase I Sewer Area to be connected to a sewer system that conveys flow through Fife to the Tacoma CTP. In meetings between the City of Fife and Edgewood during 2021, Fife indicated they would consider accepting more wastewater from Edgewood. Fife will need to evaluate capacity constraints and improvements that would be required in their system to accommodate additional flows from Edgewood in their planned *Sewer Comprehensive Plan Update*. The City of Fife will also need to review their current service agreement with the City of Tacoma and possibly enter into renegotiation of the agreement on allowing additional future treatment capacity to convey wastewater from Edgewood through Fife. Fife will need to revise the City's service area boundaries and the 2013 Interlocal Agreement for Sanitary Sewer Service to allow wastewater flow from areas of Edgewood that were not included in the Non-Core West Phase I Sewer Area, Basins 11, 14 and 15, to be transferred to Fife.

Pierce County – Pierce County operates a sewer system that serves several properties in the City of Edgewood, the City of Milton and unincorporated Pierce County to the west of Milton. Wastewater is conveyed to the Tacoma CTP. The County has indicated additional flows from the City could be accommodated in the Pierce County system.

City of Puyallup – Prior to 2007, the southern portion of Edgewood that was unincorporated Pierce County prior to the incorporation of Edgewood was in the City of Puyallup service area per the 1989 City of Puyallup/Pierce County Basin Plan Amendment. The Puyallup service area extended north to approximately 24th Street East. No sewers had been constructed prior to the incorporation of Edgewood. Since the development of the *2007 General Sewer Plan*, Puyallup amended their sewer service area to terminate at the Puyallup city limits. The City has had several discussions in 2021 with the City of Puyallup regarding the potential of conveying flows from the southern portion of the City, generally south of 36th Street East, to the City of Puyallup for treatment. Puyallup will need to evaluate capacity constraints and improvements that would be required in their system to accommodate additional flows from Edgewood in an amendment to the Puyallup 2015 *Comprehensive Sewer Plan*.

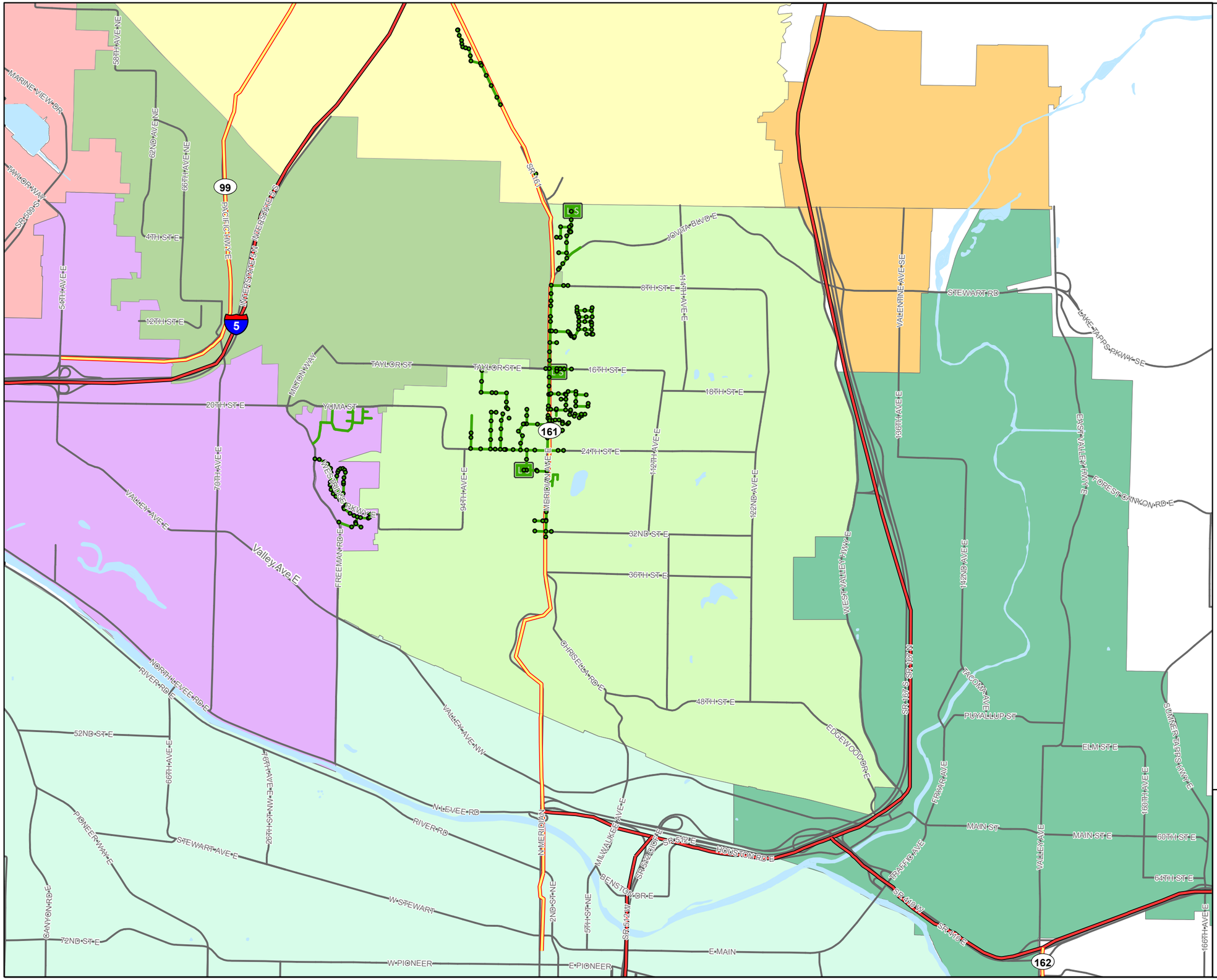
City of Pacific – The City of Pacific collection system discharges to a King County Metro lift station which discharges to King County Metro owned trunk lines that convey flow approximately 15 miles north to the King County Metro South WWTP in Renton. The City of Pacific service area is confined within the City boundary except for a small portion of Algona. The closest sewer on the west side of Highway 167 is at 5th Avenue SW approximately 0.7 miles north of Jovita Boulevard. The King County Sewer Service Area includes the portion of Edgewood north of Jovita Boulevard and east of approximately 51st Avenue South. An amendment to the King County service area would be required to provide wastewater treatment to other areas of Edgewood.

City of Sumner – The City of Sumner provides wastewater treatment to the City of Sumner and City of Bonney Lake service areas. The Sumner service area includes the areas west of Highway 167. The City of Sumner WWTP has little available capacity for additional flows beyond those projected for Sumner and Bonney Lake.

The most feasible alternatives for providing treatment for the wastewater generated in Edgewood from an engineering standpoint appear to be LWSD, Pierce County, Fife and Puyallup due to the proximity of existing or planned sewers at the border of the City and preliminary discussions with each of the providers expressing an interest in accepting wastewater from Edgewood. This selection does not consider the cost of treatment by these providers including connection charges and monthly fees. A further discussion with the potential providers is needed to determine which alternatives are the most economical.

Figure 2-14 identifies the proposed wastewater treatment service provider for each basin.

Basins 1-8, 12, 16, 18, 21 – 30, 32 and 33 will be conveyed through the City of Edgewood sewer system to the LWSD collection system for treatment at the Lakota WWTP.



Legend

- Pierce County Sewer Service Area
- Lakehaven Water and Sewer District
- Edgewood Sewer Service Area
- Fife Sewer Service Area
- Pacific Sewer Service Area
- Sumner Sewer Service Area
- Puyallup Sewer Service Area
- Tacoma Sewer Service Area

Source: CIty of Edgewood GIS Data

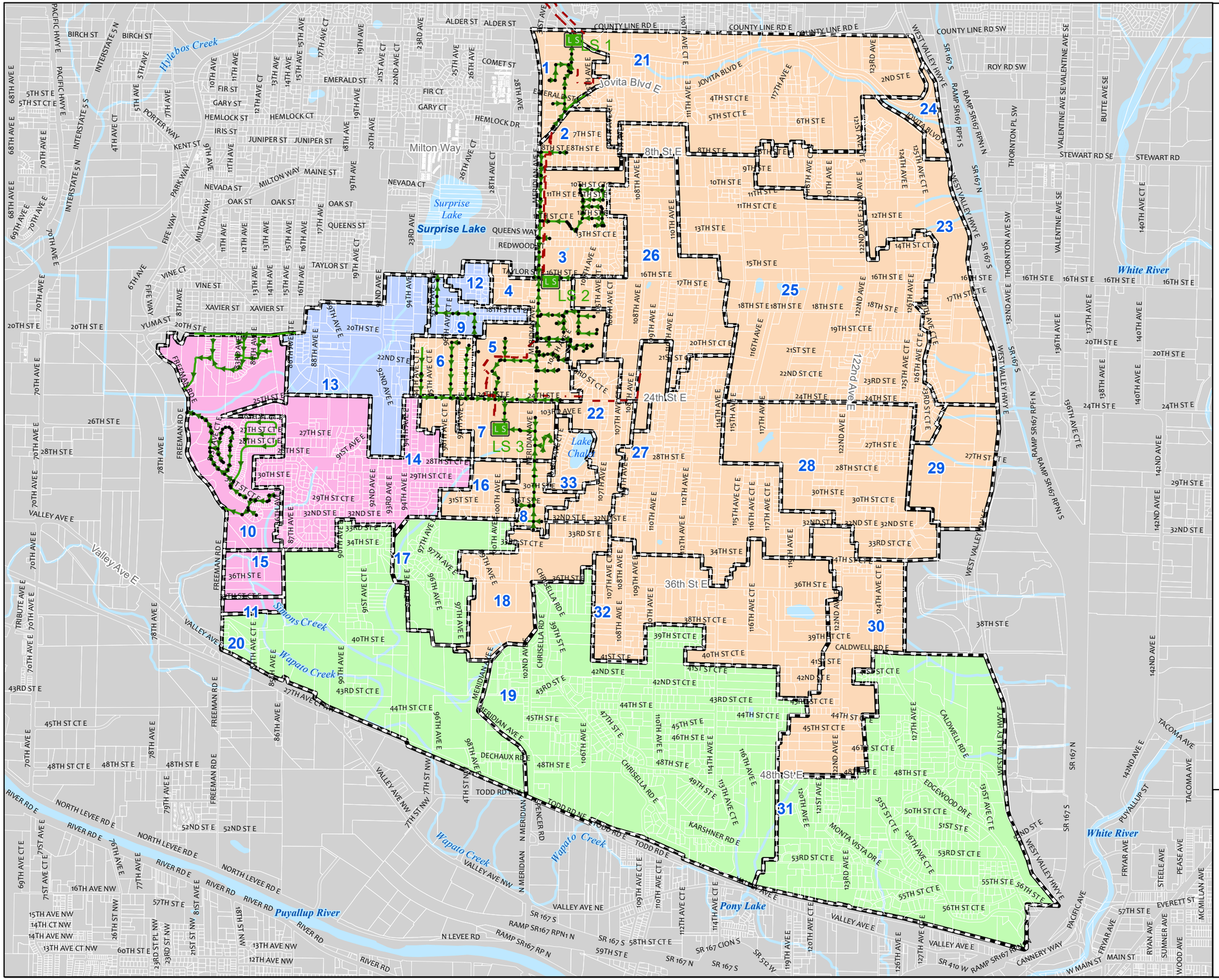
N

0 3,000 6,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-13
ADJACENT TREATMENT PROVIDERS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-13 ADJACENT PROVIDERS.mxd



Legend

- Existing Lift Station
- Existing Force Main
- Existing Gravity Main
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 2-14
WASTEWATER TREATMENT PROVIDERS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\2-14 WASTEWATER TREATMENT PROVIDERS.mxd

Basin 9, 12 and 13 will be conveyed through the Pierce County sewer system in the City of Milton for treatment at the Tacoma CTP.

Basins 10, 11, 14 and15 will be conveyed through the City of Fife sewer system for treatment at the Tacoma CTP.

Basins 17, 19, 20 and 31 will be conveyed through the City of Puyallup sewer system for treatment at the Puyallup Water Pollution Control Plan.

CHAPTER 3

REGULATORY REQUIREMENTS

Federal and state regulatory requirements impact the design of improvements and operation of facilities in the City of Edgewood's wastewater collection system. The purpose of this chapter is to identify and summarize the regulations that affect the planning, design, and approval of improvements and operation of facilities 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, design and operation of the City's wastewater facilities. Subsequent sections of the Plan 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. No State Waste Discharge Permits (SWDP) or Industrial Stormwater Permits are issued to any entity within the City. The NPDES program covers wastewater, industrial discharge, and stormwater permits. If considered significant, industrial discharges to municipal wastewater collection/treatment systems are typically addressed in SWDPs.

Each of the current and potential future WWTPs that would treat wastewater from the City of Edgewood have unique, site-specific NPDES permits; however, there are many features in common. Elements of the permits that may impact the ability of a treatment provider to accept City of Edgewood wastewater include:

The POTWs (Publicly Owned Treatment Works) must work with Ecology to ensure that all commercial and industrial users of the POTW comply with the pretreatment regulations in 40 CFR Part 403, and take continuous, routine measures to identify all existing, new, and proposed significant industrial users (SIUs) and potential significant industrial users (PSIUs) discharging or proposing to discharge to the Permittee's sewer system. SIUs, and potentially other dischargers, are required to meet certain discharge limits.

1. Edgewood Municipal Code (EMC) 11.30.030.D "Discharge Permits," authorizes the jurisdiction that operates the wastewater treatment plant treating the City's sewerage to issue discharge permits within the city to operators of industrial and commercial operations. LWSD has a pretreatment program that requires businesses that will connect to the sewer system to provide information regarding the type of business and wastewater sources and, if applicable, meet pretreatment requirements.

2. Flows and loading of pollutants such as Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) are limited to levels approved by Ecology as design capacities of the WWTPs.

   Although Edgewood has an agreement with LWSD for treatment of Edgewood wastewater at the Lakota WWTP loadings to the Lakota WWTP have recently approached and exceeded capacity, triggering the need for LWSD to develop a plan to maintain adequate capacity and fund costly improvements. Rates are likely to rise to fund these improvements.

Puget Sound Nutrient Source Reduction

In December 2021 Ecology released the Puget Sound Nutrient General Permit (PSNGP), following release of prior drafts in January 2021 and July 2021. The Nutrient Permit went into effect in January 2022. The PSNGP establishes annual effluent loads of Total Inorganic Nitrogen (TIN) for WWTFs that discharge to Puget Sound. TIN is the sum of both dissolved and suspended nitrate-nitrite and ammonia. The PSNGP established loading "Action Level" thresholds in terms of pounds per year of TIN.

WWTFs are classified as Small, Moderate or Dominant in the PSNGP based on the magnitude of their annual effluent TIN loading. The LWSD Lakota WWTF is classified as a Moderate TIN discharger. Tacoma CTP is classified as a Dominant TIN discharger. Both must follow the narrative limits in the PSNGP for, respectively Moderate or

Dominant dischargers with regard to Monitoring, Nitrogen Optimization Plan, Action Level Exceedance Corrective Actions, and Nutrient Reduction Evaluation.

The new effluent limits to reduce nutrients may impact the City of Edgewood, as the WWTPs that currently treat Edgewood wastewater (e.g., Lakota WWTP and Tacoma CTP) may have to be upgraded, resulting in additional capital and operating costs, potentially raising the cost of service to Edgewood ratepayers. The City of Puyallup has not been included in the PSNGP, because it discharges to the Puyallup River and is under the auspices of EPA (not Ecology) since it discharges to Tribal waters. It is very possible that TIN limits will be added by EPA to the NPDES permit for the Puyallup Water Pollution Control Plant (WPCP) sometime in the future; however, the WPCP was designed for nitrogen removal, so the impact of permit limits is expected to be less than the impact on the Lakota WWTP and the Tacoma CTP.

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 Special Act (ESA)-listed salmonid ESUs/DPSs in the Edgewood vicinity and of these, one Critical Habitat for Steelhead is located within City limits on Simons and Wapato Creeks.

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 Edgewood may include longer timelines for permit applications and more stringent regulation of construction impacts on in-water work and riparian corridors.

Critical Habitat in the City identified by the WDFW PHS website include aquatic habitat in the pothole areas that support waterfowl, terrestrial habitat that includes native mixed forest in the steep slopes along the east, west and south sides of the City and habitat for the endangered Western pond turtle in Surprise Lake Creek, Wapato Creek and Simmons Creek areas.

The presence of ESA-listed species and associated critical habitat within the City and surrounding streams has the potential to impact future 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 with a Federal nexus, typically those requiring federal permits or using Federal 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 construction projects.

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

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 RCW 90.48 and WAC 173-240, Ecology issues permits for wastewater treatment facilities and land application of wastewater under WAC 246-271.

Criteria for Sewage Works Design (2023), 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. Commonly referred to as the "Orange Book," it includes criteria for planning and design of wastewater collection systems. Any expansion or modification of the City of Edgewood's collection system will require conformance with Ecology criteria unless the City demonstrates alternate standards provide similar reliability and efficacy.

STATE ENVIRONMENTAL POLICY ACT

WAC 173-240-050 requires a statement in all wastewater comprehensive plans stating proposed projects are in compliance with SEPA, if applicable. A SEPA checklist is included in Appendix A of this plan for use in the environmental review for the *Sewer Plan*. Sewer pipe installations 12 inches in diameter or smaller are generally exempt from SEPA requirements; however, in general, the capital improvements proposed in this plan will fall under SEPA project specific regulations and each will require its own project specific SEPA checklist and determination. In most cases, a Determination of Non-Significance (DNS) is issued; however, if a project will have a probable significant adverse environmental impact, an EIS will be required.

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.

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 (SMA) 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 SMA 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 of those waters. Projects are reviewed by the City according to State guidelines. The City's decisions may then be reviewed by the State.

Because the City has no waters bodies that meet the size thresholds for the SMA, the City is not required to have its own Shoreline Management Program.

FLOODPLAIN DEVELOPMENT PERMIT

The City participates in the National Flood Insurance Program and is required to review projects in a mapped floodplain and impose conditions to reduce potential flood damage from floodwater. A Flood Hazard Permit issued by the City is required prior to construction in flood prone areas, 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, an HPA will be required. The HPA will include provisions necessary to minimize project-specific and cumulative impacts to fish.

CHAPTER 4

EXISTING FACILITIES

This chapter describes existing facilities within the City of Edgewood wastewater collection system. These facilities include gravity sewers, three lift stations and their associated pressure force mains.

AGREEMENTS

The sanitary sewer collection systems that serve the City of Edgewood discharge into the sewer systems of neighboring jurisdictions including the Cities of Fife, Milton, Pierce County, and LWSD. Service agreements are in place to address the sanitary sewer needs of the City. The following describes each of these agreements in detail. Copies of the interlocal agreements may be found in Appendix D.

LAKEHAVEN WATER AND SEWER DISTRICT

The ILA with Lakehaven Utility District, currently known as LWSD, (Lakehaven ILA) is dated January 23, 2007. The agreement has a 20-year term from the date of executions and will automatically extend for five additional 20-year terms, unless either party terminates the agreement within 5 years of the end of the initial or any extension term. Per the Lakehaven ILA, LWSD will accept an "average day maximum" flow of 0.692 mgd from the current service area, identified as the "Phase One" service area.

There have been two amendments to the Lakehaven ILA. The "First Amendment Between City of Edgewood and Lakehaven Water and Sewer District," dated September 2021 added the Puyallup School District properties, collectively known as the Edgemont/Hilltop Campus located at 24th Street East and 100th Avenue into the Phase I LID. The "Second Amendment Between City of Edgewood and Lakehaven Water and Sewer District," dated April 22, 2022 included the Wolf Pointe development, located south of 18th Street West and west of Meridian Avenue into the Phase I sewer service area. The Second Amendment also removed some areas previously included in the flow calculations for the Phase I sewer system.

The following is an excerpt from the *2017 LWSD Plan*:

> *"The existing inter-local agreement between the City and District sets a contractual system capacity that requires no additional upgrade to the District's existing system. If the City desires the District to provide additional capacity for buildout development within the existing City sewer service area, then some changes to the contract provisions for treatment and disposal of City wastewater will be needed in the future, along with system upgrades to the District's existing system."*

Through the Lakehaven ILA and a Memorandum of Understanding dated June 27, 2011, the sewer system that conveys sewer from within the City of Edgewood to LWSD is owned by the City but maintained by LWSD. This sewer system currently consists of three pump stations with capacities ranging from 740 to 1,000 gpm. They were each designed to be able to install additional pumps when future growth results in higher flows to the stations.

CITY OF FIFE

The ILA with the City of Fife (Fife ILA) is dated November 5, 2013. There is no fixed term associated with the agreement. Per the Fife ILA, Fife will accept sewer flow from up to 600 ERUs within the northwest corner of the City of Edgewood. Per the Fife ILA, an ERU is equal to 230 gallons per day of sewerage flow. This flow is conveyed to the City of Tacoma for treatment at Tacoma's CTP.

The ILA specifies that ownership of sewer mains within Edgewood that are served by Fife is transferred to Fife.

PIERCE COUNTY

The City has entered into two ILAs with Pierce County that involve sanitary sewer service that are described as follows:

- December 9, 1997; Between Puyallup School District, City of Edgewood and Pierce County to serve Northwood Elementary School and Edgemont Junior High via approximately 1,600 feet of 8-inch diameter sewer main within the City. The sewer main is owned and maintained by Pierce County. The terms of the agreement will remain in effect as long as Northwood Elementary School remains in service. Since the agreement, the Puyallup School District's Northwood Elementary School and Edgemont Junior High have connected to the City of Edgewood's sewer system. Grinder pumps are located at the Junior High School. O&M of these sewers are provided by LWSD. The agreement allows connection by individual property owners within a limited area if an existing septic system has failed or the request is for new construction. Currently there are eight single-family residential properties that are connected to the sewer system installed under this ILA.

- September 6, 2006; Serve 21.9 acres, Lots 1, 2, 3 and 4 of Short Plat 99-0006 at the intersection of Meridian Avenue and 13th Street Court East, via a private sewer system. The initial term of the agreement is 5 years from the date of execution with renewal terms of 5-year increments. The properties have since connected to the City's sewer system.

CHERRYWOOD MOBILE HOME PARK

The Cherrywood is served by a wastewater treatment plant that the park owns, operates and maintains. The City does not have an Interlocal Agreement in place with this entity.

WASTEWATER COLLECTION SYSTEM

CITY OF EDGEWOOD PHASE I SEWER SYSTEM

The City's Phase I sewer system service area is located on a high plateau that has rolling topography and generally slopes to the south.

The gravity system owned by the City consists of three pump stations and gravity collection systems that collect flow from the areas adjacent to SR 161 and convey that flow to the north, to the sewer system owned by LWSD. This portion of the sewer system which is owned by the City of Edgewood is operated and maintained by LWSD. The system was constructed in 2011 and is mainly composed of three lift stations, force main and gravity sewer pipe.

The Phase I system in shown in Figure 4-1. A summary of the various pipe diameters within the sewer system owned by the City are provided in Table 4-1. This summary is an estimate based on review of GIS information provided by the City.

TABLE 4-1

Phase I Sewer Pipe Summary

Pipe Diameter and Type	Length (feet)
2-inch Force Main	643
4-inch Force Main	2,047
6-inch Force Main	11,179
8-inch Force Main	3,824
12-inch Force Main	8,016
Total Force Main	**25,709**
8-inch Gravity	25,820
10-inch Gravity	5,031
12-inch Gravity	1,705
15-inch Gravity	873
16-inch Gravity	1,471
18-inch Gravity	2,926
Total Gravity Main	**37,826**

PUMP STATIONS

The City of Edgewood owns three lift stations. Station locations and force main routes are shown in Figure 4-1. The lowest point of the Phase I LID is located at the south end of the LID. Sewer flows from approximately 33rd Street East on the south to approximately 20th Street East on the north flow by gravity to Station 3, located south of 24th Street East and west of Meridian Avenue. Pump Station 3 pumps into the main gravity sewer on Meridian Avenue at MH B14 at approximately 20th Street East via dual 6-inch and 8-inch diameter force mains. The force mains are approximately 6,800-feet long.

Pump Station 2 is located on 16th Street East, which is east of Meridian Avenue. The gravity sewers tributary to Pump Station 2 are located between approximately 20th Street East on the south and 8th Street East on the north. Flow from Pump Station 3 is pumped into the gravity system tributary to Pump Station 2. Pump Station 2 pumps through dual 8-inch and 12-inch force mains into a gravity main on Jovita Boulevard at MH A28. The force mains are approximately 7,500-feet long.

Pump Station 1 is located on the Interurban Trail right-of-way. Gravity sewer tributary to Pump Station 1 are located north of 8th Street East. Flow from Pump Station 2 is pumped into the gravity system tributary to Pump Station 1. A 2-inch diameter force main located in Jovita Boulevard also pumps from the east into the gravity sewer tributary to Pump Station 1. Pump Station 1 pumps all flows from the LID into the LWSD collection system via dual 6-inch and 12-inch diameter force mains. The force mains discharge at MH A16 which is located at approximately 19th Way South, west of SR 161.

The three pump stations are similar in design and include a 12-foot-diameter wet well, submersible pumps, a valve vault and meter vault, emergency inlet, dual force mains and room for 3 pumps. Detailed information for the pump stations is included in Tables 4-2, 4-3 and 4-4. The pump stations are designed to accommodate various flow regimes including initial flows when the two pumps that were installed in 2011 are utilized, future interim flows which will require the addition of a third pump and build-out flows that will require changing out all three previously installed pumps with larger pumps. Depending on flow the two force mains will be used separately or both force mains will be used.

Pump Stations 1, 2 and 3 are equipped with secure telemetry/SCADA systems that monitor flow and alarm conditions. The information generated by the pump stations is currently monitored by the LWSD.

Design information for the Pump Stations for the initial design conditions, future interim conditions and build-out conditions is shown in Tables 4-2, 4-3 and 4-4, respectively.

To LWSD

Fivemile Lake

Trout Lake

PS #1

Jovita Blvd E

5

99

Milton Way

8th St E

Surprise Lake

161

PS #2

To Fife

PS #3

24th St E

122nd Ave E

Lake Chalet

Valley A

Legend

- Sewer Manhole
- PS Lift Station

Gravity Main

- 2
- 8
- 10
- 12
- 15
- 16
- 18

Forcemain

- 2"
- 4"
- 6"
- 8"
- 12"
- 18"

Provider

- City of Fife Sewer Service Area
- Edgewood Sewer Service Area
- Pierce County
- Edgewood City Limits
- Parcels

Source: CIty of Edgewood GIS Data

N

0 2,000 4,000 Feet

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 4-1
SEWER BASE MAP

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\EDGEWOOD\19614 General Sewer Plan\GIS\MXDs\Project MXDs\4-1 SEWER BASEMAP.mxd

TABLE 4-2

Phase I Pump Stations – Initial Pump Schedule[(1)]

Pump Station	Pump No.	Make	Model	HP	Design Point 1[(2)]		Design Point 2[(3)]	
					Design Flow (gpm)	Design TDH (ft)	Design Flow (gpm)	Design TDH (ft)
1	1	Cornell	4NNT	25	300	102	760	80
	2	Cornell	4NNT	25	300	102	760	80
2	1	Cornell	4NNT	25	350	99	840	77
	2	Cornell	4NNT	25	350	99	840	77
3	1	Cornell	4NNT	25	340	100	580	90
	2	Cornell	4NNT	25	340	100	580	90

(1) Tetra Tech Record Drawing, Meridian Avenue Sewer LID 1, Mechanical Pump Schedules.
(2) Design Point 1 assumes one pump is discharging through the smaller force main.
(3) Design Point 2 assumes one pump is discharging through the large force main.

TABLE 4-3

Phase I Pump Stations – Future Interim Pump Schedule[(1)]

Pump Station	Pump No.	Make[(4)]	Model[(4)]	hp[(4)]	Design Point 1[(2)]		Design Point 2[(3)]		Pump Station Firm Capacity (gpm)
					Design Flow (gpm)	Design TDH (ft)	Design Flow (gpm)	Design TDH (ft)	
1	1	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	1,240
	2	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	
	3	Cornell	4NNT	25	620	87	760	80	
2	1	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	1,160
	2	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	
	3	Cornell	4NNT	25	580	90	840	77	
3	1	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	760
	2	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	--[(5)]	
	3	Cornell	4NNT	25	380	98	580	90	

(1) Tetra Tech Record Drawing, Meridian Avenue Sewer LID 1, Mechanical Pump Schedules.
(2) Design Point 1 assumes two pumps discharging through the larger force main.
(3) Design Point 2 assumes one pump is discharging through the larger force main.
(4) Based on information in Tetra Tech Record Drawing.
(5) Initial Pump Schedule pumps remain the same.

TABLE 4-4

Phase I Pump Stations – Future Buildout Pump Schedule[1]

Pump Station	Pump No.	Make[4]	Model[4]	hp[4]	Design Point 1[2]		Design Point 2[3]		Pump Station Firm Capacity (gpm)
					Design Flow (gpm)	Design TDH (ft)	Design Flow (gpm)	Design TDH (ft)	
1	1	Cornell	6NHTA	75	1279	160	1600	145	2,558
	2	Cornell	6NHTA	75	1279	160	1600	145	
	3	Cornell	6NHTA	75	1279	160	1600	145	
2	1	Cornell	6NHTA	75	1145	145	1500	130	2,290
	2	Cornell	6NHTA	75	1145	145	1500	130	
	3	Cornell	6NHTA	75	1145	145	1500	130	
3	1	Cornell	6NHTA	75	595	170	1000	155	1,190
	2	Cornell	6NHTA	75	595	170	1000	155	
	3	Cornell	6NHTA	75	595	170	1000	155	

(1) Tetra Tech Record Drawing, Meridian Avenue Sewer LID 1, Mechanical Pump Schedules.
(2) Design Point 1 assumes two pumps discharging through the larger force main.
(3) Design Point 2 assumes one pump is discharging through the larger force main.
(4) Based on information in Tetra Tech Record Drawing.

CITY OF FIFE SEWER COLLECTION SYSTEM

The gravity collection system owned by the City of Fife conveys wastewater from the Non-Core Phase I area on the west side of the City into the City of Fife collection system and subsequently to the City of Tacoma CTP.

The collection system in the Fife Sewer Area includes approximately 16,400 feet of 8-inch gravity sewer.

PIERCE COUNTY SEWER COLLECTION SYSTEM

The collection system owned by Pierce County conveys flow from eight residential parcels to the north to the City of Milton collection system. These flows are conveyed to the City of Tacoma CTP.

The Pierce County collection system includes 1,595 feet of 8-inch gravity sewer within the City of Edgewood city limits.

WASTEWATER TREATMENT PLANTS

Wastewater collected in the Phase I and Phase I Non-core sewer systems is treated at the LWSD Lakota Wastewater Treatment Plant and the Tacoma CTP. Wastewater collected in Basin 11 is treated at the Cherrywood Mobile Home Park WWTP. As discussed in Chapter 2, the Lakota WWTP, the Tacoma CTP and the City of Puyallup WPCP are the proposed locations for treating wastewater generated in the City.

LAKOTA WASTEWATER TREATMENT PLANT

LWSD owns and operates the Lakota WWTP, a 10 mgd activated sludge wastewater treatment plant that discharges in Dumas Bay in mid-Puget Sound. The Lakota WWTP is located on SW Dash Point Road in the City of Federal Way. The Lakota WWTP operates under NPDES Permit WA0022624, which expires on September 30, 2023.

The majority of the wastewater discharged to the Lakota WWTP is from domestic/residential uses and commercial uses that are not considered significant industrial users. Currently there are two significant industrial users, Ellonos Yogurt and St. Francis Hospital, that discharge to the Lakota WWTP.

The treatment train includes primary treatment – screening via mechanical bar screens, aerated grit removal and primary clarification. Secondary treatment is achieved with biological oxidation in aeration basins, settling in secondary clarifiers and ultraviolet light (UV) disinfection. The solids generated during the treatment process are processed in anaerobic digesters and dewatered. The dewatered biosolids are trucked to a beneficial reuse facility in Eastern Washington for land application.

Treated and disinfected effluent is discharged via a 24-inch-diameter outfall 2,600-feet offshore. The outfall has a single-port diffuser at a depth of -184 feet mean lower-low water.

The design criteria for the Lakota WWTP, NPDES permit effluent limits and the wastewater influent and effluent characterization from January 2019 through September 2020 are shown in Table 4-5.

NPDES permit section S4.B requires LWSD to submit a plan and a schedule for maintaining capacity when the flow or waste load reaches 85 percent of any one of the design criteria for 3-consecutive months. The Lakota WWTP has consistently experienced TSS loading that is in excess of 85 percent of the design criteria in April 2020 through September 2020. This suggests LWSD will need to plan for an expansion of treatment capacity in the near future. In addition, the WWTP may need to be modified in order to comply with the PSNGP, as discussed in Chapter 3.

TABLE 4-5

Lakota WWTP Design Criteria and Wastewater Influent and Effluent Characterization

Parameter	Units	Design Criteria[1]	Effluent Permit Limits[1]		Influent Characterization	Effluent Characterization
			Average Monthly	Average Weekly	Monthly Average[2]	Monthly Average[2]
Average Day	mgd	--	--	--	5.19	
Maximum Month Design Flow (MMDF)	mgd	10	--	--	6.52[3]	--
Biochemical Oxygen Demand (BOD_5)	mg/L	--	--	--	357	--
BOD_5 – Maximum Month	lbs/day	24,100	--	--	17,091[4]	--
Carbonaceous Biochemical Oxygen Demand (CBOD5)	mg/L	--	25	40	268	9.5
$CBOD_5$	lbs/day	--	2,085	3,336	11,467	388
Total Suspended Solids (TSS)	mg/L	--	30	45	386	14.4
TSS – Maximum Month	lbs/day	19,760	2,502	3,753	20,083[5]	572

(1) Permit NO. WA0022624
(2) DMR data January 2019 – December 2020
(3) January 2020
(4) December 2019
(5) May 2020

TACOMA CENTRAL TREATMENT PLANT

The City of Tacoma CTP WA0037087 is a 60 mgd secondary treatment facility that discharges treated effluent into Commencement Bay. The CTP is operated under NPDES permit WA0037087. The current permit expired in 2015. The treatment facility is located on the tide flats at 2201 Portland Avenue in the Port of Tacoma. The service area for the CTP encompasses approximately 50 square miles and includes portions of Tacoma, Fife, Fircrest, Edgewood, Milton, Pierce County and King County.

The CTP is a high purity oxygen activated sludge treatment system that was last upgraded in May 2009. The treatment train includes influent screening (three screens each with 75 mgd capacity) upstream of the influent pumps (capacity of 150 mgd) that convey wastewater to the aerated grit tanks. From the grit tanks flow continues to the primary settling tanks before discharging to the covered oxygenation tanks. Mixed liquor from the oxygenation tanks is conveyed to the secondary clarifiers. Effluent from the secondary clarifiers is disinfected with sodium hypochlorite prior to discharge to Commencement Bay.

The 2009 CTP Upgrade and Expansion project included the construction of a peak wet weather flow treatment (PWWT) system that uses Actiflo ballasted sedimentation process to provide enhanced primary treatment capacity up to 76 mgd. Influent flow up to 60 mgd goes through the primary and secondary treatment process in the CTP. Flow in excess of 60 mgd (during peak rainfall events) splits off upstream of the aerated grit facility to the Actiflo PWWT system. The 2009 Upgrade and Expansion project constructed a new peak wet weather effluent pump station, capacity of 150 mgd that discharges both secondary and PWWT system effluent to the Commencement Bay outfall during peak flow events.

Solids produced during the treatment process are digested in a thermophilic dual-digestion aerobic/anaerobic process followed by dewatering. The dewatered biosolids are used as the main ingredient in a Class A Exceptional Quality Biosolids product with the tradename of TARGO. TARGO is sold to the public.

Treated and disinfected effluent is pumped to Commencement Bay via a 15,650-foot overland pipeline to a deep marine outfall and diffuser located approximately 1,200 feet offshore at a depth of approximately 125 feet. The diffuser has 30 cylindrical risers spaced 10 feet apart. Each riser has a single discharge port oriented perpendicular to the axis of the diffuser line.

The City of Tacoma Environmental Services, Business Operations Division, Environmental Compliance Division administers the City of Tacoma's Wastewater Pretreatment Program. The Wastewater Pretreatment Program regulates wastewater discharges form commercial and industrial facilities discharging to the City's treatment system. During 2017 approximately 5 percent of the annual wastewater discharge received at CTP was from industrial discharges (*Wastewater Pretreatment Program*

Annual Report, January 1, 2017- December 2017, City of Tacoma, Environmental Services, Business Operations Division). The remaining wastewater received was from commercial and domestic sources.

The design criteria for the CTP, NPDES permit effluent limits and the wastewater influent and effluent characterization from January 2019 through September 2020 are shown in Table 4-6.

TABLE 4-6

Tacoma Central Treatment Plant Design Criteria and Wastewater Influent and Effluent Characterization

Parameter	Units	Design Criteria[1]	Effluent Permit Limits[1]		Influent Characterization[2]	Effluent Characterization[2]
			Average Monthly	Monthly Average	Monthly Average	Average Monthly
Average Day[2]	mgd	--			19.2	19.5
Flow (Average Maximum Month)	mgd	60	--	--	35.1[3]	35.6[3]
Wet Season Peak Day	mgd	150	--	--	88.7[4]	--
BOD_5 – Average Day[2]	mg/L	--	30	45	306	15.7
BOD_5 – Maximum Month	lbs/day	127,000	15,012	22,518	58,400[5]	4,485[6]
TSS – Average Day[2]	mg/L	--	30	45	332	10.2
TSS – Maximum Month	lbs/day	114,000	15,012	22,518	80,800[5]	3,104[6]

(1) Permit No. WA0037087.
(2) DMR data January 2019 – December 2020.
(3) (3) January 2020
(4) (4) December 20, 2019
(5) July 2019
(6) February 2019

The current amount of flow and loading to the CTP is well within permit limitations. However, the WWTP may need to be modified in order to comply with the Puget Sound Nutrient General Permit, as discussed in Chapter 3.

CHERRYWOOD MOBILE HOME MANOR WWTP

The Cherrywood Mobile Home Manor WWTP operates under NPDES Permit No. WA0037079. The current permit expired August 31, 2014. The treatment plant only serves the Mobile Home park with a design population of 200 residents/80 mobile homes. Commercial and industrial discharges are not allowed.

The treatment train includes a bar screen headworks, extended aeration plant with sludge storage, followed by chlorination, a slow sand filter and a v-notch weir. Treated and disinfected effluent is discharged from the facility via a bank discharge into a channelized portion of Wapato Creek.

Solids produced during the secondary treatment process are stored in a 1,000-gallon holding tank and are periodically trucked off-site for further treatment.

The owners of the mobile home park would like to connect to a publically owned sanitary sewer system when there is one available in the vicinity.

PUYALLUP WATER POLLUTION CONTROL PLANT

The City of Puyallup Water Pollution Control Plant (WPCP) is owned and operated by the City of Puyallup. The WPCP which was originally constructed as a 6.0 mgd sewage treatment plant providing primary treatment and disinfection in 1955 was upgrade in 1984 to provide secondary treatment utilizing rotating biological contactors. The WPCP was upgraded again in 2000 to meet the more stringent NPDES permit limits that resulted from the Puyallup River basin TMDL study. The rotating biological contactors were replaced with a Modified Ludzack-Ettinger activated sludge treatment process capable of meeting the new effluent criteria and the chlorine disinfection system was replaced by ultraviolet disinfection. Since 2000 the City has completed a number of other treatment plant upgrade projects aimed at providing additional treatment capacity, replacing aging equipment and providing adequate flood protection for critical WPCP processes.

The WPCP includes a main lift station equipped with four influent screw pumps, two rotating fine screens, two banks of primary clarification tanks, three aeration basins, two secondary clarifiers, and ultraviolet disinfection and, during periods of high flow and high river levels, an effluent pump station. Digested and dewatered biosolids are hauled to eastern Washington for land application.

The WPCP is regulated by EPA because of the discharge in the Puyallup River within the 1873 survey area of the Puyallup Reservation. The Puyallup Tribe is the beneficial owner of the bed and banks (to the mean high water mark) of the Puyallup River within the 1873 survey area of the Puyallup Reservation. The WPCP is operated under NPDES Permit No. WA0037168.

The City developed a pretreatment program, *Source Control Program Manual*, in 2007 in accordance with the general pretreatment regulations un 40 CFR Part 403. The requirements of the Source Control Program apply to all uses of the City wastewater collection system and WPCP, but are specifically targeted to non-domestic (commercial and industrial) users in order to control pollutants to levels below the local limits and other restrictions listed in the Source Control Program to prevent damage or obstruction of the collection system, pass through of the WPCP with inadequate treatment, interference with WPCP treatment processes, contamination of sewage sludge, or pose a threat to the safety of City staff.

The design criteria for the WPCP, NPDES permit effluent limits and the wastewater influent and effluent characterization from January 2019 through December 2020 are included in Table 4-7.

TABLE 4-7

Puyallup Water Pollution Control Plant Design Criteria and Wastewater Influent and Effluent Characterization

Parameter	Units	Design Criteria[1]	Effluent Permit Limits[1]		Influent Characterization[2]	Effluent Characterization[2]
			Average Monthly	Average Weekly	Monthly Average	Average Monthly
Flow (Average Day)	mgd	9.46	--	--	4.40	4.39
Maximum Month Average Daily Flow	mgd	13.98	--	--	7.63[3]	--
BOD_5	mg/L	--	30	45	--	4.29
BOD_5	lbs/day	14,525	2,179	3,268	11,435[4]	171
TSS	mg/L	--	30	45	--	5.85
TSS	lbs/day	15,550	3,499	3,499	11,035[4]	236

(1) Permit No. WA0037168.
(2) DMR data January 2019 – December 2020.
(3) January 2020
(4) Due to issues with influent sampling, estimated values are provided.

CHAPTER 5

WASTEWATER FLOW AND LOADING PROJECTIONS

INTRODUCTION

Proper design of wastewater treatment and conveyance facilities requires the determination of the quantity and quality of wastewater generated by the users of the City's sanitary sewage collection system.

In this chapter, the existing wastewater characteristics for the service area will be analyzed and projections made for future conditions. In addition, the design criteria that will be utilized to develop future sewer alignments are discussed.

DEFINITIONS OF TERMS

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

Average Annual Flow

Average annual flow (AAF) 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.

Biochemical Oxygen Demand

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 BOD is 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 typically 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.

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

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/Inflow

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. In western Washington, the greatest infiltration is typically observed following significant storm events after 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 generally expressed in terms of the total land area being served. The unit quantity generally used is gallons per acre per day.

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 typically occurs during heavy storm events when storm sewer systems are taxed beyond their capacity, resulting in hydraulic backups and local ponding. Inflow, like infiltration, is usually expressed in terms of gallons per acre per day.

Infiltration and inflow, combined, are often expressed as a single parameter, infiltration/inflow (I/I).

Pump station flow records for the City's Phase I sewer system are utilized to characterize infiltration and inflow (I/I) in the Edgewood system in terms of peak hour, peak day, maximum month, and average annual I/I.

Maximum Month Flow (Treatment Design Flow)

Maximum month flow (MMF) is the highest monthly flow during a calendar year. It typically occurs in months with maximum rainfall. In western Washington, the maximum month flow normally occurs in the winter due to the presence of more I/I.

This wintertime flow is composed of the normal domestic, commercial, and public use flows with the maximum month 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, office buildings and industrial uses (process wastewater, rinse water, and other industrial activities). Non-residential wastewater quantities for commercial and industrial wastewater are expressed in this *Sewer Plan* in terms of ERUs.

Peak Hour Flow

Peak hour flow (PHF) is the highest hourly flow during a calendar year. The peak hour flow in western Washington 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. Peak hour flows are used in sizing the hydraulic capacity of wastewater collection, treatment, and pumping components. Peak hour flow for this *Sewer Plan* is based on flow records from the City's Lift Station 1.

Total Suspended Solids

Total suspended solids (TSS) is a measure of the solid matter carried in the waste stream. The total suspended solids in a wastewater sample is 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.

Total Kjeldahl Nitrogen

Total Kjeldahl nitrogen (TKN) is the combination of organically bound nitrogen and ammonia in wastewater. The organically bound nitrogen must be released from the organic matter by a process of digestion prior to analysis. This form of nitrogen is usually much higher on influent (untreated waste) samples than effluent samples. In most domestic wastewater facilities, the biological activity breaks down the organic matter releasing and/or consuming the nitrogen as energy in the process. Total nitrogen is the combination of organic nitrogen and inorganic nitrogen (NH_3, NO_3^-, NO_2^-).

Wastewater

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

POPULATION

EXISTING AND PROJECTED FUTURE POPULATION

As described in Chapter 2, Table 2-5, the 2020 population of the City was 12,327 with an average of 2.48 persons per household. The mid-range growth scenario for population, housing units and employment, as shown in Table 2-8, will be used to estimate future wastewater flows.

Table 5-1 restates the projected population and housing unit estimates through the 20-year planning period assuming 2.5 percent growth.

TABLE 5-1

Population Projections

Year	Population	Housing Units
2020	12,327	5,125
2021	12,635	5,253
2022	12,951	5,384
2023	13,275	5,519
2024	13,607	5,657
2025	13,947	5,798
2026	14,296	5,943
2027	14,653	6,092
2028	15,019	6,244
2029	15,395	6,400
2030	15,780	6,560
2031	16,174	6,724
2032	16,578	6,892
2033	16,993	7,064
2034	17,418	7,241
2035	17,853	7,422
2036	18,300	7,608
2037	18,757	7,798
2038	19,226	7,993
2039	19,707	8,193
2040	20,199	8,398
2041	20,704	8,608
Buildout	36,181	14,589

HISTORICAL WASTEWATER FLOWS

Sanitary sewer service was not available in the City until the construction in 2012 of the sewer system for the Phase I core area, with the exception of the private system that serves the Cherrywood Mobile Home Park and the properties in the north side of the City that were served by Pierce County via the sewer system in the City of Milton. The earliest available flow information for the Phase I core sewer system indicates the average day flow in 2012 was 10,000 gpd (*Lakehaven 2015 Comprehensive Wastewater System Plan*, BHC). Flow data for the Phase I core sewer system from 2012 through September 2019 is not available. In addition, flow data for the Phase I non-core area served by Fife and Pierce County is not available.

Flows discharged through the City's Phase I core area lift stations for the period of record from October 3, 2019 through February 28, 2021 were monitored by the telemetry systems at each of the lift stations. This information was conveyed to the LWSD SCADA system. Table 5-2 shows the average annual flow, maximum month flow, maximum daily flow, peak hour flow and minimum 7-day flow for the period of record. Hourly flow data was available from June 1, 2020 through February 28, 2021. Figure 5-1 illustrates the daily flow for the period of record.

TABLE 5-2

Lift Station Flows (2019-2021)

Parameter	Lift Station 1 (mgd)	Lift Station 2 (mgd)	Lift Station 3 (mgd)
Average Annual Flow(1)	0.117	0.107	0.051
Maximum Month Flow(1)	0.145	0.133	0.059
Maximum Daily Flow(1)	0.201	0.201	0.097
Peak Hour Flow(2)(3)	0.302	0.279	0.158
Minimum 7 Day Average Flow	0.078	0.070	0.044

(1) Data from October 3, 2019 – January 31, 2021.
(2) Peak hour flow recorded on January 12, 2021.
(3) Data from June 1, 2020 – January 31, 2021.

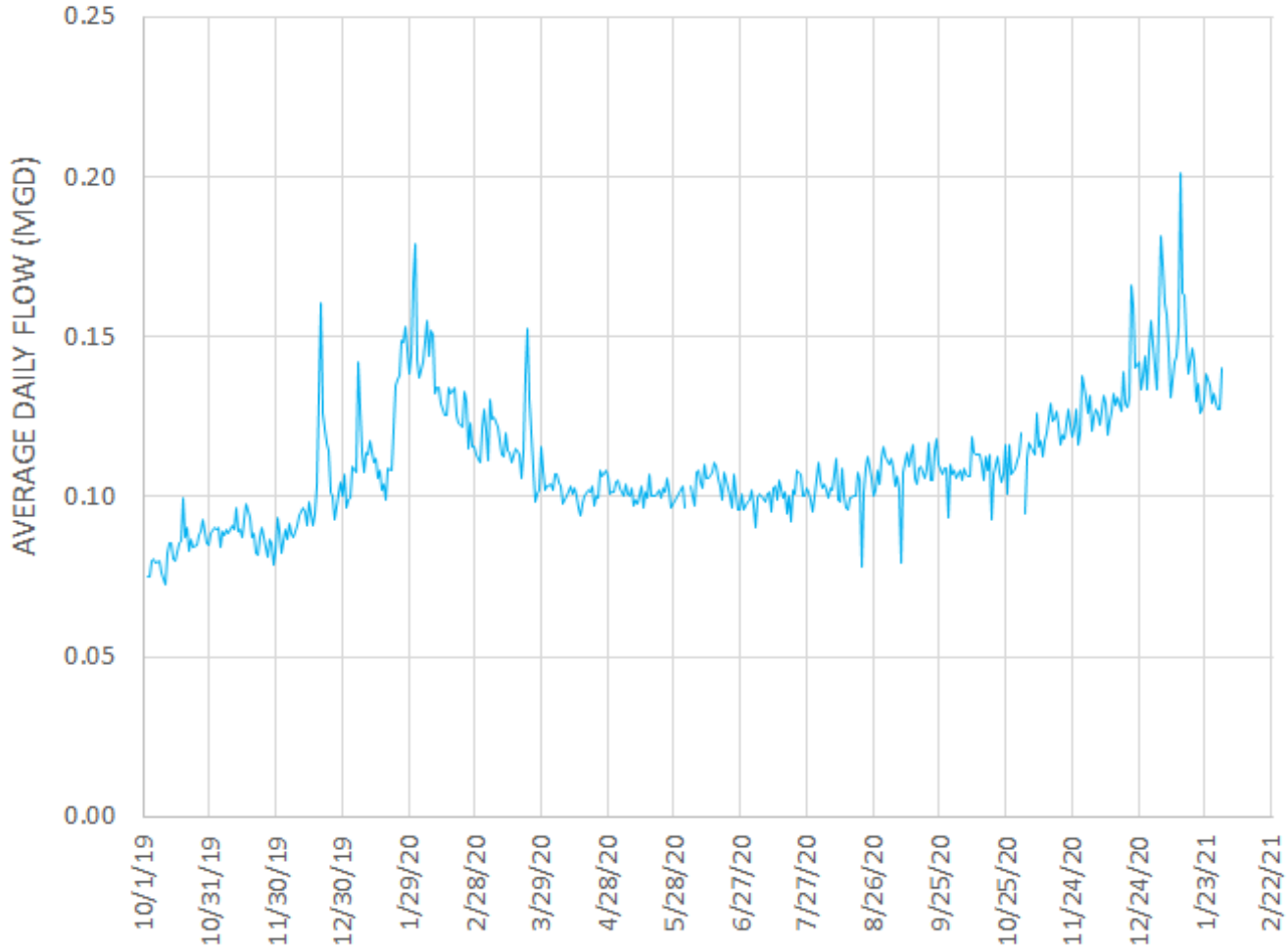


FIGURE 5-1

Lift Station 1 Average Daily Flow (mgd)

Maximum daily flow for all lift stations during the period of record was recorded on January 12, 2021. Rainfall, as recorded at SeaTac Airport, was 2.33 inches on January 12, 2021 and 0.97 inches fell on the preceding day. 2.33 inches of rain is representative of approximately a 10-year storm event. The peak hour flows for Lift Stations 2 and 3 were also recorded on January 12, 2021. The peak hour flow during the period of record for Lift Station 1 was recorded on September 5, 2020. No rain was recorded at SeaTac Airport on September 5, 2020; therefore, the peak hour flow was not due to rain but may have been due to construction dewatering water, firefighting or other significant non-weather related flow. The peak hour flow recorded at Lift Station 1 on January 12, 2021, the second highest peak hour flow for this lift station, will be considered the peak hour flow for the period of record.

Lift station flow data was utilized to develop a base flow diurnal curve as shown in Figure 5-2. The base flow peaking factor (peak hourly flow to average annual flow) for the existing system is 1.45. This peaking factor is less than the peaking factor that would be calculated using the population based methodology discussed in Section C1-3.3.2 of the Ecology *Criteria for Sewer Works Design (Orange Book)* for an estimated population of 2,130 persons tributary to the lift station and may underestimate peak hour flow in the currently unsewered areas.

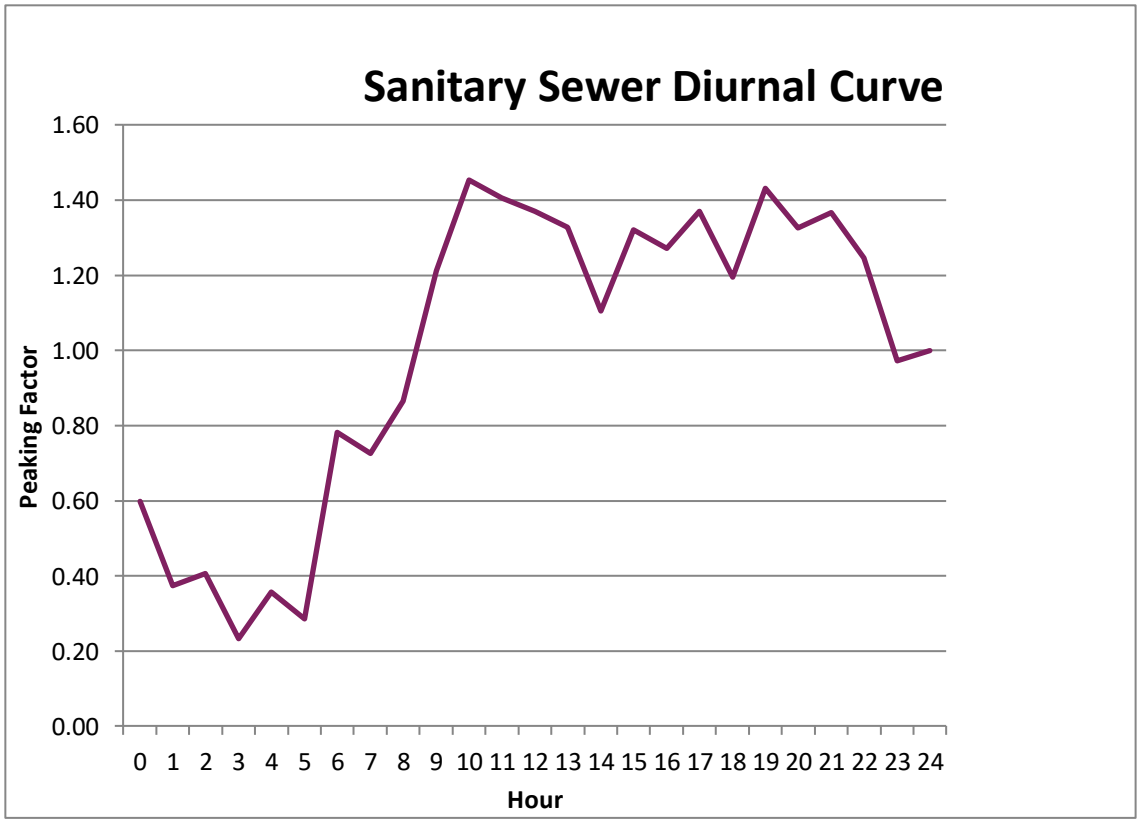


FIGURE 5-2

Sanitary Sewer Diurnal Curve

The *Orange Book* provides a means to calculate a population-based peaking factor for sewer systems in the absence of information of actual site-specific peaking factors. The peaking factors in Section C-1 of the Orange book include the effects of both diurnal variation and normal I/I. As in many General Sewer Plans, diurnal variations and I/I are treated separately in this Plan. Since flow meter records were available and actual peaking factors could be calculated for the existing system, the *Orange Book* population-based peaking factor was modified to reflect the site-specific peaking factor of 1.45 determined for the existing Edgewood basins. Site-specific peaking factors based on the aggregate population in 2027, 2031, 2036, 2041 and at buildout in the basins tributary to each of the four out-of-city sewer providers (LWSD, Pierce County, Fife and Puyallup) based on Figure 5-3 will be used in this analysis to estimate peak hour flows. (The peaking factors presented in Figure 5-3 are more conservative than those actually observed in Edgewood, but less conservative than the *Orange Book* peaking factors for large catchments.)

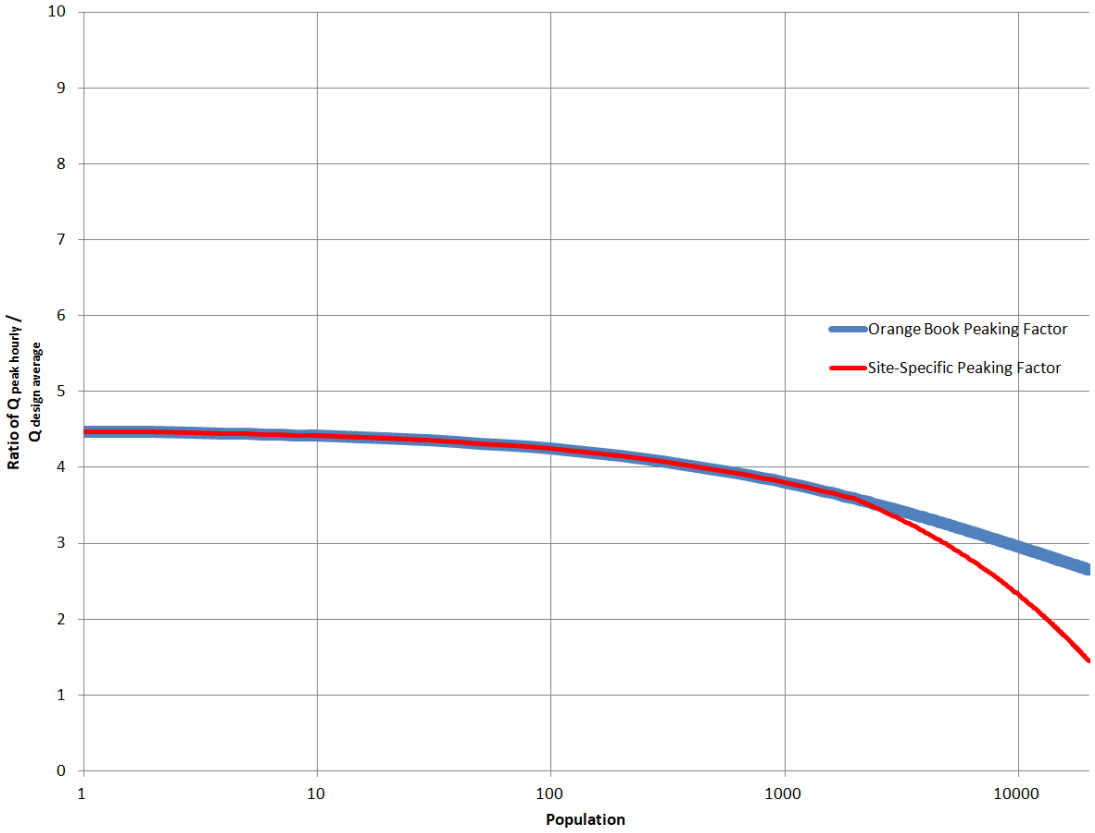


FIGURE 5-3

Peak Hour/Average Annual Peaking Factor (as a Function of Population)

WASTEWATER FLOW PROJECTIONS

Wastewater flow projections were developed using flow data available for the Phase I lift stations, the number of active ERUs connected to the sewer system tributary to the lift stations, water use data from Mt. View Edgewood and the City of Milton, and projected growth.

BASE WASTEWATER FLOW RATE

Flow data for Lift Station 1 and water use records were evaluated to develop a base wastewater flow rate that is used to develop wastewater flow projections.

Mt. View Edgewood Water District and City of Milton water consumption records for 2015 through 2019 were evaluated to estimate the base wastewater flow per ERU for customers in Edgewood. Winter water use (November through February) was determined for single-family, multi-family, commercial, government, church, City facilities, and parks.

Table 5-3 summarizes the average winter (November – February) water consumption per customer class and the number of units (accounts) in each customer class for the combined Mt. View Edgewood Water District and City of Milton Water customers in Edgewood from 2015 to 2019. The average single-family (ERU) winter water consumption is 143 gpd. The number of ERUs per connection for the customer classes other than single-family is estimated by dividing the flow per unit by 143 gpd/ERU.

TABLE 5-3

Winter Water Consumption (2015-2019)

Customer Type	Average Winter Water Consumption (gpd)	Connections in Customer Type	Flow/Unit (gpd)	Number of ERUs
Single-Family	494,074	3,459	143	3,459
Multi-Family	67,909	155	438	475
Commercial	15,891	67	237	111
Education	4,723	4	1,181	33
Government	121	2	60	0.8
City Facilities	11	1	11	0.1
Church	2,748	7	393	19
Total	**585,477**	**3,695**		**4,098**

For the purpose of estimating a current base wastewater flow rate and I/I rates, it was assumed that 95 percent of the average winter water consumption for a single-family unit, 136 gpd (143 gpd x 0.95 = 136 gpd), approximates the wastewater base flow per ERU based on the assumption that non-consumptive uses of water such as irrigation are minimal in the winter months. The base flow into the sewer system tributary to the lift stations was estimated based on the number of ERUs identified as active in the LWSD October 2020 Edgewood Sewer Service Connection Report (681 ERUs) multiplied by 136 gpd/ERU. The estimated base flow rate into the sewer system is 0.093 mgd (681 ERUs x 136 gpd/10^6 gal/mg).

INFILTRATION/INFLOW

The areal (per acre) average annual, maximum month, peak day and peak hour I/I rates were determined by subtracting the base flow from the corresponding average annual, maximum month, peak day and peak hour flows in the sewer system tributary to Lift Station 1 and dividing by the number of acres in the service area tributary to Lift Station 1. Table 5-4 identifies the estimated I/I design rate in gallons per acre per day (gpad) that will be used to estimate average annual, maximum month, peak day, and peak hour flow for all areas of Edgewood. The time-specific peaking factor (ratio of peak hour to average flow) at 9:00 p.m. that was observed on January 12, 2021 was determined to be 1.20. This peaking factor is used in the determination of peak hour I/I. It is assumed that

future newly sewered areas will have similar I/I rates to the recently sewered Phase I basins through the 20-year planning period.

TABLE 5-4

Infiltration/Inflow Rates (10-Year Storm Event – January 12, 2021)

Flow Type	Flow at Lift Station 1 (mgd)	Base Flow[(1)] (mgd)	I/I (mgd)	Service Area[(2)] (acre)	I/I[(4)](gpad)
Average Annual Day	0.117	0.093	0.024	448.3	54
Maximum Month	0.145	0.093	0.052	448.3	117
Maximum Day	0.201	0.093	0.109	448.3	243
Peak Hour	0.302	0.111[3]	0.191	448.3	426

(1) Base winter flow/ERU times ERUs tributary to Lift Station 1 (136 gpd x 681 ERU).
(2) Total area in service area.
(3) Peak hour flow per ERU = 136 gpd x 1.20 base flow peaking factor for January 12, 2021.
(4) 10-year storm I/I rates.

The I/I rate based on the 10-year event observed on January 12, 2021 was escalated by a ratio of 1.13 which is the ratio of the 25-year, 24- hour rainfall and the 10-year, 24-hour rainfall identified on the Western Washington Isopluvial maps (2019 *Stormwater Management Manual for Western Washington*). Table 5-5 identifies the estimated 25-year storm I/I rates. Table 5-5 also included the I/I design values that will be used in this plan for growth between 2021 and 2041 and the I/I design values that will be used to determine buildout flows. Buildout I/I is increased to account for the aging of the sewer system and subsequent increases in I/I.

TABLE 5-5

Infiltration/Inflow Design Rates

Flow Type	I/I Est. 25-Year 24-Hour Storm (gpad)	I/I Design (2021-2041) 25-Year 24-Hour Storm (gpad)	I/I Design (Buildout) 25-Year 24-Hour Storm (gpad)
Average Annual Day	54	54	100
Maximum Month	117	117	200
Maximum Day	275	275	500
Peak Hour	483	500	1,000

Summer flow data for Lift Station 1 were available for June 2020 through September 2020. The average daily flow at Lift Station 1 in the summer of 2020 was 0.102 mgd which equates to the base flow of 136 gpd/ERU and minimal I/I of 20 gpd/acre. The

summer lift station flow data validate the use of the winter base water use as the basis for determining I/I rates.

The estimated base flow and I/I flow rates based on the flow records for Lift Station 1 were compared to the flow assumptions for the LWSD basin immediately north of the City. The 2015 Lakehaven *Comprehensive Wastewater System Plan*, Table 4-1, indicated that the 2012 Flow Projections for the Lakota Basin, the basin Edgewood is tributary to, are 128 gpd per household (2.64 persons/household), infiltration is 122 gpad and inflow is 308 gpad. The estimated base flow per ERU and I/I computed from the lift station data are similar to the flows seen in the greater Lakota Basin.

BASIN FLOW PROJECTIONS

As discussed in Chapter 2, this *Sewer Plan* will assume 2.5 percent population, housing, and employment growth through the planning period. The *Sewer Plan* assumes that growth will not occur equally throughout the City but will be highest in the basins that are in the areas currently served by sewers and lowest in the eastern-most, less developed basins (Basins 25, 28, 29, 30 and 31). The resultant overall growth in the City is 2.5 percent. Table 5-6 summarizes the assumed growth rate for each basin, existing sewered ERUs in each basin and the estimated number of ERUs in each basin in 2027, 2031, 2036 and 2041 and buildout.

The number of buildout connections is based on the assumption that all buildable property is developed to the density allowed by zoning. As discussed in Chapter 2, future wastewater flows are based on the City's proposed revisions to zoning that would revise all currently zoned SF-3 areas located in the Surprise Lake and Lake Chalet pothole basins to SF-5 zoning and all currently zoned SF-3 located outside of the remaining pothole basins to SF-5 zoning.

When the site-specific peaking factor and the I/I peaking factor discussed below are combined, the actual total Peak Hour to Annual Average peaking factors used in this Plan are well above the Ecology recommended peaking factor of 2.5. The site-specific peaking factors used in this plan range from 3.6 to 4.2, calculated using the data in Table 5-8.

TABLE 5-6

Estimated ERU Growth

Basin	Area[1] (acres)	Annual Growth Rate[2]	Existing Sewered ERUs[3]	2027 ERUs[3]	2031 ERUs[3]	2036 ERUs[3]	2041 ERUs[3]	Buildout ERUs[6]
1	48.4	2.0%[4]	132	149	161	177	194	194
2	39.9	3.8%	10	88	103	124	149	234
3	95.9	3.8%	78	179	207	250	301	478
4	61.8	3.8%	179	267	310	373	450	524
5	94.2	3.8%	224	319	370	446	537	777
6	39.0	3.8%	51	80	93	112	135	140
7	58.2	3.8%	134	209	242	292	352	621
8	28.2	3.8%	9	78	91	109	131	218
9	33.4	3.8%	8	59	68	82	99	102
10	186.0	3.8%	196	272	316	381	459	930
11	10.1	0%[5]	84	84	84	84	84	84
12	15.5	2.3%	0	6	10	15	20	44
13	156.1	2.3%	0	33	56	86	118	384
14	221.05	2.3%	0	111	189	292	400	695
15	29.45	2.3%	0	7	12	18	25	77
16	59.5	2.3%	0	20	34	53	72	187
17	100.0	2.3%	0	52	88	135	185	322
18	114.4	3.8%	0	81	94	113	136	356
19	589.9	2.3%	0	211	359	553	758	1,562
20	371.58	2.3%	0	152	185	229	275	626
21	346.9	2.3%	0	95	162	249	341	854
22	77.3	2.9%	0	44	76	121	172	293
23	255.2	1.0%	0	53	89	134	181	656
24	23.6	2.3%	0	0	1	1	2	131

TABLE 5-6 – (continued)

Estimated ERU Growth

Basin	Area[1] (acres)	Annual Growth Rate[2]	Existing Sewered ERUs[3]	2027 ERUs[3]	2031 ERUs[3]	2036 ERUs[3]	2041 ERUs[3]	Buildout ERUs[6]
25	505.2	1.0%	0	108	181	274	368	785
26	202.6	2.2%	0	77	131	202	278	350
27	260.8	3.5%	0	91	155	241	331	415
28	232.1	1.0%	0	40	67	102	137	337
29	92.8	1.0%	0	3	5	8	11	192
30	176.2	1.0%	0	30	50	76	102	279
31	545.6	2.3%	0	145	247	380	522	1,304
32	259	2.3%	0	54	92	142	194	319
33	27	3.8%	0	19	33	53	76	118
Total	5,353	2.5%	1,101	3,215	4,360	5,905	7,594	14,557

(1) Total area of basin.
(2) Overall projected annual compounded growth rate in City assumed to be 2.5 percent.
(3) ERUs include residential and non-residential equivalents.
(4) Growth in Basin 1 limited by available capacity.
(5) Cherrywood Mobile Home Park is currently at maximum capacity of 84 mobile home residences.
(6) Buildout based on Capacity Analysis, Table 2-6.

The average winter water use per ERU identified based on consumption records from Mt. View – Edgewood Water District was used to establish the base wastewater flow rate of 136 gpd per ERU that was used to estimate I/I flows. In order to add an additional level of conservatism to the projections of future flows, a base wastewater flow rate of 150 gpd/ERU is used to estimate future flows.

The estimate of average annual day, maximum month, peak hour, and peak day flows in 2027, 2031, 2036, 2041 and buildout wastewater production per basin (Table 5-8) was determined using the ERU growth estimates shown in Table 5-6, the population based peaking factors for each of the four out-of-city sewer conveyance systems shown in Table 5-7, the I/I design rates in gallons per acre per day shown in Table 5-5 and the base wastewater flow rate of 150 gpd/ERU.

TABLE 5-7

Peaking Factor Estimate

Out-of-City Conveyance to Treatment Facility	ERUs[1]					Population[2]					Peaking Factor[3] (Peak Hour : Ave.)				
	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout
LWSD[4]	2,083	2,746	3,650	4,650	8,459	5,166	6,811	9,052	11,531	20,977	2.96	2.73	2.46	2.20	1.45
Puyallup[5]	560	879	1,297	1,740	3,814	1,388	2,180	3,217	4,314	9,459	3.70	3.54	3.30	3.10	2.41
Fife[6]	474	601	774	967	1,787	1,177	1,491	1,921	2,399	4,431	3.75	3.68	3.60	3.48	3.08
Pierce Co.[7]	97	134	183	237	530	241	331	454	588	1,314	4.12	4.06	4.00	3.94	3.72

(1) Table 5-6.
(2) Assume 2.48 persons/ERU.
(3) Figure 5-3.
(4) Basins 1-8, 12,16, 18, 21 – 30, 32 and 33.
(5) Basins 17, 19, 20 and 31.
(6) Basins 10, 11, 14 and 15.
(7) Basins 9, 12 and 13.

TABLE 5-8

Estimated Wastewater Production per Basin

Basin	AAF, gpd					MMF, gpd					PDF, gpd					PHF (gpd)				
	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout
1	25,000	26,700	29,100	31,800	34,000	28,000	29,800	32,200	34,800	38,800	35,700	37,400	39,800	42,400	53,300	90,400	89,900	89,300	88,300	90,500
2	15,400	17,600	20,700	24,500	39,200	17,900	20,100	23,200	27,000	43,100	24,200	26,400	29,500	33,300	55,100	59,200	61,900	65,500	69,100	90,800
3	32,000	36,300	42,700	50,400	81,300	38,000	42,300	48,700	56,400	90,900	53,200	57,500	63,800	71,500	119,700	127,200	132,700	140,000	147,300	199,500
4	43,400	49,800	59,300	70,800	84,800	47,200	53,700	63,200	74,700	91,000	57,000	63,500	73,000	84,500	109,500	149,400	157,600	168,500	179,400	175,400
5	53,000	60,600	72,000	85,700	126,000	58,900	66,500	77,900	91,600	135,400	73,700	81,400	92,800	106,600	163,600	188,700	198,500	211,500	224,600	262,700
6	14,100	16,100	18,900	22,400	24,800	16,600	18,500	21,400	24,800	28,700	22,700	24,700	27,500	31,000	40,400	55,000	57,500	60,800	64,100	69,300
7	34,500	39,500	47,000	56,000	99,000	38,100	43,200	50,600	59,600	104,900	47,300	52,400	59,900	68,800	122,300	121,800	128,300	136,800	145,300	192,900
8	13,200	15,100	17,900	21,200	35,500	15,000	16,900	19,700	23,000	38,400	19,400	21,300	24,100	27,500	46,800	48,700	51,100	54,300	57,500	75,500
9	10,600	12,000	14,100	16,600	18,600	12,700	14,100	16,200	18,700	22,000	18,000	19,400	21,500	24,000	32,000	52,900	58,200	65,900	75,100	90,100
10	50,800	57,300	67,100	78,800	157,800	62,200	68,800	78,500	90,200	176,000	91,100	97,700	107,400	119,100	230,800	244,600	265,800	296,900	331,100	612,200
11	13,100	13,100	13,100	13,100	13,600	13,800	13,800	13,800	13,800	14,600	15,400	15,400	15,400	15,500	17,600	52,300	51,400	50,400	48,900	48,900
12	1,000	1,700	2,600	3,600	8,200	1,200	2,000	3,100	4,200	9,800	1,700	2,900	4,300	5,900	14,400	5,000	8,400	12,700	17,000	40,200
13	6,600	11,200	17,200	23,400	73,200	8,600	14,500	22,100	29,900	88,800	13,500	22,700	34,400	46,400	135,600	36,000	60,100	90,700	121,900	370,300
14	19,100	32,400	49,800	68,000	126,400	21,900	37,000	56,700	77,200	148,500	28,900	48,700	74,100	100,500	214,800	85,000	141,400	212,700	282,600	542,300
15	1,400	2,300	3,500	4,800	14,500	1,700	2,900	4,500	6,000	17,500	2,700	4,500	6,800	9,100	26,300	6,900	11,400	17,200	22,900	65,200
16	3,700	6,200	9,500	13,000	34,000	4,400	7,400	11,400	15,500	39,900	6,300	10,600	16,100	21,700	57,800	14,900	23,900	34,300	43,600	100,000
17	8,800	15,000	23,000	31,400	58,300	10,100	17,100	26,100	35,600	68,300	13,200	22,300	34,000	46,100	98,300	38,700	63,200	91,900	119,400	216,600
18	18,300	20,300	23,200	26,600	65,000	25,500	27,400	30,300	33,800	76,400	43,600	45,500	48,400	51,900	110,700	93,100	95,600	98,900	102,200	191,700
19	38,100	64,600	99,000	135,100	293,300	45,500	76,900	117,500	159,700	352,300	64,100	108,000	164,100	221,900	529,200	176,300	289,000	421,600	549,100	1,155,300
20	27,600	33,700	44,400	54,700	131,100	33,300	40,600	56,000	70,200	168,300	47,500	57,900	85,400	109,400	279,700	129,200	153,000	206,200	251,600	598,300
21	18,000	30,500	46,800	63,800	162,700	22,400	37,800	57,600	78,200	197,400	33,400	56,000	85,100	114,800	301,500	76,900	124,000	178,500	228,300	532,000
22	7,400	12,800	20,200	28,600	51,700	8,400	14,400	22,600	31,800	59,400	10,800	18,500	28,800	40,000	82,600	27,100	44,000	63,900	82,500	140,900
23	10,700	18,000	27,100	36,400	124,000	14,000	23,300	35,100	47,000	149,500	22,000	36,700	55,300	73,900	226,000	49,000	78,900	113,300	144,700	397,500
24	300	500	800	1,100	22,000	600	1,000	1,500	2,100	24,300	1,400	2,300	3,400	4,500	31,400	2,500	4,200	6,300	8,300	51,900
25	21,700	36,300	54,800	73,600	168,300	28,000	46,900	70,600	94,600	218,800	44,000	73,500	110,600	147,900	370,400	98,400	158,300	227,200	290,000	675,400
26	13,700	23,300	35,900	49,100	72,200	16,300	27,500	42,200	57,500	93,000	22,700	38,200	58,200	78,900	153,800	54,400	87,300	125,200	159,500	278,400
27	16,500	28,100	43,200	59,200	88,400	19,800	33,500	51,300	70,000	114,400	28,000	47,200	72,000	97,500	192,700	66,600	107,100	153,900	196,400	350,800
28	8,500	14,300	21,600	28,900	73,700	11,000	19,100	28,800	38,600	96,900	18,800	31,400	47,200	63,100	166,600	41,000	66,200	95,500	122,500	305,100
29	1,500	2,500	3,800	5,000	38,000	2,700	4,400	6,700	8,900	47,300	5,590	9,300	14,000	18,700	75,200	10,700	17,700	26,200	34,600	134,400
30	6,400	10,700	16,200	21,700	59,500	8,600	14,400	21,700	29,000	77,100	14,200	23,700	35,600	47,600	130,000	30,900	49,800	72,000	92,400	236,700
31	27,700	47,000	72,000	98,000	250,100	34,600	58,300	89,000	120,800	304,700	51,800	87,100	132,100	178,300	468,400	135,300	222,100	325,000	424,300	1,017,600
32	10,900	18,500	28,300	38,500	73,800	14,200	23,900	36,400	49,300	99,700	22,400	37,500	56,800	76,600	177,300	49,900	80,700	116,900	150,300	328,000
33	3,200	5,500	8,700	12,300	20,400	3,500	6,100	9,600	13,400	23,100	4,400	7,500	11,700	16,300	31,200	11,200	18,200	26,400	34,000	52,600
Total	576,200	779,500	1,053,500	1,348,100	2,723,400	684,700	924,100	1,246,200	1,587,900	3,259,200	958,690	1,289,100	1,733,100	2,195,200	4,865,000	2,429,200	3,157,400	4,056,400	4,908,800	9,689,000

Page Intentionally Left Blank

PROJECTED BASIN WASTEWATER LOADINGS

Neither the City of Edgewood nor LWSD has sampled the flow from the City's lift stations to determine BOD or TSS loadings from the currently sewered area. LWSD indicated that there has been no report of anything unusual in the City of Edgewood system. For the purposes of the *Sewer Plan,* the Ecology recommended design BOD and TSS loading of 0.2 lb/day/person, Table G2-2, *Criteria for Sewage Works Design*, 2023, will be applied on an ERU basis to project future waste loads.

Given the estimate of 2.48 persons per ERU in the City, the average annual BOD and TSS waste load per ERU is assumed to be 0.5 lb/day/ERU (2.48 persons/ERU x 0.2 lb/day/person = 0.5 lb/day/ERU). The ratio of maximum month to average annual TSS and BOD is assumed to be 1.25 based on experience with similar systems.

The projected wastewater loading production estimates for each of the basins in 2027, 2031, 2036, 2041 and buildout are shown in Table 5-9.

TABLE 5-9

Projected Wastewater Loadings per Basin

	Total ERUs					Maximum Month BOD and TSS (lb/day)				
Basin	**2027**	**2031**	**2036**	**2041**	**Buildout**	**2027**	**2031**	**2036**	**2041**	**Buildout**
1	149	161	177	194	194	93	100	110	121	121
2	88	103	124	149	234	55	64	77	93	147
3	179	207	250	301	478	112	130	156	188	299
4	267	310	373	450	524	167	194	233	281	327
5	319	370	446	537	777	199	231	279	336	486
6	80	93	112	135	140	50	58	70	84	87
7	209	242	292	352	621	131	152	183	220	388
8	78	91	109	131	218	49	57	68	82	136
9	59	68	82	99	102	37	43	51	62	63
10	272	316	381	459	930	170	197	238	287	581
11	84	84	84	84	84	53	53	53	53	53
12	6	10	15	20	44	4	6	9	13	28
13	33	56	86	118	384	21	35	54	74	240
14	111	189	292	400	695	70	118	182	250	435
15	7	12	18	25	77	4	7	11	16	48
16	20	34	53	72	187	13	21	33	45	117
17	52	88	135	185	322	32	55	84	116	201
18	81	94	113	136	356	50	59	71	85	223
19	211	359	553	758	1562	132	224	346	474	976
20	152	185	229	275	626	95	116	143	172	391
21	95	162	249	341	854	59	101	156	213	533
22	44	76	121	172	293	27	47	76	107	183
23	53	89	134	181	656	33	55	84	113	410

TABLE 5-9 – (continued)

Projected Wastewater Loadings per Basin

Basin	Total ERUs					Maximum Month BOD and TSS (lb/day)				
	2027	2031	2036	2041	Buildout	2027	2031	2036	2041	Buildout
24	0	1	1	2	131	0	0	1	1	82
25	108	181	274	368	785	67	113	171	230	491
26	77	131	202	278	350	48	82	126	174	219
27	91	155	241	331	415	57	97	150	207	260
28	40	67	102	137	337	25	42	63	85	210
29	3	5	8	11	192	2	3	5	7	120
30	30	50	76	102	279	19	31	47	64	175
31	145	247	380	522	1304	91	154	238	326	815
32	54	92	142	194	319	34	57	88	121	200
33	19	33	53	76	118	12	21	33	47	74
Total	**3,215**	**4,360**	**5,905**	**7,594**	**14,589**	**2,009**	**2,725**	**3,690**	**4,746**	**9,118**

CHAPTER 6

COLLECTION SYSTEM EVALUATION

INTRODUCTION

This chapter presents a proposed collection system configuration to provide service to the entirety of the City of Edgewood. The service area is divided into basins and subbasins based on existing collection system configuration, topography and proposed wastewater treatment provider. A hydraulic model of the City of Edgewood sewer system was prepared to evaluate the capacity of the existing infrastructure to accept projected future flows. This chapter concludes with recommendations for collection system improvements to provide capacity to ensure adequate wastewater collection and conveyance over the next 20 years and buildout of the entire City.

It is anticipated that all new sewers within the City of Edgewood would be owned and operated by the City. Requests for the conveyance of new or increased sewer flows from the City to adjacent sewer collection/treatment providers and agreements regarding ownership and operation and maintenance of the sewers would need to be formalized through an Interlocal Agreement between the City and the provider. The City's goal is to own and operate all sewers located within the City. Letters from the adjacent sewer providers acknowledging agreement with the proposed concept of this plan are included in Appendix J.

EVALUATION OF CAPACITY AND CONDITION OF EXISTING COLLECTION SYSTEM

The Edgewood sewer system includes the facilities installed in 2011 along the Meridian Avenue corridor under LID 1 and developer-installed sewer extensions within the Phase I boundaries. As discussed in Chapter 4, the City system consists of approximately 38,000 feet of gravity sewer main ranging from 8-inch to 18-inch in diameter, three lift stations and approximately 26,000 feet of force main ranging from 2-inch to 12-inch in diameter. The sewer system has adequate capacity to convey the projected buildout flows for the original Phase I area. As discussed in Chapter 5, the current average annual flow in the sewer system as recorded at Lift Station 1 is 117,000 gpd and the peak hour flow (recorded on January 12, 2021) was 302,000 gpd.

LWSD currently maintains the Edgewood sewer system. LWSD reports that the system is generally in good condition. LWSD has indicated that Lift Stations 2 and 3 require frequent maintenance to remove excessive ragging due to the disposal of disposable wipes and diapers. They recommend installation of grinder pumps in the stations. Retrofitting of the existing pumps will be discussed in Chapter 7, Capital Improvement Plan.

SEWER DESIGN CRITERIA

Preliminary design of collection systems to serve currently unsewered areas will be based on Department of Ecology, City of Fife, LWSD, Pierce County and City of Puyallup design and construction requirements for gravity and pressure sewers to ensure the preliminary sewer layouts could meet the criteria of any potential future sewer provider. Generally, Fife, LWSD and Puyallup follow the current Ecology *Criteria for Sewer Works Design (Orange Book)* requirements.

In accordance with the *Orange Book*, collection sewers have been designed for the ultimate development, "buildout condition," of the tributary area. The sewer system has been designed on the basis of flows per ERU for the design period in conjunction with a peaking factor and I/I allowance. The sewers are designed to carry the peak hourly flow when operating at capacity.

The peak hour flow I/I allowance for the buildout condition of 1,000 gpad (shown in Table 5-4) was used to size the new collection system.

GRAVITY SEWERS

In accordance with the *Orange Book* and common design practice, gravity sewers were configured based on the following criteria:

- The minimum size of new gravity sewers was assumed to be 8 inches in diameter.
- All sewers were designed to provide mean velocities, when flowing full, of not less than 2.0 fps.
- An "n" value of 0.013 was used in Manning's formula for all sewer facilities. It was assumed that sewers would be laid with uniform slope between manholes.
- Manholes were assumed to be installed at the end of each line and at all changes in grade, size of pipe, or pipe alignment and junctions of two or more pipes. Manholes were assumed to be installed at all intersections and at distances not greater than 400 feet.
- Minimum design slopes are shown in Table 6-1.

TABLE 6-1

Minimum Slope of Sewer, by Size (Assuming Full Flow)
(Table C1-1, Ecology *Criteria for Sewage Works Design*, 2023)

Sewer Size (inches)	Minimum Slope (feet per 100 feet)
8	0.40
10	0.28
12	0.22
14	0.17
15	0.15
16	0.14
18	0.12
21	0.10
24	0.08
27	0.07
30	0.06
36	0.05

PRESSURE SEWERS

In accordance with the *Orange Book* and common design practice, pressure sewers were configured based on the following criteria:

Pump Stations

- The firm capacity (the capacity with the largest pump out of service) of a pump station was assumed to be equal to the peak hour design flow based on the buildout condition in the tributary area. Pump stations were sized with a redundant pump.

- Wet well volume is based on a maximum of six pump starts/hour for constant speed pumps.

Force Main

- The minimum size for force mains is 4 inch diameter.

- Force mains were designed for flow velocity of a minimum of 3 fps and a maximum of 8 fps.

- In certain cases, dual force mains have been proposed in order to be able to pump the range of flows over the design period within the design velocity of 3 to 8 fps. If development and connection of existing

unsewered residences in a basin occurs rapidly it may be that only the larger of the two force mains would need to be installed.

Grinder Pump Systems

- Grinder pumps will be owned by property owners.
- The City will develop standards for design, installation and maintenance requirements for the standardized grinder pump systems allowed in the City.

SEWER SYSTEM MODELING

NEW SEWER SYSTEM MODEL

A spreadsheet model was used to size the conveyance system and lift stations for the currently unsewered basins. The conveyance system sizing for each subbasin was based on the peak hour flow for each subbasin. Peak hour flow was based on the number of ERUs estimated at buildout for each subbasin, the modified Ecology peaking factor based on the estimated buildout population in each subbasin, the acres in the subbasin and the buildout I/I flow value of 1,000 gpad. When flow from an upstream subbasin(s) is conveyed through a subbasin, the numbers of ERUs, population, peaking factor and acres of the combined subbasins were used to size the conveyance system in the downstream subbasin.

The estimate of flows per basin is conservative due to the zoning assumptions discussed in Chapter 2 that were used to determine the number of ERUs in each basin and the use of the modified Ecology peaking factor for currently undeveloped basins. The estimated flows should be revisited as connections to the sewer system develop.

EXISTING SEWER SYSTEM HYDRAULIC MODEL

The hydraulic modeling program, InfoSewer, developed by Innovyze, has been used to analyze the gravity lines within the existing City of Edgewood collection system and the City of Fife collection system (southern portion only) within City of Edgewood city limits to evaluate the systems' capacity to accommodate current flows (2021), and projected future flows (2041 and Buildout).

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

- Major Gravity Lines
- Force Mains
- Sewage Lift Stations

Existing and future population, land use, and wastewater flows presented in Chapters 2 and 5 of this Plan were utilized to develop data for use in the hydraulic model. Total land use area and wastewater flows were allocated to individual subbasins, or basins, to identify current and future flows in the collection system.

The output from the hydraulic model was then 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 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. Average day flows within each of the basins for the planning years 2027, 2031, 2036, 2041 and buildout were calculated separately in an Excel spreadsheet (i.e., based on land use area, ERUs, and infiltration and inflow) and then input into the model at specific designated manholes. The model then used the population-based peaking factor shown in Figure 5-3 and the design peak hour I/I rate per acre from Table 5-5 to provide the existing and/or anticipated peak hour flow for that basin.

Estimated flows in each of the planning years in the existing Phase I basins were inserted into the model at the upstream manhole in each basin. Average day flows in each of the planning years from currently unsewered basins that are tributary to the City's or Fife's sewer system were inserted in the model at the existing manhole where the proposed new pipe will connect.

SEWER SYSTEM CONFIGURATION

A proposed wastewater collection system was developed that would provide sewer service to the entire City. The proposed collection system is illustrated in Figure 6-1. Figure 6-1 also identifies the basins that would discharge to each of the proposed service providers, Pierce County sewer system (treatment at Tacoma CTP), City of Fife sewer system (treatment at Tacoma CTP), Puyallup and LWSD, and the points of connection to each of the service providers. The delineation of the basins was discussed in Chapter 2. Basins were delineated based on existing infrastructure and/or service agreements, topography, and potential wastewater treatment service providers. Figure 2-12 illustrated the identified basins and topography. The topography of the City does not make it possible to design a gravity system without the use of several lift stations. The ridges that are generally oriented north-south to the east and west of Meridian Avenue will require multiple lift stations to convey flow. The proposed system includes 18 larger lift stations and 26 areas that could be served either by individual grinder pumps that discharge to a small diameter force main or small lift stations (less than 100 gpm capacity) that will convey flow to a point of connection with the City's existing sewer system or the proposed system.

Note: All lengths of sewers discussed in the proposed wastewater collection system are approximate.

- The currently unsewered basins generally north of 36th Street East and east of Meridian Avenue, Basins 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 and 32, would be conveyed to the existing City sewer system.

- The currently unsewered basins west of Meridian Avenue, Basin 16 and the portion of Basin 18 west of Meridian Avenue would be conveyed to the existing City sewer system.

- The currently unsewered Basin 12 would be conveyed to a point of connection with the existing Pierce County sewers in Taylor Street East.

- The currently unsewered Basin 13 would be conveyed to points of connection with the existing Pierce County sewers in Taylor Street East and 20th Street East.

- The currently unsewered areas of Basins 10 and 14 would be conveyed to the City of Fife sewer system in Edgewood.

- The currently unsewered Basin 15 and the private collection system in the Cherrywood Mobile Home Park (Basin 11) would be connected to the City of Fife sewer in Freeman Road.

- The currently unsewered Basins 17, 19, 20 and 31 would be conveyed to three points of connection with existing or proposed sewers in the City of Puyallup.

For planning purposes, it is assumed that the construction of new sewers will occur over a period of time. A preliminary timeline for constructing sewers is based on the following considerations:

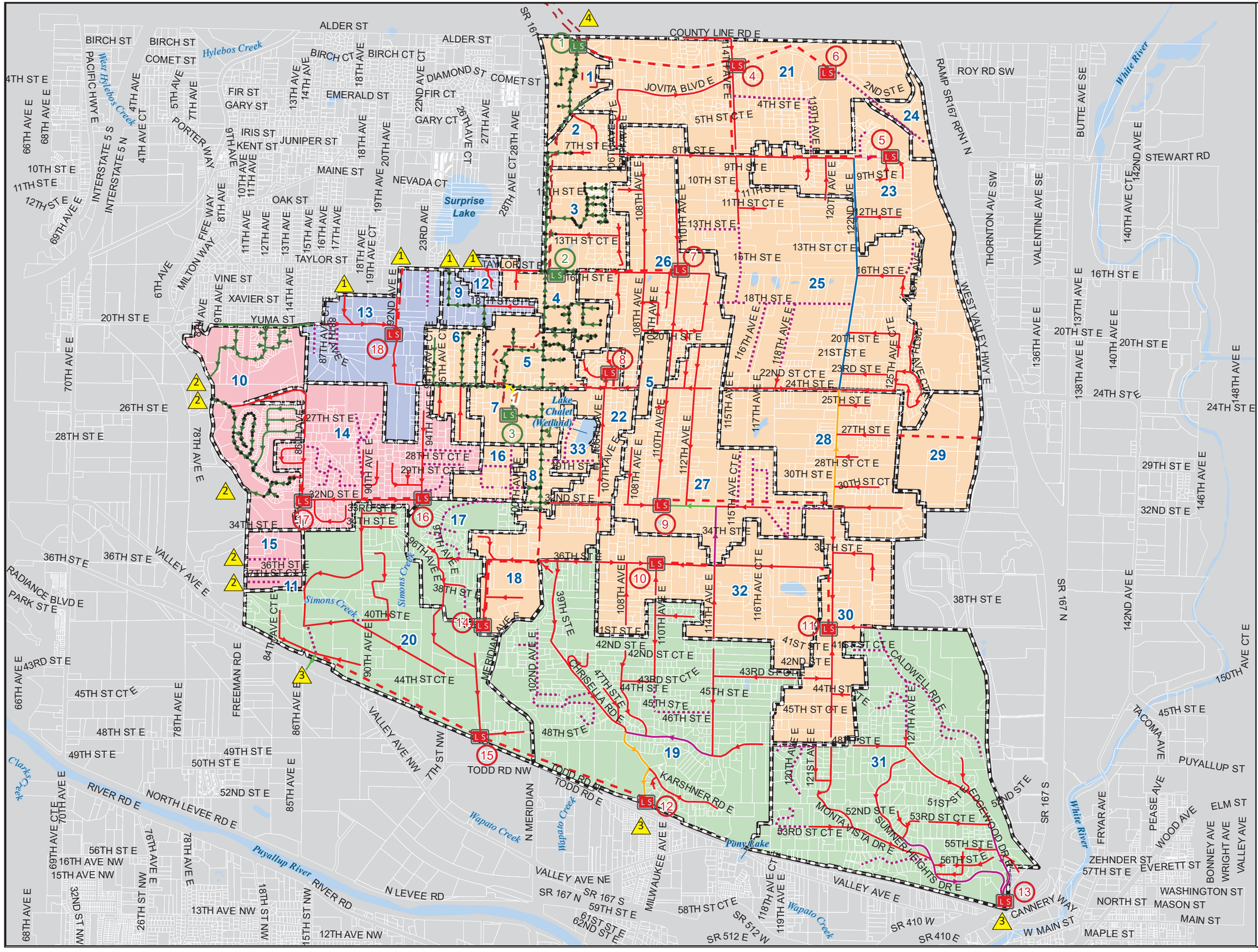
1. Known development pressure;

2. Ecology priority for sewer service (Cherrywood Mobile Home Park, Basin 11);

3. Basins in close proximity to existing LID infrastructure;

4. Basins in close proximity to existing Fife or Pierce County infrastructure.

Figure 6-2 identifies the preliminary timeline for sewer construction per basin. This Plan assumes Basins 3, 4, 11, 12, 18, 26, the northern portion of 21 and the southwest portion



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Project No. Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

- 1 Discharge to Pierce County
- 2 Discharge to Fife
- 3 Discharge to Puyallup
- 4 Discharge to LWSD

0 2,000 4,000 Feet

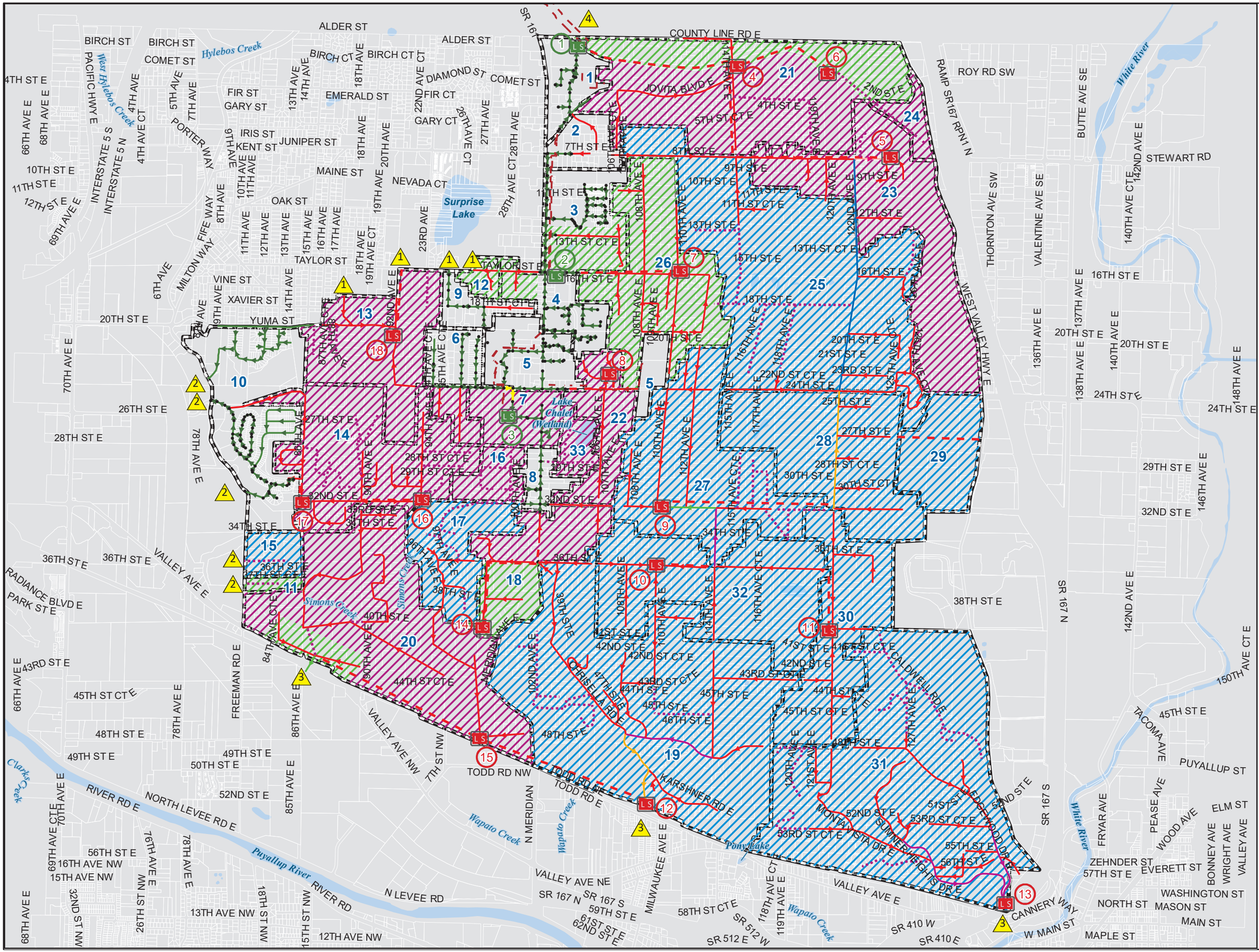
N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 6-1
Proposed Collection System and Sewer Service Provider

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig 6-1_0628.mxd



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins
- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD
- 2024-2029
- 2029-2050
- 2050+

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 6-2
Basin Timeline

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig6-1_05222023.mxd

of 20 (Prologics Development) will be sewered by the year 2029. Basins 13, 14, 16, the remainder of Basins 20, 21, 22, 24 and 33 will be sewered by the year 2050. Basins 15, 17, 19, 25, 27, 28, 29, 30, 31 and 32 would not begin to be sewered until 2050.

The estimated 2041 and Buildout average annual day, peak day and peak hour flows that would be conveyed to the adjacent sewer providers including LWSD, City of Fife, City of Puyallup and Pierce County are shown in Table 6-2. As discussed in Chapter 2, future wastewater flows are based on the City's proposed revisions to zoning that would revise all currently zoned SF-3 areas located in the Surprise Lake and Lake Chalet pothole basins to SF-5 zoning and all currently zoned SF-3 located outside of the remaining pothole basins to SF-5 zoning.

The estimated average day annual flow at buildout for the existing Phase I areas is approximately 0.525 mgd, which is less than the maximum flow of 0.692 mgd allowed per the Interlocal Agreement between the City and LWSD. The estimated total average annual flow at buildout that is proposed to be directed to LWSD from all the basins identified in this plan would be 1.579 mgd.

The estimated average day annual flow at buildout for the Non-Core West Phase I area that would be directed to the City of Fife is 0.171 mgd. The estimated total average flow at buildout that is proposed to be directed to Fife from all the basins identified in this plan would be 0.312 mgd.

The estimated average day annual flow at buildout for the areas that are currently directed to the Pierce County sewer system, Basin 9, is 0.019 mgd. The estimated total average day annual flow at buildout that is proposed to be directed to Pierce County from Basin 12 is 0.008 mgd and from Basin 13 is 0.073 mgd. The total average day annual flow at buildout tributary to the Pierce County sewer system from the basins identified in this plan is 0.100 mgd.

The estimated total average day annual flow at buildout that is proposed to be directed to the City of Puyallup from all the basins identified in this plan would be 0.733 mgd.

TABLE 6-2

Estimated 2041 and Buildout Flows to Adjacent Sewer Providers

Treatment Provider	2041[(1)]					Buildout[(1)]				
	AAF (gpd)	MMF (gpd)	PDF (gpd)	PHF (gpd)	PHF (gpm)	AAF (gpd)	MMF (gpd)	PDF (gpd)	PHF (gpd)	PHF (gpm)
Flow to LWSD– Phase I Basins[(2)]	362,787	391,861	465,516	1,051,766	730	524,567	571,117	710,767	1,333,590	926
Flow to LWSD - All Basins	640,464	727,731	948,805	2,068,421	1,436	1,578,578	1,888,381	2,817,789	5,402,152	3,751
Flow to Pierce County – All Basins	43,629	52,862	76,250	213,975	149	99,965	120,466	181,966	500,648	348
Flow to Fife – Phase I West Non-Core Basins	91,913	103,951	134,449	380,058	264	171,359	190,634	248,458	661,125	459
Flow to Fife - All Basins	164,699	187,168	244,090	685,483	476	312,303	356,627	489,601	1,268,543	881
Flow to Puyallup – All Basins	54,720	70,192	109,388	284,694	198	732,838	893,549	1,375,681	3,705,690	2,574

(1) Buildout flows based on peaking factors (Table 5-8) and design I/I buildout flows (Table 5-5).

(2) Basins 3,18 and 26 sewered by 2029.

PROPOSED COLLECTION SYSTEM CONFIGURATION

The following section identifies the new collection system facilities or modifications to existing facilities that would be required to provide a system sized for buildout conditions. The discussion of the proposed collection system is organized by the proposed treatment provider.

Figure 6-1 illustrates the complete backbone of the proposed collection system. The existing three lift stations (Lift Stations 1, 2 and 3) and an additional 15 regional lift stations will be required to complete the system. The buildout capacity of the lift stations were estimated based on the population, number of ERUs, the area tributary to the lift station, the peaking factor (based on population – Figure 5-3) and design I/I contribution per acre (Table 5-5) to each lift station. Table 6-3 identifies the parameters used to calculate the buildout peak hour flow for the major lift stations.

TABLE 6-3

Lift Station Buildout Capacity Evaluation

Lift Station No.	Population Tributary to Lift Station[(1)]	Area Tributary to Lift Station (acres)	Peaking Factor[(2)]	ERUs Tributary to Lift Station	Peak Hour Wastewater Flow[(3)] (gpm)	I/I[(4)] (gpm)	Total Peak Hour Flow (gpm)
1	11,150	950	2.2	4,500	1,050	660	1,710
2	10,350	880	2.3	4,170	1,007	611	1,620
3	6,730	500	2.7	2,710	773	347	1,120
4	2,440	370	3.5	980	355	257	610
5	7,390	1,790	2.7	2,980	824	1,243	2,070
6	320	20	4.1	130	55	14	70
7	870	200	3.8	350	140	139	280
8	730	80	3.9	290	117	56	170
9	2,510	700	3.5	1,010	364	486	850
10	330	110	4.1	130	55	76	130
11	690	180	3.9	280	114	125	240
12	3,870	590	3.2	1,560	516	410	930
13	3,230	550	3.3	1,300	447	382	830
14	750	100	3.9	300	121	69	190
15	1,200	200	3.7	480	187	139	330
16	590	80	3.9	240	98	56	150
17	1,560	200	3.7	630	241	139	380
18	950	160	3.8	380	151	111	260

(1) All basins tributary to the Lift Station.
(2) Modified Ecology peaking factor (peak hour to annual average) from Figure 5-3. Peaking factor is based on the population tributary to the lift station.
(3) Peak hour wastewater flow based on 150 gpd/ERU and peaking factor based on population tributary to lift station.
(4) Buildout peak hour I/I – 1000 gpad (Table 5-5).

Some portions of the proposed collection system are best served by either installing: (1) individual grinder pumps at each residence that would discharge through a common small diameter force main to the larger collection system; or (2) a local gravity collection system to serve multiple homes and a small (less than 100 gpm) lift station that would discharge to the larger collection system.

The following sections identify the proposed backbone sewer system that would convey wastewater to Pierce County, Fife, Puyallup and LWSD for treatment.

BASINS TRIBUTARY TO PIERCE COUNTY SEWER SYSTEM

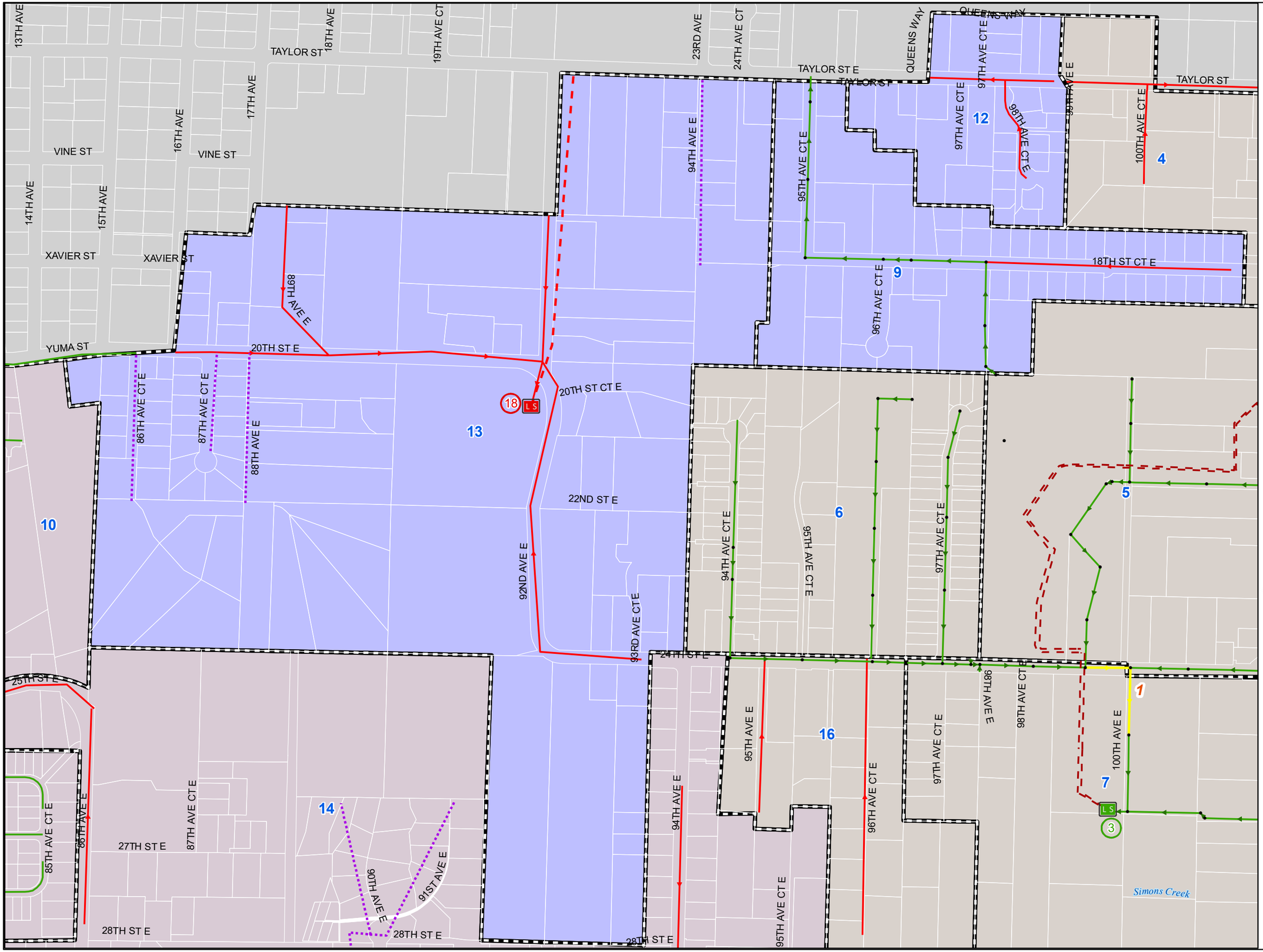
Flows from Basins 9, 12 and 13 would be directed to the existing Pierce County collection system in the City of Milton with treatment at the Tacoma CTP. Figure 6-3 illustrates the existing and proposed collection system configurations for Basins 9, 12 and 13.

Future improvements in **Basin 9** include 1,100 feet of 8-inch sewer main to extend the existing 8-inch collection system on 18th Street Court East to the east. The existing 8-inch collection system has adequate capacity to accommodate the additional flows. Flows from Basin 9 would discharge to the Pierce County sewer system on Taylor Street.

Basin 12 is currently unsewered with existing residential properties served by septic systems. Future improvements in Basin 12 include 450 feet of 8-inch sewer main on 98th Avenue Court East that would connect to 550 feet of 8-inch sewer on Taylor Street. Flows from Basin 12 would discharge to the Pierce County sewer system on Taylor Street.

Basin 13 is currently unsewered with existing residential properties served by septic systems. Future improvements in Basin 13 include the following:

- Development along 86th Avenue Court East, 87th Avenue Court East, 88th Avenue Court East and 94th Avenue East would be served by individual grinder pumps that would discharge to a common small diameter force main. Alternatively, local 8-inch gravity sewers, 650 feet of 8-inch sewer main on 86th Avenue Court East, 650 feet of 8-inch sewer main on 87th Avenue Court East and 1,100 feet of 8-inch sewer main 20th Street East, would discharge to a small lift stations at the terminus of each gravity main. Wastewater from 86th Avenue Court East would discharge to the Pierce County sewer system on Yuma Street. Wastewater from 87th Avenue Court East and 88th Avenue Court East would discharge to the future sewer main on 20th Street East. Wastewater from 94th Avenue East would discharge to the Pierce County sewer system on Taylor Street.


13TH AVE
TAYLOR ST
18TH AVE
19TH AVE CT
23RD AVE
24TH AVE CT
TAYLOR ST E
QUEENS WAY
97TH AVE CT E
98TH AVE E
99TH AVE E
100TH AVE CT E
VINE ST
16TH AVE
17TH AVE
14TH AVE
15TH AVE
XAVIER ST
94TH AVE E
95TH AVE CT E
12
4
18TH ST CT E
9
96TH AVE CT E
89TH AVE E
YUMA ST
20TH ST E
20TH ST CT E
18
LS
13
86TH AVE CT E
87TH AVE CT E
88TH AVE E
22ND ST E
10
92ND AVE E
93RD AVE CT E
24TH ST E
6
94TH AVE CT E
95TH AVE CT E
97TH AVE CT E
5
25TH ST E
16
95TH AVE E
98TH AVE E
98TH AVE CT E
1
100TH AVE E
7
LS
3
85TH AVE CT E
86TH AVE E
87TH AVE CT E
27TH ST E
14
90TH AVE E
91ST AVE E
28TH ST E
96TH AVE CT E
Simons Creek
LEGEND:
Existing Lift Station
Proposed Lift Station
Existing Force Main
Proposed Force Main
Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station
Existing Gravity Main
Sufficient Capacity at Buildout
Project No.
Insufficient Capacity at Buildout
Proposed Gravity Main
8 Inch
10 Inch
12 Inch
15 inch
18 inch
21 inch
Sewer Basins
Service Provider
City of Fife
LWSD
Pierce County
City of Puyallup
0
400
800
Feet
N
SCALE 1 " = 400 '
CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 6-3
Collection System Improvements
Service Area to Pierce County Sewer System
(Treatment Provided by Tacoma Central Treatment Plant)
Gray & Osborne, Inc.
L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig6-2_0628.mxd

- 1,800 feet of 8-inch sewer main on 92nd Avenue East south of 20th Street East and 650 feet north of 20th Street East, 1,500 feet of 8-inch sewer main on 20th Street East and 750 feet of 8-inch sewer main on 89th Avenue East would discharge to the regional Lift Station 18 located at approximately 92nd Avenue East and 20th Street East.

- The tributary basin for Lift Station 18 is approximately 160 acres. Lift Station 18 would be sized for the buildout peak day flow of 260 gpm. 1,400 feet of 6-inch force main would convey the pumped flow from Lift Station 18 to the Pierce County sewer system on Taylor Street.

Table 6-4 identifies the estimated Lift Station 18 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-4

Lift Station 18 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	260
Force Main, (inch)	4
Pumps (gpm)	150 (3 each)
Pump (hp) (each)	5

BASINS TRIBUTARY TO THE CITY OF FIFE SEWER SYSTEM

Basin 10 is the Non-core West Phase I basin that is included in the 2013 Interlocal Agreement between the City and the City of Fife. The buildout sewer system would direct additional flow from Basins 11, 14, and 15 to the City of Fife. Figure 6-4 illustrates the proposed backbone sewer system that would be directed to the City of Fife collection system and treatment at the Tacoma CTP.

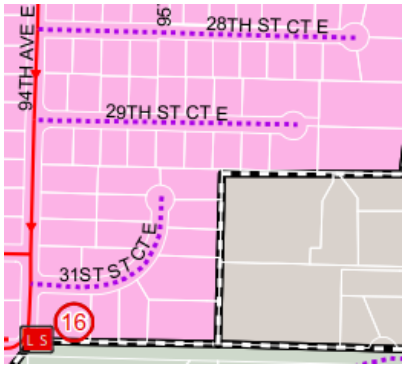
Basin 11 is the Cherrywood Mobile Home Park. The Park has a collection system and an on-site treatment facility that discharges to Wapato Creek. Ecology has required Cherrywood to submit an annual report regarding the potential for an alternative method of wastewater treatment. This Plan includes installation of a small lift station in the vicinity of the existing treatment facility and 800 feet of force main to a point of connection to the City of Fife force main in Freeman Road.

Basin 15 is currently unsewered. The buildout sewer system backbone was configured assuming that development in this basin would be served by individual grinder pumps and a small diameter force main or by 1,000 feet of 8-inch sewer main and a small lift station. Wastewater collected in this basin would discharge to the City of Fife force main in Freeman Road.

Basin 14 is currently unsewered but is heavily developed with single-family residences on septic systems. The topography of Basin 14 requires the use of grinder pumps or local lift stations in several areas and two regional lift stations to convey collected flows from Basin 14 through Basin 10 to the City of Fife collection system.

Future improvements in Basin 14, from east to west, include the following:

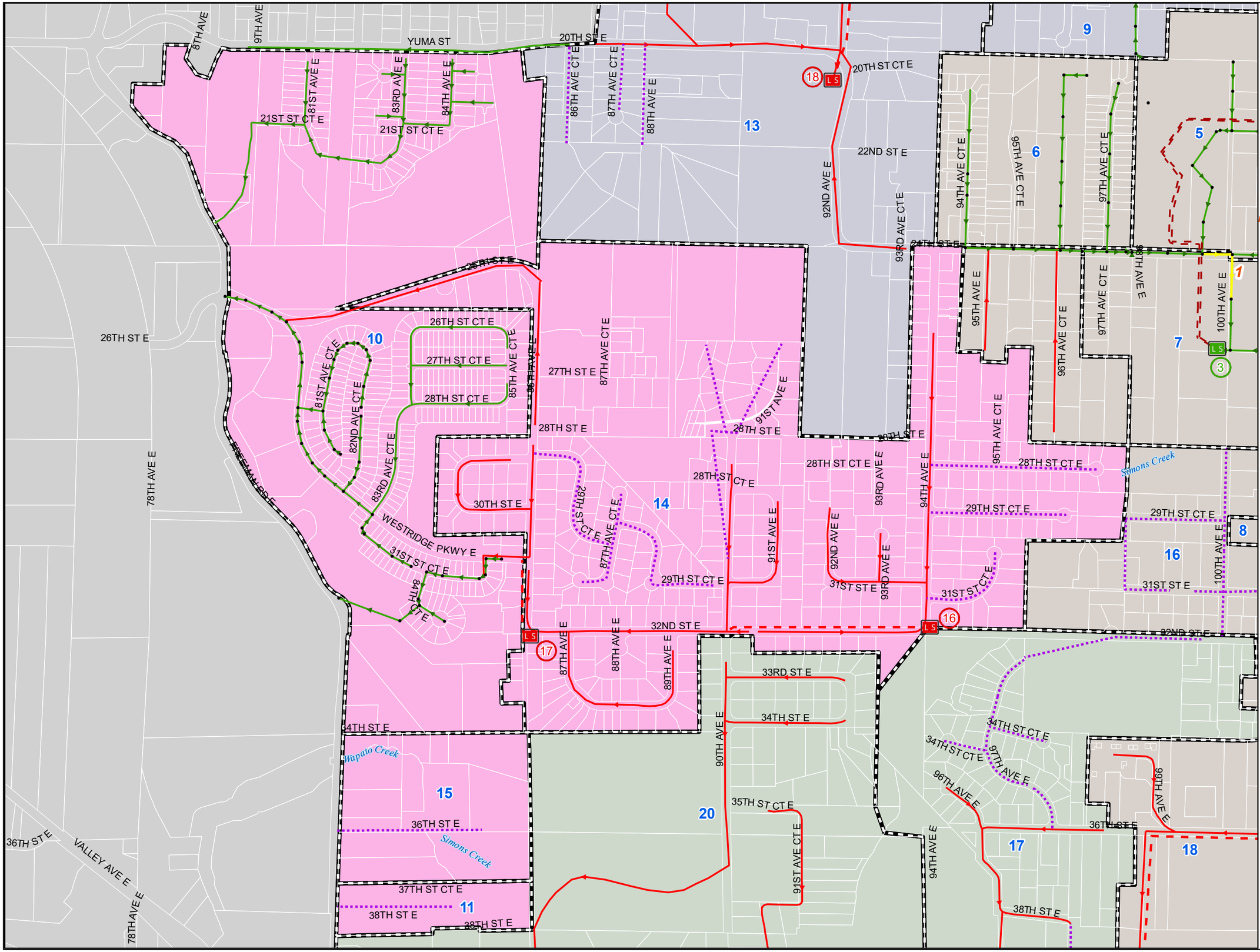
- Individual grinder pumps would serve residences on 28th Street Court East, 29th Street Court East and 31st Street Court East and small diameter force mains. Alternatively, local gravity sewers would be constructed, including 1,050 feet of 8-inch sewer main on 28th Street Court East, 850 feet of 8-inch sewer main on 29th Street Court East and 650 feet of 8-inch sewer main on 31st Street Court East and small lift stations located at the end of each of the streets. The small diameter force mains and small lift stations would discharge to the sewer main in 94th Avenue East.



- 8-inch sewer mains on 92nd Avenue East (500 feet), 93rd Avenue East (300 feet), and 31st Street East (600 feet) would discharge to 94th Avenue East.

- 1,000 feet of 8-inch sewer main on 32nd Street East between 90th Avenue East and 94th Avenue East would convey flow to the east.

- 2,000 feet of 8-inch sewer main on 94th Avenue East would collect wastewater from residences served by individual grinder pumps or small lift stations along 94th Avenue East, 28th Street Court East, 29th Street Court East, and 31st Street Court East. The combined flow from 94th Avenue East and 32nd Street East would discharge to the regional Lift Station 16 located near the intersection of 94th Avenue East and 32nd Street East. 1,300 feet of 6-inch force main would discharge to the 8-inch sewer main in 32nd Street East west of 90th Avenue East.



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Project No. Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

0 600 1,200 Feet

N

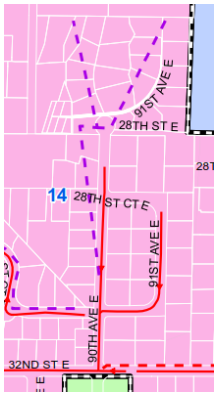
SCALE 1 " = 600 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 6-4
Collection System Improvements
Service Area to City of Fife Sewer System
(Treatment Provided by Tacoma Central Treatment Plant)

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig6-3_0628.mxd

- Each of the residences on the cul-de-sacs of 90th and 91st Avenue East currently pump wastewater to individual drainfields located southwest of the cul-de-sac. The discharge from each of the existing individual pumps would be reconfigured to discharge to the 8-inch sewer main on 90th Avenue East.

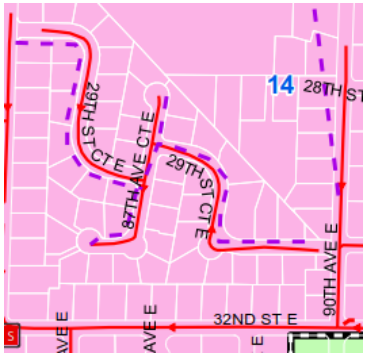


- 800 feet of 8-inch sewer main on 91st Avenue East would discharge to 1,100 feet of 8-inch sewer main on 90th Avenue East. The combined flows from the 90th and 91st Avenues East cul-de-sacs and the 90th Avenue East sewer main would discharge to the 8-inch sewer main on 32nd Street East that flows to the west.

- 1,500 feet of 8-inch sewer on 89th Avenue East and 87th Avenue East would discharge to the 8-inch sewer main on 32nd Street East.

- 1,300 feet of 8-inch sewer main on 32nd Street East, beginning at the grade break immediately east of 90th Avenue East, would convey wastewater from Lift Station 16, the collection system on 90th Avenue East north of 32nd Street East and 86th and 87th Avenues East south of 32nd Street East and 400 feet of 8-inch sewer main on 86th Avenue East north of 32nd Street East to the regional Lift Station 17 located in the vicinity of 32nd Street East and 86th Avenue East. 450 feet of 6-inch force main would discharge to the existing City of Fife sewer in Westridge Parkway East.

- Residences on 29th Street Court East and 87th Avenue Court East would be served by individual grinder pumps and small diameter force mains. Alternatively, approximately 1,950 feet of 8-inch sewer main on 29th Street Court East would discharge to 700 feet of 8-inch sewer main on 87th Avenue Court East which would discharge to a local lift station. The grinder pumps or small lift station would discharge to the 8-inch sewer main on 86th Avenue East.



- 1,100 feet of 8-inch sewer main on 30th Street East would discharge to 1,050 feet of 8-inch sewer main on 86th Avenue East that would connect to the existing City of Fife sewer on Westridge Parkway East.

- 2,750 feet of 8-inch sewer on 86th Avenue East north of 28th Street East would flow by gravity down 25th Street East to the City of Fife sewer on Westridge Parkway East.

Basin 10 is developed with City of Fife sewers. Future improvements in Basin 10 include 200 feet of 8-inch sewer on Westridge Parkway East immediately west of 86th Avenue East to connect the collection system in Basin 14 to the existing collection system.

The tributary basin for Lift Station 16 is 80 acres. Lift Station 16 should be designed for buildout peak hour flow of 150 gpm. 1,300 feet of 6-inch force main will convey wastewater from Lift Station 16 to the sewer main on 32nd Street East.

Table 6-5 identifies the estimated Lift Station 16 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-5

Lift Station 16 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	150
Force Main, (inch)	6
Pumps (gpm)	150 (2 each)
Pump (hp) (each)	5

The tributary basin for Lift Station 17 is 120 acres. Lift Station 17 should be designed for a peak hour flow rate of 240 gpm. 500 feet of 6-inch force main will convey wastewater from Lift Station 17 to the sewer main on Westridge Parkway.

Table 6-6 identifies the estimated Lift Station 17 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-6

Lift Station 17 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	380
Force Main, (inch)	6
Pumps (gpm)	200 (3 Each)
Pumps (hp) (each)	5

BASINS TRIBUTARY TO THE CITY OF PUYALLUP SEWER SYSTEM

Flows from Basins 17, 19, 20, and 31 would be tributary to the City of Puyallup sewer system. Figure 6-5 illustrates the existing and proposed collection system configuration for Basins 17, 19, 20 and 31.

Basin 17 is located to the east of Simons Creek. Current residential development is on septic systems. Wastewater collected in Basin 17 will be conveyed south through Basin 20 to Lift Station 15. Proposed sewer facilities in Basin 17 include the following:

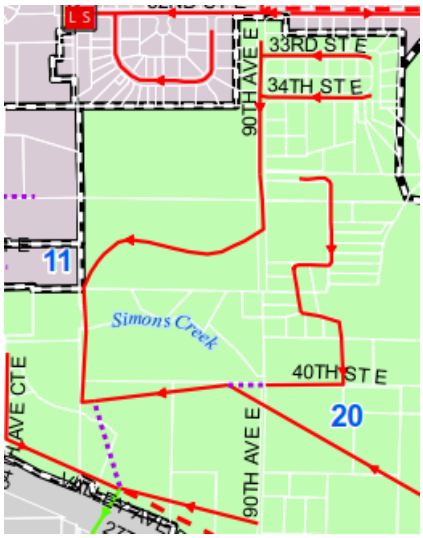
- The portion of the basin immediately east of Simons Creek and north of 36th Street East which includes 97th Avenue East, western and eastern 34th Street Court East, and 32nd Street East east of 100th Avenue East would be served by individual grinder pumps and small diameter force mains or 3,000 feet of local 8-inch gravity sewers that would discharge to a small lift station at the north end of 97th Avenue East. Wastewater collected from this area would discharge to the gravity sewer on 36th Street East.



- Properties located on 97th Avenue East south of 38th Street East would be served by individual grinder pumps and small diameter force mains or 500 feet of local 8-inch gravity sewers, that would discharge to a small lift station at the south end of 97th Avenue East. Wastewater collected from this area would discharge to the gravity sewer on 96th Avenue East.

- 800 feet of 8-inch sewer main on 36th Street East, 1,450 feet of 8-inch sewer main on 96th Avenue East and 450 feet of 8-inch sewer main on 38th Street East would connect to an 8–inch sewer main in Basin 20 that would be installed on a road connecting 96th Avenue East to the southern city limits through the eastern portion of the industrial area in Basin 20 (per City of Edgewood 2022 Transportation Improvement Plan and confirmed by the City).

Basin 20 includes currently developed residential properties and industrial zoned areas in the southwest portion of the basin. Basin 20 is currently unsewered. Future improvements in Basin 20 include the following:



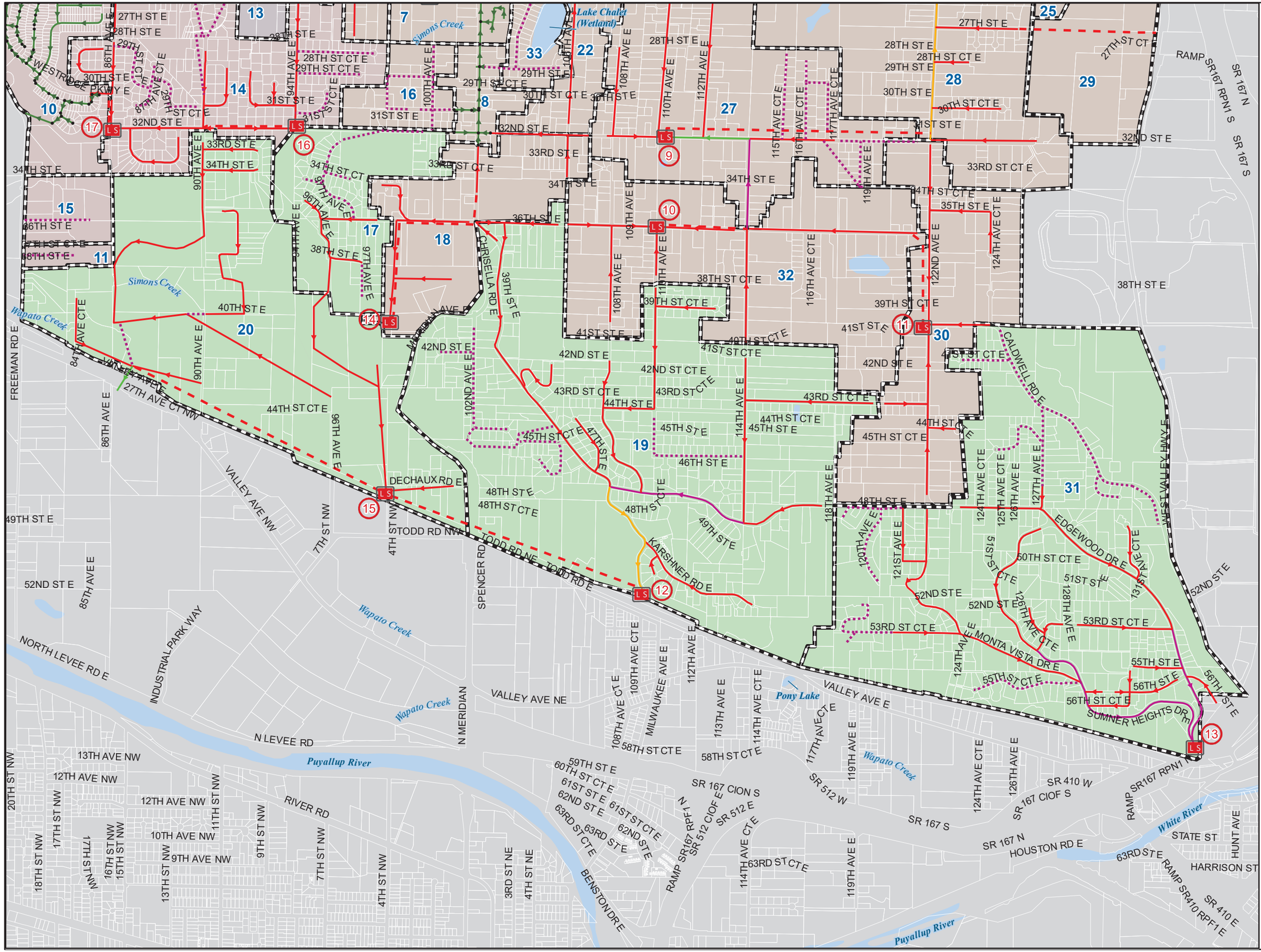
- 8-inch sewer mains on 33rd Street East (800 feet) and 34th Street East (800 feet) would discharge to approximately 3,300 feet of 8-inch sewer main on 90th Avenue East that would follow the planned collector identified in the City's 2022 Transportation Improvement Plan from the south end of 90th Avenue East to the southern City limits. This route may require a small lift station at Wapato Creek to continue the sewer south of the creek.

- 2,800 feet of 8-inch sewer main would be located on the east end of 38th Street Court, 91st Avenue Court East, 37th Street Court East, 90th Avenue Court East, 38th Street East and 40th Street East. A small lift station may be required at Simons Creek to allow the flow from this area to discharge to the 8-inch sewer main located on the south side of Simons Creek.

- 3,600 feet of 8-inch sewer would be located on the south side of Simons Creek from approximately 96th Avenue East to the new planned collector from 90th Avenue East to provide sewers for future industrial users. This sewer would discharge to the small lift station discussed above, if required, to continue the sewer on the south side of Wapato Creek.

- 2,400 feet of 8-inch sewer along the southern City limits from 84th Avenue Court East to approximately 90th Avenue East would be installed to provide service to existing residential properties and the industrial zone. Wastewater from the sewers discussed above would discharge to this sewer prior to discharge to the City of Puyallup sewer system via 600 feet of 12-inch sewer from approximately Valley Avenue East to the existing sewer stub under the Union Pacific Railroad tracks at approximately 27th Avenue Court NW in Puyallup.

- 3,800 feet of 8-inch sewer main from approximately 96th Avenue East in Basin 17 to the regional Lift Station 15 located at approximately 98th Avenue East and the southern city limits. This alignment would follow the planned collector included in the City's Transportation Improvement Plan.



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Project No. Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

0 1,300 2,600 Feet

N

SCALE 1 " = 1,300 '

CITY OF EDGEWOOD

GENERAL SEWER PLAN

FIGURE 6-5

Collection System Improvements
Service Area to City of Puyallup Sewer System
(Treatment Provided by City of Puyallup)

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig 6-4_0628.mxd

- 1,000 feet of 8-inch sewer main on Dechaux Road East to serve currently undeveloped areas to the northeast of Lift Station 15 would convey wastewater to Lift Station 15.

- The tributary area for Lift Station 15 includes 200 acres. Lift Station 15 should be designed for buildout peak hour flows of 330 gpm. 4,100 feet of 6-inch force main will convey wastewater from Lift Station 15 to the point of connection with the City of Puyallup sewer stub under the Union Pacific Railroad tracks. Alternatively, the lift station could discharge to a future City of Puyallup sewer in 4th Street NW or 7th Street NW in Puyallup.

Table 6-7 identifies the estimated Lift Station 15 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-7

Lift Station 15 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	330
Force Main, (inch)	6
Pumps (gpm)	200 (3 Each)
Pumps (hp) (each)	5

Basin 19 is located on the south slope of the City, east of Meridian Avenue East. This basin is moderately developed and served by septic systems. Wastewater collected in Basin 19 would be directed to the City of Puyallup collection system via Lift Station 12, located at Chrisella Road East and the city limits. Lift Station 12 would discharge into a future sewer in the City of Puyallup located at approximately the transition from Chrisella Road East and Milwaukee Avenue East (at the city limits). Alternatively, Lift Station 12 could discharge to the west to Basin 20 and then into the City of Puyallup sewer system at approximately 4th Street NW and Todd Road NW. Future improvements in Basin 19 include the following:



- 4,000 feet of 8-inch and 2,600 feet of 15-inch sewer main would be constructed on 39th Street East and Chrisella Road East that would discharge to Lift Station 12.

- Individual grinder pumps and small diameter force mains or 2,300 feet of 8-inch sewer main on 42nd Street East, 102nd Avenue East

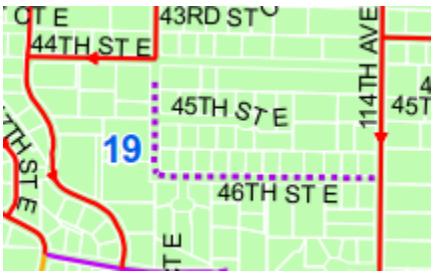
and 45th Street East and local lift stations at the end of each of the gravity sewers located at approximately the intersection of 102nd Avenue East and 45th Street East will be required to convey wastewater from these areas to the sewer main on Chrisella Road East.

- Individual grinder pumps and small diameter force mains or approximately 1,400 feet of 8-inch sewer main on 45th Street Court East and 106th Avenue East and a local lift station in the cul-de-sac of 106th Avenue East will be required to convey wastewater from this area to the main on Chrisella Road East.

- 830 feet of 8-inch and 2,000 feet of 10-inch sewer main on 48th Street East would convey flow from east of Chrisella Road East to the Chrisella Road East sewer main.

- 1,900 feet of 8-inch sewer main on 43rd Street Court East would discharge into approximately 2,400 feet of 8-inch sewer main on 114th Avenue East. This sewer will discharge into the sewer main on 48th Street East.

- Individual grinder pumps and small diameter force mains or approximately 630 feet of 8-inch sewer main on 45th Street East and 46th Street East that discharge to a local lift station would be required to convey flow from this area to 114th Avenue East. 900 feet of 8-inch sewer main on 43rd Street Court East would discharge flow to the sewer main on Chrisella Road East.



- 1,000 feet of 8-inch sewer on 47th Street East would discharge flow to the sewer main on Chrisella Road East.

- 900 feet of 8-inch sewer main on 39th Street Court East would discharge to 1,800 feet of 8-inch sewer main on 110th Avenue East and 730 feet of 8-inch sewer main on 44th Street East. The combined flow from these two sewers would discharge to 2,200 feet of 8-inch sewer main on 108th Avenue East. These combined flows would discharge to the sewer main on 48th Street East.

- 2,200 feet of 8-inch sewer main on Karshner Road East would discharge flow to the sewer main on Chrisella Road East.

The tributary area for Lift Station 12 is 590 acres. This lift station should be designed for a buildout peak hour flow of 930 gpm. This report assumes that 500 feet of dual 8- and 10-inch inch force main will be required to discharge to the future sewer system in the

City of Puyallup in the vicinity of Milwaukee Avenue. Dual force mains would be installed to be able to pump the range of flows over the design period within the design velocity of 3 to 8 fps. The 8-inch force main would be used until the pumped discharge exceeded 475 gpm. The 10-inch force main would be used after approximately 2041.

Table 6-8 identifies the estimated Lift Station 12 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-8

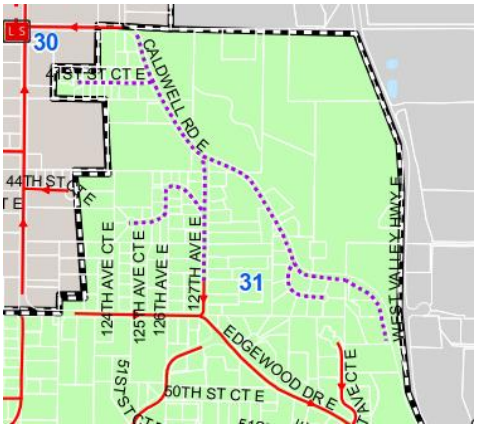
Lift Station 12 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	930
Force Main, (inch)	8 & 10
Pumps (gpm)	475 (3 each)
Pumps (hp) (each)	5

Basin 31 is located in the southeast portion of the City. Residential development in this basin is currently served by septic systems. Flows from this basin would be directed to the City of Puyallup service area via Lift Station 13 located at the south end of Edgewood Drive East near the city limits. Lift Station 13 would discharge to a future sewer system in the City of Puyallup located in the vicinity of Valley Avenue East and SR 167.

Two sewer mains would convey flow from Basin 31 to Lift Station 13. The eastern sewer main, located on Edgewood Drive East, would include 2,600 feet of 8-inch sewer main and 1,800 feet of 10-inch sewer main. Sewers that would discharge into the sewer main on Edgewood Drive East include the following.

- Wastewater collected from Caldwell Road East, a portion of 127th Avenue East, 41st Street Court East and 44th Court East will require installation of individual grinder pumps and small diameter force mains or 3,900 feet of 8-inch sewer main on Caldwell Road East, 500 feet of 8-inch sewer main on 127th Avenue East, 750 feet of 8-inch sewer main on 41st Street Court East and 1,000 feet of 8-inch sewer main on 44th Court East, a small lift station at the southern end of Caldwell Road East and 3,600 feet of force main to be able to discharge flow to the Edgewood Drive East sewer main.



- 800 feet 8-inch sewer on 55th Avenue SE, 1,300 feet of 8-inch sewer on 131st Avenue Court East and 800 feet 8-inch sewer on 56th Street SE that will discharge to Edgewood Drive East.

- 1,200 feet of 8-inch sewer main on 48th Street East, 900 feet of 8-inch sewer main on 131st Avenue Court East and 1,400 feet of 8-inch sewer main on 53rd Street Court East would connect to the sewer main in Edgewood Drive East.

A sewer main located on Sumner Heights Drive East would convey flows from the western portion of Basin 31 to Lift Station 13. The Sumner Heights Drive East sewer main would include 2,500 feet of 8-inch sewer main and 3,500 feet of 10-inch sewer main. The following areas of the basin would flow into the Sumner Heights Drive East sewer main:

- 4,400 feet of 8-inch sewer on Monta Vista Drive East.

- Individual grinder pumps and small diameter force main or 2,000 feet of 8-inch sewer main and a small lift station would be installed to convey wastewater from 120th Avenue East to 121st Avenue East.



- 500 feet of 8-inch sewer main on 121st Avenue East and 50th Street Court East would discharge to the sewer main on Monta Vista Drive East.

- 900 feet of 8-inch sewer main on 53rd Street Court East would discharge to the sewer main on Monta Vista Drive East.

- Individual grinder pumps and a small diameter force main or 1,300 feet of 8-inch sewer main on the west end of 53rd Street Court East and 118th Avenue Court East and a local lift station located at approximately the intersection of 53rd Street Court East and 118th Avenue Court East would be required to convey flow from this area to the 53rd Court East gravity sewer.



- Individual grinder pumps and a small diameter force main or 1,400 feet of 8-inch sewer main on 55th Street Court East and a local lift station located at the low point on 55th Street Court East would be required to convey wastewater from this area to the sewer on Monta Vista Drive East.

- 1,100 feet of 8-inch sewer main on the west portion of 53rd Street Court East would discharge to the sewer main in Sumner Heights Drive East.

- 800 feet of 8-inch sewer main on 56th Street East and 56th Street Court East would discharge to the sewer main in Sumner Heights Drive East.

The tributary basin for Lift Station 13 is 550 acres. Lift Station 13 should be designed for a buildout peak hour flow of 830 gpm. This report assumes that 500 feet of dual 8- and 10-inch inch force main will be required to discharge to the future sewer system in the City of Puyallup. Dual force mains would be installed to be able to pump the range of flows over the design period within the design velocity of 3 to 8 fps. The 8-inch force main would be used until the pumped discharge exceeded 475 gpm. The 10-inch force main would be used after approximately 2041.

Table 6-9 identifies the estimated Lift Station 13 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-9

Lift Station 13 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	830
Force Main, (inch)	8 & 10
Pumps (gpm)	450 (3 each)
Pumps (hp) (each)	5

BASINS TRIBUTARY TO THE EXISTING CITY OF EDGEWOOD SEWER SYSTEM

Basins 16, 18, 21 through 30, 32 and 33 would be directed to the existing City of Edgewood sewer system. The proposed buildout sewers that would be required to convey wastewater from these basins to the existing Edgewood Sewer System are shown in Figure 6-6. Treatment would be provided at the LWSD Lakota Wastewater Treatment Plant. Future improvements in the currently unsewered basins are discussed below.

Lift Station 3 currently pumps wastewater from Basins 5, 6, 7, 8 and 18 to Lift Station 2. The proposed buildout sewer system would also discharge wastewater from Basins 16, 18 (expanded area), 22 and 33 to Lift Station 3.

Lift Station 2 currently pumps wastewater from Lift Station 3 and Basins 2, 3 and 4. The proposed buildout sewer system would also discharge wastewater from Basin 26 to Lift Station 2.

Lift Station 1 pumps the combined wastewater from Lift Station 2 and 3 and Basin 1 to the LWSD collection system. The proposed buildout sewer system would also discharge wastewater from Basins 21, 23, 24, 15, 27, 28, 29, 30 and 32 directly to the force main downstream of Lift Station 1.

Improvements or upgrades to the existing sewer system that would be required to provide a sewer system that has sufficient capacity for the buildout condition of the City will also be discussed in this section.

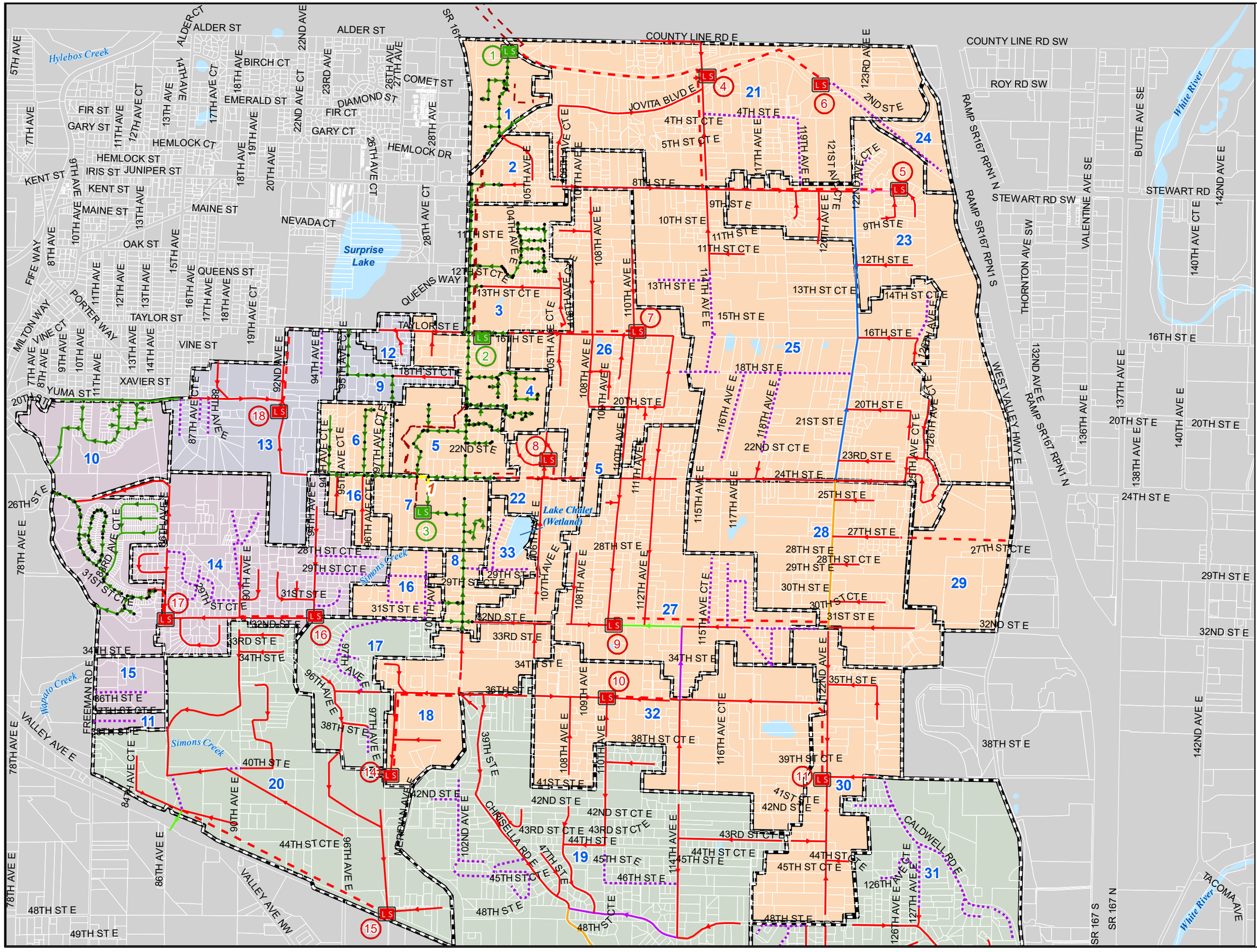
Basins Tributary to Phase I Basin 18

Basin 18 is the upstream basin in the Phase I Core sewer service area. The second amendment to the ILA between the City and LWSD, dated April 26, 2022, revised the Phase I boundary of Basin 18 to include the Wolf Point Subdivision and tributary areas. Currently an 8-inch sewer main extends south on Meridian Avenue East approximately 800 feet south of 32nd Street East in Basin 18. The Edgewood Community Park, located of 36th Street East on Meridian Avenue East is connected to the existing gravity sewer via a grinder pump. The future improvements in Basin 18 are discussed below:

- The southeast portion of Basin 18 includes the Wolf Point development. The developer installed sewer system serving the plat will be directed to Lift Station 14. Lift Station 14 will discharge to the southern end of the existing gravity sewer on Meridian Avenue East through 3,000 feet of force main.



- In addition to the flows from the Wolf Point development, wastewater from additional areas located in Basin 18 to the west of Meridian Avenue East will be directed to Lift Station 14 via 1,100 feet of 8-inch sewer main on 36th Avenue East beginning immediately west of Meridian Avenue East, 800 feet of 8-inch sewer main on 99th Avenue East north of 36th Street East and 1,500 feet of 8-inch sewer main south of 36th Street East to Lift Station 14.



L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig 6-5_0628.mxd

- The northeast portion of **Basin 18** will discharge by gravity to Basin 8. 650 feet of 8-inch sewer main on 107th Avenue East south of 32nd Street East and 1,400 feet of 8-inch sewer main on 32nd Street East will discharge to the existing sewer at Meridian Avenue East and 32nd Street East.

The tributary basin for Lift Station 14 is 100 acres. Lift Station 14 should be designed for a buildout peak hour flow of 190 gpm. 3,000 feet of 6-inch force main will convey wastewater from Lift Station 14 to the sewer main on Meridian Avenue East.

Table 6-10 identifies the estimated Lift Station 14 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-10

Lift Station 14 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	190
Force Main, (inch)	6
Pumps (gpm)	100 (3 each)
Pumps (hp) (each)	10

Basins Tributary to Phase I Basin 8

Basin 8 is located immediately north of Basin 18 between 32nd Street East on the south and 28th Street East on the north. The currently unsewered southern portion of Basin 16, the northeast portion of Basin 18 and Basin 33 would discharge into the existing sewer system in Basin 8.

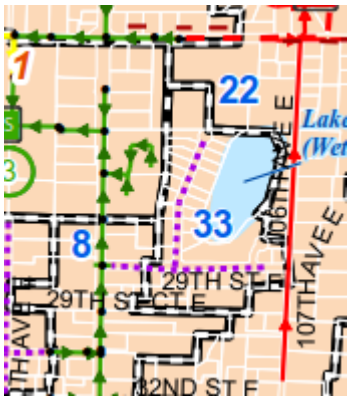
Wastewater flow in this basin is to the north. Existing sewers in Basin 8 include 8-inch diameter sewers on 32nd Street East, 31st Street East and Meridian Avenue East to the south of 32nd Street East. A 10-inch sewer main is located on Meridian Avenue East from 32nd Street East to the northern basin boundary.

Flows from **Basin 16** are tributary to Lift Station 3 via Basins 8 and 7. Basin 16 includes a southern area located west of Basin 8, north of 32nd Street East and south of 28th Street East, and a northern area located west of Basin 7, north of 28th Street East and south of 24th Street East. Wastewater flows from Basin 16 were included in the original design calculations for the City's sewer system.

The southern portion of Basin 16 that would discharge to Basin 8 is located downgradient from the existing sewers in Basin 8; therefore, pumping will be required. Future improvements in the southern portion of Basin 16 would include the following:



- Installation of individual grinder pumps and small diameter force mains to serve residences on 100th Avenue East, 29th Street Court East and 31st Street East. Alternatively, 630 feet of 8-inch sewer main on 100th Avenue East, 750 feet of 8-inch sewer main on 29th Street Court East, 330 feet of 8-inch sewer main on 31st Street East and 550 feet of 8-inch sewer main located to the north of the west end of 31st Street East would be installed that would discharge to a local lift station located at the west end of 29th Street Court East. The small diameter force mains or local lift station would discharge to the gravity sewer in 31st Street East.



Basin 33 includes the developed areas on the west and south sides of Lake Chalet. Improvements in Basin 33 will include individual grinder pumps on 103rd Avenue Court East and 29th Street East and small diameter force mains. Alternatively, 900 feet of 8-inch sewer main on 103rd Avenue Court East and 650 feet of 8-inch sewer main on 29th Street East would discharge to a local lift station located in the vicinity of the corner of 103rd Avenue Court East and 29th Street East. The small diameter force mains or local lift station would discharge to the gravity sewer main in Meridian Avenue East.

No improvements would be required in the Basin 8 collection system to accommodate buildout flows.

Basins Tributary to Phase I Basins 5, 6 and 7

Flows from Basins 5, 6 and 8 discharge into Basin 7. Basin 7 is located north of Basin 8 between approximately 28th Street Court E on the south and 24th Street East on the north. Basin 7 includes Lift Station 3 which pumps flows from Basins 5, 6, 7, 8 and 18 to the gravity sewer located in Basin 4. None of the currently unsewered basins would be discharged directly into the existing collection system in Basin 7; however, flows from currently unsewered basins that would discharge into Basins 5 (Basin 22) and 6 (northern portion of Basin 16) are conveyed through Basin 7 to Lift Station 3.

Flows from Basin 6 are conveyed via an 8-inch sewer main on 24th Street East to MH B41 at the intersection of 24th Street East and 100th Avenue East. Flow from Basin 5 is also conveyed to MH B41 prior to discharge to Basin 7.

The currently unsewered northern portion of **Basin 16** north of 28th Street East would discharge to the existing sewer main on 24th Street East to the south of Basin 6. Future improvements in the northern portion of Basin 16 would include the following:

- 600 feet of 8-inch sewer main on 95th Avenue East.
- 1,200 feet of 8-inch sewer main on 96th Avenue Court East.

The currently unsewered portions of **Basin 22** would discharge via the regional Lift Station 8 to the existing 8-inch sewer stub on 24th Street East east of Meridian Avenue East in Basin 5. The Puyallup School District currently operates a grinder pump system at the Edgemont/Hilltop Campus. This system discharges to the sewer system on Meridian Avenue at 24th Street via a small diameter force main. When the gravity sewer on 24th Street East and Lift Station 8 are installed the School District will connect to the gravity sewer system. Future improvements in Basin 22 include the following:

- 2,400 feet of 8-inch sewer main on 106th Avenue East would convey flow north from approximately 32nd Street East to 24th Street East.
- 650 feet of 8-inch sewer main on 24th Street East east of 106th Avenue East and 300 feet of 8-inch sewer main on 24th Street East west of 106th Avenue East.
- 1,100 feet of 8-inch sewer main on 23rd Street Court East.
- All flows in Basin 22 would discharge to Lift Station 8 which will pump into the existing 8-inch sewer stub on 24th Street East east of Meridian Avenue West.

The tributary basin for Lift Station 8 is 80 acres. Lift Station 8 should be designed for a buildout peak hour flow of 170 gpm. 1,560 feet of 6-inch diameter force main will convey wastewater from Lift Station 8 to the sewer stub on 24th Street East east of Meridian Avenue East.

Table 6-11 identifies the estimated Lift Station 8 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-11

Lift Station 8 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	170
Force Main, (inch)	6
Pumps (gpm)	100 (3 each)
Pumps (hp) (each)	5

No improvements would be required in Basin 5 to accommodate buildout flows.

Improvements would be required in the Basin 7 collection system to accommodate buildout flows. The location of the improvement is identified on Figure 6-6 as Project 1. 200 feet of existing 8-inch sewer main on 24th Street East to the west of 100th Avenue East may need to be upsized to 10-inch sewer main prior to buildout (existing pipe capacity 483 gpm, buildout estimated flow 489 gpm) and 643 feet of existing 10-inch sewer main on 100th Avenue East may need to be upsized to 12-inch sewer main between 2041 and buildout (existing pipe capacity 624 gpm, 2041 estimated flow 533 gpm, buildout capacity estimated flow 709 gpm). As the tributary basins develop, the need for system upgrades in the basin should be reevaluated.



Lift Station 3, similar to Lift Stations 1 and 2, was originally designed to accommodate higher flows by adding a third 25-hp pump or eventually by replacing the three 25-hp pumps with three 75-hp pumps. Tables 4-2, 4-3 and 4-4 summarize the designed lift station pump capacities. There are currently two 25-hp pumps in Lift Station 3 with a firm capacity of 580 gpm when only the 8-inch diameter force main is used. Projected peak hour 2041 flows and projected peak hour buildout flows to Lift Station 3 are 830 gpm and 1,120 gpm, respectively. Based on projected growth, peak hour flows in 2029 would exceed the current capacity of Lift Station 3, and additional pumping capacity would be required. The lift station capacity after installation of a third 25-hp pump and the capacity after installation of three 75-hp pumps are shown in Table 6-12.

TABLE 6-12

Projected Lift Station 3 Peak Hour Flow
(✓ indicates adequate capacity)

LS Configuration	LS 3 Capacity[1] (gpm)	Projected Peak Hour Flow (gpm)[2]				
		2027	2031	2036	2041	Buildout
		570	650	740	830	1,120
2 – 25-hp Pumps	580	✓	X	X	X	X
3 – 25-hp Pumps	760	✓	✓	✓	X	X
3 – 75-hp Pumps	1,190	✓	✓	✓	✓	✓

(1) From Tables 4-2, 4-3 and 4-4. Assumes flows are conveyed through the 8-inch force main.
(2) Peak Hour Flows 2027 – 2041 include 500 gpad I/I. Buildout Peak Hour Flows include 1,000 gpad I/I.

The existing 8-inch force main would have sufficient capacity to convey the buildout flows from Lift Station 3.

Based on growth projections, the current pump configuration would provide sufficient pumping capacity through approximately 2029 if the 8-inch diameter force main were used. The addition of a third 25-hp pump would provide sufficient capacity through approximately 2036 if the 8-inch diameter force main were used. The installation of three 75-hp pumps into the existing lift station would provide sufficient pumping capacity through build-out if the 8-inch force main were used. This Plan recommends installation of a third 25-hp pump into the existing station prior to 2029. The installation of three 75-hp pumps in Lift Station 3 would be dependent on the actual rate of sewer installation in the tributary basins.

Improvements to Lift Station 3 required to accommodate future flows include the following.

- Install a third 25-hp pump in Lift Station 3 prior to 2029.
- Replace the 25-hp pumps with three 75-hp pumps no earlier than 2036.

Basins Tributary to Basin 4

Basin 4 is located between 20th Street East on the south and Taylor Street East/16th Street East on the north. Basin 4 is in the LID boundary. Lift Station 2 is located in Basin 4. Gravity sewers from Basin 3 are discharged to Lift Station 2 through Basin 4. The force main from Lift Station 3 discharges into the sewer main on Meridian Avenue East at 20th Street East.

Future improvements in Basin 4 include the following:

- 1,000 feet of 8-inch sewer on Taylor Street west of Meridian Avenue East.
- 500 feet of 8-inch sewer on 100th Avenue Court East.

Basin 26 will discharge to Basin 4. Basin 26 is bordered by 8th Street E on the north and approximately 20th Street East on the south and 112th Avenue East on the east. Flow from this basin will be collected in a series of gravity mains that will flow to the regional Lift Station 7 located in the vicinity of 110th Avenue East and 16th Street East. Lift Station 7 will discharge west along 16th Street East and discharge into the existing sewer stub immediately upstream of Lift Station 2. Future improvements in Basin 26 include the following:

- 2,200 feet of 8-inch sewer main from the southern limit of the basin (approximately 23rd Street East north to 16th Street East) on 110th Avenue East. An easement will be required between 20th Street East and 16th Street East. 500 feet of 8-inch sewer main on 20th Street East will discharge to 110th Avenue East.
- 2,200 feet of 8-inch sewer main on 16th Street East from 106th Avenue Court East on the west and 11th Avenue East on the east. The sewer will slope to Lift Station 7.
- 1,800 feet of 8-inch sewer main on 20th Street East and 112th Avenue East that will discharge to the east end of the sewer in 16th Street East.
- 1,000 feet of 8-inch sewer main on 106th Avenue Court East that will discharge to the sewer on 16th Street East.
- 1,600 feet of 8-inch sewer main on 108th Avenue East from approximately 8th Street East on the north to 16th Street East. An easement between the current paved sections of 108th Avenue East will be required. 650 feet of 8-inch sewer main on 10th Street Court East will connect to the sewer main on 108th Avenue East.
- 1,500 feet of 8-inch sewer main on 110th Avenue East north of 16th Street East that will discharge to Lift Station 7.

The tributary area for Lift Station 7 is 200 acres. Lift Station 7 should be designed for a buildout peak hour flow of 280 gpm. 2,400 feet of 6-inch force main would convey wastewater from Lift Station 7 to the sewer stub on 16th Street East east of Lift Station 2.

Table 6-13 identifies the estimated Lift Station 7 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-13

Lift Station 7 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	280
Force Main, (inch)	6
Pumps (gpm)	150 (3 each)
Pumps (hp) (each)	5

Lift Station 2 collects flow from a tributary area of approximately 680 acres. Projected peak hour buildout flow for Lift Station 2 is 1,620 gpm. Existing firm capacity of the lift station with two 25-hp pumps is 840 gpm. The projected peak hour flows to Lift Station 2 and the capacity of the lift station with the current pump configuration, installation of a third 25-hp pump and installation of three 75-hp pumps are shown in Table 6-14.

TABLE 6-14

Projected Lift Station 2 Peak Hour Flow
(✓ indicates adequate capacity)

LS Configuration	LS 2 Capacity[1] (gpm)	Projected Peak Hour Flow (gpm)[2]				
		2027	2031	2036	2041	Buildout
		890	1,010	1,150	1,300	1,620
2 – 25-hp Pumps	840	✓	X	X	X	X
3 – 25-hp Pumps	1,160	✓	✓	✓	X	X
3 – 75-hp Pumps	2,290	✓	✓	✓	✓	✓

(1) From Tables 4-2, 4-3 and 4-4. Assumes flows are conveyed through the 12-inch force main.
(2) Peak Hour Flows 2027 – 2041 include 500 gpad I/I. Buildout Peak Hour Flows include 1,000 gpad I/I.

The existing 12-inch force main that conveys flow from Lift Station 2 to Basin 1 has sufficient capacity for the projected buildout peak hour flow.

Based on growth projections, by the year 2027, Lift Station 2 will be at capacity. The installation of a third 25-hp pump prior to 2027 would provide sufficient capacity through the year 2036. Installation of three 75-hp pumps would be required by the year 2037 to provide peak hour capacity for the projected flows through buildout.

Improvements to Lift Station 2 required to accommodate future flows include the following:

- Install a third 25-hp pump in Lift Station 3 prior to 2027.

- Replace the 25-hp pumps with three 75-hp pumps prior to 2036.

Basins Tributary to Basin 3

Basin 3 includes a gravity collection system that flows south to Lift Station 2 in Basin 4. This basin was included in LID 1. No currently unsewered basins would discharge to Basin 3.

Future improvements in Basin 3 include the following:

- 1,000 feet of 8-inch sewer on 106th Avenue Court East.
- 1,600 feet of 8-inch sewer on 13th Street Court East.

Basins Tributary to Basin 2

Basin 2 is located immediately south of Jovita Boulevard and east of Meridian Avenue East. Existing gravity sewers in Basin 2 convey flow to the south through Basin 3 to Lift Station 2. This basin was included in LID 1.

No currently unsewered basins would discharge to Basin 2. Currently unsewered areas of Basin 2 would discharge to the existing sewer system in Basins 1 and 2.

Future improvements in Basin 2 include the following.

- 400 feet of 8-inch sewer main on 8th Street East east of the existing sewer main on 8th Street East.
- 800 feet of 8-inch sewer main on 106th Avenue Court East that would convey flow north to Basin 1.

Basins Tributary to Basin 1

Basin 1 is the northernmost basin in the Edgewood system. Lift Station 1, located in the northern portion of Basin 1, conveys flow to the LWSD collection system. Pumped flows from Lift Station 2 discharge into the gravity collection system in Basin 1. Basin 1 was included in LID 1. Currently no unsewered basins would discharge into Basin 1. Basins 21, 23 through 30 and 32 would bypass Lift Station 1 and discharge directly into the force mains that convey flow from Lift Station 1 to LWSD. The existing gravity system in Basin 1 has sufficient capacity to convey buildout flows through the Basin.

Lift Station 1 has a tributary area of 950 acres and an estimated peak hour flow at buildout of 1,710 gpm. Existing firm capacity of the lift station with two 25-hp pumps is 760 gpm. By the year 2025 additional pumping capacity would be required. The projected peak hour flows to Lift Station 1 and the capacity of the lift station with the current pump configuration, installation of a third 25-hp pump and installation of three 75-hp pumps are shown in Table 6-15.

TABLE 6-15

Projected Lift Station 1 Peak Hour Flow

LS Configuration	LS 1 Capacity[1] (gpm)	Projected Peak Hour Flow (gpm)[2]				
		2027	2031	2036	2041	Buildout
		990	1,110	1,250	1,400	1,710
2 – 25-hp Pumps	760	X	X	X	X	X
3 – 25-hp Pumps	1,240	✓	✓	X	X	X
3 – 75-hp Pumps	2,258	✓	✓	✓	✓	✓

(1) From Tables 4-2, 4-3 and 4-4. Assumes flows conveyed through the 12-inch force main.
(2) Peak Hour Flows 2027 – 2041 include 500 gpad I/I. Buildout Peak Hour Flows include 1,000 gpad I/I.

The existing 12-inch force main has adequate capacity to convey the projected buildout peak hour flow.

The capacity of Lift Station 1 would need to be increased by 2025 if the anticipated flows from currently unsewered basins are conveyed through the City's sewer system. Installation of a third 25-hp pump would provide sufficient capacity through 2031. Alternatively, three 75-hp pumps could be installed at Lift Station 1 by 2025 which would provide sufficient capacity to buildout. The existing 25-hp pumps from Lift Station 1 could be installed in Lift Stations 2 and 3 to provide additional capacity until retrofit to three 75-hp pumps is required in those stations.

Improvements to Lift Station 1 required to accommodate future flows through 2031 include the following:

- Install three 75-hp pumps by the year 2025.
- Transfer the existing 25-hp pumps to Lift Stations 2 and 3.

Basins Tributary to the Force Mains to LWSD

Basin 30 is located in the southeast portion of the City and is bounded by approximately 48th Street East on the south and 32nd Street East on the north and generally follows the 122nd Avenue East alignment. Flows from this basin would be conveyed to the regional Lift Station 11 located at approximately 122nd Avenue East and Caldwell Road East. Lift

Station 11 will discharge to the sewer main located on the east end of 36th Street East in Basin 32.

Future improvements in Basin 30 include the following:

- 2,200 feet of 8-inch sewer main on 122nd Avenue East would convey flow from approximately 48th Street East north to Lift Station 11.
- 500 feet of 8-inch sewer main on 44th Street Court East and 600 feet of 8-inch sewer main on 43rd Street Court East would discharge flow to the sewer main on 122nd Avenue East.
- 900 feet of 8-inch sewer on Caldwell Road East would discharge to the sewer main on 122nd Avenue East.
- 2,600 feet of 8-inch sewer on 122nd Avenue East would convey flow south from approximately 32nd Street East to Lift Station 11.
- 650 feet of 8-inch sewer main on 124th Avenue Court East and 800 feet of 8-inch sewer main on 35th Street East would discharge to the sewer main on 122nd Avenue East.

The tributary basin to Lift Station 11 is 180 acres. Lift Station 11 should be designed for peak buildout flow of 240 gpm. Lift Station 11 would discharge through 1,400 feet of 6-inch force main to the sewer main on the east end of 36th Street East.

Table 6-16 identifies the estimated Lift Station 11 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-16

Lift Station 11 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	240
Force Main, (inch)	6
Pumps (gpm)	250 (2 each)
Pumps (hp) (each)	5

Basin 32 is located in the south portion of the City and is bounded approximately by 106th Avenue East on the west, 122nd Avenue East on the east, 41st Street East on the south and 34th Street East on the north. The basin is divided into east and west subbasins at approximately 114th Avenue East. Flows from the west side of this basin would be conveyed to the regional Lift Station 10, located at approximately 110th Avenue East and 36th Street East, and then pumped into Basin 27. Flows from the east side of the basin

will discharge by gravity to Basin 27. Future improvements in Basin 32 include the following:

- 1,100 feet of 8-inch sewer main on 36th Street East from 106th Avenue East to Lift Station 10.
- 1,400 feet of 8-inch sewer main on 108th Avenue East from approximately 41st Street East that will convey flow north to the sewer main on 36th Street East and subsequently to Lift Station 10.
- 640 feet of 8-inch sewer main on 110th Avenue East that will convey flow north to the sewer main on 36th Street East.
- 3,700 feet of 8-inch sewer main on 36th Street East that would convey flow west from approximately 122nd Avenue East to 114th Avenue East. Flow from Basin 30 will be discharged to this sewer.
- 1,600 feet of 8-inch sewer main on 114th Avenue East that would convey flow north to the sewer main on 36th Street East.

The tributary area to Lift Station 10 is approximately 110 acres. Lift Station 10 should be designed for the peak hour buildout flow of 130 gpm. Lift Station 10 conveys pumped flow via 1,300 feet of 6-inch force main to the intersection of 114th Avenue East and 36th Street East to the point of discharge to the 10-inch gravity sewer main that will be installed on 114th Avenue East in Basin 27.

Table 6-17 identifies the estimated Lift Station 10 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-17

Lift Station 10 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	130
Force Main, (inch)	6
Pumps (gpm)	100 (3 each)
Pumps (hp) (each)	5

Basin 27 is located to the east of Lake Chalet and is approximately bounded on the west by 106th Avenue East on the east by 122nd Avenue East, on the south by 32nd Street East and on the north by 24th Street East. Wastewater from this basin would flow to the regional Lift Station 9 which will pump to Basin 28. Basin 27 is divided into an east and

west subbasin at approximately 114th Avenue East. Flow from both subbasins will discharge to Lift Station 9. Future improvements in Basin 27 include the following.

- 650 feet of 8-inch sewer main on 32nd Street East starting at 108th Street East will convey wastewater east to Lift Station 9.

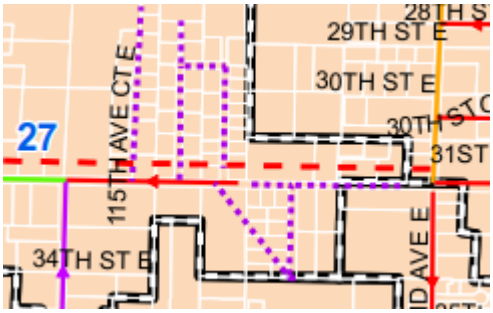
- 1,300 feet of 8-inch sewer main on 108th Avenue East will convey wastewater south to the sewer main on 32nd Street East that will discharge to Lift Station 9.

- 2,700 feet of 8-inch sewer main on 110th Avenue East, 600 feet of 8-inch sewer on 24th Street East and 600 feet of 8-inch sewer on 111th Avenue East will convey wastewater from the northwest portion of the basin to Lift Station 9.

- 3,700 feet of 8-inch sewer main on 112th Avenue East north of 32nd Street East will discharge to the sewer main on 32nd Street East.

- 1,300 feet of 10-inch sewer main on 114th Avenue East will convey wastewater from Basins 30 and 32 north to a sewer main on 32nd Street East that will include 1,300 feet of 8-inch sewer to the east of 114th Avenue East and 1,300 feet of 12-inch sewer main to the west of 114th Avenue East. This sewer will discharge to Lift Station 9.

- Individual grinder pumps and small diameter force main would convey flow from 115th Avenue Court East. Alternatively, 1,300 feet of 8-inch sewer main on 115th Avenue Court East would discharge to a local lift station at the north end of 115th Avenue Court East. The small diameter force main or local lift station would discharge to the sewer main on 32nd Street East.



- Individual grinder pumps and small diameter force mains would convey flow on 116th Avenue Court East and 117th Avenue Court East. Alternatively, 1,300 feet of 8-inch sewer main on 116th Avenue Court East and 1,000 feet of 8-inch sewer main 117th Avenue Court East would discharge to a local lift station located at the north end of 117th Avenue Court East. The small diameter force mains or local lift station would discharge to the gravity sewer on 32nd Street East.

- Individual grinder pumps would serve the properties on the east end of 32nd Street East from approximately 122nd Avenue East to 119th Avenue East and the properties on 119th Avenue East and small diameter force mains. Alternatively, 1,100 feet of 8-inch sewer main on 32nd Street East and 650 feet of 8-inch sewer main on 119th Avenue East would discharge to a local lift station located at the south end of 119th Avenue East. The small diameter force mains or local lift station would discharge to the gravity sewer on 32nd Street East.

The tributary area to Lift Station 9 is approximately 700 acres. Lift Station 9 should be designed for the peak hour buildout flow of 850 gpm. Lift Station 9 would convey pumped flow via 4,000 feet of dual 8- and 10-inch inch force mains to the intersection of 122th Avenue East and 32nd Street East to the point of discharge to the 15-inch gravity sewer that will be installed on 122th Avenue East in Basin 28. Dual force mains would be installed to be able to pump the range of flows over the design period within the design velocity of 3 to 8 fps. The 8-inch force main would be used until the pumped discharge exceeded 450 gpm. The 10-inch force main would be used after flows reach 450 gpm.

Table 6-18 identifies the estimated Lift Station 9 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-18

Lift Station 9 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	850
Force Main, (inch)	8 & 10
Pumps (gpm)	450 (3 each)
Pumps (hp) (each)	5

Basin 28 is located on the east side of the City and is approximately bounded on the west by 115th Avenue East, on the south by 32nd Street East and on the north by 24th Street East. The basin extends approximately 1,400 east of 122nd Avenue East. Wastewater from this basin would flow north to Basin 25. Future improvements in Basin 28 include the following:

- 2,600 feet of 15-inch sewer main that would convey flow north from 32nd Street East to 24th Street East. The pumped discharge from Basin 27 would discharge to the southern end of this sewer.

- 8-inch sewers to the east of 122nd Street East on 32nd Street East (1,600 feet), 30th Street Court East (1,000 feet), 28th Street Court East

(500 feet), 27th Street East (1,100 feet) and 25th Street East (650 feet) that would discharge into the sewer main on 122nd Avenue East.

Basin 29 is located east of Basin 28. Basin 29 is bounded on the north by 24th Street East, on the south by 32nd Street East and on the east by the city limits. The basin is currently sparsely developed. If this basin develops in the future wastewater from this area would be pumped up the future extension of 27th Street East identified in the City Transportation Plan approximately 1,800 feet and would discharge into the sewer main on 122nd Avenue East.

Basin 25 is located east of 110th Avenue East, south of 8th Street East, north of 24th Street East and west of 126th Avenue East. Future improvements in Basin 25 include the following:

- 3,800 feet of 18-inch sewer main on 122nd Avenue East from 24th Street East to 12th Street East.

- Sewer to the southeast corner of Basin 25 will be provided by 1,300 feet of 8-inch sewer main on 24th Street East, 1,100 feet of 8-inch sewer main on 126th Avenue Court East, 500 feet of 8-inch sewer main on 125th Avenue Court East and 2,000 feet of 8-inch sewer main on 126th Avenue Court East that will discharge to the sewer main in 122nd Avenue East.

- 1,800 feet of 8-inch sewer main on 20th Street East and 500 feet of 8-inch sewer main on 125th Court East will discharge to the sewer main on 122nd Avenue East.

- 2,600 feet of 8-inch sewer main on 24th Street East west of 122nd Avenue East and 300 feet of 8-inch sewer main on 22nd Street Court East will discharge to the sewer main on 122nd Avenue East.

- Individual grinder pumps and small diameter force mains would serve 116th Avenue East, 118th Avenue East and 18th Street East. Alternatively, 1,600 feet of 8-inch sewer main on 116th Avenue East, 1,400 feet of 8-inch sewer main on 118th Avenue East and 1,900 feet of 8-inch sewer main 18th Street East would discharge to a local lift station located at the north end of 118th Avenue East. The small diameter force mains or local lift station would discharge to the gravity sewer on 122nd Avenue East.



- 1,100 feet of 8-inch sewer main on 16th Street East and 500 feet of 8-inch sewer main on 126th Avenue East south of 16th Street East will discharge to the sewer main on 122nd Avenue East.

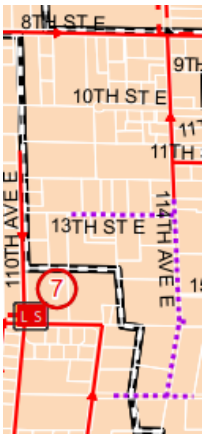
- Individual grinder pumps and a small diameter force main would serve 126th Avenue East north of 16th Street East. Alternatively, 700 feet of 8-inch sewer main and a local lift station would be located at the north end of 126th Avenue East. The small diameter force main or local lift station would discharge to the gravity sewer on 16th Street East.



- 3,200 feet of 8-inch sewer main on 8th Street East from approximately 105th Avenue Court East will convey flow east to Basin 23.

- 1,400 feet of 8-inch sewer main on 114th Avenue East and 650 feet of 8-inch sewer main on 11th Street Court East will discharge flow to the sewer main on 8th Street East.

- Individual grinder pumps and small diameter force mains would serve 18th Street East, 114th Avenue East and 13th Street East. Alternatively, 650 feet of 8-inch sewer main on 18th Street East 1,650 feet of sewer main on 114th Avenue East and 1,000 feet of 8-inch sewer main on 13th Street East would discharge to a local lift station located on 114th Avenue East approximately 1,000 feet south of 13th Street East. The small diameter force mains or the local lift station would discharge to the gravity sewer on 114th Avenue East north of 13th Street East.



Basin 23 is located in the northeast part of the City. The basin includes the eastern steep slopes north of 24th Street East that are currently sparsely developed and developed areas along 8th Street East. Future improvements in Basin 23 include the following:

- 1,300 feet of 18-inch sewer main on 122nd Avenue East from 12th Street East to 8th Street East. This sewer is a continuation of the 18-inch sewer main from Basin 25. This sewer will discharge to the 21-inch sewer main on 8th Street East.

- 1,000 feet of 8-inch sewer main on 12th Street East east of 122nd Avenue East that will discharge to the sewer main in 122nd Avenue East.

- 2,700 feet of 8-inch sewer main on 8th Street East west of 122nd Avenue East and 650 feet of 21-inch sewer main on 8th Street East east of 122nd Avenue East. This sewer is a continuation of the 8-inch sewer in Basin 25. This sewer discharges to regional Lift Station 5.

- 500 feet of 8-inch sewer main on 118th Avenue Court East that will discharge to the sewer main in 8th Street East.

- 1,100 feet of 8-inch sewer main on 120th Avenue East that will discharge to the sewer main in 8th Street East.

- 800 feet of 8-inch sewer main on 9th Street East/124th Avenue East and 500 feet of 8-inch sewer main on 125th Avenue Court East that will discharge to Lift Station 5.



Currently the residences on 122nd Avenue Court East are equipped with individual pumps that discharge to individual septic systems located northeast of the development. The discharges from these pumps would be rerouted to discharge to a 650 foot small diameter force main on 122nd Avenue Court East that would discharge to the 21-inch sewer main on 8th Street East.

Lift Station 5 would be located at the east end of 8th Street East. The tributary basin for Lift Station 1,790 is acres. Lift Station 5 should be designed for the buildout peak hour capacity of 2,070 gpm. 8,700 feet of dual 10- and 12-inch diameter force mains would convey wastewater from Lift Station 5 to the force main that conveys flow to LWSD from Lift Station 1. The 10-inch force main would be used for flows up to 1,000 gpm (approximately 2036). The 12-inch force main would be used after flows reach 1,000 gpm. Pumped flow from Lift Station 4 will discharge into the force main at the Interurban Trail. The existing 6-inch force main that discharges from Lift Station 1 cannot be used to convey wastewater from Lift Station 1 to LWSD if flows from Lift Station 1 exceed 300 gpm. By the time Lift Station 5 is on-line the 6-inch force main from Lift Station 1 to the LWSD will not be in use and could be utilized for flow from Lift Station 5 until approximately 2032. An additional 4,800 feet of 12-inch force main on Enchanted Parkway South (SR 161) that parallels the existing force main should be installed prior to 2032. Odor control facilities would be installed at Lift Station 5 due to the length of the force main and the long residence time of the sewage in the force main.

Table 6-19 identifies the estimated Lift Station 5 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-19

Lift Station 5 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	2,070
Force Main, (inch)	10 & 12, new 12-inch post LS 1
Pumps (number and hp)	1,000 (3 each)
Pump (HP) (each)	50

Basin 24 encompasses the industrial zoned area in the northeast corner of the City. A local lift station or grinder pumps and 1,490 feet of small diameter force main will be required to pump flow from Basin 24 to Lift Station 6 in Basin 21.

Basin 21 is located in the northeast portion of the City. Basin 21 generally slopes to the north to Jovita Creek. Wastewater collected in this basin would be conveyed to the regional Lift Stations 4 and 6 which would be located along the Interurban Trail right-of-way.

Future improvements in Basin 21 would include the following:

- 1,900 feet of 8-inch sewer main on 114th Avenue East north of 8th Street East to the Interurban Trail.
- 2,300 feet of 8-inch sewer main on Jovita Boulevard East from 106th Avenue Court East to 114th Avenue East.
- 1,300 feet of 8-inch sewer main on 106th Avenue Court East that will discharge to the sewer main on Jovita Boulevard.
- 600 feet of 8-inch sewer main on 114th Avenue East from the County Line to the Interurban Trail that will discharge to Lift Station 4.
- 2,400 feet of 4-inch force main along the Interurban Trail from Lift Station 6 to Lift Station 4.
- 500 feet of 6-inch force main along the Interurban Trail from Lift Station 4 to the force main from Lift Station 5.



Individual grinder pumps and a small diameter force main would serve 119th Avenue East and 4th Street East. Alternatively, 1,300 feet of 8-inch sewer main on 119th Avenue East and 1,300 feet of 8-inch sewer main on 4th Street East that would discharge to a local lift station located in the vicinity of the intersection of 119th Avenue East and 4th Street East. The small diameter force main or lift station would discharge to the sewer main in 114th Avenue East.

Lift Station 6 would convey flow from the local lift station in Basin 24 to Lift Station 4. Multiple lift stations are required to pump wastewater from Basin 24 to Lift Station 4 due to the elevation gain. The tributary basin for Lift Station 6 is 20 acres and the projected peak hour buildout flow is 70 gpm. 2,400 feet of 6-inch force main would convey the wastewater from Lift Station 6 to Lift Station 4.

Table 6-20 identifies the estimated Lift Station 6 flows at buildout, the proposed force main size and pump horsepower.

TABLE 6-20

Lift Station 6 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	70
Force Main, (inch)	4
Pumps (number and hp)	100 (2 each)
Pump (hp) (each)	5

Lift Station 4 would convey flow from Basins 21 and 24 to the force main from Lift Station 5. The tributary basin for Lift Station 4 is 370 acres and the projected peak hour buildout flow is 610 gpm. 500 feet of 6-inch force main would convey wastewater from Lift Station 4 to the force main from Lift Station 5 on the Interurban Trail.

Table 6-21 identifies the estimated Lift Station 4 flows at buildout, the proposed force main size and pump horsepower for Lift Station 4.

TABLE 6-21

Lift Station 4 Estimated Capacity and Design Criteria

Year	Buildout
Estimated Peak Hour Flow (gpm)	610
Force Main, (inch)	6
Pumps (gpm)	300 (3 each)
Pumps (hp) (each)	5

CHAPTER 7

OPERATION AND MAINTENANCE PROGRAM

This chapter summarizes the operation and maintenance (O&M) programs that are recommended to ensure performance and reliability of the wastewater collection system when the City takes responsibility for operation and maintenance. This chapter includes a discussion of routine preventive maintenance for a sewer system, recordkeeping, safety and emergency response procedures, as well as a staffing analysis and discussion of maintenance management and asset management systems.

The wastewater collection system and lift stations in the Phase 1 service area are currently operated and maintained by LWSD. The wastewater collection system located in Basin 10 is currently operated and maintained by the City of Fife. A brief discussion of the sewer system operations and maintenance programs followed by LWSD and Fife are included below.

EXISTING SYSTEM OPERATION AND MAINTENANCE

The wastewater collected in the Phase I service area is conveyed through sewer lines and three lift stations (owned by the City of Edgewood but maintained by LWSD) and is treated at the Lakota WWTP, which is owned and operated by LWSD. Wastewater from the Basin 10 area is conveyed via sewer lines in the City of Edgewood which are owned and operated by the City of Fife and sewer lines and lift stations in the City of Fife to the Tacoma CTP for treatment.

PHASE I COLLECTION SYSTEM

The City of Edgewood's wastewater collection system is primarily conventional gravity sewer, with three lift stations, Lift Stations 1, 2 and 3. Basic information about the City's three lift stations and force mains is shown in Table 4-3. Station locations and force main routes are shown in Figure 4-2. The lift stations are submersible stations. All stations are currently duplex stations with the capability of being converted to triplex stations. The pumps in all of the stations are Cornell pumps.

The lift stations are equipped with a Supervisory Control and Data Acquisition (SCADA) system. Information regarding flow rate, daily total flow, monthly total flow, pump run time, pump on/off status, wet well level and alarm status for each lift station is transmitted to LWSD.

LWSD reports that the lift stations are operating well with the exception of fouling of impellers with rags and wipes.

The LWSD Wastewater Collection System Maintenance Program is included Appendix I of the *2015 Lakehaven Water & Sewer District Comprehensive Wastewater System Plan*. The program includes a line cleaning program and I/I program. The line cleaning program includes a 4-year cleaning schedule for all sewer mainlines. A jet rodder is used to introduce water at 1,500 to 2,500 psi to clean the pipe. Debris is vactored out of the system at a downstream manhole. Cleaning generally removes sludge, mud, sand, gravel, rocks, brick, grease and roots from pipes and manholes. Removal of bricks, pieces of pipe and soil is indicative of problems in the sewer system such as broken or collapsed pipe. If this type of debris is found, further investigation is conducted to determine if repair or maintenance is required.

The LWSD I/I Program is conducted to identify any areas in the system that are, or may be, leaking rain or groundwater into the system. The I/I program includes smoke testing, dye testing, video inspection of pipes and flow monitoring. I/I remedies include pipeline grouting, manhole rehabilitation or pipe repair/replacement.

BASIN 10 COLLECTION SYSTEM

The collection system in Basin 10 is a gravity system. The City of Fife wastewater collection system preventive maintenance schedule is included in Chapter 7 of the *2014 City of Fife General Sewer Plan.* The plan includes periodic inspection of pipes and manholes (visual investigation or closed circuit television (CCTV) inspection) and flushing. A primary maintenance issue that Fife addresses during routine maintenance is the accumulation of fats, oils, and grease (FOG). Any structural conditions noted during routine inspections, such as collapsed pipes, cracked pipes with or without deflection, pipe sags, cracked or open joints, holes in pipes, root intrusion, signs of pipe corrosion, protruding joint material, protruding lateral sewers, pipes with excessive debris, and side sewers with active I/I are repaired. Deteriorating or non-functioning manholes are replaced as soon as possible to prevent further system damage and I/I.

FUTURE EDGEWOOD PREVENTIVE MAINTENANCE PROGRAM

The following section describes elements the City would need to incorporate in a future O&M program run by the City. Planning for current and future maintenance for 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 fulfill its role as a sewer utility 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 sewer system. The most cost-effective method for maintaining a wastewater collection system is to implement a preventive maintenance (PM) program. Proper utilization of a PM program allows an opportunity for an optimum level of maintenance at the lowest possible total cost.

Routine wastewater collection system PM activities include the following tasks:

- Gravity sewer main maintenance, inspections and repair.
- Side sewer maintenance replacement and repair.
- Lift station maintenance and repair.
- Manhole inspection and repair.

OPERATOR CERTIFICATION

The City will need trained staff to operate and maintain the City's wastewater collection infrastructure. Although there are rigorous requirements for wastewater treatment operators in Washington State, there are currently no certification requirements for wastewater collection system operators. The Department of Ecology has encouraged participation in certification programs for utilities that do not operate a wastewater treatment plant, and many municipalities have utilized certification programs.

Ecology's website lists the following approved trainers offering Continuing Education Units (CEUs):

- California State University, Sacramento
- CEU Plan
- Evergreen Rural Water of Washington
- Green River Community College
- Indigo Water Group
- Pacific Northwest Clean Water Association (PNCWA)
- Professional Training Association
- Roy CEUs
- Technical Learning College
- Train to Retain
- Washington Environmental Training Center (WETRC)
- Water Environment Federation (WEF)

Washington colleges with operator courses:

- Green River Community College
- Linn-Benton Community College
- Walla Walla Community College
- Community Colleges of Spokane

Many wastewater treatment operators in Western Washington receive training from the Green River Community College/WETRC, PNCWA short schools, and/or Evergreen Rural Water of Washington. All of those programs include training in collections systems, and operators who have attended these programs have found them to be useful.

In addition, the Wastewater Collection Personnel Association has a collections specialist certification program, with four certification levels (I through IV).

It is recommended that Edgewood implement a training/certification support program utilizing one of these programs when the City takes over responsibility for the maintenance of the collection system. When hired, new employees should complete training on basic safety concepts and collection system fundamentals. Depending on the employee's function, training could include safety, confined space entry, record keeping, lift station electrical and instrumentation, lift station operation, first Aid/CPR/blood borne pathogens, public relations, vactor truck operations and routine line maintenance, trenching and shoring, traffic control and sanitary sewer overflow/emergency response.

EQUIPMENT

The City will need to have specialized equipment for completion of PM and O&M activities. This equipment includes confined space entry equipment, other safety equipment, a service truck, a backhoe, a dump truck, a vactor truck and a television inspection van. Vactor truck usage and a television inspection van could be hired on a contract basis. If this equipment is purchased by the City it could also be used to maintain the stormwater system.

MANHOLES AND GRAVITY SEWER LINES

Every manhole in the City should be inspected and every gravity line should be jetted on a regular basis (a minimum of once every 5 years, i.e., 20 percent every year). Experience with the system will indicate if some segments of pipe are prone to blockage problems, such as, grease accumulation from commercial sources, shallow grades or root intrusion that will need more frequent inspection and jetting (e.g., monthly or annually). The frequency of cleaning is dictated by the condition of the pipe. A condition assessment of each manhole should be performed during any manhole inspection or flushing operation. The assessment should document the condition of the bench, penetrations, walls, neck and cover. Deficiencies are noted and added to work order requests for prioritization of repairs.

It is recommended that the entire collection system be televised once every 5 years (i.e., 20 percent every year). CCTV inspection will identify sags or bellies, grease accumulations, blockages, excessive roots, broken pipes, structural issues or corrosion.

In addition, smoke testing should be conducted annually at various locations to identify infiltration and inflow sources and determine if infiltration and inflow are significant or otherwise problematic. Currently, smoke-testing is conducted only when LWSD identifies a problem that may need further investigation.

SIDE SEWERS

Typical problems with side sewers include blockages by rags or root intrusion, connection of roof drains or yard drains to side sewers and breaks. Side sewer problems are often identified during CCTV inspection of main lines (a constant flow of clean water discharging from a side sewer), smoke testing and citizen complaints. Repair of a side sewer on private property is the responsibility of the property owner. If a problem is identified in a side sewer within the right-of-way, the City is responsible for the repair.

FORCE MAINS

The City's existing force mains and future force mains are designed to achieve scouring velocities that self-clean under normal system operations and therefore require minimal maintenance. Air and vacuum relief assemblies may be located at the high points in the force mains. These assemblies should be checked annually or as needed to ensure proper operation. Failure of an air/vac 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 any force main valves are exercised on an annual basis.

LIFT STATION AND GENERATOR MAINTENANCE

Emergency backup generators should be tested monthly. Pumps should be inspected and run during these inspections.

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

Daily Data Collection

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).

Monthly Lift Station Maintenance

- Inspect floats once per month for fouling with rags or grease.
- Inspect and clean ultrasonic level sensors.

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.

EMERGENCY RESPONSE PROGRAM

Sewer 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 to the greatest extent possible. The City of Edgewood adopted the Region 5 All Hazard Mitigation Plan – 2020-2025 Edition and the Edgewood Addendum (Addendum A-4) to the Region 5 Hazard Mitigation Plan by resolution on November 24, 2020. Addendum A-4 is based on the WA Region 5 Hazard Identification. Seven major hazards that significantly affect the region and the City are identified in Addendum A-4. Addendum A-4 identifies the vulnerabilities the City may face from the major hazards. The vulnerabilities include the following:

Geological:

- Earthquake
- Landslide
- Volcanic

Meteorological:

- Flood
- Severe Weather

Technological:

- Hazardous Materials
- Terrorism/Active Threat/Attack Tactics

EMERGENCY PROCEDURES

Any of the above hazards could impact the sewer system. Emergency procedures as noted below should be included in the City's future sewer O&M procedures. Though it is not possible to anticipate all potential disasters affecting the City's sewer 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. All existing stations are equipped with emergency generators. The City should require all new lift stations to have on-site emergency generators.

Severe Earthquake

A severe earthquake may not only have a substantial impact on the City's sewer system but also the adjacent purveyors. Table 7-1 presents potential effects of a severe earthquake on the sewer system components.

TABLE 7-1

Emergency Response Procedures for an Earthquake

Sewer System Component	Potential Effects	Recommended Actions
Lift Stations	Station surcharge and backup into residential side sewers	Check telemetry and dispatch pump 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.

Sewage Spills and System Failures

The City's collection system activities will fall under the jurisdictional authority of whichever utility provides treatment of the wastewater since Ecology does not issue NPDES permits for utilities that only include conveyance facilities. For example, the existing collection system in the Phase I basins falls under the jurisdictional authority of the Lakota WWTP NPDES permit (WA0022624) and the collection system in Basin 10 and basins that discharge to the Pierce County collection system fall under the jurisdictional authority of the Tacoma CTP NPDES permit (WA0037087). NPDES permits include permit conditions regarding reporting permit violations, including sewage spills. The City will notify the appropriate agency with jurisdictional authority if a sewage spill or system failure occurs in the City's sewer system following the protocol identified below. The jurisdictional authority, in turn, will notify Ecology, US EPA and County Health Departments as noted below.

In the event of a sewage spill that may reach surface waters the Permittee, and by extension the City, must report the spill immediately by telephone, to Ecology or EPA (Puyallup WPCP) and Department of Health Shellfish Program per the requirements of NPDES permit WA0022624 Section S3 for the Lakota WWTP, NPDES permit WA0037087 Section S3 for the Tacoma CTP and NPDES permit WA0037168 Section III.G for the Puyallup WPCP.

The Permittee, and by extension the City, must report the noncompliance by telephone, to Ecology or EPA within 24 hours from the time the Permittee becomes aware of either of the following circumstances:

1. Any noncompliance that may endanger health or the environment, unless previously reported under immediate reporting requirements. Noncompliance includes collection system overflows or any other failures of the sewage system (pipe breaks, etc.). Permittee must also notify the appropriate County Health District and DOH-Shellfish Program if required if the noncompliance may endanger public health of marine water environment.

2. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limit in the permit.

In addition to reporting a violation the Permittee must immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.

The Permittee must also submit a written report within 5 days of the time that the Permittee becomes aware of any reportable event. The report must contain:

1. A description of the noncompliance and its cause.

2. The period of noncompliance, including exact dates and times.

3. The estimated time the Permittee expects the noncompliance to continue if not yet corrected.

4. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

5. If the noncompliance involves an overflow prior to the treatment

For portions of the collection system tributary to LWSD the Permittee must report to Ecology and the King County Health District at the numbers listed below:

Northwest Regional Office 206-594-0000
King County Health District 206-477-8050

For portions of the collection system tributary to the Tacoma CTP the Permittee must report all collection system overflows to Ecology at the number listed below:

Southwest Regional Office 306-407-6300

For portions of the collection system tributary to the Puyallup WPCP the Permittee must notify US EPA Region 10 of any overflow prior to the treatment works over which the permittee has ownership or operation control.

US EPA Region 10, NPDES Compliance Hotline 206-553-1846
The Puyallup Tribe Environmental Department.....253-573-7800
Department of Ecology, Southwest Regional Office.....306-407-6300

If any of the situations noted above discharge to surface water or impact marine waters, the Permittee must also immediately notify the Department of Health, Shellfish Program at the following numbers:

Department of Health, Shellfish Program..... 360-236-3330 (business hours)
360-789-8962 (after business hours)

There have been no overflows or spills in the Edgewood system to date.

SAFETY PROCEDURES

The Sewer Utility staff should follow a written safety policy that is reviewed annually by the Supervisor and Operations Manager. Supervisors must keep safety-training records up to date. All work-place accidents must be documented and investigated.

Crew vehicles should be stocked with health and safety supplies including rubber gloves, confined space ventilation equipment, hardhats, safety goggles, rubber boots, first aid kit, fire extinguishers, portable crane and hoist, full body harness, gas monitor, blowers, and traffic control equipment.

INDUSTRIAL PRETREATMENT/SOURCE CONTROL

The City will need to develop an Industrial Pretreatment/Source Control program or contract and cooperate with programs operated by receiving jurisdictions. The LWSD (Sewer Use Rules, 2006), City of Fife (Fife Municipal Code 13.08 Sewer System) and City of Puyallup (Puyallup Municipal Code 14.06) have pretreatment programs which could be used as models for the City's program. Industrial or commercial development can have a considerable impact on the sanitary wastewater collection system immediately downstream of the facility. Industrial waste can contain high concentrations of chemicals that can make the waste highly corrosive or toxins. The program should include "local limits" on commercial/industrial discharge pH, flammable or explosive materials, fats, oils and greases (FOG), heavy metals and cyanide, temperature, hydrogen sulfide, organic compounds, and settleable solids. The program should also include requirements for the installation of FOG removal devices including grease interceptors and grease traps. The City does not have a large amount of industrial flow, and currently there are no businesses identified as Significant Industrial Users (SIUs). Any user determined by the City to qualify as a significant industrial user should be required to file an application for a state waste discharge permit with the Department in accordance with the requirements of WAC 173-216-070.

A Significant Industrial User is:

1. A User subject to Categorical Pretreatment Standards, typically specific to certain industries; or

2. A User that:

    - Discharges an average of twenty-five thousand (25,000) gpd or more of process Wastewater excluding sanitary, non-contact cooling, and boiler blowdown Wastewater);

    - Contributes a process waste stream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the Treatment Plant; or

- Is designated as such by the Jurisdictional Authority on the basis that it has a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standard or requirement.

It is important that industrial discharges be identified, characterized, and, if necessary, controlled. Dischargers that discharge wastewater with excessive levels of pollutants may be required to implement pretreatment if it is determined that such discharges would otherwise exceed standards or adversely affect human health, the environment, or wastewater conveyance or treatment efficacy.

Administration and operation of the City's pretreatment program includes, but is not limited to, developing procedures, forms and instructions; categorizing dischargers; records keeping; compliance tracking; establishment of annual limits; field sampling; testing and monitoring; communication with commercial and industrial dischargers; preparation of control documents; enforcement and compliance and preparation of permits.

STAFFING ANALYSIS

Table 7-2 summarizes the expected labor hours required for the various operation and maintenance tasks detailed in this chapter, as well as required administration labor hours in the year 2030, assuming the City has taken over operation and maintenance of the Phase I sewers and the sewers in Basin 10, and the sewer system recommended in the 6-year CIP (Chapter 8) is completed. Table 7-3 summarizes the expected labor and administrative hours required in the year 2050 assuming the CIP projects identified through 2050 (Chapter 8) are completed. The tables show the estimated total units in the system, recommended maintenance intervals, annual frequency, time required per system unit, number of personnel required for the tasks, and annual labor hours required. The tasks are broken down into preventive maintenance, operations and administration. O&M programs practiced by cities range from programs that are primarily focused reacting to problems to programs that include a high degree of preventative maintenance. The level of staffing generally coincides with the rigor of the O&M program. The program outlined below would provide adequate preventative maintenance to ensure a functional system.

TABLE 7-2

Required Labor Hours for Sewer Utility Operation, Maintenance and Administration (2030)

Description	Total Units in System	Maint. Interval	Frequency (Unit/Year)	Time/Unit (Hours)	# of Personnel	Time/Year (Hours)	Notes
Preventive Maintenance (PM)							
Annual Jetting	66,000 LF	5 years	13,200 LF	8 hr/1,000 LF	2	210	Assumes 1,000 LF / day.
Lift Station Inspection	5 EA	2x/Wk	520 Visits	1	2	1040	Most basic PM done on rounds
TV Inspections	66,000 LF	5 years	13,200 LF	8 hr/800 LF	2	264	Assumes 800 LF/day
Manhole Check	220 EA	5 years	44 EA	1	1	44	Many done while jetting/TV
Smoke Testing		Annually	1	80	2	160	
Operations							
Lift Station Repairs	5 LS	As needed	30 Repairs[1]	4	2	240	Rag bound pumps, etc.
Sewer Main Repairs	66,000 LF	As needed	3,300 LF[2]	8 hr/100 LF	4	1,056	Assume 100 LF/day
Side Sewer Repairs		As needed	10 EA[3]	12	2	240	
Push Camera Laterals		As needed	20 EA[4]	2	2	80	
Manhole Repair	220 EA	As needed	5 EA[5]	4	2	40	
Emergency Jetting	66,000 LF	As needed	6,600 LF[6]	8 hr/1,000 LF	2	106	
Telemetry and Control System		As needed				0	Contract Vendor
Administration							
Admin Assistant	1 FTE	Daily	1	520	1	520	Assume 25 percent
PW Supervisor	1 FTE	Daily	1	1,040	1	520	Assume 25 percent
PW Director	1 FTE	Daily	1	104	1	104	Assume 5 percent
Operations Manager	1 FTE	Daily	1	2,080	1	2,080	Assume full- time
Total Hours Required						**6,704**	**3,224 hours for administration and 3,480 hours for O&M.**

(1) Assume six repairs per Lift Station per year.
(2) Assume 5 percent of the sewer system requires repairs/year.
(3) Assume 10 side sewer repairs (in right-of-way) per year.
(4) Assume 20 side sewer investigations per year.
(5) Assume 5 percent of manholes require repair per year.
(6) Assume 10 percent of system requires emergency jetting for clogs per year.

TABLE 7-3

Required Labor Hours for Sewer Utility Operation, Maintenance and Administration (2050)

Description	Total Units in System	Maint. Interval	Frequency (Unit/Year)	Time/Unit (Hours)	# of Personnel	Time/Year (Hours)	Notes
Preventive Maintenance (PM)							
Annual Jetting	130,400 LF	5 years	26,100 LF	8 hr/1,000 LF	2	420	Assumes 1,000 LF / day.
Lift Station Inspection	13 EA	2x/Wk	1,352 Visits	1	2	2,704	Most basic PM done on rounds
TV Inspections	130,400 LF	5 years	26,100 LF	8 hr/800 LF	2	522	Assumes 800 LF/day
Manhole Check	440 EA	5 years	88 EA	1	1	88	Many done while jetting/TV
Smoke Testing		Annually	1	160	2	320	
Operations							
Lift Station Repairs	13 EA	As needed	78 Repairs[1]	4	2	624	Rag bound pumps, etc.
Sewer Main Repairs	130,400 LF	As needed	6,520 LF[2]	8 hr/100 LF	4	2,090	Assume 100 LF/day
Side Sewer Repairs		As needed	20 EA[3]	12	2	480	
Push Camera Laterals		As needed	40 EA[4]	2	2	160	
Manhole Repair	440 EA	As needed	22 EA[5]	4	2	176	
Emergency Jetting	130,400 LF	As needed	13,400 LF[6]	8 hr/1,000 LF	2	210	
Telemetry and Control System		As needed				0	Contract Vendor
Administration							
Admin Assistant	1 FTE	Daily	1	520	1	1,040	Assume 50 percent
PW Supervisor	1 FTE	Daily	1	2,080	1	1,040	Assume 50 percent
PW Director	1 FTE	Daily	1	208	1	208	Assume 10 percent
Operations Manager	1 FTE	Daily	1	2,080	1	2,080	Assume full- time
Asst. Operation Manager	1 FTE	Daily	1	2,080	1	1,040	Assume 50 percent
Total Hours Required						**13,202**	**5,408 hours for administration and 7,794 hours for O&M.**

(1) Assume six repairs per Lift Station per year.
(2) Assume 5 percent of the sewer system requires repairs/year.
(3) Assume 20 side sewer repairs (in right-of-way) per year.
(4) Assume 40 side sewer investigations per year.
(5) Assume 5 percent of manholes require repair per year.
(6) Assume 10 percent of system requires emergency jetting for clogs per year.

A staffing analysis was completed using the labor hour requirements in Tables 7-2 and 7-3. Summaries of the staffing analysis through 2030 and 2050 are provided in Tables 7-4 and 7-5, respectively. Tables 7-4 and 7-5 assume that an O&M maintenance full-time employee (FTE) is hired to work 40 hours/week (2,080 hours/year) however, the employee is not available to work approximately 268 hours/year due to vacation, sick leave, and holidays. The number of FTEs identified for O&M is determined based on the estimated total hours for O&M tasks divided by 1,812 hours (Tables 7-4 and 7-5), the actual hours available in a year for O&M activities. The administrative FTEs are based on 2,080 hours per year.

TABLE 7-4

Sewer Utility Staffing Analysis (2030)

Parameter	**Value**
Annual Time Available Per Person for Operations and Maintenance Tasks	
Total Available Working Hours in a Year	2,080
Less average vacation	-100
Less average sick leave of 2 weeks per year	-80
Less holidays of 11 days per year	-88
Net Total Available Hours Per Year Per O&M Staff	**1,812**
Staffing Analysis	
Total Annual Hours Required (from Table 7-2)	6,704
Total Annual Administration Staff Hours Required	3,224
Total Full-Time Administrative Staff Required (based on 2,080 hours per year per person)	1.6
Total Annual Operation and Maintenance Hours Required	3,480
Total Full-Time Operations and Maintenance Staff Required (based on 1,812 hours per year per person)	1.9
Full-Time Sewer Utility Administrative and Operations and Maintenance Staff Required by 2030	3.5

TABLE 7-5

Sewer Utility Staffing Analysis (2050)

Parameter	Value
Annual Time Available Per Person for Operations and Maintenance Tasks	
Total Available Working Hours in a Year	2,080
Less average vacation	-100
Less average sick leave of 2 weeks per year	-80
Less holidays of 11 days per year	-88
Net Total Available Hours Per Year Per Person	**1,812**
Staffing Analysis	
Total Annual Hours Required (from Table 7-3)	13,202
Total Annual Administration Staff Hours Required	5,408
Total Full-Time Administrative Staff Required (based on 2,080 hours per year per person)	2.6
Total Annual Operation and Maintenance Hours Required	7,794
Total Full-Time Operations and Maintenance Staff Required (based on 1,812 hours per year per person)	4.3
Full-Time Sewer Utility Administrative and Operations and Maintenance Staff Required by 2050	6.9

As shown in Tables 7-4 and 7-5, it is estimated that the City will need to employ 3.5 FTE by the year 2030 and 6.9 FTE by the year 2050 to staff the administrative and field Operations and Maintenance tasks for the Sewer Utility. Assuming an O&M staff hourly salary, including benefits, is $50/hr (staff paid for 2,080 hours/year) and an administrative staff hourly salary (staff paid for 2,080 hours/year), including benefits, is $60/hr, the annual O&M personnel costs (2022$) for the 2030 O&M program is $397,280/year. The annual O&M personnel costs (2022$) for the 2050 O&M program is $771,680/year.

ASSET AND MAINTENANCE MANAGEMENT SYSTEMS

Asset management programs are tools that sewer utilities can use to make sure that levels of service are identified and met, assets are inventoried and tracked, planned maintenance can be conducted, and capital assets (pumps, motors, pipes, etc.) can be repaired, replaced, or upgraded on time. The City may want to utilize an asset management program to assist in the operations of the Sewer Utility.

There are several commercially available software programs to support asset management and maintenance management programs. Many software programs will support both asset and maintenance management. Increasingly, these programs feature GIS integration and cloud-based facilitation.

Benefits of asset management programs can include:

- Prolonging asset life and improving decisions about asset rehabilitation, repair, and replacement
- Meeting consumer demands with a focus on system sustainability
- Setting rates based on sound operational and financial planning
- Budgeting focused on critical activities for sustained performance
- Meeting service expectations and regulatory requirements
- Improving responses to emergencies
- Improving the security and safety of assets
- Reducing overall costs for both operations and capital expenditures

A key element of evaluation of software alternatives and what features to include should be detailed consultation with other municipalities using the software. If nearby municipalities are using the software, a visit by maintenance staff to see the software in action is recommended.

CHAPTER 8

CAPITAL IMPROVEMENT PLAN

INTRODUCTION

This chapter presents the Capital Improvement Plan (CIP) for the City's wastewater utility. Wastewater capital improvements that will provide a collection system for the entire City were identified in Chapter 6. Preliminary project costs for the CIP projects are presented in Appendix F.

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, planned development, improvements proposed by other agencies, or to address unforeseen issues with the City's wastewater system. 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 projects, as best determined by the City.

PROPOSED SYSTEM IMPROVEMENTS

The proposed system improvements in the CIP for each basin were described in detail in Chapter 6. The costs of the CIP projects per basin are based on unit costs that were determined for the various gravity and force main pipe sizes. Unit costs were developed from a detailed cost estimate for each pipe size and a unit price per foot assigned for each pipe size. For budgeting purposes, the cost estimates assume backfill of trenches with 100 percent import gravel. The estimates assume open trench construction with trench repair and HMA trench patch and overlay (4 feet wider than trench). The gravity main pipe estimates assume the installation of a 30-foot side sewer every 50 feet of main, installation of a manhole every 300 feet of main, sawcutting and trench patch/overlay for every foot of main. The force main pipe estimates assume sawcutting and trench patch/overlay for every foot of main. The detailed unit cost estimates are included in Appendix F.

Unit costs for grinder pump installation and costs for upgrading existing lift stations and the installation of new lift stations are based on experience with recent installation of grinder pumps and lift stations of similar size. Lift station costs include auxiliary items such as emergency generators, telemetry, odor control and a portion of the cost of a City-wide SCADA system to monitor all of the lift stations.

Project costs include 30 percent construction contingency, 10 percent Washington State Sales Tax, 13 percent engineering services (survey and design), 12 percent construction

administration and 5 percent for legal, City administration and permitting. All cost estimates are presented in 2022 dollars.

Unit costs for the various gravity and force main pipe sizes are shown in Table 8-1.

TABLE 8-1[(1)(2)]

Pipe Unit Price Cost Estimate

Item	Project Cost/LF
Force Main	
2-inch Force Main	$301
4-inch Force Main	$364
6-inch Force Main	$394
8-inch and 10-inch Force Main (combined)	$708
10-inch and 12-inch Force Main (combined)	$788
12-inch Force Main	$547
Gravity Main	
8-inch Gravity Main	$769
10-inch Gravity Main	$843
12-inch Gravity Main	$920
15-inch Gravity Main	$940
18-inch Gravity Main	$1,102
21-inch Gravity Main	$1,122
Grinder Pumps	$25,000 each
Railroad Crossing	$765,500

(1) Project costs include 30 percent construction contingency, 10 percent WSST, 13 percent engineering services, 12 percent construction administration and 5 percent legal, City administration and permitting costs.

(2) Costs are in 2022 dollars.

Railroad crossings were assumed to include 200-feet of 24-inch casing (60-foot open trench, 140-foot boring), 12-inch pipe and required inspection by railroad personnel ($80,000).

CIP PRIORITY

All projects included in the CIP list will be necessary to provide sewer service to the entire City. The projects described generally include the entire infrastructure backbone that will be required in a basin. In a few cases, the CIP projects include a portion of the infrastructure for an entire basin completed as a separate project based on current development pressure or to complete a project in conjunction with adjacent transportation or utility projects.

A preliminary prioritization of projects is based on the following hierarchy:

1. Known development pressure (Basin 18 and portions of Basin 20);

2. Cherrywood Mobile Home Park connection to Fife (Ecology priority) (Basin 11);

3. Coordination with other planned or warranted capital improvements;

4. Proposed discharge into the existing Edgewood sewer system (Basins 16, 18, 21 through 30, 32 and 33);

5. Proposed discharge into the Fife sewer system (Basins 11, 14 and 15);

6. Proposed discharge into the Pierce County sewer system (Basins 9, 12 and 13); and

7. Proposed discharge into the City of Puyallup sewer system (Basins 17, 19, 20 and 31).

This prioritization is subject to change based on development pressure, potential for piggybacking on road repair/replacement or other capital improvement projects, the need to sewer areas with a significant number of failing septic systems, and other factors that may arise in the future. The City anticipates that portions of the recommended projects will be funded and constructed by developers with the remainder funded and constructed by the City. In addition, construction of portions of the proposed collection system within a basin may be accelerated due to the timing of development, cost sharing opportunities with road or utility improvement projects and the availability of loan and/or grant funds.

Table 8-2 includes a prioritized listing of the CIPs, a summary of the improvements in each CIP and the cost of the improvements (2022 $). The estimated cost of each of the CIP projects is included since it is not known at this time how much of the infrastructure will be funded by private development. The rate analysis presented in Chapter 9 assumes the sewer utility is fully funded by the City on a standalone basis. The inclusion of the total costs for each CIP is in keeping with the rate analysis. Figure 8-1 identifies the basin priorities. The improvements proposed for each basin are discussed in Chapter 6 and shown on Figures 6-2 through 6-5. Figures 8-2, 8-3 and 8-4 show the location of the proposed CIP projects in the 6-year horizon, the 2029-2050 horizon and the projects proposed beyond 2050.

The first three projects shown in the priority listing, Basin 18, Basin 20 and Basin 11, are assumed to be largely funded by private parties. Development in Basin 18 (Wolf Point development) and the southern portion of Basin 20 (Prologis development) will install a portion of the sewer improvements identified for Basins 18 and 20. The City may elect to contribute to the oversizing of the proposed improvements to provide capacity for the

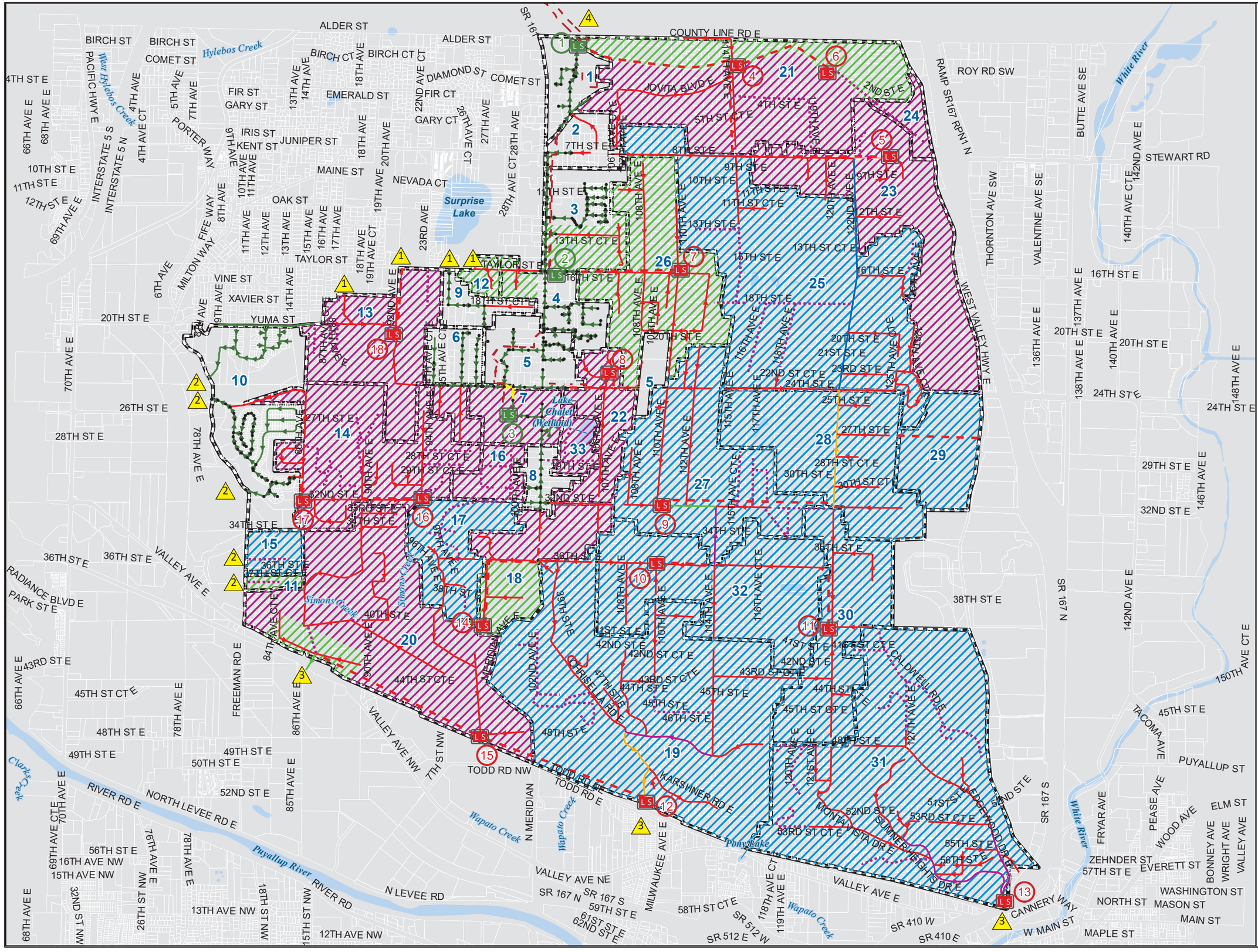
future sewering of the entire basin. This plan assumes the Prologis development will discharge to the Puyallup sewer system through the existing stub under the Union Pacific Railroad. The remainder of the proposed infrastructure in Basins 18 and 20 is assumed to occur at a later date.

It is assumed the cost the of sewer improvements in Basin 11, connection of the Cherrywood Mobile Home Park to the City of Fife collection system, will be funded by Cherrywood Mobile Home Park.

Installation of sewer improvements in Basins 19 and 31 in the south portion of the City will require construction of conveyance improvements in the City of Puyallup.

Construction of sewer improvements in Basin 23 and the force main that will connect Lift Station 5 to the existing force main from Lift Station 1 to LWSD would need to be completed before sewer improvements in Basins 21, 25, 28, 29, 27, 30 and 32 would be functional. Additionally, the proposed sewer main in 122nd Avenue East in Basin 25 and Basin 28 will need to be installed before improvements in Basins 27, 30 and 32 would be functional.

The prioritized CIP list assumes approximately 50 percent of the CIPs are completed by 2050 in support of the most aggressive rate analysis scenario (Scenario 2a) discussed in Chapter 9.



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins
- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD
- 6-Year CIPs
- 2029-2050 CIPs
- 2050+ CIPs

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN

FIGURE 8-1
CIP Priority

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig8-1.mxd

LWSD-2
LWSD-7
LWSD-4
LWSD-6
LWSD-3
PC-2
LWSD-5
PC-1
LWSD-8
Fife-1
LWSD-1
Puy-1
West Hylebos Creek
Hylebos Creek
Surprise Lake
White River
Lake Chalet (Wetland)
Wapato Creek
Simons Creek
Puyallup River
Pond Lake
99
5
161

LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins
- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN

FIGURE 8-2
6-Year CIP Priority (2023-2029)

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig8-2.mxd

LWSD-15
LWSD-18
LWSD-9
LWSD-20
LWSD-16
LWSD-19
PC-3
LWSD-10
LWSD-17
LWSD-12
Fife-3
Fife-2
LWSD-11
LWSD-13
LWSD-14
Puy-2
Hylebos Creek
West Hylebos Creek
Surprise Lake
White River
Lake Chalet (Wetland)
Simons Creek
Wapato Creek
Puyallup River
Pony Lake
99
5
161

LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins
- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN

FIGURE 8-3
CIP Priority (2029-2050)

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig8-3.mxd

LWSD-23

LWSD-21

LWSD-22

LWSD-26

LWSD-25

Fife-4

Puy-3

LWSD-24

Puy-4

Puy-5

West Hylebos Creek

Hylebos Creek

Surprise Lake

White River

Dieringer Flume

Lake Chalet (Wetland)

Simons Creek

Wapato Creek

Pony Lake

Puyallup River

Salmon Creek

99

5

161

LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins
- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN

FIGURE 8-4
CIP Priority (Beyond 2050)

Gray & Osborne, Inc.

L:\EDGEWOOD\11914 General Sewer Plan\GIS\Working\F-fig8-4.mxd

TABLE 8-2

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
6-Year CIP (2023–2029)				
LWSD-1	18	LWSD	Lift Station 14 (190 gpm), 3,000 LF 6-inch force main. (Wolf Point)[(1)]	$2,563,400
Puy-1	20	Puyallup	600 LF of 12-inch sewer main.[(2)]	$552,100
Fife-1	11	Fife/Tacoma	Cherrywood Lift Station, 800 LF 6-inch force main.[(3)]	$565,600
LWSD-2	1	LWSD	Install three 75-hp pumps in Lift Station 1 – 2025[(4)]	$1,087,300
LWSD-3	3	LWSD	2,600 LF 8-inch sewer main.	$2,000,100
LWSD-4	2	LWSD	1,200 LF 8-inch sewer main.	$923,100
LWSD-5	4	LWSD	1,500 LF 8-inch sewer main.	$1,153,900
PC-1	9	Pierce County/Tacoma	1,100 LF 8-inch sewer main.	$846,200
PC-2	12	Pierce County/Tacoma	1,000 LF 8-inch sewer main.	$769,300
LWSD-6	26	LWSD	11,500 LF 8-inch sewer main, Lift Station 7 (280 gpm), 2,400 LF 6-inch force main.[(5)]	$11,518,200
LWSD-7	21	LWSD	2,400 LF 4-inch force main, 500 LF 6-inch force main, 3,600 LF 10- and 12-inch force main, 2,600 LF small diameter force main.[(6)]	$4,689,900
LWSD-8	4	LWSD	Install 3rd 25-hp pump in Lift Station 2 – 2027 (surplus pump from LS 1).[(7)]	$50,000
Subtotal				$26,719,100
2029–2050 CIP				
LWSD-9	7	LWSD	Install 3rd 25-hp pump in Lift Station 3 – 2029 (surplus pump from LS 1).[(8)]	$50,000
LWSD-10	16	LWSD	1,800 LF 8-inch sewer main	$1,384,700
PC-3	13	Pierce County/Tacoma	4,050 LF 8-inch sewer main, 2,400 LF small diameter force main and grinders, Lift Station 18 (260 gpm), 1,560 LF 6-inch force main.	$6,613,100
LWSD-11	33	LWSD	1,550 LF small diameter force main and grinder pumps.	$982,900
LWSD-12	22	LWSD	4,450 LF 8-inch sewer main, Lift Station 8 (170 gpm), 1,560 LF 6-inch force main.	$5,304,800
LWSD-13	16	LWSD	2,260 LF small diameter force main and grinder pumps.	$1,433,100
LWSD-14	18	LWSD	5,450 LF 8-inch sewer main.	$4,192,400
LWSD-15	4	LWSD	Install three 75-hp pumps in Lift Station 2 – 2036.	$1,087,300
LWSD-16	7	LWSD	Install three 75-hp pumps in Lift Station 3 – 2036.	$1,087,300

TABLE 8-2 – (continued)

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
Puy-2	20	Puyallup	18,500 LF 8-inch sewer main, 940 LF small diameter force main and grinder pumps, LS 15 (330 gpm), 4,100 LF 6-inch force main, railroad crossing.	$18,590,000
Fife-2	10	Fife/Tacoma	200 LF 8-inch sewer main, 480 LF 6-inch force main.	$343,300
Fife-3	14	Fife/Tacoma	14,400 LF 8-inch sewer main, 5,200 LF small diameter force main and grinder pumps, Lift Station 16 (150 gpm), Lift Station 17 (380 gpm), 1,750 LF 6-inch force main.	$18,170,000
LWSD-17	23	LWSD	5,600 LF 8-inch sewer main, 2,300 LF 18-inch sewer main, 650 LF 21-inch sewer main, 650 LF small diameter force main and grinder pumps, Lift Station 5 (2,070 gpm), 5,100 LF 10- and 12-inch parallel force main, 4,800 LF 12-inch force main (from Edgewood to LWSD)[9]	$19,455,400
LWSD-18	21	LWSD	6,100 LF 8-inch sewer main, grinder pumps, Lift Station 4 (610 gpm), Lift Station 6 (70 gpm).[10]	$7,912,500
LWSD-19	24	LWSD	1,490 LF small diameter force main and grinder pumps.	$944,900
LWSD-20	7	LWSD	200 LF of 10-inch sewer main, 643 LF 12-inch sewer main. (2041+)	$760,300
Subtotal				$87,551,700
Beyond 2050 CIP				
LWSD-21	25	LWSD	16,950 LF 8-inch sewer main, 3,800 LF 18-inch sewer main, 9,900 LF small diameter force main and grinder pumps, 480 LF 10- and 12-inch parallel force main.	$23,882,600
Puy-3	17	Puyallup	8,700 LF 8-inch sewer main, 3,500 LF small diameter force main and grinder pumps.	$4,296,500
Puy-4	19	Puyallup	18,860 LF 8-inch sewer main, 2,000 LF 10-inch sewer main, 2,600 LF 15-inch sewer main, 4,330 LF small diameter force main and grinder pumps, Lift Station 12 (930 gpm), 500 LF 8- and 10-inch parallel force mains, railroad crossing.	$25,823,400
Puy-5	31	Puyallup	13,800 LF 8-inch sewer main, 1,800 LF 10-inch sewer main, 8,850 LF small diameter force main and grinder pumps, Lift Station 13 (830 gpm), 500 LF 8-inch and 10-inch parallel force mains, railroad crossing.	$22,550,800
LWSD-22	28	LWSD	4,850 LF 8-inch sewer main, 2,600 LF 15-inch sewer main.	$6,175,600

TABLE 8-2 – (continued)

CIP Priority List

Priority No.	Basin No.	Proposed Wastewater Treatment Provider	Improvement Summary	Project Cost (2022 $)
LWSD-23	27	LWSD	10,850 LF 8-inch sewer main, 1,300 LF 10-inch sewer main, 1,300 LF 12-inch sewer main, 5,350 LF small diameter force main and grinder pumps, Lift Station 9 (450 gpm), 4,000 LF 8- and 10-inch parallel force mains.	$19,291,000
LWSD-24	32	LWSD	8,440 LF 8-inch sewer main, 20 LF 10-inch sewer main, Lift Station 10 (130 gpm), 1,300 LF 6-inch force main.	$8,287,200
LWSD-25	30	LWSD	8,250 LF 8-inch sewer main, 470 LF small diameter force main and grinder pumps, Lift Station 11 (240 gpm), 1,400 LF 6-inch force main.	$8,576,700
Fife-4	15	Fife/Tacoma	960 LF small diameter force main and grinder pumps.	$608,800
LWSD-26	29	LWSD	1,820 LF 6-inch force main	$718,000
Subtotal				**$120,970,900**
Total				**$235,241,700**

(1) Project funded by developer. The City may incur costs for oversizing of the lift station to accommodate the future extension of sewers to the remainder of the basin.
(2) Gravity sewer from Prologics development to the existing sewer in Puyallup at approximately 27th Avenue Court NW. The City may incur costs for oversizing of the sewer to accommodate the future extension of sewers to the remainder of the basin.
(3) Ecology recommendation to connect Cherrywood Mobile Home Park to the City of Fife.
(4) Lift Station 1 current capacity with two 25-hp pumps exceeded in 2027 (Table 6-15). A third 25-hp pump could be installed or the existing pumps replaced with three 75-hp pumps which would allow the use of the existing 25-hp pumps at Lift Stations 2 and 3.
(5) Pair project with Stormwater Capital Improvement SW-10.
(6) Pair installation of the force mains along the Interurban Urban Trail with the project.
(7) Lift Station 2 capacity with two 25-hp pumps exceeded in 2027 (Table 6-14).
(8) Lift Station 3 capacity with two 25-hp pumps exceeded in 2029 (Table 6-12).
(9) 10- and 12-inch force along Interurban Trail installed in conjunction with trail project.
(10) 4-inch, 6-inch and small diameter force mains along Interurban Trail installed in conjunction with Interurban Trail construction capital project.

CHAPTER 9

FINANCIAL PROGRAM

INTRODUCTION

The purpose of the financial program is to ensure the financial viability of the sewer utility during operation, maintenance and administration of the utility and the execution of the CIP identified in this Plan. This viability analysis considers historical performance, the sufficiency of utility revenues to meet current and future cost and policy obligations, and the impact of executing the CIP. Furthermore, this chapter provides a review of the utility's current rate structure with respect to rate adequacy, equity, and customer affordability.

FCS GROUP prepared a Sewer Utility Rate Study (Appendix G) and Conveyance Development Charge Update Report (Appendix H) which establish a funding plan (revenue requirement) for the Sewer Utility for the 2021-2050 study period. The information provided in this chapter summarizes the findings of the FCS Group reports.

The Sewer Utility Rate Study documents the revenue requirement analysis for the City's future Sewer Utility for two scenarios. The revenue requirement identifies the total revenue needed to fully fund the utility on a standalone basis considering current financial obligations and future capital expenditures identified in the CIP plan provided in Chapter 9. The Sewer Utility Rate Study did not include the cost of an annual O&M program as discussed in Chapter 7 or the monthly charge that will be collected by the wastewater treatment provider. The revenue requirements of the two scenarios were developed to allow the City to find a balance between completing capital projects and customer rate impacts:

- Scenario 1 assumes annual growth of 100 ERUs and that 25 percent of the CIPs discussed in Chapter 8 are completed by 2050.

- Scenario 2 assumes annual growth of 200 ERUs and that 50 percent of the CIPs discussed in Chapter 8 are completed by 2050.

The Sewer Utility Rate Study assumes a conveyance development charge (CDC) of $14,000 per ERU for the purposes of the study. The Conveyance Development Charge Update Report determined that the maximum CDC that is justifiable is $18,700. The maximum CDC is determined by dividing the total cost of the city-wide CIP projects by the total number of equivalent residential units that could be served by the sewer system at buildout.

SCENARIO 1 FUNDING PLAN

The funding plan for this scenario, shown in Table 9-1, forecasts 12.0 percent annual across-the-board rate increases from 2023 through 2027. This is followed by 9.0 percent annual increases in 2028-2039. After that, increases range from 2.5 percent to 8 percent per year. The study applied the rate increase across-the-board, i.e., it was assumed that every charge on the rate schedule increases by the same percentage, which maintains the balance of the existing rate structure. Key assumptions for the Scenario 1 capital funding strategy are noted below:

- Cash funded capital of $19 million by 2050 (17 percent of the scenario's 2022-2050 capital plan).
- Borrowing of $55 million by 2050 (48 percent of the of the scenario's 2022-2050 capital plan).
- CDC revenue of $40 million by 2050 (35 percent of the scenario's 2022-2050 capital plan), based on 100 ERUs per year and a CDC charge of $14,000.

TABLE 9-1

Scenario 1a: 100 Annual ERUs and Funding 25 Percent of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%

These rate increases (along with debt issuances and CDC revenue) are forecasted to allow the City to fund $113 million in escalated capital costs of the total $439 million inflated-adjusted capital program for 2022-2050.

SCENARIO 2 FUNDING PLAN

The funding plan for this scenario, shown in Table 9-2, forecasts 12.0 percent across-the-board rate increases each year from 2023 through 2032. At that time 8 percent increases are assumed from 2033 to 2040. After that, 6 percent annual increases are forecast through 2050. Key assumptions are noted below:

- Cash funded capital of $27 million by 2050 (12 percent of the scenario's 2022-2050 capital plan).
- Borrowing of $119 million by 2050 (53 percent of the of the scenario's 2022-2050 capital plan).

- CDC revenue of $80 million by 2050 (35 percent of the scenario's 2022-2050 capital plan), based on 200 ERUs per year and a CDC charge of $14,000.

TABLE 9-2

Scenario 2a: 200 Annual ERUs and Fund 50 Percent of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%

In summary, these rate increases (along with debt issuances and CDC revenue) are forecasted to allow the City to fund $223 million in escalated capital costs of the total $439 million inflation-adjusted capital program for 2022-50.

The historical financial condition of the utility is evaluated based on financial performance benchmarks, applied to data in the financial statements for the six-year period since the last plan.

REVENUE AND RATE SCHEDULE SUMMARY

Both Scenarios 1a and 2a forecast 12 percent annual rate increases for 2023-2027. Where these two plans diverge is beginning in 2028, when Scenario 2a continues at 12 percent per year for many years, while Scenario 1a reduces to 9 percent per year. The extra 3 percent in Scenario 2a, along with 200 ERUs of growth instead of 100 ERUs of growth, allow Scenario 2a to fund roughly 50 percent of the total citywide capital plan instead of 25 percent as is the case in Scenario 1a. The current monthly base rate in the City is $5.00/month/ERU with a usage rate per 100 cubic feet (ccf) of $0.95. The Rate Schedule shown in Tables 9-3 and 9-4 identify the rate increases necessary to fund the CIP program, an estimate of the fee to fund an O&M program as discussed in Chapter 7 and an estimate of the fee that would need to be collected by the wastewater treatment provider based on the current interlocal agreement with LWSD on a monthly basis for Scenario 1a and Scenario 2a, respectively.

TABLE 9-3

Scenario 1a Rate Increases

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase (CIPs only)	--	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	8.00%	2.50%
Monthly Base Rate per ERU (CIPs only)	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.60	$10.47	$11.41	$26.77	$38.04
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.82	$1.99	$2.17	$5.09	$7.23
Estimated Monthly O&M Cost per ERU(1)	-	-	-	-	-	-	-	-	$16.84	$14.51	$16.21
Estimated Monthly Cost for Treatment per ERU(3)	$62.80	$64.68	$64.63	$68.62	$70.68	$72.80	$74.98	$77.23	$79.55	$103.42	$165.47
Total Monthly Rate per ERU(4)	$67.80	$70.28	$72.89	$75.64	$78.55	$81.61	$84.59	$87.71	$107.80	$144.70	$219.73

(1) Assume an O&M program begins in 2030. O&M base rate is $397,280 (Chapter 7) and 1,166 ERU in 2022 (Table 2-9). Addition of 100 ERUs/year and O&M cost inflation of 3 percent per year.
(2) Estimated cost of the O&M program in 2050 is $771,680 (Chapter 7).
(3) Based on cost of LWSD monthly cost for Edgewood residents, assumed cost inflation of 3 percent.
(4) Does not include Usage Rate.

TABLE 9-4

Scenario 2a Rate Increases

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase (CIPs only)	--	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	6.00%
Monthly Base Rate per ERU	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.87	$11.05	$12.38	$28.74	$51.48
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.88	$2.10	$2.35	$5.46	$9.78
Estimated Monthly O&M Cost per ERU(1)	-	-	-	-	-	-	-	-	$11.97	$9.03	$9.50(2)
Estimated Monthly Cost for Treatment per ERU(3)	$62.80	$64.68	$64.63	$68.62	$70.68	$72.80	$74.98	$77.23	$79.55	$103.42	$165.47
Total Monthly Rate Per ERU(4)	$67.80	$70.28	$72.89	$75.64	$78.55	$81.61	$84.59	$87.71	$102.93	$139.22	$213.01

(1) Assume an O&M program begins in 2030. O&M base rate is $397,280 (Chapter 7) and 1,166 ERU in 2022 (Table 2-9). Addition of 200 ERUs/year and O&M cost inflation of 3 percent per year.
(2) Estimated cost of the O&M program in 2050 is $771,680 (Chapter 7).
(3) Based on cost of LWSD monthly cost for Edgewood residents. Assumed cost inflation of 3 percent.
(4) Does not include Usage Rate.

It is recommended that the City frequently revisit study findings during the forecast period to check that the assumptions used (such as customer growth) are still appropriate and that no significant changes have occurred that would alter the results of the study. The City should use the study as a living document, routinely comparing the projections to actual revenues and expenses. New information could have positive (grant, low-cost state loans) or negative (slower growth, less CDC revenue) impacts on the forecast.

Any significant or unexpected changes may require adjustments to the rate strategy recommended in this report. In particular, the City should routinely evaluate its fund balance and remaining replacement needs at multiple points throughout the forecast period to determine if the current level of rates is still adequate or appropriate.

RATE COMPARISON

Table 9-5 provides a comparison of the 2022 wastewater conveyance and treatment costs for nearby utilities.

TABLE 9-5

Sewer Utility Rate Comparisons

Utility	2022 Monthly Rate/ERU[(1)]	2022 Connection Charge/ERU	Notes –
Edgewood (to LWSD)	$62.80[(2)]	$7,060	Connection charge applied to properties not in LID 1 Area
Edgewood (to Fife)	$127.36[(3)]	$5,460[(3)]	
LWSD	$50.33	$3,789	
Pierce County	$57.34	$5,701	Average over 19 basins. Rates vary by Basin
Tacoma	$69.57	$3,250	
Fife	$93.65	$4,015	Rate does not include a fee for water use.
Puyallup	$92.75	$4,880	
Renton	$81.01[(4)]	$15,910	Incl. King County connection charge $12,300
Bonney Lake	$134.60/$172.56[(5)]	$11,606	
Sumner	$84.94	$5,124	
Auburn	$75.99[(4)]	$11,514	

(1) Includes monthly base rates plus average water usage of 8 ccf per month.
(2) Edgewood to LWSD - $23.80 base, $4.88/ccf.
(3) Fife sewer service rates, fees, connection charges, permit fees and inspection fees for connection within the Edgewood sewer service area shall be the same rates, fees and charges as within the corporate limits of the city, plus a 36 percent surcharge (FMC 13.08.540).
(4) Includes King County charge for treatment and conveyance of $49.27/month.
(5) Higher rate for properties with grinder pumps.

AVAILABLE CAPITAL FUNDING RESOURCES

Feasible long-term capital funding strategies should be defined to ensure adequate resources are available to fund the CIP identified in this Plan. Potential project funding resources include both utility resources such as accumulated cash reserves, capital revenues, and Capital Improvement Fees, as well as outside sources such as grants, low-interest loans, and bond financing. The following is a summary of Internal Utility Resources, Government Programs and Resources, and Public Debt Financing.

INTERNAL UTILITY RESOURCES

Internal utility resources appropriate for funding capital needs include accumulated cash in the Construction Projects Reserve, policy-based replacement reserve funding from rates, positive net operating revenue, and capital revenues such as Capital Improvement Fees or local facilities charges.

SEWER SERVICE REVENUE

Sewer service charges (rates) paid by the utility's customers are the primary funding source for all utility activities. Revenue from rates should be set to cover total annual costs associated with operating and maintaining the sewer system. Rates can pay for capital costs in two ways: either paying debt service or directly paying for capital projects. Although funding capital costs directly through rates avoids the additional interest expense associated with issuing debt, this approach can cause large and/or volatile rate increases due to the variability and magnitude of year-to-year CIP program costs.

CONVEYANCE DEVELOPMENT CHARGE

A CDC, as provided for by RCW 35.92.025, refers to a one-time charge imposed on new customers as a condition of connection to the utility system. The purpose of the CDC is two-fold: (1) to promote equity between new and existing customers; and (2) to provide a source of revenue to fund capital projects. The charge is imposed on both new development and redevelopment that increases demand for system capacity. CDC revenues provide a source of cash flow used to support utility capital needs; revenue can only be used to fund utility capital projects or to pay debt service incurred to finance those projects.

In 2012, the City adopted a CDC of $4,700 per ERU for future growth within the Phase I sewer service area. The City collects CDC from all properties within the Phase I sewer system boundary which did not participate in LID No. 1. The CDC has increased 4.625 percent per year until 2021, resulting in the current CDC of $7,060.

The Conveyance Development Charge Update Report, Appendix H, provided calculations that showed that the CDC for the city-wide capital improvement plan should be $18,700. The calculated charge is the proposed ceiling, up to which the methodology supports the charge. The rate study assumed a CDC of $14,000/ERU.

LOCAL FACILITIES CHARGE

While a CDC is the manner in which new customers pay their share of general facilities costs, local facilities funding is used to pay the cost of local facilities that connect each property to the system infrastructure. Local facilities funding is often overlooked in a rate forecast since it is funded upfront by either connecting customers, developers, or through an assessment to properties, rather than from rates. Although these funding mechanisms do not provide a capital revenue source for funding CIP costs, a discussion of these charges is included in this chapter because of their impact on new customers, if such charges are implemented.

There are several mechanisms that can be considered for funding local facilities. One of the following scenarios typically occurs:

- The utility charges a connection fee based on the cost of the local facilities (under the same authority as the CDC);
- A developer funds extension of the system to their development and turns those facilities over to the utility (contributed capital); or
- A local assessment is set up called a Utility Local Improvement District (ULID/LID) which collects tax revenue from benefitted properties.

A Local Facilities Charge (LFC) is a variation of the connection charge authorized through RCW 35.92.025. It is a city-imposed charge to recover the cost related to service extension to local properties. Often called a front-footage charge and imposed on the basis of footage of main "fronting" a particular property, it is usually implemented as a reimbursement mechanism to a city for the cost of a local facility that directly serves a property. It is a form of connection charge and, as such, can accumulate up to 10 years of interest. It typically applies to instances where no developer-installed facilities are needed through developer extension due to the prior existence of available mains already serving the developing property.

The Developer Extension is a requirement that a developer install onsite and sometimes offsite improvements as a condition of extending service. These are in addition to the CDC required and must be built to City standards. The City is authorized to enter into developer extension agreements under RCW 35.91.020. Part of the agreement between the City and the developer for the developer to extend service might include a late-comer agreement, resulting in a late-comer charge to new connections to the developer extension.

Latecomer Charges are a variation of developer extensions whereby a new customer connecting to a developer-installed improvement makes a payment to the City based on their share of the developers cost (RCW 35.91.020). The City passes this on to the developer who installed the facilities. This is part of the developer extension process, and defines the allocation of costs and records latecomer obligations on the title of affected properties. No interest is allowed, and the reimbursement agreement is in effect for a period of 20 years, unless a longer duration is approved by the City.

LID/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). Most often used for local facilities, some ULIDs also recover related general facilities costs. 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.

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 miscellaneous grant programs are generally lightly funded and heavily subscribed, and/or available primarily for "hardship" communities with low median incomes. 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. Sewer funding program options are described below.

WATER QUALITY COMBINED FUNDING PROGRAM

The Department of Ecology Water Quality Combined (WQC) funding program provides annual funding to projects that improve and protect water quality throughout Washington. The program combines state and federal funding sources to provide grants and loans to water quality related projects. Financial assistance for wastewater planning and infrastructure projects is available through the Centennial Clean Water Program (Centennial) grants and the Clean Water State Revolving Fund (CWSRF) loan program. Eligible project categories include, but are not limited to, planning, environmental and cultural review, design, and construction of facilities for wastewater conveyance and treatment. Ecology may issue CWSRF loans for terms of 5, 20 or 30 years with the limitation that the term cannot be longer than the useful life of the project being financed. Ecology may offer qualified applicants forgivable principal loan, further subsidized loans and/or Centennial grants for wastewater facility preconstruction and construction projects. To qualify for hardship funding for preconstruction projects (planning, design,

environmental and cultural review) the existing residential population of the service area for the proposed project must be 25,000 or less at the time of application and the median household income (MHI) for the proposed service area must be less than 80 percent of the state MHI. To qualify for hardship for construction projects the existing residential population of the service area for the proposed project must be 25,000 or less at the time of application and financing of the project with standard CWSRF loan would cause residential sewer rates to be two percent or more of the MHI for the service area. The application period for the WQC is in the fall.

Further detail is available at https://ecology.wa.gov/about-us/payments-contracts-grants/grants-loans/find-a-grant-or-loan/water-quality-grants-and-loans/wqc-funding-cycle.

PUBLIC WORKS TRUST FUND (PWTF)

Cities, counties, special purpose districts, public utility districts, and quasi-municipal governments are eligible to receive loans from the PWB. Eligible projects include repair, replacement, and construction of infrastructure for domestic water, sanitary wastewater, stormwater, solid waste, road, and bridge projects that improve public health and safety, respond to environmental issues, promote economic development, or upgrade system performance. Funding for the PWTF is approved by the State Legislature in the Biennium Capital Budget.

Further detail is available at http://www.pwb.wa.gov

COMMUNITY ECONOMIC REVITALIZATION BOARD

Community Economic Revitalization Board (RCW 43.160) – A federal program administered by the State Department of Commerce, this program provides grants and loans for infrastructure improvements including utility projects. It prioritizes projects that encourage new private business development and expansion. The board accepts applications on an ongoing basis and meets every 2 months to consider projects and make funding decisions. The meeting schedule can be found at https://deptofcommerce.app.box.com/v/cerb1719dates.

INFRASTRUCTURE ASSISTANCE COORDINATING COUNCIL (IACC)

The Infrastructure Assistance Coordinating Council (IACC) 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 it can be a valuable resource to provide awareness of any new funding opportunities. The Council provides a summary of funding opportunities available for drinking water and wastewater projects, which is available here: http://www.infrafunding.wa.gov/.

COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG)

Community Development Block Grant (CDBG) – The purpose of the CDBG is to assist with final design and construction of wastewater, drinking water, side connections, stormwater and other projects serving economic development or affordable housing. 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. Materials for the next application cycle will be available in March 2019, with applications due June 3, 2019. More information can be found at https://www.commerce.wa.gov/serving-communities/current-opportunities-2/community-development-block-grants/.

PUBLIC 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 and few financial restrictions. However, the authority to issue G.O. bonds is restricted in terms of the amount and use of the funds, as defined by Washington constitution and statute. Specifically, the amount of debt that can be issued is linked 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, these can sometimes play a valuable role in project financing. A 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. The City currently has one outstanding G.O. Bond that is shared in part by the sewer utility, with the utility's share of debt service repaid by sewer revenues.

REVENUE BONDS

Revenue bonds are commonly used to fund utility capital improvements. The debt is secured by the revenues of the issuing utility and the debt obligation does not extend to the City's other revenue sources. With this limited commitment, revenue bonds typically bear higher interest rates than G.O. bonds and also require security conditions related to the maintenance of dedicated reserves (a bond reserve) and financial performance (added bond debt service coverage). The City agrees to satisfy these requirements by ordinance 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. In some cases, poor credit might make issuing bonds problematic.

CAPITAL RESOURCE FUNDING SUMMARY

An ideal funding strategy would include the use of grants and low-cost loans when financing needs are identified. 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 available low-cost 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 bonding capacity limits are most often reserved for other City (non-utility) purposes, revenue bonds are a more secure

financing mechanism for utility needs. The Capital Financing Strategy developed to fund the updated CIP follows the funding priority below:

1. Available grant funds and/or developer contributions
2. Secured low-interest loans
3. Accumulated capital reserves
4. Revenue collection from capital improvement fees
5. Annual replacement reserve funding
6. Positive net operating cash-flow
7. Revenue bond financing

APPENDIX A

SEPA CHECKLIST

EDGEWOOD Washington
Community & Economic Development Department
2224 104th Avenue East, Edgewood, WA 98372
(253) 952-3299 | https://www.cityofedgewood.org/

STATE ENVIRONMENTAL POLICY ACT (SEPA) ENVIRONMENTAL CHECKLIST

FILE#: **22-007CODE**

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:

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:

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 (to be completed by applicant)

1. City of Edgewood General Sewer Plan			
2. Applicant City of Edgewood	Address (Street, City, State, Zip) 2224 104th Avenue East Edgewood, WA 98372	Phone 253-831-4266	Email Jeremy@cityofedgewood.org
3. Contact Person Jeremy Metzler, P.E. Public Works Director	Address (Street, City, State, Zip) 2224 104th Avenue East Edgewood, WA 98372	Phone 253-831-4266	Email Jeremy@cityofedgewood.org
4. DATE CHECKLIST PREPARED November 21, 2022			
5. AGENCY REQUESTING CHECKLIST Washington Department of Ecology			

6. Proposed timing or schedule (including phasing, if applicable):

The General Sewer Plan includes multiple phases of projects that may extend through 2073.

The City of Edgewood General Sewer Plan is a planning document. The General Sewer Plan evaluates proposed policies, future infrastructure projects, and operations and maintenance activities for a city-wide sewer utility. Implementation of the proposed plan would be phased. Some elements of the plan may be implemented immediately, while others would be implemented in future years.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Yes

The General Sewer Plan identifies collection system improvements that would be necessary to provide a wastewater collection system that would serve the entire city. The City will pursue funding for the design and construction of the improvements. The SEPA process will be followed for all non-exempt construction projects.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Prior Environmental Information

- City of Edgewood 2007 General Sewer Plan, Parametrix, Inc.

Future Environmental Information for the Projects Recommended in this Plan

- Projects funded through a Washington Department of Ecology Loan or Grant would need to complete the State Environmental Review Process (SERP), consult with the Department of Archaeology and Historic Preservation (EO 05-05 process), and implement any mitigation associated with these permitting processes.

- Projects funded with federal monies (e.g. USDA Rural Development) would need to complete a NEPA Environmental Assessment to determine whether an EIS would be required. If project impacts can be mitigated, a NEPA Finding of No Significant Impact (FONSI) would be sufficient.

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.

None Known

10. List any government approvals or permits that will be needed for your proposal, if known.

Plan approval will require

- Department of Ecology Approval for General Sewer Plan/Wastewater Facility Plan
- SEPA Determination

Construction activities would require the following permits (as applicable):

- **City of Edgewood Conditional Use Permit**
- **City of Edgewood Critical Areas Review**
- **A "Notice of Construction and Application for Approval to Construct, Install, Establish or Modify an Air Contaminate Source" will be submitted, where applicable, Puget Sound Clean Air Agency (PSCAA)**
- **Projects funded through a Washington Department of Ecology Loan or Grant would need to complete the State Environmental Review Process (SRP) including a project level SEPA Checklist and Determination, consult with the Department of Archaeology and Historic Preservation (EO 05-05 process), and implement any mitigation associated with these permitting processes.**

- **Projects funded with federal monies (e.g. USDA Rural Development) would need to complete a NEPA Environmental Assessment to determine whether an EIS would be required. If project impacts can be mitigated, a NEPA Finding of No Significant Impact (FONSI) would be sufficient.**

11. Give a 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.

This SEPA checklist evaluates impacts associated with implementation of the recommend improvements in the Plan.

The City of Edgewood operates a collection system (the Phase I system) centered around the Meridian Avenue corridor generally north of 32nd Street E. Wastewater collected in this system is treated at the Lakehaven Water and Sewer District (LWSD) Lakota Wastewater Treatment Facility (WWTF). The City of Fife operates a collection system in the western part of the city west of 86th Avenue E and north of 34th Street E Wastewater collected in this system is treated at the City of Tacoma Central Treatment Plant (CTP). Pierce County operates a small collection system in the north part of the City generally along 18th Street Court E that discharges to the Pierce County collection system in the City of Milton. Wastewater collected in this system is treated at the City of Tacoma CTP. The remainder of the city is unsewered.

The General Sewer Plan evaluates alternatives for providing a backbone wastewater collection for the entire city. This planning document provides a list of future wastewater collection system improvements including the proposed location and sizes of new gravity sewers, force mains and lift stations that could be installed to convey wastewater collected in the city to adjacent existing wastewater treatment facilities including the Lakota WWTP, City of Tacoma CTP and the City of Puyallup Water

Pollution Control Plant (WPCP).

The projects described in the 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 surface water. SEPA checklists for construction projects other than exempt activities will be prepared.

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.**

The wastewater collection improvements identified in the Plan will be located throughout the city. See attached Figure 6-1.

B. Environmental Elements [help]

1. Earth [help]

a. General description of the site:

The Plan addresses recommended improvement to provide wastewater collection facilities to the entire City. The areas where the projects are located vary from flat to hilly along the North Hill plateau and steep slopes on the west, south and east portions of the City.

(circle one): (Flat,) (rolling,) (hilly,) (steep slopes), mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

> 30 percent (south and east portions of City).

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.

Soils in the North Hill plateau area are predominately Alderwood and Kapowsin soils with pockets of Everett, Indianola and Neilton soils. These soils have the potential for infiltration, however, the infiltration on the plateau is limited by the

presence of glacial till below the surface soils. The soils in the east and south of the city near the valley floor are predominately Snohomish, Briscot, Puyallup, Shalcar and Sultan soils. These predominately clayey and loamy soils have higher runoff potential and lower infiltration potential than the soils on the plateau.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

More specific information on unstable soils would be determined during project-level environmental review. The City would identify site-specific unstable soils and other geological hazards during SEPA review when individual projects are proposed. All future projects would comply with the applicable provisions of the City's critical areas ordinances.

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.

Implementation of any of the projects proposed in the General Sewer Plan planning document will require excavation, filling and grading for the installation of sewers, force mains and lift stations. It is not anticipated that any of the projects involve significant changes to the existing topography or grade. The exact amount of excavation, backfill and grading will be established during the design of the improvements, but is likely to include thousands of cubic yards. A portion of the backfill is anticipated to be imported material. Specific estimates of excavation, filling and grading will be provided for each individual project SEPA.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Implementation of any of the projects proposed in the General Sewer Plan planning document would have the potential to cause erosion during construction. Repaving or replanting of areas disturbed by construction would likely stabilize the site within a few days to a few months. Use of best management practices (BMPs) will be exercised during construction to prevent erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Specific information on the potential percentages of impervious surfaces created by implementation of any of the projects proposed in the General Sewer Plan planning document would be determined during design and environmental review of individual projects. Ground surface disturbed during excavation for sewer line installation would most likely be restored to the original condition, thereby

minimizing the installation of new impervious surface. Project such as lift station installation may result in the creation of new impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Construction BMPS for the Control of Sedimentation and Erosion will be implanted during any construction activities associated with the recommendations of the Plan.

2. Air [help]

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects including a discussion of potential air emission sources during and after construction and approximate quantities of air emissions. In general, vehicle exhaust emissions would be generated from construction employee and equipment traffic to and from the site. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project.

Odor-causing substances that commonly occur in wastewater consist of both organic and inorganic compounds. The compounds usually arise from biological activity in wastewater collection and treatment systems. Theodor-causing compounds generally associated with wastewater collection and treatment systems are hydrogen sulfide, ammonia, mercaptans, organosulfides, amines and small amounts of phenols, cresols, and esters.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None known.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. A SEPA checklist will be prepared for specific non-exempt construction projects including a discussion of proposed measures to reduce or control air emission during and after construction.

A "Notice of Construction and Application for Approval to Construct, Install, Establish or Modify an Air Contaminate Source" will be submitted, where applicable, to the Puget Sound Clean Air Agency (PSCAA) prior to construction to determine if a permit from PSCAA is required. All PSCAA requirements for operational or equipment-based odor control will be followed.

3. Water [help]

a. Surface Water: [help]

I. 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.

This SEPA checklist discusses the General Sewer Plan, a planning document. A project-level environmental review and SEPA checklist will be prepared for specific non-exempt construction projects that will be in the vicinity of surface water.

Specific waterbodies in the city that may be impacted by one of the projects identified in the General Sewer Plan include Jovita Creek, Wapato Creek, and Simons Creek and Lake Chalet.

The City of Edgewood has no surface waters that are large enough for the City to be required to comply with the Shoreline Management Act.

II. 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.

This SEPA checklist discusses the General Sewer Plan, a planning document. A project-level environmental review and SEPA checklist will be prepared for specific non-exempt construction projects including a discussion of proposed work over, in or adjacent to the described waters.

III. 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.

More specific information on the amount, location, and source of fill material would be determined during project-level environmental review. Fill and/or

dredge activity that would be placed in or removed from surface water or wetlands are not anticipated to be required for future projects. All future projects would comply with the applicable local, state, and federal regulations and permitting concerning fill and dredge materials.

IV. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for any non-exempt construction projects. It is not anticipated that future construction projects will require withdrawals or diversions of surface water.

V. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

This SEPA checklist discusses the General Sewer Plan, a planning document. The potential for projects within the 100-year floodplain would be identified when individual projects are proposed and reviewed under SEPA. All future projects would comply with any floodplain regulations, where applicable.

VI. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. It is not anticipated that there would be a discharge of untreated wastewater to surface water. All wastewater collected in the city will discharge to a permitted wastewater treatment facility.

b. Ground Water: [help]

I. 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.

None of the projects recommended in the General Sewer Plan would require groundwater withdrawals.

II. 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.

None of the projects recommended in the General Sewer Plan will discharge waste materials to the ground.

c. Water runoff (including stormwater):

I. 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?

This SEPA checklist discusses the General Sewer Plan, a planning document. More specific information on the potential for runoff and identification of receiving waters, if present, would be determined during environmental review and permitting of individual projects. Construction activities could temporarily increase runoff, and associated erosion and sedimentation could affect water quality in the short term. Potential construction runoff and erosion would be controlled with site-specific BMPs and other mitigation measures. The design, construction, and operation of all future projects would comply with the applicable local and state storm water management requirements.

Will this water flow into other waters? If so, describe.

This SEPA checklist discusses the General Sewer Plan, a planning document. More specific information on the potential for runoff and identification of receiving waters, if present, would be determined during environmental review and permitting of individual projects.

II. Could waste materials enter ground or surface waters? If so, generally describe.

This SEPA checklist discusses the General Sewer Plan, a planning document. It is not anticipated that any of the projects recommended in the plan would cause waste materials to enter ground or surface water. The SEPA checklists that will be prepared for all non-exempt projects will include a discussion of the potential for waste materials to enter ground or surface water.

III. Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

This SEPA checklist discusses the General Sewer Plan, a planning document. It is not anticipated that any of the projects recommended in the plan would

alter existing drainage patterns.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. In general, during construction, BMPs will be employed to minimize the amount of erosion and sediment leaving the site during rainfall events. The BMPs will be consistent with the Washington State Department of Ecology Stormwater Management Manual for Western Washington, and may include a rock construction entrance, catch basin filters, interceptor swales, sediment traps, silt fences, straw bales, and geonetting. Exposed soil areas and stockpiles will be covered with plastic sheeting. Clearing will occur only in areas of active construction. Following construction, the site will be revegetated promptly. Chemical handling and vehicle fueling will be conducted in contained areas on site. Any spills will be cleaned promptly to minimize the potential for runoff.

Major ground-disturbing construction activities for projects identified in the Plan, in general, would be planned for the drier spring, summer and early fall months as much as possible to minimize any stormwater discharges.

4. Plants [help]

In general, the presence of plants will be evaluated for each specific project SEPA. The following lists the general types of plants found in the City of Edgewood.

a. Check the types of vegetation found on the site:

_X__deciduous tree: alder, maple, aspen, other
_X__evergreen tree: fir, cedar, pine, other
_X__shrubs
_X__grass
_X__pasture
___crop or grain
___orchards, vineyards, or other permanent crops
_X__wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
___water plants: water lily, eelgrass, milfoil, other
___other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects.

c. List threatened and endangered species known to be on or near the site.

The City would evaluate potential impacts and mitigation for threatened and endangered species during environmental review and permitting of individual projects. The design, construction and operation of all future projects would comply with federal and state requirements for threatened or endangered species.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Where feasible, future projects would be designed to minimize potential impacts on vegetation. Where necessary to remove or alter areas of vegetation, vegetation would be restored following construction, according to City of Edgewood standard construction practices.

e. List all noxious weeds and invasive species known to be on or near the site.

The City would evaluate noxious weeds and invasive species during environmental review and permitting of individual projects.

5. Animals [help]

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.

In general, the presence of animals will be evaluated for each specific project SEPA. The following lists the general types of animals that have been observed in the City of Edgewood.

Examples include:

birds: hawk, heron, eagle, songbirds, other: _____
mammals: deer, bear, elk, beaver, other: _____
fish: bass, salmon, trout, herring, shellfish, other: _____
other: Western Pond Turtle _____

b. List any threatened and endangered species known to be on or near the site.

According the USFW IPac endangered or threated species that could be in the City of Edgewood include the following:

- North American Wolverine

- Marbled Murrelet
- Streaked Horned Lark
- Yellow-billed Cuckoo
- Bull Trout
- Taylor's Checkerspot
- Golden Paintbrush

c. Is the site part of a migration route? If so, explain.

The city is located in the Pacific Flyway for waterfowl during the spring and fall migrations.

d. Proposed measures to preserve or enhance wildlife, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. In general, standard construction best management practices (BMPs) will be implemented to avoid and minimize the potential for erosion from work areas and resulting impacts on fish and other aquatic species.

e. List any invasive animal species known to be on or near the site.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects, which will list any known invasive species adjacent to the project sites.

6. Energy and Natural Resources [help]

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.

Proposed lift stations will use electricity (and diesel fuel in back-up generators) to run pumps.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The proposed facilities would not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. In general, new facilities will comply with City and State building requirements related to energy conservation. All buildings will be properly insulated to reduce heating and cooling requirements. New pumps in the proposed lift stations will be appropriately designed and sized to maximize efficiency and minimize electrical requirements.

List other proposed measures to reduce or control energy impacts, if any:

None

7. Environmental Health [help]

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.

Operation of the sewer system anticipated under the proposed plan generally would not increase environmental health hazards in the long term. Environmental health hazards could be encountered during construction, but any potential adverse impacts on environmental health would be short term and would be controlled by project-specific mitigation measures.

I. Describe any known or possible contamination at the site from present or past uses.

None known.

II. 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.

This SEPA checklist discusses the General Sewer/Wastewater Facility Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects, and will address any hazardous chemicals and conditions at that time.

III. 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.

It is not anticipated that the proposed sewer system improvements would result in the storage or use of toxic or hazardous chemicals.

IV. Describe special emergency services that might be required.

It is not anticipated that emergency services would be required during operation of the proposed sewer system. Medical emergency services may be required during construction for work related accidents.

V. Proposed measures to reduce or control environmental health hazards, if any:

This SEPA checklist discusses the General Sewer/Wastewater Facility Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that discuss measures to reduce or control environmental health hazards that may be associated with the particular project.

b. Noise

I. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

No noise existing that is likely to disrupt construction or operation of the sewer system infrastructure identified in the Plan.

II. 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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that discuss the noise levels, duration and occurrence associated with the construction and operation of the sewer system identified in the Plan. In general, construction of the sanitary sewers and lift station facilities identified and recommended in the Plan would require operation of gas or diesel powered equipment during business hours. The nature and extent of construction noise will vary with the projects and will be limited to daytime hours. Some of the collection system improvements will involve bypass pumping with engine-driven pumps during construction. Noise abatement will be required for pumping systems where appropriate.

III. Proposed measures to reduce or control noise impacts, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that discuss measure to reduce or control noise generated during construction and

operation of the sanitary sewers and lift stations. In general, noise abatement equipment on construction equipment will be properly operated and maintained.

8. Land and Shoreline Use [help]

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. The study area includes properties used for recreational, residential, commercial, institutional, and industrial uses. SEPA checklists will be prepared for specific non-exempt construction projects that discuss the land use in the vicinity of the proposed project. It is not anticipated that the installation of a sewer system will affect current land uses.

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?

This SEPA checklist discusses the General Sewer Plan, a planning document. The study area includes properties used for recreational, residential, commercial, institutional, and industrial uses. SEPA checklists will be prepared for specific non-exempt construction projects that discuss the whether the project sites are or have been agricultural or forest land.

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:

No.

c. Describe any structures on the site.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The SEPA checklists will discuss the structures on the sites.

d. Will any structures be demolished? If so, what?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA

checklists will be prepared for specific non-exempt construction projects that describe demolition of existing structures on the site.

e. What is the current zoning classification of the site?

Current zoning classifications within the planning area are diverse. The zoning classifications of potential sites would be identified when individual projects undergo future SEPA and local land use reviews.

f. What is the current comprehensive plan designation of the site?

Comprehensive plan designations within the planning area are diverse. The designations of potential sites would be identified when individual projects undergo future SEPA and local land use reviews.

g. If applicable, what is the current shoreline master program designation of the site?

The City of Edgewood has no surface waters that are large enough for the City to be required to comply with the Shoreline Management Act.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

This SEPA checklist discusses the General Sewer Plan, a planning document. A project-level environmental review and SEPA checklist will be prepared for specific non-exempt construction projects that will be in the vicinity of City designated critical areas. Specific waterbodies in the city that may be impacted by one of the projects identified in the General Sewer Plan include Jovita Creek, Wapato Creek, and Simons Creek.

i. Approximately how many people would reside or work in the completed project?

No people will reside in the completed project. Approximately 4 full-time employees would be required to operate and maintain the system.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None required.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The General Sewer Plan was prepared consistent with the City's Comprehensive Plan goals and policies, and the City's Planning Commission has provided significant guidance and direction.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

No impacts are anticipated.

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None required.

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that describe the height and exterior building material of lift stations. The sewer system will be underground.

b. What views in the immediate vicinity would be altered or obstructed?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that describe if any view in the immediate vicinity would be altered or obstructed. In general, impacts to views are expected to be minimal.

c. Proposed measures to reduce or control aesthetic impacts, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that describe measures to reduce or control aesthetic impacts.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

This SEPA checklist discusses the General Sewer/Wastewater Facility Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that describe what type of light or glare would be produced, which is anticipated to be minimal.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

This SEPA checklist discusses the General Sewer/Wastewater Facility Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction. It is not anticipated that light or glare would be a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None required.

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that identify the recreational opportunities in the vicinity of specific projects.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None required.

13. Historic and cultural preservation [help]

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? If so, specifically describe.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that may be located near structures that are historically significant.

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects that will identify any landmarks, features, or other evidence of native American or historic use or occupation that are located on or near the proposed project sites. In addition, cultural resource reviews will be completed where appropriate.

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. Local tribes (including the Puyallup and Muckleshoot Tribes) and Department of Archeological and Historic Preservation will be notified of the proposed projects.

When future projects are proposed, the City would review preservation registers and contact organizations with jurisdiction over historic and cultural resources.

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. If it is determined that historic sites are located on or in close proximity to the project are identified a cultural resources survey will be conducted. The construction specifications will include an Inadvertent Discovery Plan that will be implemented in the event cultural resources are uncovered.

14. Transportation [help]

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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will identify the transportation system serving the site.

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?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will identify the public transit system in the vicinity of the project site.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

None.

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).

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will any improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities that may be included in a specific project.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklist will identify whether the specific project will be located in the vicinity of the existing rail line in the southern portion of the city.

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 non-passenger vehicles). What data or transportation models were used to make these estimates?

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will describe the number of vehicle trips generated by the proposed project.

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.

It is not anticipated the proposed projects will interfere with the movement of agricultural or forest products.

h. Proposed measures to reduce or control transportation impacts, if any:

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will discuss proposed measure to reduce or control transportation impacts which are expected to be limited to the construction period.

15. Public Services [help]

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.

No: Implementation of the proposed plan would not result in a long-term increase in the need for public services. Accidents during construction may require responses

from emergency service providers. Construction activities could affect local traffic circulation and access on public streets, which could temporarily affect emergency service vehicles.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None required.

16. Utilities [help]

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will discuss the utilities available at a specific site.

a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
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.

This SEPA checklist discusses the General Sewer Plan, a planning document. SEPA checklists will be prepared for specific non-exempt construction projects. The specific SEPA checklists will discuss the utilities that will be required for the site and the general construction activities for a specific project.

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: Nancy E Lockett

Name of signee: Nancy E Lockett

Position and Agency/Organization: Engineer / Gray + Osborne, Inc.

Date Submitted: 12/5/22

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?

The General Sewer Plan, the subject of this checklist, is a planning document. Future projects that involve the installation of a sewer system throughout the city of Edgewood will address the needs identified in the plan. Each of the specific non-exempt projects will be discussed in individual SEPA checklists prior to construction. The future projects will provide wastewater conveyance within the city. Collected wastewater will be conveyed to one of the adjacent permitted wastewater treatment facilities. The collected wastewater will be discharged after treatment to Puget Sound or the Puyallup River depending upon the treatment provider. The project may increase emissions to air, increase noise levels or cause stormwater runoff during construction. It is not anticipated that there will be storage or release of toxic or hazardous substances.

Proposed measures to avoid or reduce such increases are:

The individual SEPA checklists prepared for all non-exempt projects identified in the General Sewer Plan will address measures that will be included in the project to avoid or reduce emissions to air, noise impacts and stormwater impacts during construction. Proposed measures may include dust abatement, use of properly muffled construction equipment and implementation of stormwater mitigation best management practices.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The General Sewer Plan, the subject of this checklist is a planning document. Future projects identified in the Plan that will address the installation of sewer conveyance facilities are not expected to negatively impact wildlife. The projects will comply with environmental regulations regarding water quality, erosion/sediment control,

and stormwater control.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Construction and operation and maintenance of the proposed projects are not expected to negatively impact wildlife. The projects will comply with environmental regulations regarding water quality, erosion/sediment control, and stormwater control.

3. How would the proposal be likely to deplete energy or natural resources?

The General Sewer Plan, the subject of this checklist is a planning document. Future projects identified in the Plan that will address the installation of sewer conveyance facilities will require the use of diesel fuel and electricity during construction and electricity for operation of the lift stations.

Proposed measures to protect or conserve energy and natural resources are:

The individual SEPA checklists prepared for all non-exempt projects identified in the General Sewer Plan will address measures that will be included in the project to protect and conserve energy and natural resources such as requiring the installation of energy efficient pumps and proper operation and maintenance of construction equipment.

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?

Future projects identified in the Plan address the installation of sewer conveyance facilities. Construction and operation and maintenance of the facilities are not expected to negatively impact wildlife. The projects are not expected to impact parks, wilderness, wild and scenic rivers, historic or cultural sites, wetlands, floodplains, or prime farmlands will comply with environmental regulations regarding water quality, erosion/sediment control, and stormwater control.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Future projects are not expected to negatively wildlife, parks, wilderness, wild and scenic rivers, historic or cultural sites, wetlands, floodplains, or prime farmlands will comply with environmental regulations regarding water quality, erosion/sediment control, and stormwater control.

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?

Specific waterbodies in the city that may be impacted during construction by one of the projects identified in the General Sewer Plan include Jovita Creek, Wapato Creek, and Simmons Creek and Lake Chalet. None of the proposed projects would allow or encourage land or shoreline uses incompatible with existing plans.

The city of Edgewood has no surface waters that are large enough for the City to be required to comply with the Shoreline Management Act.

Proposed measures to avoid or reduce shoreline and land use impacts are:

The project specific SEPA checklists will identify measures that will be taken to minimize construction impact to land or shoreline uses.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

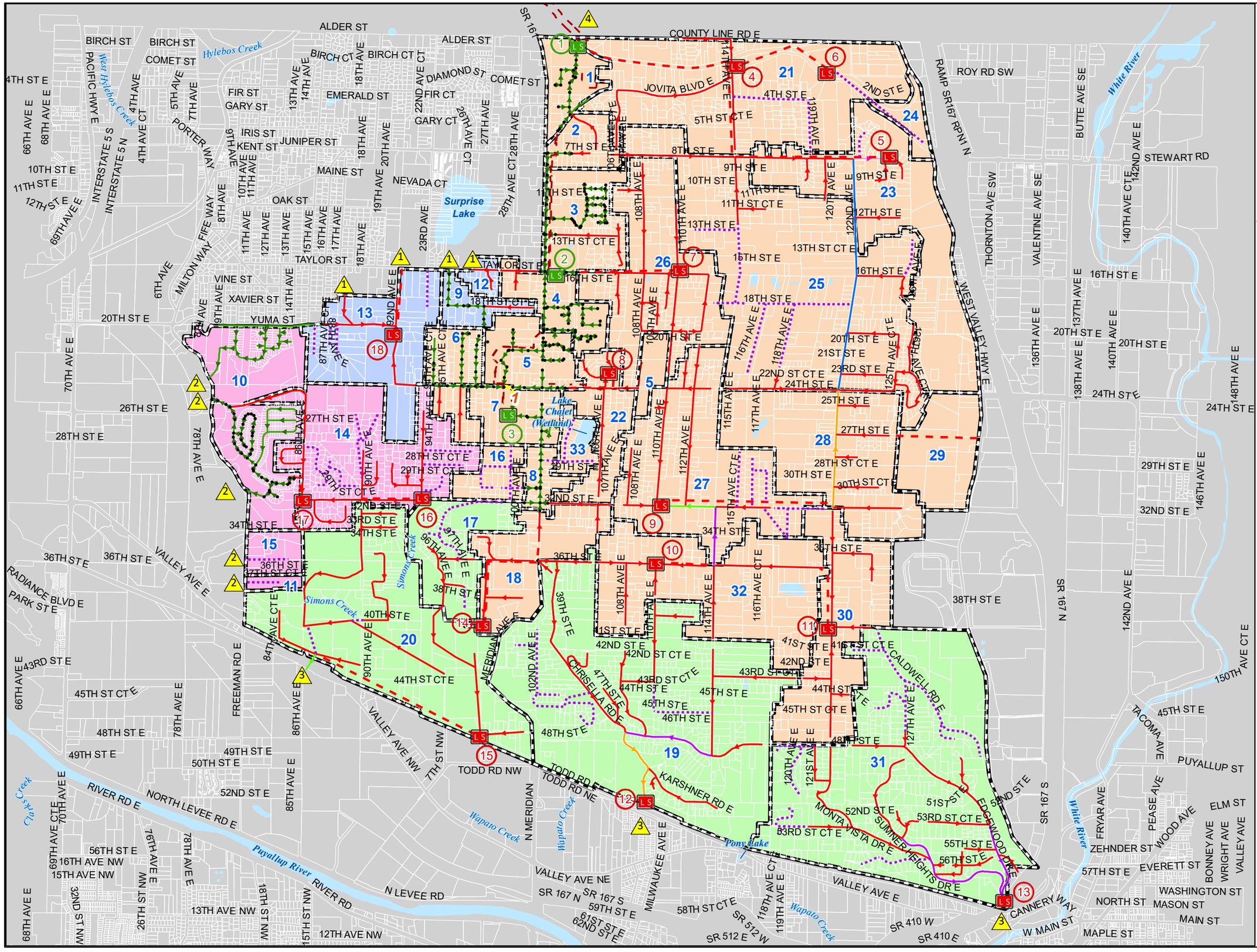
Future project that address the installation of a wastewater collection system identified in the plan are unlikely to increase demands on transportation, public services and utilities. There will be temporary localized increases in traffic due to construction activities but the impact will be temporary.

Proposed measures to reduce or respond to such demand(s) are:

The project specific SEPA checklists will identify measures that will be taken to minimize traffic impacts due to construction such as the designation of detour routes and restrictions on the closure of specific roads.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

Future projects that will address the installation of wastewater collection facilities for the entire city of Edgewood will be in compliance with local, state and federal laws for the conveyance of wastewater and protection of the environment. Construction of a collection system will help the City meet the requirements of the federal Clean Water Act and the State of Washington Department of Ecology 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.



LEGEND:

- Existing Lift Station
- Proposed Lift Station
- Existing Force Main
- Proposed Force Main
- Proposed Grinder Pumps and Small Diameter Force Main / Local Gravity Sewers and Small Lift Station

Existing Gravity Main

- Sufficient Capacity at Buildout
- Project No. Insufficient Capacity at Buildout

Proposed Gravity Main

- 8 Inch
- 10 Inch
- 12 Inch
- 15 inch
- 18 inch
- 21 inch
- Sewer Basins

Service Provider

- City of Fife
- LWSD
- Pierce County
- City of Puyallup

- Discharge to Pierce County
- Discharge to Fife
- Discharge to Puyallup
- Discharge to LWSD

0 2,000 4,000 Feet

N

SCALE 1 " = 2,000 '

CITY OF EDGEWOOD
GENERAL SEWER PLAN
FIGURE 6-1
Proposed Collection System and Sewer Service Provider

Gray & Osborne, Inc.

L:\EDGEWOOD\19614 General Sewer Plan\GIS\Working\Fig 6-1_0628.mxd

APPENDIX B

CAPACITY ANALYSIS

Appendix B

Capacity Analysis

Rezone Assumption:

all SF-2 that is not in pothole basins is converted to SF-5

all SF-3 that is not in pothole basins is converted to SF-5

Estimated Residential Capacity

Zoning Categories	2015 City Plan Gross Developable Acres in table 14 [2]	2015 City Plan Total Acres in table 7	Calculated % of Gross Developable Acre in Total Acre	Total Acres	Gross Developable Acres [3]	Total Constrained Acres [4]	Net Acres	Unavailable For Developments [5]	Adjusted Net Acres	Dwelling Units [6]	
SF-2	1,567	2,016	78%	1,099	854	335	519	149	370	740	in pothole basins
SF-3	1,152	2,311	50%	425	212	83	129	37	92	275	in pothole basins
SF-5	41	46	90%	2,654	2,377	933	1,445	415	1,029	5,147	
MR-1	100	101	99%	89	88	35	54	15	38	153	
MR-2	64	69	92%	59	55	21	33	10	24	189	
MUR [1](Residential)	70	76	92%	88	81	32	49	12	37	886	
C [1] (Residential)	23	33	71%	35	25	10	15	4	11	547	
TC [1] (Residential)	49	57	86%	60	52	20	31	8	24	1,133	
								Total Dwelling Units		**9,070**	
										5,575	2015 City Plan

Estimated Employment Capacity

Employee	2015 City Plan Gross Developable Acres in table 15 [2]	2015 City Plan Total Acres in table 7	Calculated % of Gross Developable Acre in Total Acre	Total Acres	Gross Developable Acres [3]	Future Capital Facilities [7]	Unavailable For Developments [5]	Adjusted Net Acres	Employment [6]	
MUR [1](Commercial)	47	50	92%	58	54	1.0	9.13	44	849	
C [1] (Commercial)	35	49	71%	53	38	0.7	6.66	30	584	
TC [1] (Commercial)	21	24	86%	26	22	0.4	4.60	17	332	
BP	22	32	70%	34	24	0.5	3.48	20	390	
Public [8]	NA	177	82%	200	164	3.1	82.16	79	881	New
I	14	17	82%	84	69	1.3	34.25	33	367	
							Total Employees		**3,404**	
									2,060	2015 City Plan

Comparison of Growth Targets and Available Capacity

	Existing	Growth Rate	2040 Target Based on growth rate	Available Capacity	Surplus	Equ. Pop	Equ. ERU	Growth
Dwelling Units	4,576	5.0%	12,749	9,070	897	31,385	13,646	5.62%
Population	10,525		29,322	20,861	2,064			
Employment	1,805	5.0%	5,029	3,404	180	1,042	453	5.44%

Notes

(1) Total dwelling units were estimated by multiplying the assumed density for each zone by the adjusted net acres. For mixed use zones,

60% of total land available in the Mixed Use Residential (MUR) zone is assumed as residential and

40% of the total land available in the Commercial(C) zone is assumed as residential,

70% of total land available in the Town Center (TC) zone is assumed as residential.

(2) Gross developable acres include all vacant, underdeveloped and redevelop able lands. Vacant lands are parcels without an established structure or land use, including agricultural and resource lands. Underdeveloped land includes large parcels within residential districts that have an existing single-family residence that may be further subdivided and existing single-family residences that are located within commercial districts. The redevelopable land category applies to multi-family development and commercially zoned properties containing buildings of economic viability. It should be noted that, for the purpose of the analysis conducted for the area-wide rezones, **the assessment of gross developable acres was made by City staff and the Pierce County Assessor-Treasurer Department was not consulted.**

(3) Specific development acres for each zoning is not available, calculated ratio of Gross Developable Acre to Total Acre derided from the 2015 City plan data is used in this analysis

(4) Constrained lands include a deduction for:

roads	9.80%
critical areas	18.43%
parks/open space	11%
Total	39.2%

(5) Unavailable for developments include a deduction for :

For Residential Capacity Calculation

Land unavailable for development	25.0%
Land in residentially zoned districts for non-residential uses:	5%
Total for residential zone	28.8%
Total for residential zone	25.0%

For Non-Residential Capacity Calculation ,use ratio derived from 2015 City Plan, table 15

	%	DEVELOPABLE GROSS ACRES	UNAVAILABLE FOR DEVELOPMENT
MUR	17%	46.6	7.88
C	18%	34.99	6.21
TC	21%	20.98	4.35
BP	14%	22.34	3.23
I	50%	13.94	6.97

(6)	Assumed zoning densities:									
		SF-2	2	units/acre						
		SF-3	3	units/acre						
		SF-5	5	units/acre						
		MR-1	4	units/acre						
		MR-2	8	units/acre						
		MUR (1)(Residential)	24	units/acre						
		C (1) (Residential)	48	units/acre						
		TC (1) (Residential)	48	units/acre						
		MUR (1)(Commercial)	19.37	employee/acre						
		C (1) (Commercial)	19.37	employee/acre						
		TC (1) (Commercial)	19.37	employee/acre						
		BP	19.37	employee/acre						
		I	11.15	employee/acre						
(7)	An average deduction for designated or required land needs for future public facilities is assumed.									
		1.90%								
(8)	The City has a Public (P) zoning designation that provides for moderate-scale and large-scale activities relating to the purpose of state and local governmental entities and semi-public institutions providing necessary public services. However, capacity is not calculated in 2015 plan. For this analysis, the public zoning capacity is based on the same assumption for commercial zone.									

APPENDIX C

SEWER ORDINANCES

16.01.120 On-site sewage disposal.

Approval of on-site sewage disposal systems from the Tacoma-Pierce County health department is required whenever public sanitary sewer systems are not available. Preliminary approval from the health department of any proposed on-site sewage systems shall accompany any application for a short subdivision, preliminary full subdivision or binding site plan. Approvals shall be based on the percolation test simulating high water conditions. The city engineer shall review the findings of the Tacoma-Pierce County health department for accuracy and not accept the health department's approval if it does not meet the city's requirements.

A. On-site sewage disposal systems for existing lots shall be located on the lot(s) they are intended to serve except as authorized under EMC 16.01.125.

B. Community on-site septic systems compliant with the Tacoma-Pierce County health department (TPCHD) regulations as set forth within the most current version of the TPCHD environmental health code are permissible. (Ord. 14-415 § 4 (Exh. C); Ord. 06-269 § 2 (Exh. A)).

16.01.125 Exceptions – On-site sewage disposal.

An existing on-site sanitary "private disposal" system may be approved as an off-site sewage disposal system when such approval, as part of a subdivision application review, (A) would not adversely affect the public interest, and (B) would provide for greater compliance with the provisions of the subdivision code overall. The approval of an exception under this section must be noted in the findings of a formal written decision or staff report conditions and subject to final approval by the city. Any off-site sewage system must comply with the Tacoma-Pierce County health department requirements for properly certifying and recording all easements related to the off-site system prior to any subdivision or short subdivision final approval. (Ord. 12-385 § 2).

Chapter 11.20
SANITARY SEWER UTILITY

Sections:

11.20.010 Utility created.

11.20.020 Fund created.

11.20.030 Authority.

11.20.040 Sewer utility creation policies.

11.20.010 Utility created.

Pursuant to the authority contained in RCW 35.21.210 and 35.67.030, the city of Edgewood does hereby establish a sanitary sewer utility. (Ord. 06-271 § 1).

11.20.020 Fund created.

There is hereby created a sewer utility operating fund. All fees and charges related to the operation of the sewer utility shall be placed into this fund. (Ord. 06-271 § 1).

11.20.030 Authority.

The sewer utility shall be under the direction and control of the mayor. The mayor is authorized to delegate responsibilities for administration of the sanitary sewer utility to such other city employees as the mayor may from time to time direct. (Ord. 15-447 § 1 (Exh. A); Ord. 06-271 § 1).

11.20.040 Sewer utility creation policies.

Policies guiding the creation of the sewer utility are hereby established as follows:

A. Growth and development shall be focused along the Meridian corridor. To help meet this policy, “sewer availability” shall mean, for those areas in Phase I (See Figure ES-1, general sewer plan), sewer is available from the date of the city council adoption of the general sewer plan. For those areas in Phase II, sewer is available 20 years after the date of the city council adoption of the general sewer plan. For those areas in Phase III, sewer service is available 50 years after the date of the city council adoption of the general sewer plan.

B. System extensions shall be paid for by the benefited parties. May be done through developer extension or formation of a local improvement district.

1. Developer Extensions.

    a. Shall be paid for by the developer.

b. Are subject to approval by the city council and require execution of a system extension agreement with the city.

c. Reimbursement from other properties that later connect to and benefit from such extensions and/or improvements may be made at the sole discretion of the city, pursuant to Chapter 35.91 RCW and Chapter 11.36 EMC.

2. Local Improvement Districts.

a. The initial 50 percent of estimated LID preformation costs shall be advanced by the proponents of the project. The remaining 50 percent of LID preformation costs shall be advanced by the city. The source of funds shall be the sewer utility fund via an interfund loan from the general fund.

b. The proponents shall provide a petition requesting that the city council initiate the LID process by resolution.

c. To assess support of the project, the petition must be signed by the owners of property aggregating a majority of the area within the proposed district.

d. The formation of a local improvement district shall be pursuant to Chapters 35.43 through 35.54 RCW and subject to approval by the city council.

C. Sewer System Improvements Made by the City.

1. When the city elects to make general improvements to the city's sanitary sewer system, such improvements shall be paid for with connection and/or rate charges collected from users of the system.

2. When the city elects to make improvements to the city's sanitary sewer system that create a special benefit to properties, the city shall require the owners of those properties to pay for such improvements as a part of and in addition to normal connection charges and/or rate surcharges.

D. Connection Required.

1. Property Adjacent to a Developer Extension. When a sanitary sewer is extended, by a developer, to or past property not owned by said developer, the owner of such property shall not be required to connect to the sewer so extended.

2. Property within an LID. Buildings on property within a local improvement district are required to be connected to the city's sewer system and the property owner shall be required to pay all charges associated with such connection.

3. Health Department Exception. An existing structure on property with sewer availability, fronted by the city's sanitary sewer system, whose on-site sewage disposal system has failed and cannot be acceptably corrected or repaired, as determined by the Tacoma-Pierce County health department, shall be required to connect to said sewer system and the property owner shall be required to pay all charges associated with such connection.

E. Side Sewers – Responsibility to Construct. Except as otherwise provided by this title, a new side sewer, from the right-of-way line or easement to the sewer main or submain, shall be constructed and paid for by the owner of the property on which the structure is served by the side sewer.

F. Private Disposal System.

1. Residential structures may connect to a private sewage disposal system; provided, that both of the following conditions must be met:

a. A valid permit from the Tacoma-Pierce County health department is obtained; and

b. The property is not located within the boundaries of a local improvement district.

2. A new commercial, industrial, institutional or multifamily structure may connect to a private sewage disposal system; provided, that all of the following conditions must be met:

a. A valid permit from the Tacoma-Pierce County health department is obtained;

b. The property is not located within the boundaries of a local improvement district; and

c. The property owner must agree in writing, as a condition to the issuance of the building permit, to disconnect from and remove said private sewage disposal system and connect to the city sanitary sewer system when it becomes available. (Ord. 19-542 § 3; Ord. 10-333 § 2; Ord. 06-271 § 1).

Chapter 11.30
SEWER SYSTEM GENERAL PROVISIONS

Sections:

11.30.010 Purpose.

11.30.020 Definitions.

11.30.030 Authority.

11.30.040 General sewer plan.

11.30.050 Levels of service.

11.30.060 Design and construction standards.

11.30.070 Sewer availability.

11.30.080 Sewer system capacity, record, and reservation.

11.30.010 Purpose.

This title sets forth the regulations under which the city of Edgewood sewer utility is managed and operated. It is intended to enable the director of public works to protect the public health in conformity with all applicable local, state and federal laws relating thereto. The objectives of this chapter are to:

A. Provide for orderly planning of the utility.

B. Develop and adopt appropriate levels of service.

C. Develop standards for design and construction that will result in low system operation and maintenance costs and a safe and healthy work environment.

D. Provide for a variety of funding options for system extensions so that sewer service is able to expand within the planning framework, and all benefited properties pay their appropriate shares.

E. Regulate new sewer system construction to be uniform and of high quality.

F. Establish connection policies and procedures and the basis for connection charges and manner of collection.

G. Regulate and control, at the source, the quality of wastewater that is discharged from the Edgewood sewer system to the receiving sewer system(s) so that it meets the regulations governing such sewer system(s).

H. Provide for the use and regulation of septic tanks where appropriate.

I. Provide for the establishment of equitable sewer rates and set forth billing procedures.

J. Establish enforcement measures. (Ord. 06-271 § 1).

11.30.020 Definitions.

Definitions for words used in this title, except for the referenced sections of the Tacoma Municipal Code contained in Chapter 11.50 EMC, shall be found in this section; the Orange Book; Glossary, Water and Wastewater Control Engineering, Third Edition, American Public Health Association, 1980; or Webster's New International Dictionary of the English Language Unabridged, Merriam-Webster Inc., 2002, and succeeding editions; with precedence in that order. Words whose context indicates a definition other than that given below are defined by their context.

Definitions for words used in the Tacoma Municipal Code are found in TMC 12.08.010.

The following words and phrases shall be defined as follows:

"Acceptance" means formal action, taken by resolution of the council, accepting improvements, made pursuant to a contract, for ownership and maintenance by the city.

"Biochemical oxygen demand (BOD)" means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five days at 20 degrees Celsius, expressed in parts per million or milligrams per liter (mg/l) by weight, using "Standard Methods," Seventeenth Edition, together with amendments thereto, and subsequent editions.

"Building" means a roofed and walled structure, both permanent and temporary, including appurtenances, such as open stairs, patios, and decks.

"Building code" means the International Building Code, 2003 Edition, International Code Council, as amended by the state of Washington, and amended and adopted by the city of Edgewood, as may be further amended, and as may be replaced by succeeding building codes.

"Building sewer" means that part of the horizontal piping of a private sewer system which extends from the end of the building drain and which receives the wastewater from the building drain and conveys it to the side sewer or private disposal system and is regulated by the building department and plumbing code.

"CIP" means capital improvement plan.

"City" means the city of Edgewood.

“Completion date” means the day all the work specified in the contract is completed and all the obligations of the contractor under the contract are fulfilled by the contractor. All documentation required by the contract and required by law must be furnished by the contractor before establishment of this date.

“Comprehensive plan” means the city of Edgewood comprehensive plan as first adopted by the city council on June 12, 2001, as amended on July 9, 2002, and as may be further amended.

“Connection” means the physical connection of the building sewer to the side sewer. In the event a portion of the building sewer has been constructed with the side sewer, connection shall be deemed to occur when the two separate portions of the building sewer are connected.

“Connection right” means the right of a property that has fulfilled all the requirements for connection to the city’s sewer system, as set forth in this title, to connect to that sewer system, subject to the conditions set forth in the connection permit and agreement.

“Conveyance” means, primarily, the transport of sewage from one place to another with few or no connections, as in a sewer trunk or pump station force main.

“Council” means the council of the city of Edgewood.

“Cross-Connection Control Manual” means the Cross-Connection Control Manual, Accepted Procedure and Practice, Sixth Edition, published by the Pacific Northwest Section of the American Water Works Association, together with amendments thereto, and subsequent editions.

“Design and Construction Standards” means the book of design and construction standards of the city of Edgewood for public works projects and system extensions by developers as set forth in EMC 11.30.060.

“Development” means construction of a building or other structure and site improvements, street and utility improvements, and subdivision of property.

“Director” means the city of Edgewood director of public works or authorized representative.

“DOE” means the Washington State Department of Ecology.

“EMC” means the Edgewood Municipal Code.

“Equivalent residential unit (ERU)” means one single-family house, apartment unit, condominium unit, or townhouse unit. For nonresidential connections, an ERU is 250 gallons per day of wastewater, or one-half pound per day of total suspended solids, or one-half pound per day of biochemical oxygen demand (BOD).

The determination of the number of ERUs required for nonresidential buildings shall be made pursuant to EMC

11.40.070.

“Frontage” means the side of the property, adjacent to the right-of-way or easement, containing the sewer or proposed sewer.

Fronted. A property is fronted by a sewer when 10 feet or more of the right-of-way or easement containing a sewer is adjacent to a property line of that property and the sewer contained therein extends 10 feet or more past the nearest property line or extension thereof. If the right-of-way or easement ends at the subject property line and the sewer ends within 50 feet of said property line and is intended to never be extended past that point, the property shall be considered to be fronted by the sewer.

“Fully fronted” means when a right-of-way or easement containing a city sewer is adjacent to and continuous along one or more full sides of a property.

“GSP” means the general sewer plan of the city of Edgewood.

“Human occupation” means the use or intent of use of a building that includes part-time or full-time residency, employment, sports, entertainment, and commercial or other activity that requires the presence of plumbing fixtures as determined by the plumbing code.

“IBC” means the 2003 International Building Code together with amendments thereto, and subsequent editions; see definition of “building code” in this section.

“Improvements” means construction intended to or having the effect of increasing the value of real or personal property.

“LID” means a local improvement district, a group of properties specially benefited by the construction of a local improvement, paid for, in whole or in part, by special assessments levied against said group of properties, established and authorized by the local legislative authority.

“Local improvement” means an improvement or improvements owned or operated by a public corporation (RCW 35.43.010).

“Mayor” means the city of Edgewood mayor or authorized representative.

“Orange Book” means Criteria for Sewage Works Design, Washington State Department of Ecology, December 1998, together with amendments thereto, and subsequent editions.

“Owner” means the owner of the subject real property. If the owner is a corporation, partnership or an indisposed individual, proof of authority to sign on behalf of the owner shall be required. Such proof may include corporate bylaws, a signed and dated resolution of the board of directors, partnership agreement, power of attorney, or

other written legal document acceptable to the city.

“Phase I property” means a property within the Phase I boundaries as defined in the GSP. Phase II and Phase III properties are, likewise, defined in the GSP.

“Physical completion date” means the day all of the work is physically completed on the project. All documentation required by the contract and required by law does not necessarily need to be furnished by the contractor by this date.

“Plumbing code” means the Uniform Plumbing Code, 2000 Edition, IAPMO, as amended by the state of Washington and amended and adopted by the city of Edgewood, as may be further amended, and as may be replaced by succeeding plumbing codes.

“Private disposal system” means a privately owned septic tank with drain field or other on-site wastewater treatment and disposal system.

“RCW” means the Revised Code of Washington.

“Sewage” means wastewater that contains human waste.

“Sewer,” also called “sanitary sewer,” means pipes and associated structures that exclusively carry wastewater.

“Sewer availability” means the condition of a property of being permitted to connect to the city’s sewer system. See EMC 11.30.070.

“Sewer lateral” means a sewer that has no other city sewers discharging into it.

“Sewer main or trunk” means a sewer that receives wastewater from one or more submains.

“Sewer service area” means that area lying within the corporate boundaries of the city of Edgewood designated for city sewer service pursuant to a comprehensive sewerage plan, approved in accordance with Chapters 36.93 and 36.94 RCW.

“Sewer submain” means a sewer that receives wastewater from one or more laterals.

“Sewer system,” also called “sanitary sewer system,” means the aggregate of all the parts of a wastewater collection and treatment system including sewers, appurtenances, pump stations and treatment facilities.

“Sewer utility” means the city of Edgewood sanitary sewer utility.

“Side sewer” means that sewer, located within a city right-of-way or easement, between the city’s sewer main and the right-of-way or easement line, connecting to the building sewer and regulated by the public works

department and this title.

“Special event” means a commercial, entertainment, or sport activity or community service or civic event, held in or out-of-doors, on private or public property, or on public rights-of-way.

“Standard Specifications” means the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation, 2006, as amended, and replaced by succeeding editions.

“Storm drain” means pipes and associated structures that carry surface water and exclude wastewater.

“Structure” means something constructed, including, but not limited to, buildings, retaining walls, rockeries, sidewalks, patios, decks, constructed landscaping features, sheds, fences, and driveways.

“Substantial completion date” means the day the director determines the improvements are fully functional from both operational and safety standpoints or that the city has full and unrestricted use and benefit of the facilities both from the operational and safety standpoint, and only minor incidental work, removal of temporary substitute facilities, correction, or repair remains for the physical completion of the total contract.

“System extension” means capital improvements to the sewer system, including, but not limited to, extensions of sewer lines, and the construction of manholes, pump stations, other appurtenances and controls.

“Temporary portable toilet” means a self-contained, noncaustic chemical toilet equipped with a waste-receiving, chemical-holding container, housed in its own shelter.

“TESC” means temporary erosion and sedimentation control.

“TMC” means the Tacoma Municipal Code.

“ULID” means utility local improvement district, a group of properties specially benefited by the construction of a local water, sewer, or off-street parking facility improvement, financed by revenue bonds, paid for in whole or in part by revenues of the utility, established and authorized by the local legislative authority.

“WAC” means the Washington Administrative Code.

“Wastewater” means water that has been used for domestic or industrial purposes and contains or may contain suspended or dissolved solids from such use.

“Work” means the provision of all labor, materials, tools, equipment, and everything needed to successfully complete a project according to the contract. (Ord. 15-447 § 1 (Exh. A); Ord. 10-333 § 8; Ord. 06-271 § 1).

11.30.030 Authority.

The city of Edgewood sanitary sewer utility is established by this title in accordance with RCW 35.21.210 and

35.67.030. Except as otherwise provided herein, the director of public works of the city of Edgewood shall administer, implement and enforce the provisions of this title.

A. Applicability. This title shall apply to all persons and properties within the city of Edgewood and any person using, discharging to, or damaging the city's sewer system inside or outside the city.

B. Connection Charges and Rates. The authority to set and collect connection charges and monthly rates shall be in accordance with RCW 35.67.190, 35.92.020 and 35.92.025 and other applicable laws and regulations.

C. Enforcement. The authority to lien property for delinquent and unpaid rates and other charges for sewer service shall be in accordance with RCW 35.67.200. The authority to issue citations and levy penalties for civil infractions shall be in accordance with Chapter 1.10 EMC, General Penalty. The authority to adopt ordinances and impose penalties for civil and criminal infractions thereof shall be in accordance with RCW 35A.11.020.

D. Discharge Permits. The jurisdiction that operates the wastewater treatment plant treating the city's sewage shall be authorized to regulate and enforce the provisions of Chapter 11.50 EMC, and, pursuant to RCW 90.48.160, issue discharge permits within the city to operators of industrial and commercial operations, monitor discharges, inspect said industrial and commercial operations, and enforce discharge regulations promulgated by said jurisdiction.

E. Inspection. The city, its inspectors, and consultants shall have free access to and authority to observe, inspect, gather samples, and perform tests related to all city sewer system construction or other activity or use located on city property, the public rights-of-way, and city easements within and outside the city.

Construction and all other activity or use, located on private property, authorized or regulated under this title shall be conditioned upon the right of the city, its inspectors, and consultants to enter upon such private property and authority to observe, inspect, gather samples, and perform tests related to all such construction or other activity or use.

F. Stop Work. The city, its inspectors, and authorized consultants shall have authority to stop work authorized or regulated under this title when such inspectors or consultants shall find that stopping the work is necessary to ensure compliance with approved plans, specifications, Design and Construction Standards, and Standard Specifications.

G. Uncover. The city, its inspectors, and authorized consultants shall have authority to require that improvements or parts thereof, authorized or regulated under this title, must be uncovered or dug up and/or removed for inspection when:

1. Such improvements require inspection; and

2. No inspection has been made by the city; and

3. Inadequate notice has been given by the owner or contractor requesting the inspection.

H. Remove. The city, its inspectors, and authorized consultants shall have authority to require that improvements or parts thereof, authorized or regulated under this title, that do not comply with approved plans, specifications, Design and Construction Standards, and Standard Specifications be removed from the project and be replaced. (Ord. 06-271 § 1).

11.30.040 General sewer plan.

The council has adopted by ordinance (RCW 35.67.030) a general sewer plan (GSP) that sets the boundaries of the city's sewer service area and guides the sewer utility as to the location and size of sewer mains, trunks, submains and pump stations. The GSP shall set forth a detailed capital improvement plan (CIP) for 10 years and a general CIP for 20 years. The most recent edition of the Design and Construction Standards shall be included in the GSP by reference. DOE approval of the GSP is required subject to RCW 90.48.110(3), WAC 173-240-030, 173-240-040, and 173-240-050. The GSP is a stand-alone technical plan, referenced here for consistency with the comprehensive plan, and maintained by the public works director. The general sewer plan will be updated in accordance with RCW 35.67.030 and, when required, modifications must be approved by the Department of Ecology. The planning commission shall provide recommendations on comprehensive plan policy updates consistent with the general sewer plan and city of Edgewood Municipal Code as needed for consistency. The GSP shall include those elements described in Section G1-2.4 of the Orange Book and WAC 173-240-050. (Ord. 08-310 § 7; Ord. 06-271 § 1).

11.30.050 Levels of service.

The director shall prepare and the council shall adopt levels of service for the operation and maintenance of the sewer utility. The base level of service shall be in compliance with Washington State law and DOE regulations. The adopted levels of service shall be used to set staffing requirements and budgets, and to evaluate the performance of the sewer utility. (Ord. 06-271 § 1).

11.30.060 Design and construction standards.

The director shall prepare and the council shall adopt by resolution design and construction standards for the sewer utility entitled Design and Construction Standards, which shall provide for administrative changes and variances. (Ord. 06-271 § 1).

11.30.070 Sewer availability.

A. Sewer availability is defined in EMC 11.30.020. The initial capacity of the sewer system, as determined by the method in EMC 11.30.080, is adequate only for build-out of Phase I properties. Expansion of sewer system capacity will be required before properties within Phase II will be provided sewer availability. Sewer availability for Phase II shall not occur until 20 years following adoption of the GSP. Sewer availability for Phase III properties shall not occur until 50 years following adoption of the GSP.

B. The city will not provide sewer service outside its municipal boundary. (Ord. 06-271 § 1).

11.30.080 Sewer system capacity, record, and reservation.

A. The capacity of the city's sewer system shall be determined as set forth in interlocal agreement(s) between the city and other jurisdictions for wastewater conveyance and treatment or by the design and construction of a wastewater treatment plant. The capacity shall be established in ERUs. The value of an ERU is as set forth in EMC 11.30.020. The sewer utility shall establish flow meters at all city discharge points and, from time to time, shall evaluate the correlation between the ERUs issued and the actual quality and quantity of sewage discharged. The value of an ERU and the number of remaining ERUs shall be adjusted, as necessary, to reflect the actual values determined from said evaluation, by ordinance of the council and approval by the DOE, if required.

B. The director shall keep a record of the sewer system capacity, and as connection permits are issued shall subtract the number of ERUs assigned to each permit and keep a balance of available ERUs.

C. Sewer system capacity shall be reserved for properties within LIDs when the conditions set forth in subsection (F) of this section have been met. The director shall determine the amount and timing of capacity that can be reserved based on the capacity available at the time of the request, the scheduling of construction for expansion of capacity, and the amount of capacity demand in current competing requests for capacity.

D. Sewer system capacity may be reserved for property whose owner is a contributing party to a system extension agreement when the conditions set forth in subsection (F) of this section have been met.

E. Sewer system capacity may be reserved for new building construction, redevelopment, or changed use, when the conditions set forth in subsection (F) of this section have been met.

F. Conditions for Sewer System Capacity Reservation.

1. The owner enters into a sewer system capacity reservation agreement with the city; and

2. A reservation charge, equal to one-half the current connection charge, has been paid; and

3. The project application has been deemed to be complete; or

4. If the property's owner is a contributing party to a system extension agreement, the project application will be deemed complete, for the purposes of sewer system capacity, upon approval of the system extension agreement by the council. The owner may reserve system capacity, up to his predetermined share of system capacity, for that system extension project.

G. System capacity may be so reserved for a period of five years, at which time the reservation will be extinguished, unless the connection charge shall have been paid prior to the five-year anniversary date of the

sewer system capacity agreement. The connection charge shall be that which is in effect at the time of such payment, less the reservation charge previously paid.

H. Upon the reservation being so extinguished, the reservation charges, paid to reserve sewer system capacity, shall be forfeited and retained by the city.

I. As consideration for continued reservation of sewer system capacity, monthly reservation charges equal to monthly sewer rates for that capacity shall commence upon full payment of the connection charge, and continue until a physical connection is actually made, or the reserved connection is relinquished by action of the owner.

J. When all available ERUs have been assigned to connections or reserved, no additional connection permits or reservations shall be issued. (Ord. 06-271 § 1).

Chapter 11.35
SEWER SYSTEM EXTENSIONS

Sections:

11.35.010 Design.

11.35.020 Separation from water lines.

11.35.030 City-owned sewage pump stations.

11.35.040 Cross-connection control.

11.35.050 Plans and specifications.

11.35.060 Easements.

11.35.070 Construction.

11.35.080 City projects.

11.35.090 System extension agreements.

11.35.100 *Repealed.*

11.35.110 *Repealed.*

11.35.010 Design.

Extensions to the sewer system shall be made in conformance with the GSP.

All sewer system extensions shall be designed by a civil engineer licensed to practice engineering in the state of Washington. The design shall be in accordance with the Design and Construction Standards established pursuant to EMC 11.30.060, this title, the GSP, the Orange Book, and the Standard Specifications.

In general, sewers shall be located below all other utilities in rights-of-way to provide the greatest opportunity for adjacent properties to connect thereto by gravity building sewer and side sewer, and minimize the opportunity for contaminating other utilities from leaks. Consideration for adequate cover and separation, potential sizing for water and storm drains, required slopes for side sewers, and adequate clearance for workers results in a minimum depth for gravity sewers, located in public rights-of-way, of 10 feet as measured from finished grade to sewer crown. This necessary depth shall be maintained unless the director finds, in writing, that after taking into consideration all the above, a shallower depth is justified.

Manhole lids, located in the traveled way, shall be placed at lane lines or in the center of left-turn lanes. (Ord.

06-271 § 1).

11.35.020 Separation from water lines.

A minimum horizontal separation of 10 feet between sanitary sewers and any potable water lines, and a minimum vertical separation of 18 inches between the bottom of the water line and the crown of the sewer, shall be maintained. The distances shall be measured outside edge to outside edge.

When local conditions prevent the separations described above, the director may approve an alternative; provided, that no such alternative shall be less restrictive than that provided for in the Orange Book C1-9.1. (Ord. 06-271 § 1).

11.35.030 City-owned sewage pump stations.

Sewage pump stations shall be prohibited unless the director finds there is no reasonable alternative. Pump stations shall be designed and constructed in conformance with the Design and Construction Standards, this title, the Orange Book, and the Standard Specifications. Pump stations shall be designed and constructed to minimize operation and maintenance costs and employee exposure to health and safety hazards. Permanent on-site electric generators, with power generation adequate for full function of the pump station, shall be installed at every city sewage pump station. A force main shall discharge into a manhole and not directly into another force main or gravity sewer pipe. (Ord. 06-271 § 1).

11.35.040 Cross-connection control.

Sewage pump stations and all other sewer system elements with water service shall be required to meet the requirements of the water purveyor, the Cross-Connection Control Manual, and WAC 246-290-490. (Ord. 06-271 § 1).

11.35.050 Plans and specifications.

The plans and specifications shall be prepared in accordance with the Design and Construction Standards, this title, the GSP, the Orange Book, and the Standard Specifications. (Ord. 06-271 § 1).

11.35.060 Easements.

All easements shall be in a form as provided by the city or as approved by the city prior to negotiation, must be reviewed and approved prior to execution, and shall require written acceptance by the city prior to recording. The director may, in his/her sole discretion, by written approval waive any of the easement requirements set forth in this section upon the director's determination that such waiver would not adversely affect the city's interests.

A. Permanent Easements.

1. The purpose(s) for the easement and the permitted activities shall be stated.

2. All sewers shall be located in dedicated rights-of-way or easements. The minimum width of an easement shall be 20 feet plus two feet for every foot of sewer depth over 10 feet, unless otherwise approved by the

director.

3. All-weather access improvements, capable of being negotiated by a fully loaded vactor truck (H-20 load), shall be provided to every manhole, air-vac relief station, pigging port or other appurtenance requiring maintenance access.

4. City access to and across the easement shall be unrestricted. Buildings, trees, parked vehicles, and all other structures, except as otherwise provided herein, shall be prohibited within easements. Private driveways may be located within city easements. In the event the director determines that private fencing across an easement is necessary and reasonable, such fencing may be permitted; provided, that double-leaf gates with a nominal width of 20 feet are provided at fence crossings. The owner may install only landscaping improvements that have been approved by the city.

5. Easements shall be maintained by the city to city standards. Landscaping improvements installed by the owner shall be maintained by the owner. The city may cut back or remove landscaping improvements, as it deems necessary. The city shall have no obligation to repair or replace landscaping improvements that have been damaged or removed.

6. The city shall have the right to issue permits to third parties to operate and maintain side sewers within the easement.

7. Pump stations shall be located on property that has been deeded to the city unless otherwise approved by the director. Easements for pump stations shall be unrestricted and exclusive.

B. Temporary Easements. Temporary easements obtained for construction, staging, storage, or temporary access shall:

1. Identify use or uses;

2. Set the term and provide for extensions thereto;

3. Contain specific conditions for restoration and a one-year warranty for such restoration;

4. Contain provision for the owner to inspect the condition of the easement property following completion of restoration; and

5. Provide for the owner's release following such inspection. (Ord. 09-317 § 2; Ord. 06-271 § 1).

11.35.070 Construction.

All construction shall be in conformance with the Design and Construction Standards, this title, the GSP, the Orange Book, and the Standard Specifications. Contractors shall have a current and valid state of Washington

contractor's license and a city of Edgewood business license. Construction shall not commence until a preconstruction conference, meeting the requirements set forth in the Design and Construction Standards, has occurred. (Ord. 06-271 § 1).

11.35.080 City projects.

Nonemergency sewer system extension projects constructed with city funds shall first be identified in the GSP and included in the city's CIP. Such projects shall be paid for with connection and/or rate charges from users of the sewer system together with any grants and loans that may be obtained.

All city sewer system extension projects must meet the bidding requirements of the city's purchasing policy and RCW 35.23.352. All city sewer system extension projects are public works projects and are subject to prevailing wage requirements as set forth in Standard Specifications 1-07.9.

The following are additional requirements of all city sewer system extension projects:

A. Contract Bond. The contractor shall provide the city with a contract bond in conformance with Standard Specifications 1-03.4 as amended by Chapter 1-99. The contract bond shall remain in full force and effect until released in writing by the city.

B. Insurance. The contractor shall obtain and maintain in full force and effect from the date of approval of the contract to the date of city acceptance, public liability and property damage insurance in accordance with Standard Specifications, Section 1-07.18, as amended by Chapter 1-99. A certificate of insurance shall be supplied to the city that shall include all subcontractors, the city, and engineer as additional insured.

C. Indemnification. The contractor shall defend, indemnify and hold the city harmless from all claims, demands, losses, and liabilities to or by the contractor or third parties arising from, related to, or connected with services performed, or to be performed, under or associated with the contract, the contractor, or other third parties, regardless of whether such claim or suit alleges or another entity contends that the contractor or third party was independently or concurrently negligent. Said defense and indemnity obligations shall arise specifically, but not exclusively, with respect to any claim or suit arising out of circumstances where any employee or agent of the contractor suffers personal injuries during the performance of the work by the contractor or third parties.

D. Retainage. Five percent of progress payments shall be retained in accordance with Standard Specifications 1-9.9(1).

E. Inspection. Inspection and control of the work shall be as set forth in Chapter 1-05, Standard Specifications, as amended by Chapter 1-99.

F. Substantial Completion. The director shall establish the substantial completion date as may be required by the contract.

G. Physical Completion. The contractor shall notify the city and request final inspection in writing when the contractor considers the work, including final cleanup and all extra work, physically complete. The city's inspector will prepare a punch list of required corrections that must be completed prior to final inspection. If the inspector finds that the work has not been completed, the contractor will be so notified and no punch list will be prepared until the work is complete. When all punch list corrections have been made, the city's inspector will make the final inspection and establish a written date of completion.

All documentation required by the project and required by law does not necessarily need to be furnished by the contractor for physical completion.

H. Completion. Following physical completion and receipt of all required documentation, the director shall make a dated finding of completion confirming that all the following have been received by the director:

1. Final contract voucher as described in Standard Specifications 1-09.9.

2. Complete test and video records demonstrating acceptable results.

3. Final inspection report, completed and signed by the inspector.

4. Complete and legible as-built information recorded in indelible pencil or ink on a fresh set of city-approved improvement plans. The content and form of such recorded as-built information is subject to approval by the director.

5. Five complete sets of manufacturer's operation and maintenance manuals for all mechanical equipment.

6. Copies of all temporary easement restoration releases.

7. Copies of all Labor and Industries approved affidavits of prevailing wages paid forms in conformance with Standard Specifications 1-07.9(5) for the contractor and all subcontractors.

8. Washington State Department of Revenue certificate showing that all contract-related taxes have been paid (RCW 60.28.050).

9. A copy of the Department of Labor and Industries release with respect to the payment of industrial insurance and medical aid premiums (see Standard Specifications 1-07.10).

10. A certificate of payment, signed by the contractor and notarized, that all project employees, suppliers and subcontractors have been paid in full and that the project is free of liens. In the event that a lien or liens have been filed, copies of the lien releases shall be attached to the certificate of payment.

11. The contractor shall provide a written warranty guaranteeing all equipment, materials, and workmanship

to be free of defects for a period of two years from the date of completion.

I. Maintenance Bond. Following completion of work and prior to city acceptance of the system extension, the contractor shall provide the city with a maintenance bond warranting the system extension improvements as set forth in the Design and Construction Standards. The amount of the bond shall be 20 percent of the cost of construction, but not less than $5,000.

The maintenance bond shall also guarantee that the surety shall indemnify, defend and protect the city against any claim of direct or indirect loss resulting from the failure of the contractor or any of the employees, contractors, subcontractors, or lower tier subcontractors of the contractor to pay all laborers, mechanics, contractors, subcontractors, material person, or any person who provides labor, supplies, or provisions for carrying out the work.

The maintenance bond shall remain in effect until released by the city. Two years following acceptance, the city will inspect the improvements, upon request by the contractor, and issue a correction notice, as required. Following acceptable correction of all deficiencies, if any, the city will release the maintenance bond in writing.

J. Acceptance. Acceptance of the improvements shall be by resolution of the council. The dated finding of completion shall be attached to said resolution, together with a copy of the maintenance bond.

K. Record Drawings. The director shall cause the design engineer to prepare record drawings which shall consist of a compilation of all the as-built information from the contractor and the inspector on one set of Mylar plans together with an electronic copy of medium and format, as defined in the Design and Construction Standards.

L. Retainage Release. Retainage shall be released 60 days after the date of completion. (Ord. 06-271 § 1).

11.35.090 System extension agreements.

The city may contract with owners of real estate in the city for the construction of sewer facilities as provided in Chapter 35.91 RCW. Permission to extend the city's sewer system is subject to council approval. The system extension agreement shall be subject to all of the following:

A. Application and Contract. The application and contract shall contain, at a minimum, all of the following:

1. Name, address and telephone number of the owner.

2. Legal description of owner's property as well as the street address, if any, and the tax account number.

3. The project location shall be given in words and shown on a map.

4. The project description in words.

5. Duties of the owner.

6. Duties of the city.

7. Sewer capacity reservation.

8. The term of the system extension agreement.

9. Conditions of acceptance.

10. Signatures of the owner and mayor.

11. Reference to the council resolution authorizing the contract.

12. Notary forms.

13. Attachments:

a. Legal description(s).

b. The plans and specifications.

c. Copies of fully executed third party easements.

d. A completed calculation sheet for fees and charges.

e. Proof of signature authority.

f. A reimbursement agreement, if approved by the council.

B. Owner. Only an owner of real estate within the city may enter into a system extension agreement with the city.

C. Plans and Specifications. The plans and specifications, as approved by the director, shall be a part of and incorporated into the system extension agreement by reference. Plans and specifications may be prepared and submitted for approval after the system extension agreement is approved.

D. Easements. When sewer system improvements are planned on or across property of the owner, and outside of dedicated rights-of-way or other city sewer easements, the owner shall grant easements, meeting the requirements of EMC 11.35.060, for such improvements in favor of the city.

E. Third Party Easements. When sewer system improvements are planned on or across property other than that

of the owner, and outside of dedicated rights-of-way or other city sewer easements, the owner shall obtain easements for such improvements in favor of the city. Such easements shall meet the requirements set forth in EMC 11.35.060 and be obtained prior to city execution of the agreement.

F. Term. The term for a system extension agreement shall be one year. The term may be extended for one additional year upon written application by the owner. Further extensions of six months each may be granted by the director upon a showing of reasonable progress of the project.

G. Sewer System Capacity. A system extension agreement will be approved only if there is adequate reserve capacity available for the project. Sewer system capacity will be reserved, as set forth in EMC 11.30.080, only upon a complete project application. The project application will be deemed complete for the purposes of sewer system capacity, relative to a system extension, upon approval of the system extension agreement by the council.

H. Fees and Charges. The amount of all fees and charges for system extensions shall be set by resolution of the council. The following fees and charges shall be paid to the city prior to approval of the system extension agreement:

1. Application Fee. The application fee shall cover the cost of administrative processing.

2. Plan Check Costs. The owner shall be required to pay the full costs of the city's consultant plus 10 percent for administration costs. The initial plan check costs shall be the estimated consultant costs plus 10 percent. In the event the plan check is performed by city staff, the plan check costs shall be the fee set by the council.

3. Inspection Costs. The owner shall be required to pay the full costs of the city's consultant plus 10 percent for administration costs. The initial inspection deposit shall be the estimated consultant costs plus 10 percent. In the event the inspection is performed by city staff, the inspection costs shall be the fee set by the council.

4. Mapping Fee. The mapping fee shall cover the costs of updating the city's GIS maps and maps for the reimbursement agreement record drawings.

5. Maintenance Bond Release Inspection Fee. Prior to releasing the maintenance bond, the city will inspect the improvements and restoration of the system extension. This inspection fee shall cover those costs.

6. Sewer Capacity Reservation Charge. The sewer capacity reservation charge provided for in EMC 11.30.080 shall be a nonrefundable incremental payment toward connection charges.

I. Performance Bond. The owner shall provide the city with a performance bond, in the amount of 150 percent of the engineer's estimate, for faithful completion of the improvements set forth in the system extension agreement

within the prescribed time. The performance bond shall be delivered to the city prior to the preconstruction conference.

The performance bond shall:

1. Be on a city-furnished form.

2. Be signed by an approved surety (or sureties) that:

a. Is registered with the Washington State Insurance Commissioner; and

b. Appears on the current Authorized Insurance List in the state of Washington published by the Office of the Insurance Commissioner.

3. Guarantee that the surety shall indemnify, defend and protect the city against any claim of direct or indirect loss resulting from the failure:

a. Of the owner, or any of the employees, contractors, subcontractors, or lower tier subcontractors of the owner to faithfully perform the system extension agreement; or

b. Of the owner or any of the employees, contractors, subcontractors, or lower tier subcontractors of the owner to pay all laborers, mechanics, contractors, subcontractors, material person, or any person who provides labor, supplies, or provisions for carrying out the work.

4. Reimburse the city for the costs of completing the work in the event the owner or the owner's contractor fails to do so within the terms of the system extension agreement.

5. Remain in full force and effect until released in writing by the city.

J. Insurance. The owner shall obtain and maintain in full force and effect, from the date of approval of the system extension agreement to the date of city acceptance, public liability and property damage insurance in accordance with Standard Specifications, Section 1-07.18, as amended by Chapter 1-99. A certificate of insurance shall be supplied to the city that shall include the city, contractor, and engineer as additional insured and be submitted with the system extension application and agreement prior to city approval.

K. Indemnification. The owner shall defend, indemnify and hold the city harmless from all claims, demands, losses, and liabilities to or by the contractor or other third parties arising from, related to, or connected with services performed, or to be performed, under or associated with this agreement by the owner, the contractor, or other third parties, regardless of whether such claim or suit alleges, or another entity contends, that the contractor or other third party was independently or concurrently negligent. Said defense and indemnity obligations shall arise specifically, but not exclusively, with respect to any claim or suit arising out of

circumstances where any employee or agent of the contractor suffers personal injuries during the performance of the work by the contractor, owner, or other third parties.

L. Inspection. Quality control is the responsibility of the owner. The city shall not be responsible to the owner nor assume any special duty for materials, workmanship or construction method used or incorporated into the project.

The construction shall be subject to observation and inspection by city staff or its consultant. When work or materials are observed that do not meet the requirements of the plans and specifications, as approved by the city, the inspector shall issue a correction notice in writing to the owner's field representative. Failure to take appropriate corrective action may result in a stop work order. Failure to correct faulty materials or workmanship may result in refusal by the city to accept the improvements or the city may stop work permanently and complete the work with its own contractor under the terms of the performance bond.

M. Completion of Work. Following establishment of substantial completion, the contractor shall notify the city and request final inspection in writing when the contractor considers the work physically complete. The city's inspector will prepare a punch list of required corrections that must be completed prior to physical completion. If the inspector finds that the work is not substantially complete, the contractor will be so notified and no punch list will be prepared until the work is substantially complete.

N. Maintenance Bond. Following completion of work and prior to city acceptance of the system extension, the owner shall provide the city with a maintenance bond warranting the system extension improvements in accordance with the Design and Construction Standards. The amount of the bond shall be 20 percent of the cost of construction, but not less than $5,000.

The maintenance bond shall also guarantee that the surety shall indemnify, defend and protect the city against any claim of direct or indirect loss resulting from the failure of the owner or any of the employees, contractors, subcontractors, or lower tier subcontractors of the owner to pay all laborers, mechanics, contractors, subcontractors, material person, or any person who provides labor, supplies, or provisions for carrying out the work.

The maintenance bond shall remain in effect until released by the city. Two years following acceptance, the city will inspect the improvements upon request by the owner and issue a correction notice, if necessary. Following acceptable correction of all deficiencies, if any, the city will release the maintenance bond in writing.

O. Acceptance. Acceptance of the improvements shall be by resolution of the council. It shall be the responsibility of the owner to deliver all of the following documents to the director. The director shall make a dated finding of completion, which shall be entered on said resolution, confirming that all the following have been received by the director. The council will not accept the system extension until the finding of completion has been made.

1. Complete test and video records demonstrating acceptable results.

2. Final inspection report, completed and signed by the inspector.

3. The owner shall cause the design engineer to prepare record drawings, which shall consist of a compilation of all the as-built information from the contractor and the inspector. One set of Mylar record drawings together with an electronic copy of medium and format, as defined in the Design and Construction Standards, shall be delivered to the director.

4. Five complete sets of operation and maintenance manuals as may be defined and required in the special provisions of the approved construction documents.

5. All required easements, fully executed and recorded, and copies of all temporary easement restoration releases.

6. Washington State Department of Revenue certificate showing that all contract-related taxes have been paid (RCW 60.28.050).

7. A certificate of payment, signed by the contractor and notarized, that all project employees, suppliers and subcontractors have been paid in full, and that the project is free of liens. In the event that a lien or liens have been filed, copies of the lien releases shall be attached to the certificate of payment.

8. The owner shall provide a written warranty guaranteeing all equipment, materials, and workmanship to be free of defects for a period of two years from the date of completion.

9. Maintenance bond.

10. Bill of sale, as described in the Design and Construction Standards.

11. Full payment of all fees and charges. (Ord. 15-447 § 1 (Exh. A); Ord. 06-271 § 1).

11.35.100 Reimbursement agreements.

Repealed by Ord. 19-542. (Ord. 06-271 § 1).

11.35.110 Local improvement districts.

Repealed by Ord. 14-421. (Ord. 14-411 § 1; Ord. 06-271 § 1).

Chapter 11.36
SEWER LATECOMER AGREEMENTS

Sections:

11.36.010 Purpose.

11.36.020 Definitions.

11.36.030 Mandatory requirements for latecomer agreements.

11.36.040 Conditions imposed on and included in latecomer agreements.

11.36.050 Procedure for processing request.

11.36.060 Notice – Hearing – Consideration by city council.

11.36.070 Approval and acceptance of facilities.

11.36.080 Recording required.

11.36.090 Duration of agreement, extensions.

11.36.100 Reimbursement to owner.

11.36.110 Prohibition on unauthorized connections, enforcement.

11.36.120 City or county participation in latecomer agreements.

11.36.130 No city liability.

11.36.010 Purpose.

The purpose of this chapter is to implement Chapter 35.91 RCW and to describe the process for a developer/property owner, or the city of Edgewood, to fund the construction of certain sewer facilities, and then to be reimbursed by property owners who subsequently connect to or use the sewer facilities. (Ord. 19-542 § 2 (Exh. A)).

11.36.020 Definitions.

The definitions set forth in this section shall apply throughout this chapter:

A. “Cost of construction” means the cost incurred by the owner/developer for design, acquisition of right-of-way and/or easements, permit and plan review fees, construction (including materials and installation), as required in order to install/construct the sewer facilities in accordance with all applicable laws, ordinances and standards,

including the city's public works standards. The cost of construction shall be documented in writing by the owner/developer on final invoices or other documents showing the amounts actually paid by the owner/developer.

B. "Developer" or "owner" means a property owner or authorized agent of the property owner who may construct a sewer facility, and desires a latecomer agreement under the terms and conditions set forth in this chapter. The city of Edgewood may be a "developer" or "owner" under this chapter.

C. "Latecomer agreement" means a written contract between the city and an owner/developer providing for the partial reimbursement of the cost of constructing the sewer facilities (the "fair pro rata share" as provided in RCW 35.91.050). The latecomer agreement shall be a contract approved as to form by the city attorney. Where the city constructs sewer facilities under a latecomer agreement, the agreement may provide for the total reimbursement of the cost of construction of the sewer facilities.

D. "Latecomer fee" means a charge collected by the city, whether separately stated or as part of a connection fee for providing access to the city's sewer system, against a real property owner who connects to or uses a sewer facility subject to a latecomer agreement created under this chapter and Chapter 35.91 RCW.

E. "Latecomer" means a property owner not a party to a duly executed and recorded latecomer agreement, who did not contribute to the original cost of the facilities, and who: (1) owns property in the area benefited by such agreement; (2) seeks to connect to the sewer facilities constructed under the latecomer agreement within the time frame established in the agreement; and (3) may only do so by making payment to the city of his/her pro rata share of the cost of construction.

F. "Sewer facilities" means storm, sanitary, or combination sewers, pumping stations and disposal plants, reservoirs or appurtenances. (Ord. 19-542 § 2 (Exh. A)).

11.36.030 Mandatory requirements for latecomer agreements.

A. Requirements. At the owner/developer's request, the city must contract with the owner of real estate for the construction or improvement of sewer facilities that the owner elects to install solely at the owner's expense, as long as such contract is consistent with this chapter and all of the following conditions are satisfied:

1. The latecomer agreement must be for the construction of sewer facilities in locations where the city's ordinances require such facilities to be improved or constructed as a prerequisite to further property development; and

2. The sewer facilities must be consistent with all applicable comprehensive plans and development regulations of the municipalities through which the facilities will be constructed or will serve; and

3. The sewer facilities to be constructed or improved must be included in the city of Edgewood's comprehensive plan. Unless the city provides written notice to the owner of its intent to request

comprehensive plan approval for the facilities, the owner must request comprehensive plan approval for the sewer facility; and

4. The sewer facilities to be constructed may not be located outside the city's corporate limits[1]. If Pierce County is a party to the latecomer agreement, the sewer facilities may not be located outside Pierce County; and

5. The latecomer agreement shall meet all of the conditions required by the city under this chapter, and shall be filed and recorded against the affected properties with the county auditor and as provided in EMC 11.36.080; and

6. The owner/developer's request shall be submitted within 120 days of the completion of the sewer facility and prior to approval and acceptance of the sewer facility by the city for ownership and maintenance; and

7. The total cost of the construction of the sewer facility must be submitted to city by the owner/developer no more than 120 days of the completion of the sewer facility.

B. Rejection of Requests Not in Compliance. The city shall reject requests made by developer/owners that are not in compliance with this section. Such requests are not subject to project permit processing, under RCW 36.70B.140. (Ord. 19-542 § 2 (Exh. A)).

11.36.040 Conditions imposed on and included in latecomer agreements.

Every latecomer agreement shall include the following conditions:

A. The sewer facility shall be constructed by the developer/owner according to plans and specifications approved by the city;

B. The sewer facility shall be inspected and approved for ownership and maintenance by the city;

C. The developer/owner shall transfer the sewer facility to the city with a bill of sale, without cost to the city, at the time the city approves the facility for ownership and maintenance;

D. The developer/owner shall fully comply with all of the owner's obligations under the latecomer agreement and the applicable city rules and regulations;

E. The developer/owner shall provide sufficient security to the city to ensure completion of the sewer facility and compliance with other performance measures under the contract;

F. The developer/owner shall pay all of the city's costs associated with the sewer facility including, but not limited to, engineering, legal and administrative costs;

G. The city shall verify and approve all contracts and cost of construction related to the sewer facility;

H. The agreement shall provide that the owner and/or the owner's assigns shall be entitled to a pro rata share of the fees received by the city from property owners who did not contribute to the original cost of the facilities but who subsequently connect to the facilities, as reimbursement for the costs of the sewer facilities constructed and installed in accordance with the agreement;

I. The agreement shall include a provision requiring that, every two years from the date the agreement was executed, the developer/owner entitled to reimbursement shall provide the municipality with information regarding the current contact name, address and telephone number of the person, company, or partnership that originally entered into the latecomer agreement. If the owner fails to comply with the notification requirements of this subsection within 60 days of the specified time, then the contracting municipality may collect any reimbursement funds owed to the property owner under the agreement. The funds collected under this subsection must be deposited in the capital fund of the municipality; and

J. The agreement shall provide that all latecomer fees received by the city for sewer facilities constructed by a developer/owner shall be paid to the developer/owner or his/her assigns within 60 days of the receipt of such fees. (Ord. 19-542 § 2 (Exh. A)).

11.36.050 Procedure for processing request.

A. Owner's Responsibilities.

1. Deadline for Submission of Request. Within 120 days of the completion of the sewer facilities, the owners of the real estate must provide the city with the total cost of construction of the sewer facility actually paid by the owner. The city will not accept written estimates in determining the cost of construction. In the event of a disagreement between the city and the developer/owner concerning the cost of the construction of the sewer facilities, the city public works director's decision shall be final. This information on the cost of construction shall be used by the city as the basis for determining reimbursements by future users who benefit from the sewer facility, but who did not contribute to the original cost of the sewer facilities.

2. Recommendation by Owner of Pro Rata Share. The amount of the pro rata share to be paid under the latecomer agreement shall be recommended by the owner, so that each property within the latecomer assessment reimbursement area (including the property owned by the developer/owner) will be assessed a share of the costs of the improvements proportional to the benefits which accrue to the property. The methodology utilized in calculating the amount of the pro rata share shall be the responsibility of the owner. For example, the method of assessment permitted for local improvement district assessment, including, but not limited to, the front-foot method, the zone and termini method, and square footage method, may be proposed.

B. City Public Works Director's Responsibilities.

1. Recommendation to City Council. The city public works director shall determine whether a request for a latecomer agreement satisfies the requirements in EMC 11.36.030 and this chapter. The director's recommendation to the city council shall include, but not be limited to, his/her analysis on the following factors:

a. Whether the sewer facilities are consistent with the applicable comprehensive plan(s) and development regulations; and

b. Whether the preliminary determination of the boundaries of the latecomer assessment reimbursement area, based upon the identification of parcels who may subsequently connect to or use the facilities, including through laterals and branches connecting thereto; and

c. Whether the developer/owner's receipts and invoices relating to the cost of construction of the sewer facilities are reasonable and accurate and have been verified by the public works director in the "Engineer's Estimate," which shall include separate itemizations of costs; and

d. Whether the pro rata share calculated by the developer/owner ensures that each property subject to the latecomer fee will pay a fair pro rata share of the costs of the improvements as determined by any appropriate method, including but not limited to determining the total capacity of the sewer improvements expressed in equivalent residential units (ERUs) and dividing the total cost by the number of ERUs created by construction or added by improvement of the sewer facility. (Ord. 19-542 § 2 (Exh. A)).

11.36.060 Notice – Hearing – Consideration by city council.

A. Upon receipt of the public works director's recommendation as provided in EMC 11.36.050(B), the city shall prepare a latecomer agreement (based on EMC 11.36.030) for inclusion in the council agenda.

B. At least 10 days prior to the city council public hearing, individual notice shall be sent to the owners of property located within the preliminary boundaries of the latecomer assessment reimbursement area, as these property owners are identified in the records of the county assessor. This notice shall state that the city council will be holding a public hearing for the purpose of allowing public testimony and submission of evidence in order to consider the execution of the latecomer agreement with the developer/owner, establish the final boundaries of the latecomer reimbursement area, and establish the proposed pro rata share. The notice shall reference this chapter, include the date and time scheduled for the public hearing before the city council, and shall be forwarded by certified mail to the property owners of record within the proposed latecomer reimbursement area.

C. The city council shall consider the request for a latecomer agreement in a public hearing, together with the public works director's recommendation, all application materials, all submitted evidence and public testimony.

The city council shall make the final determination whether the request satisfies the criteria set forth in this chapter and, as specified in Chapter 35.91 RCW, the council shall approve the latecomer agreement. The council's decision on the method for determining the pro rata share used to calculate the latecomer fee and the latecomer fee shall be final. The fair pro rata share of the cost of the sewer facilities attributable to the owner's property shall be deducted from the cost of construction.

D. If approved, the final determination of the boundaries of the latecomer reimbursement area and pro rata share shall be included in an ordinance, which shall authorize the mayor to sign the latecomer agreement. The ordinance and all attachments shall be recorded against the affected properties as provided in EMC 11.36.080. (Ord. 19-542 § 2 (Exh. A)).

11.36.070 Approval and acceptance of facilities.

Upon the completion of sewer facilities pursuant to a latecomer agreement and all applicable codes and development regulations, the city council shall be authorized to approve their construction and accept the sewer facilities for ownership and maintenance. The city may then charge for their use such sewer rates that the city is authorized by law to establish. All further maintenance and operation costs shall be borne by the city. (Ord. 19-542 § 2 (Exh. A)).

11.36.080 Recording required.

After the final latecomer reimbursement pro rata fee has been established as provided in EMC 11.36.060, the agreement shall be recorded with the Pierce County auditor. The provisions of the latecomer agreement may not be effective as to any owner of real estate not a party thereto unless the latecomer agreement has been recorded against the affected property in the office of the county auditor of the county in which the real estate of the owner is located, prior to the time the owner taps into or connects to the sewer facilities. It shall be the sole responsibility of the developer/owner (or the city, if the city is the beneficiary of the latecomer fee) to record the latecomer agreement. Within 30 days after receipt of evidence that the latecomer agreement has been recorded, the public works director shall ensure that a notice of additional sewer connection charges has been recorded with the Pierce County auditor's office, as required by RCW 65.08.170. (Ord. 19-542 § 2 (Exh. A)).

11.36.090 Duration of agreement, extensions.

The latecomer agreement shall provide for the pro rata reimbursement to the owner or the owner's assigns for 20 years. The agreement may provide for an extension of the 20-year reimbursement period for a time not to exceed the effective date of any moratorium, phasing ordinance, concurrency designation or other governmental action that prevents making applications for, or obtaining approval of, any new development within the benefit area for a period of six months or more. If the latecomer agreement is extended pursuant to this section, the amended latecomer agreement must specify the duration of the extension and must be filed and recorded as provided in EMC 11.36.080 in order to be effective. Property owners who are subject to the reimbursement obligations in the latecomer agreement shall be notified by the city of any extension filed under this section. (Ord. 19-542 § 2 (Exh. A)).

11.36.100 Reimbursement to owner.

Where a developer/owner has constructed the sewer facilities, all latecomer fees received by the city shall be paid out by the city under the terms of the latecomer agreement to the developer/owner within 60 days after the receipt thereof. Where the city has constructed the sewer facilities under this chapter, the city shall retain the latecomer fees as provided in the approving ordinance. (Ord. 19-542 § 2 (Exh. A)).

11.36.110 Prohibition on unauthorized connections, enforcement.

A. Unauthorized Connections. A person, firm or corporation may not be granted a permit or be authorized to tap into, connect or use any such sewer facilities or extensions subject to a latecomer agreement during the period of time prescribed in the latecomer agreement without first paying to the city, in addition to any and all other costs and charges made or assessed for such tap or use, or for the sewers constructed in connection therewith, the amount required by the provisions of the applicable latecomer agreement.

B. Enforcement. Whenever any tap or connection is made into any sewer facilities subject to a latecomer agreement without such payment having first been made, the city may authorize the removal of, or cause to be removed, such unauthorized tap or connection and all connecting tile or pipe located in the facility right-of-way, and dispose of unauthorized material so removed, without any liability whatsoever. (Ord. 19-542 § 2 (Exh. A)).

11.36.120 City or county participation in latecomer agreements.

A. City as Beneficiary of Latecomer Fee. The city may create an assessment reimbursement area on its own initiative, without the participation of a private property owner, finance all of the costs associated with the construction of the sewer facilities and become the sole beneficiary of the facilities. Unless otherwise provided by ordinance or contract, the city or the county participating in the financing of sewer facilities improved or constructed under this section:

1. Shall have the same rights to reimbursement as owners of real estate who make contributions as authorized under this chapter; and

2. Are entitled to a pro rata share of the reimbursement based on the respective contributions of the owner and the city/county.

B. Authorized Locations for Construction Sewer Facilities. The sewer facilities must be consistent with the city's comprehensive plan(s) and development regulations. The boundaries of the assessment reimbursement must be formulated by the city based upon a determination of which parcels in the proposed area would require construction or improvement of sewer facilities upon development or redevelopment, or would be allowed connection to or usage of constructed or improved sewer facilities. The sewer facilities to be constructed or improved may not be located outside the city's corporate limits[2]. If Pierce County is a party to the latecomer agreement, the sewer facilities may not be located outside Pierce County.

C. Public Works Director Recommendation. The public works director shall prepare a recommendation to the

city council as provided in EMC 11.36.050(B).

D. Notice of the Public Hearing. Notice of the public hearing shall be provided consistent with EMC 11.36.060.

E. Public Hearing. The city shall hold a public hearing on the proposed assessment reimbursement area and assessment (pro rata share), as provided in EMC 11.36.060. The city council's final determination of the assessment reimbursement area and assessment shall be included in an ordinance, which shall be final. The city shall record the ordinance as required by EMC 11.36.080.

F. Limit on Reimbursement. Except as otherwise provided in this chapter, the city or county seeking reimbursement from an owner of real estate subsequently connecting to the sewer facilities constructed under this section is limited to the dollar amount authorized in the ordinance contemplated in subsection (E) of this section. This does not prevent the city or county from collecting amounts for services or infrastructure that are additional expenditures not subject to the ordinance, contract or agreement, nor does it prevent the collection of fees that are reasonable and proportionate to the total expenses incurred by the city or county in complying with this section.

G. Installation. To the extent that it may require in the performance of the latecomer agreement, the city or county may install the sewer facilities in and along the city or county streets in the area to be served as hereinabove provided, subject to reasonable requirements as the manner of occupancy of the streets as the city or county may by resolution provide. (Ord. 19-542 § 2 (Exh. A)).

11.36.130 No city liability.

Nothing in this chapter is intended to create a private right of action for damages against the city or any municipality for failing to comply with the requirements of this chapter. The city, its officials, employees or agents may not be held liable for failure to collect a latecomer fee unless the failure was willful or intentional. Failure of the city to comply with the requirements of this chapter does not relieve the city of any future requirements to comply with this chapter. (Ord. 19-542 § 2 (Exh. A)).

---

[1] The language from RCW 35.91.020 regarding facilities being located "within ten miles of the municipality's corporate limits" is not included herein, as the city of Edgewood does not currently have an urban growth area and all areas abutting the city's corporate limits are served by other agencies.

[2] The language from RCW 35.91.020 regarding facilities being located "within ten miles of the municipality's corporate limits" is not included herein, as the city of Edgewood does not currently have an urban growth area and all areas abutting the city's corporate limits are served by other agencies.

Chapter 11.40
CONNECTIONS

Sections:

11.40.010 Connection – When required.

11.40.020 Connection – When not required.

11.40.030 Separate connection required.

11.40.040 Owner responsible.

11.40.050 Connection permit and agreement required – Building permit conditioned.

11.40.060 Application.

11.40.070 Basis of connection and charge.

11.40.080 Water records.

11.40.090 Status of connection right.

11.40.100 Transfer and relinquishment of connection right.

11.40.110 Connection charges.

11.40.120 Hearing.

11.40.130 System extension required.

11.40.010 Connection – When required.

Only Phase I properties will be permitted to connect to the city's sewer system. The following Phase I properties are required to connect to the sewer:

A. All existing buildings, intended for human occupation, on property within a local improvement district and fronted by a sewer shall be required to connect to the city sewer within 60 days of city acceptance of said sewer.

B. All existing buildings, intended for human occupation, on property fronted by a sewer, funded by special indebtedness bonds or warrants issued against revenues, shall be required to connect to the city sewer within 60 days of city acceptance of said sewer.

C. All new buildings, intended for human occupation, located on properties fronted by an existing sewer shall be required to connect to the city sewer prior to occupancy.

D. An existing building on property, fronted by a city sewer, whose on-site sewage disposal system has failed and cannot be acceptably corrected or repaired, as determined by the Tacoma-Pierce County health department, shall be required to connect to said sewer. (Ord. 06-271 § 1).

11.40.020 Connection – When not required.

Non-Phase I properties are prohibited from connecting to the city's sewer. The following Phase I properties are not required to connect to the city's sewer:

A. Existing buildings fronted by a sewer constructed pursuant to a private system extension agreement.

B. Existing buildings fronted by a sewer constructed by the city and not within an LID or funded by bonds or warrants issued against revenues (RCW 35.67.190 and 35.92.025). (Ord. 06-271 § 1).

11.40.030 Separate connection required.

A separate connection shall be required for each building with plumbing fixtures unless otherwise approved by the director (see EMC 11.45.040(G) and (H)). (Ord. 06-271 § 1).

11.40.040 Owner responsible.

Only the owner of the real property served by the sewer connection may enter into an agreement with the city for sewer service. A successor(s) of interest in the property shall be required to enter into a new agreement(s) with the city as a condition of continued sewer service.

The owner shall be responsible for meeting all the applicable requirements of this title. (Ord. 06-271 § 1).

11.40.050 Connection permit and agreement required – Building permit conditioned.

A. A connection permit and agreement shall be required before connection to the city's sewer system. The connection permit and agreement shall be made on a standard form that shall be approved by the mayor or director.

B. No building permit shall be issued for a building intended for human occupation, or in which plumbing fixtures are installed, unless:

1. A connection permit and agreement shall have been issued for the building pursuant to EMC 11.40.060; or

2. Sewer capacity has been reserved for the building, pursuant to EMC 11.30.080; or

3. An application and plans for a private disposal system have been approved by the Tacoma-Pierce

County health department and supplied to the city pursuant to Chapter 11.55 EMC.

C. All fees and charges must be paid before the connection permit and agreement is issued.

D. The connection permit and agreement shall be recorded in the office of the Pierce County auditor. (Ord. 15-447 § 1 (Exh. A); Ord. 06-271 § 1).

11.40.060 Application.

Application shall be made by the owner on the connection permit and agreement standard form, which shall contain, at a minimum, all of the following:

A. The owner's name, address and telephone number.

B. Legal description of owner's property as well as the street address, if any, and the tax account number.

C. The contractor's name, address, telephone number, contractor's license number, and city business license number.

D. ERUs required.

E. Sewer capacity analysis, together with a copy of a sewer capacity reservation, if any has been issued for the property, pursuant to EMC 11.30.080.

F. Discharge permit determination.

G. Side sewer and connection requirements and details.

H. Status of existing side sewer.

I. Condition of existing building sewer.

J. Conditions for service, including payment of monthly charges.

K. Required demolition and abandonment of existing private disposal system in conformance with EMC 11.55.020.

L. Conditions for maintaining a private side sewer in the public right-of-way, including permission for city to test the side sewer and private sewers on the owner's property for inflow and infiltration.

M. List of connection charges and fees.

N. A statement that all fees and charges must be paid before the connection permit and agreement is issued.

O. Signature of the owner.

P. A statement that the connection permit and agreement shall be recorded in the office of the Pierce County auditor.

Q. Notary forms.

R. Attachments.

1. Discharge permit, if applicable, by the jurisdiction that operates the wastewater treatment plant treating the city's sewage.

2. Copy of executed agreement between owner and water purveyor authorizing release and agreement to submit owner's monthly water bills to the city, as required by EMC 11.40.080.

3. Right-of-way use permit for construction of the side sewer.

4. Right-of-way use permit for operation and maintenance of the side sewer.

5. The record drawing of the side sewer, as required under EMC 11.45.120, shall be attached to the permit following completion of the side sewer.

6. Copy(ies) of executed and recorded easement(s), if any, if side sewer crosses other's property. (Ord. 06-271 § 1).

11.40.070 Basis of connection and charge.

A. Each connection permit and agreement shall be issued to an owner for a specific property, its use, and the number of ERUs of sewer system capacity required by that property. A new connection permit and agreement must be obtained by the owner, reflecting any change in the use and/or number of ERUs required for the property.

B. All units of residential use, including single, accessory, and multifamily, shall be deemed to require one ERU per unit.

C. The initial calculation for the number of ERUs required for a nonresidential property shall be determined from Table G2-1, Orange Book. If necessity for a more accurate method is indicated, the director may require a discharge analysis by an engineer, or other appropriate professional, to determine the number of ERUs generated by a proposed project.

D. Nonresidential accounts shall be compared to water usage from water purveyor billing accounts. If, after connection, the property's use changes or is expanded, or its requirement for sewer system capacity is

otherwise found to have been increased, the new required capacity shall be calculated based on the greatest of the following ERU analyses:

1. The Table G2-1, Orange Book analysis; or

2. The maximum month water usage determined from water billing records; or

3. The maximum day sewage discharge based on records from a sewage meter; or

4. The quality of the discharge based on chemical and/or biological analysis.

E. In the event sewer system capacity is available, as determined in EMC 11.30.080, the city shall issue a new connection permit and agreement and the owner shall pay to the city an additional connection charge based upon the new or expanded requirement for sewer system capacity and the connection charge, based on the schedule in effect at the time the new connection permit and agreement is issued.

F. If sewer system capacity is not available, the number of ERUs will not be increased and the owner shall be required to reduce the wastewater discharge from the property to fall within the limits of the connection permit and agreement.

G. All commercial and industrial connections shall be reviewed and co-regulated by the jurisdiction that operates the wastewater treatment plant treating the city's sewage as set forth in Chapter 11.50 EMC. (Ord. 06-271 § 1).

11.40.080 Water records.

A standard form release and agreement shall be prepared for the purpose of making owner's water usage records available to the city in order to determine equitable connection and monthly charges. The owner and water purveyor shall be required to execute and deliver one original of such release and agreement, as a condition of sewer service, providing the city with copies of the owner's monthly water bills, at each billing period. (Ord. 06-271 § 1).

11.40.090 Status of connection right.

Upon establishment of a connection right (see EMC 11.30.020), such connection right shall run with the land and not be unilaterally extinguishable by the city except as may be provided in Chapter 11.65 EMC. The connection right shall be subject to current laws and regulations affecting the sewer system and connections thereto. (Ord. 06-271 § 1).

11.40.100 Transfer and relinquishment of connection right.

The connection right is transferable to another property if the property for which it was established is combined with other adjacent property into one ownership in a project and/or subdivided. The subdivision or project will receive full credit at current value for the ERUs of the preexisting connection permit and agreement when determining the connection charges for such subdivision or project.

An owner may relinquish the connection right to his property, or any excess portion of the ERUs associated therewith, to the city; provided, that in no event shall the number of ERUs be reduced below the number required for existing buildings on the property as determined by the city. The city shall not be required to reimburse the owner for such relinquishment. Such owner may request transfer of his relinquished capacity to another property within the city, whether or not owned by the owner, subject to the following:

A. Approval by the city.

B. The property receiving the transfer must be fronted by a city sewer or be party to an approved system extension agreement with a sewer fronting said property.

C. Such transfer request must occur prior to relinquishment.

D. The owner of the property receiving the transfer shall pay to the city applicable connection charges, if any, and a connection processing fee for the transfer.

E. Monthly charges shall continue throughout the transfer process and shall be paid by the owner of the property receiving the transfer from the date of such transfer.

F. Both the revised connection permit and agreement and the new connection permit and agreement shall be recorded in the office of the Pierce County auditor. (Ord. 06-271 § 1).

11.40.110 Connection charges.

A connection charge shall be assessed for each new sewer connection made to the city's sewer system. Connection charges and fees shall be set by ordinance of the city council following a hearing on the proposed connection charges. A connection charge shall be comprised of the following elements:

A. Processing Fee. A fee to cover the costs of processing the application, evaluating the requirement for sewer system capacity, recording the connection permit and agreement, and issuing the permit.

B. Existing Facilities Charge. Pursuant to RCW 35.92.025, the city shall charge each connecting property an equitable share, proportional to the number of ERUs required, of the cost of the existing sewer system not otherwise paid for through an LID, system extension agreement, or grant, except as provided below. Said equitable share may include interest from the date of construction until the date of connection, or for a period not to exceed 10 years.

The existing facilities charge shall include pass-through existing facilities charges from other cities, sewer districts, or counties, as may be applicable.

C. Conveyance Development Charge. Following completion of an LID that provides conveyance, all non-LID

properties that connect to, or to sewers that connect to, improvements constructed by such LID shall be charged a conveyance development charge. The conveyance development charge shall be equal to the design and construction costs of said LID improvements, together with interest from the date of completion, for a period of 10 years, at the rate of interest applicable to such LID; divided by the capacity of such LID improvements in ERUs; and multiplied by the number of ERUs required.

D. Future Facilities Charge. The city shall prepare a 10-year CIP for the sewer utility and revise it each year. The city shall charge each connecting property an equitable share, proportional to the number of ERUs required, of the cost of future sewer utility improvements, as set forth in the 10-year CIP, as contained in the GSP.

E. Collection System Charge. The owner of each property shall have a duty to pay for its proportionate share of the city sewer fronting such property. In the event that a property is connected to an existing sewer, fronting the property, the cost of which no owner of said property has contributed, a general collection system charge shall be made equal to one-half of the actual cost of each foot of existing sewer frontage.

F. Inspection Charges. The council shall set a fee to cover the costs of plan review and inspection of the side sewer.

G. Existing Side Sewer Charges. If a side sewer and partial building sewer, if any, has been installed as part of a city-funded project, in anticipation of development of the property, the council shall set a value for such side sewer which shall be paid for by the owner as part of the connection charge.

H. Latecomer Agreements. No owner shall be granted a permit to connect directly or indirectly to sewer facilities, for which exists a contract providing for reimbursement to other owners of real estate who constructed and paid for such sewer facilities, without first paying a fair pro rata share of the cost of same, as provided for in Chapter 11.36 EMC.

I. Credit for ERU Reservation. In the event the owner has reserved sewer system capacity for the property, the value of such reservation, less the processing fee, shall be deducted from the connection charge.

J. Transfer Fee. If the connection includes the transfer of relinquished sewer system capacity from another property, as provided for in EMC 11.40.100, the owner of the property receiving the relinquished capacity shall pay a processing fee for such transfer.

K. Treatment Charges. Owners of commercial and industrial buildings may be required to pay separate and additional connection charges and/or fees and install monitoring equipment by the jurisdiction that operates the wastewater treatment plant treating the city's sewage as set forth in Chapter 11.50 EMC. (Ord. 19-542 § 4; Ord. 10-333 § 7; Ord. 06-271 § 1).

11.40.120 Hearing.

Prior to adoption of an ordinance setting connection charges and fees for sewer service, the council shall hold a

public hearing on the proposed charges and fees and shall consider all objections thereto and may correct, revise, or modify said connection charges and fees.

A notice of the hearing on the proposed connection charges and fees shall be published at least once a week for two consecutive weeks in the official newspaper of the city. The last publication shall be at least 15 days before the date fixed for the hearing.

The notice shall contain the time and place fixed for the hearing and a copy of the proposed connection charges and fees. Persons who may desire to object shall be advised to make their objections in writing and to file them with the city clerk at or prior to the date fixed for the hearing.

Regulations for hearings and setting connection charges for the jurisdiction that operates the wastewater treatment plant treating the city's sewage shall be as set forth in its municipal code. (Ord. 06-271 § 1).

11.40.130 System extension required.

When a property is not fully fronted by a sewer, the owner, as a condition of sewer service, shall be required to extend the city's sewer to and across one full side of the property in accordance with the GSP. Nonrectangular and corner lots may be required to extend the sewer along two or more full sides as determined by the director. Extensions shall be made in conformance with Chapter 11.35 EMC. (Ord. 06-271 § 1).

Chapter 11.45
SIDE SEWERS

Sections:

11.45.010 Responsibility and ownership.

11.45.020 Side sewer – New – Existing – Abandoned.

11.45.030 Operation and maintenance requirements – Permission to test.

11.45.040 Design.

11.45.050 Private sewage pumps.

11.45.060 Permits required.

11.45.070 Side sewer contractor.

11.45.080 Bond and insurance required.

11.45.090 Construction.

11.45.100 Inspection.

11.45.110 Restoration.

11.45.120 Record drawings.

11.45.130 Building sewers.

11.45.010 Responsibility and ownership.

A. The owner of the property served by the side sewer shall construct and pay for the side sewer. Upon the city's approval and acceptance of a constructed side sewer, the owner shall transfer the side sewer to the city through an agreement and bill of sale in a form approved by the city attorney. The city shall thereafter own, operate, maintain, and retain full rights of access to the side sewer for inspection and maintenance purposes.

B. Notwithstanding subsection (A) of this section, the city may construct and fund the installation of any side sewer as part of an LID or other city-sponsored sewer installation project; provided, that nothing herein shall be construed as requiring the city to initiate any such project, and the city shall retain sole discretion regarding the same to the fullest extent allowed by law.

C. When a side sewer is constructed prior to the building sewer for a particular property, the director may

authorize concurrent construction of the side sewer and a portion of building sewer where necessary in order to avoid damage to or interference with improvements in the right-of-way. (Ord. 10-333 § 3; Ord. 06-271 § 1).

11.45.020 Side sewer – New – Existing – Abandoned.

A new side sewer and building sewer, constructed with new materials, as approved by the city, shall be required for new connections and when modifications are made to an existing side sewer or building sewer; except, that such connection may be made to an existing side sewer and/or building sewer; provided, that said existing side sewer is examined by video camera and shown to be sound and the building sewer, if any, successfully passes a pressure test.

If a side sewer is temporarily abandoned, the building sewer shall be disconnected from the cleanout at the right-of-way line and replaced with an eight-inch nipple and cap. The joints shall be gasketed, the cap blocked, and the cleanout in good condition or replaced.

If a side sewer is permanently abandoned, the side sewer shall be removed and replaced at the sewer main, submain, or lateral tee with a 12-inch nipple and cap. The joints shall be gasketed and the cap blocked. (Ord. 06-271 § 1).

11.45.030 Operation and maintenance requirements – Permission to test.

A. Operation. The owner shall be permitted to construct a side sewer in the right-of-way or other easement in conformance with all applicable conditions of the right-of-way use permit and any applicable terms and conditions of such easement. Only wastewater meeting the requirements of Chapter 11.50 EMC shall be permitted to be discharged through a side sewer. Violation of the conditions of a permit or easement hereunder may result in its revocation, termination of sewer service, and disconnection of the side sewer as provided in EMC 11.65.030.

B. Maintenance. The city or its designee shall be responsible for the maintenance of the side sewer and shall also keep an as-built record of its location. In the event the side sewer becomes restricted or blocked, it shall be the owner’s responsibility to promptly notify the city.

C. Inflow and Infiltration. The owner shall take no action nor allow any action or condition that would jeopardize the integrity of the side sewer and shall permit no connections thereto other than pipes carrying wastewater meeting the requirements of Chapter 11.50 EMC. If the city determines that an unacceptable quantity of ground or surface water is being discharged into the city’s sewer system from the owner’s building sewer, the owner shall be required to eliminate such inflow and/or infiltration.

D. Testing. The city may test the side sewer at any time in its sole discretion, consistent with the terms and conditions of any applicable easement. The techniques that may be used for such testing shall be as provided in the connection permit and agreement, the Design and Construction Standards and the Orange Book. (Ord. 10-333 § 4; Ord. 06-271 § 1).

11.45.040 Design.

A. All side sewers shall be designed in accordance with the Design and Construction Standards, this title, and the Standard Specifications.

B. The separation between side sewers and water lines shall be as set forth in EMC 11.35.020.

C. The minimum diameter of a side sewer shall be six inches.

D. The six-inch side sewer shall connect to the sewer in a tee in new construction and a saddle if connecting to an existing sewer. The leg of the tee or saddle shall be set at an angle of 45 degrees up from a horizontal plane. The minimum slope of a side sewer shall be one percent.

E. A cleanout shall be installed at the street side of the right-of-way line, at which point the building sewer shall be connected to the side sewer.

F. Only one building shall be connected to a side sewer. If there is more than one building on a single lot and it is impracticable to connect both side sewers to the sewer in the street, a sewer lateral shall be extended onto the private property within an easement. The sewer lateral shall terminate in a manhole, except that a cleanout may be used if the lateral is 50 feet or less in length. The sewer lateral must connect to the sewer main or submain at a manhole.

G. Buildings that are accessory to a single-family residence on a single-family lot may share a common connection. If ownership of such buildings is segregated by any action, such as subdivision or condominium, separate connections shall be required for each building so segregated.

H. A side sewer, eight inches or greater in diameter, must connect to the sewer system at a manhole. (Ord. 10-333 § 5; Ord. 06-271 § 1).

11.45.050 Private sewage pumps.

A. Each private pump station shall discharge through its own private, dedicated force main. The private force main shall discharge into a private manhole, located on the owner’s property, which shall discharge into the city’s sewer in a standard gravity side sewer.

B. A private force main shall be permitted to discharge into a city manhole only when the director finds there is no reasonable alternative. A force main shall not discharge directly into another force main or gravity sewer pipe.

C. When upper floors of a building can drain to the city’s sewer in a standard gravity building sewer and side sewer, only plumbing fixtures in those parts of the building that cannot be so drained shall be connected to the private pump station. (Ord. 06-271 § 1).

11.45.060 Permits required.

Side sewer construction and/or connection to the side sewer shall not begin until all of the following permits have been obtained:

A. Connection permit and agreement as described in EMC 11.40.050.

B. Right-of-way use permit for construction. (Ord. 10-333 § 6; Ord. 06-271 § 1).

11.45.070 Side sewer contractor.

The side sewer contractor shall be required to have a current and valid Washington State contractor's license and a city of Edgewood business license, and shall supply the city with copies of both and provide the city with documented proof of experience in underground utility construction. A right-of-way use permit shall not be issued for construction of a side sewer unless the contractor can demonstrate such experience and is approved by the director. (Ord. 06-271 § 1).

11.45.080 Bond and insurance required.

A performance bond, insurance, indemnification, and maintenance bond, meeting the requirements as set forth in Chapter 12.06 EMC, shall be required as a condition of issuance of the right-of-way use permit. (Ord. 06-271 § 1).

11.45.090 Construction.

All construction shall be in conformance with the Design and Construction Standards, this title, and the Standard Specifications. (Ord. 06-271 § 1).

11.45.100 Inspection.

Inspection and testing of the side sewer shall be as described in the Design and Construction Standards, and payment for same as set forth in EMC 11.40.110. (Ord. 06-271 § 1).

11.45.110 Restoration.

No connection shall be made until the street, curb, gutter, sidewalk, and landscaping in the right-of-way have been restored as set forth in the Design and Construction Standards, this title, and the Standard Specifications. (Ord. 06-271 § 1).

11.45.120 Record drawings.

The owner shall submit a record drawing, meeting the requirements of the Design and Construction Standards and this title, to the city when construction of the side sewer is complete. The record drawing shall be subject to review and approval of the director. (Ord. 06-271 § 1).

11.45.130 Building sewers.

A. Responsibility. The owner of the property served by a building sewer shall construct, pay for, own, operate

and maintain the building sewer. In the event that a building sewer becomes restricted or blocked, it shall be the owner's responsibility to restore service.

B. Record Drawings. The owner shall keep an as-built record of the location of the building sewer and shall provide a copy to the city upon request.

C. Inflow and Infiltration. The owner shall maintain the integrity of the building sewer and shall permit no connections thereto other than pipes carrying wastewater meeting the requirements of Chapter 11.50 EMC. Pipes that become broken or joints that permit infiltration of groundwater or surface water shall be replaced or repaired by the owner. If the city determines that an unacceptable quantity of ground or surface water is being discharged into the city's sewer system from the owner's building sewer, the owner shall be required to immediately eliminate such inflow and/or infiltration.

D. Check Valves. A check valve shall be required at the connection of the building drain to the building sewer when plumbing fixtures are located in the basement of a building or on any floor less than four feet above the crown of the sewer to which its side sewer is connected, unless otherwise approved by the director.

E. Testing. The owner, as a condition of the connection permit and agreement, shall authorize but not require the city to enter the property for the purpose of testing all sewers for inflow and infiltration, during normal business hours, seven days following notification. The techniques that may be used for such testing shall be provided in the connection permit and agreement, the Design and Construction Standards and the Orange Book; provided, that nothing in this subsection shall be construed as imposing any duty of care upon the city, or as limiting in any manner the owner's responsibility for maintaining the building sewer. (Ord. 10-333 § 9.)

Chapter 11.50
DISCHARGES TO THE SEWER

(Reserved)

Chapter 11.55
PRIVATE DISPOSAL SYSTEMS

Sections:

11.55.010 Private disposal systems permitted – Permit required.

11.55.020 Abandonment.

11.55.030 Operation and maintenance.

11.55.040 Connecting discharge line to sewer system prohibited.

11.55.050 Holding tanks.

11.55.060 Privies and cesspools prohibited.

11.55.070 Temporary portable toilets.

11.55.010 Private disposal systems permitted – Permit required.

A. The owner of a Phase II or III property may connect an existing or new building to an on-site sanitary sewage disposal system; provided, that an application and plans for a private disposal system have been approved by the Tacoma-Pierce County health department and supplied to the city.

B. Private disposal systems must be located on the same lot as the building they are designed to serve except as provided within EMC 16.01.120(B) and 16.01.125. No septic tank, drainfield or related easements shall be permitted; provided, that the extension of this public health regulation shall not apply to single-family residences that are under order from the health department to replace a failed system and there are not on-site alternatives available to do so.

C. Conflicting Easements. A private disposal system permit application shall provide for certification from the Pierce County auditor that overlapping or conflicting easements will not result at the time a private disposal systems drainfield easement is recorded on a parcel.

D. The owner of a Phase I property that is not fronted by a city sewer may connect an existing or new building to a private disposal system; provided, that:

1. A utility local improvement district has not been formed for the purpose of providing sanitary sewer service to the property upon which the building is to be located; and

2. An application and plans for a private disposal system have been approved by the Tacoma-Pierce County health department and supplied to the city; and

3. The owner shall be required to disconnect the property building sewer from the private disposal system, abandon the private disposal system as provided in EMC 11.55.020, and connect to the city sewer system within 90 days after the property is fronted by a city sewer. Connection to the city sewer system shall be subject to the requirements of Chapter 11.40 EMC. (Ord. 14-415 § 2 (Exh. A); Ord. 12-385 § 3; Ord. 06-271 § 1).

11.55.020 Abandonment.

When a building is disconnected from a private disposal system and connected to the city's sewer, no such connection may be made until the private disposal system first has been abandoned as required in WAC 246-272-18501. (Ord. 06-271 § 1).

11.55.030 Operation and maintenance.

The owner shall operate and maintain the private disposal system in compliance with Tacoma-Pierce County health department regulations (see WAC 246-272-15501). (Ord. 06-271 § 1).

11.55.040 Connecting discharge line to sewer system prohibited.

Connecting a septic tank or drain field discharge line to the sewer system is prohibited. (Ord. 06-271 § 1).

11.55.050 Holding tanks.

A. Holding tanks shall be prohibited for permanent use except when:

1. The Tacoma-Pierce County health department has determined that an existing private disposal system for an existing building has failed and cannot be repaired or replaced; and

2. The requirements of WAC 246-272-12501(3) are met; and

3. A city sewer does not front the property; or

4. The property is not a Phase I property.

B. A holding tank may be approved for interim use and repairs pursuant to WAC 246-272-12501.

C. None of the pumped wastewater shall be discharged into the city sewer system. (Ord. 06-271 § 1).

11.55.060 Privies and cesspools prohibited.

It is unlawful to construct, maintain or discharge wastewater into any privy, privy vault, or cesspool. (Ord. 06-271 § 1).

11.55.070 Temporary portable toilets.

Installation and use of temporary portable toilets shall be prohibited except for the following:

A. Construction Project. When the number of permanent sanitary facilities meeting the requirements of WAC 296-155-140(4)(b) and (c) is not available, temporary portable toilets shall be provided and maintained in conformance with WAC 296-155-140(4).

B. Special Events. When permanent sanitary facilities meeting the requirements of subsection (B)(2) of this section are not available, temporary portable toilets shall be provided.

1. Construction and Maintenance. Construction and maintenance shall be as provided in WAC 296-155-140(4).

2. Number of Units. The minimum number of toilets (permanent water closets and temporary portable toilets) required shall be as required for assembly places where fixture use is not limited to intermissions, as set forth in Table 2902.1 of the IBC. A 50/50 distribution of the sexes shall be assumed.

3. Unisex. Separate toilets shall not be required for each sex.

4. Accessibility. The first temporary portable toilet shall be wheelchair accessible. One additional accessible temporary portable toilet shall be required for each additional 50 temporary portable toilets.

5. Hand Washing Facilities. Hand washing facilities shall be provided when temporary portable toilets are used as set forth in Table 2902.1 of the IBC. Hand washing facilities shall provide wash water between 70 and 100 degrees Fahrenheit. Hand towels shall be provided in a sanitary container and a receptacle shall be provided for used towels. Hand soap shall be provided.

6. Construction and Maintenance. Temporary portable toilets shall be constructed and maintained as provided in WAC 296-155-140(4).

C. A permit may be issued for temporary private use when the director finds that such use is necessary because of mitigating circumstances. Construction and maintenance shall be as provided in WAC 296-155-140(4). (Ord. 06-271 § 1).

Chapter 11.60
RATES AND BILLING PROCEDURES

Sections:

11.60.010 Purpose.

11.60.020 Lakehaven Utility District sewer rates – Adoption by reference.

11.60.030 Lakehaven Utility District sewer charges – Adoption by reference.

11.60.040 City utility sewer rates.

11.60.050 Billing and collection.

11.60.060 City conveyance development charge.

11.60.010 Purpose.

The rates and charges set forth or otherwise adopted by reference in this chapter shall apply to the sanitary sewer utility established under this title. (Ord. 11-376 § 1; Ord. 11-364 § 1).

11.60.020 Lakehaven Utility District sewer rates – Adoption by reference.

All sewer bills will be prepared by LUD and will include two portions: the city sewer charge and the LUD sewer charge. The rates for sanitary sewer service set forth in Section 2 of Lakehaven Utility District Resolution No. 2009-1146, as the same now exists and as may subsequently be amended, revised or superseded, are hereby adopted by reference and incorporated herein as if set forth in full. For purposes of this chapter, any future amendments or revisions of said resolution shall be in full force automatically in the city upon the effective date thereof. A true and complete copy of said resolution, including any subsequent amendments or modifications thereof, shall be maintained at Edgewood City Hall and made available for public inspection and photocopying upon request. (Ord. 11-376 § 1; Ord. 11-364 § 1).

11.60.030 Lakehaven Utility District sewer charges – Adoption by reference.

The charges and fees applicable to sanitary sewer service set forth in Lakehaven Utility District Resolution No. 2010-1171, as the same now exists and as may subsequently be amended, revised or superseded, are hereby adopted by reference and incorporated herein as if set forth in full. For purposes of this chapter, any future amendments or revisions of said resolution shall be in full force automatically in the city upon the effective date thereof. A true and complete copy of said resolution, including any subsequent amendments or modifications thereof, shall be maintained at Edgewood City Hall and made available for public inspection and photocopying upon request. (Ord. 11-376 § 1; Ord. 11-364 § 1).

11.60.040 City utility sewer rates.

All sewer bills will be prepared by LUD and will include two portions: the city sewer charge and the LUD sewer

charge. The city sewer charge includes a monthly base rate of $5.00 for all customers, plus a usage rate of $0.95 per 100 cubic feet of water usage. It is intended that LUD will compute water usage as defined in LUD Resolution No. 2009-1146, as the same now exists and as may subsequently be amended, revised or superseded. The residential (single and multifamily) bills use wet month average, all others use actual water usage. Rates for city usage are listed in the rate table below for the period 2012 through 2016 and are based on the recommendation within the report attached to the ordinance codified in this chapter, titled City of Edgewood Sewer Rate Study.

The volume portion of the sewer charge for residential accounts is based upon the water meter readings for the months of January, February, March and April, and is recalculated each year. New customers are assigned a usage amount of 800 cubic feet per month (1,600 per two-month cycle), which is an average usage for a typical household. New customers wishing not to use the above estimate can opt for the other alternatives within LUD Resolution No. 2009-1146, as the same now exists and as may subsequently be amended, revised or superseded.

Rate Table	
City of Edgewood Sewer Rate for the Period 2012 – 2016	
Base rate per month	$5.00
Usage rate per 100 cubic feet*	$0.95

* Wet month average for residential per LUD definition.

(Ord. 11-376 § 1; Ord. 11-364 § 1).

11.60.050 Billing and collection.

Unless otherwise specified by city ordinance, Lakehaven Utility District shall, on the city's behalf, directly bill sanitary sewer utility customers on a bi-monthly basis and shall remit collections therefrom to the city in accordance with applicable interlocal agreement(s) between the city and Lakehaven Utility District. All delinquent and unpaid rates and charges for sanitary sewer services, including interest thereon, shall be a lien upon the property to which the sanitary sewer is furnished superior to all other liens and encumbrances whatsoever, except those for general taxes and local and special assessments. Pursuant to RCW 35.67.215, the city's sewerage lien shall be effective for a total not to exceed one year's delinquent service charges without the necessity of any writing or recording of the lien with the county auditor. (Ord. 11-376 § 1; Ord. 11-364 § 1).

11.60.060 City conveyance development charge.

The city shall collect charges for the capital cost of conveyance development, EMC 11.40.110(C), from all properties not within the city's local improvement district, LID No. 1, and shall be designated the conveyance

development charge, CDC. The city shall collect the CDC, which equitably and fairly distributes the capital costs of the conveyance system to all properties within the Phase I sewer system boundary which did not participate in the city's LID No. 1.

The CDC shall be collected in a manner which relates the actual usage a property may place on the sewer system to its proportionate share of the cost of the above-described conveyance system. The CDC shall include the proportionate cost of construction of the existing conveyance development, designated per equivalent residential unit, ERU, as determined by the report attached to the ordinance codified in this chapter titled, City of Edgewood Conveyance Charge Calculation.

Upon request for a new sewer connection, for properties within the Phase I sewer service area, as described within the city's general sewer plan, LUD shall make a determination of the ERU usage applicable to the property. For purposes of this determination an ERU for service shall consist of a projected usage of 220 gallons per day of sewage flow. A single-family dwelling unit shall be assigned one ERU as a conveyance development charge. Each multifamily dwelling unit and each mobile home situated in a mobile home park shall be assigned 0.67 ERU. Each accessory dwelling unit, approved for occupancy by the city, shall be assigned 0.34 ERU.

All nonresidential connections shall pay the sewer system conveyance development charge determined by LUD to reflect anticipated demand on the sewer system for the planned use of the property. The minimum estimated demand for the property shall not be less than one ERU.

The conveyance development charge for each ERU of sewer service for the year 2012 shall be $4,700. For each year thereafter for a period not to exceed 10 years, a cumulative interest rate of 4.625 percent per year shall be added to the conveyance development charge to reflect the financing charge placed on the LID participant. The conveyance development charge shall be collected prior to connection. Unless otherwise specified by city ordinance, Lakehaven Utility District shall, on the city's behalf, collect the appropriate conveyance development charge from the customer and shall remit collections therefrom to the city in accordance with applicable interlocal agreement(s) between the city and Lakehaven Utility District.

Edgewood Conveyance Development Charge	
Ten-Year Charges with Interest	**4.625%**
2012	$4,700
2013	$4,917
2014	$5,145
2015	$5,383
2016	$5,632

2017	$5,892
2018	$6,165
2019	$6,450
2020	$6,748
2021	$7,060

(Ord. 11-376 § 1).

Chapter 11.65
VIOLATIONS AND ENFORCEMENT

Sections:

11.65.010 Civil infractions.

11.65.020 Failure to connect.

11.65.030 Disconnection of side sewer.

11.65.040 Criminal violations.

11.65.050 Other civil violations.

11.65.010 Civil infractions.

The following actions shall be separate civil infractions of this code, which shall be enforceable pursuant to Chapter 1.10 EMC, General Penalty:

A. Violation of any of the conditions of the connection permit and agreement.

B. Tampering with, disturbing, removing, damaging, or destroying any part of the city's sewer system.

C. Connecting more than one building to a side sewer without written approval from the director.

D. Connecting pipes carrying surface water or groundwater to a side sewer or a plumbing system that drains to the side sewer.

E. Failure to meet the requirements of EMC 11.45.020 before connecting to an existing side sewer.

F. Connecting a septic tank or drain field discharge line to the sewer system.

G. Failure to connect to the sewer when required under regulations contained in this title. The penalty shall be as provided in EMC 11.65.020.

H. Discharging any material into a manhole or cleanout without a written permit from the director.

I. Discharging prohibited materials into the sewer system.

J. Discharging wastewater to other than a sewer or septic tank or other device that has been approved by the Tacoma-Pierce County Health Department.

K. Discharging wastewater or septic tank effluent to any storm drain, natural outlet, or upon the land within the

city.

L. Installing a sewer line within 10 feet of a water line, except as provided in EMC 11.35.020.

M. Construction or planting within an easement in violation of EMC 11.35.060.

N. Obstruction of city access to or within an easement.

O. Incorporating materials or equipment in a public works or system extension project not meeting the requirements of the agreement, project specifications, or design and construction standards.

P. Providing false information in application for a sewer system connection, system extension, record drawing, or on any other document or application related to the sewer utility.

Q. Failure to install and maintain a grease, oil, and sand interceptor when so required by this title.

R. Adding, injecting or placing emulsifiers, enzymes, or other additives to the sewer system or to wastewater that will be discharged into the sewer system that have not been approved in writing by the director.

S. Failure to permit access for inspections during normal business hours or obstructing a city inspector while attempting to make an inspection.

T. Constructing, maintaining, or discharging wastewater into a privy, privy vault, or cesspool.

U. Failure to meet the requirements of EMC 11.55.070 when providing or being required to provide temporary portable toilets. (Ord. 20-572 § 4 (Exh. D); Ord. 06-271 § 1).

11.65.020 Failure to connect.

If a property is required and fails to connect to the sewer system pursuant to EMC 11.40.010(A) or (B), the owner shall be required to pay a penalty equal to normal monthly charges pursuant to RCW 35.67.190. All other properties failing to connect, as required, shall be subject to penalties as otherwise may be set by the council. (Ord. 06-271 § 1).

11.65.030 Disconnection of side sewer.

If a side sewer to a property is discharging prohibited materials, as defined in Chapter 11.50 EMC, to the city sewer system, and the owner of that property does not immediately stop such discharge following such notice, in addition to penalties provided for above, the city shall block or disconnect the side sewer to the property of such owner.

Monthly charges for sewer service shall continue unless the owner voluntarily relinquishes his connection pursuant to EMC 11.40.100. The owner shall pay the costs for such disconnection and reconnection, if any, as

shall be set by ordinance of the council. (Ord. 06-271 § 1).

11.65.040 Criminal violations.

A. It is unlawful and a misdemeanor to make or cause to be made or to maintain any sewer connection with any sewer of the city, or with any sewer which is connected directly or indirectly with any sewer of the city, without obtaining a permit and paying the connection charge (RCW 35.67.350).

B. Any person who commits civil infractions listed in EMC 11.65.010(B), (F), (H), (I), (J), (K), (P), (R), or (S) shall also be guilty of a misdemeanor and, on conviction thereof, shall be punished by a fine not to exceed $5,000 or by imprisonment in the county jail for not more than one year, or by both fine and imprisonment. (Ord. 20-572 § 4 (Exh. D); Ord. 06-271 § 1. Formerly § 11.65.050).

11.65.050 Other civil violations.

Except as otherwise specified herein, violations of this title shall be deemed civil violations subject to enforcement pursuant to EMC Title 7, Code Enforcement. (Ord. 20-572 § 4 (Exh. D)).

Chapter 11.70
NON-CORE WEST PHASE I SEWER AREA

Sections:

11.70.010 Purpose – Applicability.

11.70.020 City of Fife sanitary sewer regulations adopted – Enforcement authority.

11.70.030 Sewer works design standards.

11.70.010 Purpose – Applicability.

The purpose of this chapter is to authorize and effectuate the city of Fife's provision of sanitary sewer service to the Non-Core West Phase I sewer area in accordance with the November 5, 2013, interlocal agreement between the city of Fife and the city of Edgewood regarding sanitary sewer service ("interlocal agreement"). The provisions of this chapter shall govern and apply exclusively to the Non-Core West Phase I sewer area as defined by the city's general sewer plan and depicted in Appendix A. (Ord. 15-439 § 1).

11.70.020 City of Fife sanitary sewer regulations adopted – Enforcement authority.

Chapters 13.08, 13.09, 13.12 and 13.14 of the Fife Municipal Code, including any future amendments or additions thereto, are hereby adopted by reference and shall govern and apply to the Non-Core West Phase I sewer area. Pursuant to RCW 35A.12.140, a complete copy of said regulations shall be filed with and maintained in the office of the city clerk for use and examination by the public. Subject to and in accordance with the interlocal agreement, the city of Fife shall have the authority and responsibility to enforce said regulations, to collect rates and charges from sewer customers, and to collect delinquent sewer customer accounts within the Non-Core West Phase I sewer area. (Ord. 15-439 § 1).

11.70.030 Sewer works design standards.

All sewage works constructed within the Non-Core West Phase I sewer area shall be designed in accordance with the latest edition of the Washington State Department of Ecology's "Criteria for Sewage Works Design"; provided, if another section of this chapter imposes a more stringent standard, then the sewage works shall be designed to the more stringent standard. (Ord. 15-439 § 1).

APPENDIX D

INTERLOCAL AGREEMENTS

Memorandum of Understanding Regarding
Operations & Maintenance Conditional Acceptance of:
EDGEWOOD SEWER SYSTEM
(LUD Project No. 6309001)

In accordance with the January 23, 2007 Interlocal Agreement (ILA), between the City of Edgewood (City) and Lakehaven Utility District (LUD), LUD hereby conditionally accepts for operation and maintenance (O&M) the EDGEWOOD SEWER SYSTEM constructed by the City of Edgewood.

LUD and the City (collectively, "the parties") further mutually agree to interpret and apply the Interlocal Agreement as set forth below:

1. With respect to section 3.4 of the ILA, the City will reimburse LUD for abnormal maintenance activities, regardless of cost. The parties further agree that "abnormal maintenance" shall expressly exclude normal wear and tear.

2. With respect to Section 2.1 of the ILA, no property outside of the boundaries of City of Edgewood Local Improvement District No. 1 will be provided sewer service by LUD until such time as the City issues a letter of sewer availability to any such property.

3. The system capacity references contained in Section 2.1 of the ILA shall mean an "average day maximum" system flow of 0.692 MGD.

4. Section 2.3 of the ILA provides that "LUD will be responsible to collect any delinquent customer accounts for service to property within the City." The parties agree to construe this provision as requiring LUD to use reasonable due diligence in attempting to collect all delinquent accounts, which attempt shall include at least three (3) mailed notices to the delinquent customer. Thereafter, upon written request from LUD the City will, with reasonable due diligence, exercise its legal rights to impose and pursue a lien and/or other lawful methods to collect all unpaid rates and charges from the delinquent customer in accordance with EMC 11.30.030 and other applicable laws and regulations. Upon collection of any such delinquent and/or unpaid charges by the City, the City will immediately forward the collected amount to LUD.

The parties further hereby express their mutual intent to work cooperatively in order to develop and institute any necessary operating procedures and or processes that may be reasonably required to effectuate the purposes of the Interlocal Agreement by January 1, 2012.

This agreement is expressly subject to ratification and approval by the governing body of both parties.

Acceptance Date: 7/27/2011

John C. Bowman, P.E.
General Manager
Lakehaven Utility District

Mark D. Bauer
City Manager
City of Edgewood

AGREEMENT BETWEEN
CITY OF EDGEWOOD
AND
LAKEHAVEN UTILITY DISTRICT

THIS AGREEMENT is made this date between the City of Edgewood, a municipal corporation of the State of Washington hereinafter referred to as "City", and the Lakehaven Utility District, a municipal corporation of the State of Washington, hereinafter referred to as "LUD".

WHEREAS, the boundaries of LUD and the City, which are set forth in Exhibit A and B, respectively and attached hereto and by this reference made a part hereof, are geographically proximate; and

WHEREAS, the City has formed a sewer utility and will be constructing a new sewer system; and

WHEREAS, because the City is not planning to construct wastewater treatment facilities, it desires to discharge its sewage into the facilities of a nearby jurisdiction with adequate capacity to convey and treat such sewage flows; and

WHEREAS, LUD operates sewer facilities near the northern boundary of the City; and

WHEREAS, LUD is willing to allow properties within the City to connect and discharge sewage for treatment by LUD under terms and conditions as set forth herein; and

WHEREAS, this Agreement will promote the health, safety, and welfare of the public; and

WHEREAS, LUD has or will have, as needed, adequate capacity to convey sewage from the City of Edgewood to its wastewater treatment plant to meet demand projected in Phase One of the City's General Sewer Plan; and

WHEREAS, LUD has wastewater treatment capacity adequate for itself and the City;

NOW, THEREFORE, pursuant to the Interlocal Cooperation Act (RCW 39.34) and in consideration of the terms and conditions set forth herein, the parties mutually agree as follows:

1. Purpose: This Agreement establishes the terms and conditions under which LUD will accept, convey, and treat sewage from residential and non-residential property lying within the City.

2. Sewer Connections:

   2.1 Connection: LUD agrees to provide, pursuant to all regulatory requirements, sewer service to property lying within the City Sewer Service Area, as shown on Exhibit "C", upon connection of the sewer improvements identified in section three (3) below to the LUD sewer system. Sewer service to property within the City which is outside of the City Sewer Service Area shall be subject to the execution of a separate agreement or agreements between the parties providing for such service. Following connection of such improvements to the LUD sewer system, property owners may, subject to approval of the City and LUD, connect to the collection system owned by the City and, to the extent of the sewer service provided by LUD, shall be subject to all regulations and be afforded all privileges of LUD customers. LUD shall exclusively determine any capacity limitations for service to City customers and shall be under no obligation to permit connections which may cause it to exceed capacity projections included in the current Phase One of the City's General Sewer Plan. As a condition of service to any property within the City, the City shall issue a letter to

LUD indicating the parcel, or parcels, of property meets the City planning criteria for connecting to the City sewer system, and by so doing, the City shall be deemed to be exercising approval authority for sewer connections issued within the City.

2.2 Connection Charges: The City shall establish connection charges for customers within its jurisdiction. Property owner's connecting to the sewer system shall, prior to connection, pay to LUD the connection charges established by LUD and those adopted by the City for connection to its system and the connection charges established by the City for service through its sewer system. City connection charges collected by LUD shall be sent to the City monthly. LUD will determine the level of sewer system capacity utilization of customers within the City and will retain the authority to levy charges to such customers for excess capacity utilized in the LUD system. LUD will provide such capacity information to the City and, where directed, levy charges to customers within the City as set forth in the City capacity charge schedule, and remit to the City, upon payment, the charge for excess capacity utilized in the City sewer system.

2.3 Rates: The City shall set monthly rates for sewer service to customers within its jurisdiction. Such rates shall include LUD rates, as set by resolution of the LUD Board of Commissioners. LUD shall communicate its estimated schedule for updates to its rate resolution for the following year by the first of September for the adoption by the City beginning January 1 of the following year. LUD will bill, on a bi-monthly basis, sewer customers within the City and remit the City rates collected during the preceding billing period to the City on a bi-monthly basis. By execution of this Agreement, the City, to the extent permissible, assigns its authority to collect rates and charges to LUD as necessary to enable it to collect rates and charges on behalf of Edgewood. LUD will be responsible to collect any delinquent customer accounts for service to property within the City. The form of the customer bill shall be as determined by LUD (Exhibit "D" is attached as a sample of information that may be included in customer bills within the City).

3. Sewer Improvements:

3.1 Construction: The parties acknowledge that a connection facility shall be installed between the City and the LUD sewer system at LUD SSMH No. 29, Record Drawing No. 1633, located in the vicinity of the intersection of 19th Way S. and Enchanted Parkway S. (see Exhibit E). The City shall be responsible for installing and shall own such connection improvements and other appurtenances pursuant to the approval of plans and specifications by LUD. Unless expressly approved by the City, LUD shall have no authority to make connections into such line to serve LUD customers.

3.2 Improvements/Extensions: The City shall own all collection system improvements within its boundaries, the installation of which shall be made to conform to LUD standards. The City shall install and maintain, at its cost, a radio telemetry system sufficient, as determined by LUD, to provide functional telemetry-based connectivity of its facilities to LUD's telemetry system. The City shall be solely responsible for the authorization for, and administration of, any Utility Local Improvement Districts (ULID's) or Local Improvement Districts (LID's) to be formed for the installation of sewer facilities within the City. Applications for private extensions to the sewer system with the City will be made to the City and contracts for extensions will be executed between the property owner and the City. LUD will administer the contracts for system extensions in accordance with its standards and practices for contracts for system extensions within LUD, and will collect all charges from the City in reimbursement of its costs associated therewith. The parties agree to

cooperate to share information concerning their respective development requirements and standards as necessary to allow LUD to efficiently administer the extension agreements. The installation of any joint facilities required for service shall be administered pursuant to separate agreement between the parties.

3.3 Approvals: The City shall provide LUD with a copy of its General Sewer Plan upon approval of such plan by DOE. All changes, updates, or modifications to the City General Sewer Plan, Title 11 EMC, or Design and Construction Standards, shall be submitted to LUD for review and comment prior to adoption by the City.

3.4 Operation and Maintenance: LUD shall perform regular operation and maintenance of the connection facility and the City collection system as necessary and consistent with the level of operation and maintenance it provides within its service area. Should additional or abnormal maintenance activities be required, including, but not limited to, the replacement of manholes or repair or replacement of any capital item costing in excess of $5,000, due to the condition of the City facilities or sewage, LUD shall consult, either orally or in writing with the City about the need for such expenditure and if the City gives approval, which approval shall not be unreasonably withheld, bill the City for the cost of such additional maintenance and the City shall pay LUD such amounts within thirty days of the date of the billing for such services. The City shall be responsible to repair any damage caused by vandalism and to cause the disconnection of, or otherwise remedy at the direction of LUD, illegal connections, including those that violate discharge or pretreatment standards applicable to LUD, occurring within the City. LUD shall be indemnified and held harmless from the cost of vandalism and from liability of any kind for illegal connections and be reimbursed by the City for its costs associated therewith. The City shall be responsible to, where appropriate, disconnect property no longer deemed by LUD to require, or otherwise be eligible for, sewer service from the system. Except to the extent resulting from the negligence of LUD, the City shall be solely responsible to the District and/or the property owner for any backups in the sewer system within the City and to repair, rehabilitate or replace, in a reasonable time, any facility LUD determines to require repair, rehabilitation or replacement. In an emergency, LUD shall perform the work needed and bill the City for said work. LUD shall make a good faith effort to notify City staff before such work begins, if possible, in the emergency situation. City staff will be notified as soon as possible, if the work needs to be accomplished immediately. LUD shall perform facility locations requested within the City, however, LUD shall not be responsible for the consequences of erroneous locates resulting from any incomplete or inaccurate information provided to it in connection with the locate service. Billings to the City for any work or administrative charge levied in accordance with this Agreement shall be paid by the City within thirty (30) days of the date of transmittal of such billing and the City agrees to pay LUD interest on such billings not paid when due at a rate of 6% per annum. Should it be necessary to institute legal action to collect such amounts, the prevailing party shall be entitled to collect its costs, including attorneys fees, from the non-prevailing party.

3.5 The City agrees that sewer service within the City will be provided pursuant to LUD standards, regulations and policies as currently exist and as may be amended from time to time. The District may recognize City regulations not in conflict with LUD regulations.

4. Term: Unless terminated for default or as otherwise agreed in writing by the parties, this agreement shall run for twenty years from the date of execution below and shall automatically extend for five additional twenty year terms, unless within five years from the end of the initial

or any extension term, a party gives notice of its intent to not extend the agreement, in which case the agreement shall expire at the end of the term. In the event either party intends to terminate earlier than the end of a term, or extension term, the party shall give notice of its intent to terminate ten years prior to termination. The parties agree that either party may terminate this Agreement at any time the other shall be in material default of its obligations hereunder, including, but not limited to, the obligation to pay any bill when due or to remedy any illegal connection in a timely manner; provided, however, that before termination, such party shall give the other party 180 days prior written notice of the alleged default and an opportunity to cure such default. The City shall have the authority to elect to independently manage and maintain the collection system within the City without terminating the treatment provisions of this Agreement. In the event the city so elects to independently manage and maintain the collection system within the City without terminating the treatment provisions of this Agreement, the City shall give LUD 180 days notice of such election and parties will agree to meet to discuss any administrative matters associated therewith. Lakehaven shall determine whether, and to what extent, that it will make any rate adjustment for City customers in response to the City's operation and maintenance of the sewer collection system.

5. Indemnification and Defense: LUD shall defend, indemnify and save harmless the City, its officers, employees and agents from any and all costs, claims, judgments, or awards of damages, resulting from the acts or omissions of LUD, its officers, employees, or agents associated with this agreement. In executing this agreement, LUD does not assume liability or responsibility for or in any way release the City from any liability or responsibility which arises in whole or in part from the existence or effect of City ordinances, rules, regulations, resolutions, customs, policies, or practices. If any cause, claim, suit, action or administrative proceeding is commenced in which the enforceability and/or validity of any such City ordinance, rule, regulation, resolution, custom, policy or practice is at issue, the City shall defend the same at its sole expense and if judgment is entered or damages are awarded against the City, LUD, or both, the City shall satisfy the same, including all chargeable costs and attorney's service charges.

   The City shall defend, indemnify and save harmless LUD, its officers, employees and agents from any and all costs, claims, judgments or awards of damages, resulting from the acts or omissions of the City, its officers, employees or agents associated with this agreement. In executing this agreement, the City does not assume liability or responsibility for or in any way release LUD from any liability or responsibility which arises in whole or in part from the existence or effect of LUD ordinances, rules, regulations, resolutions, customs, policies, or practices. If any cause, claim, suit, action or administrative proceeding is commenced in which the enforceability and/or validity of any such LUD ordinance, rule, regulation, resolution, custom, policy or practice is at issue, LUD shall defend the same at its sole expense and if judgment is entered or damages are awarded against LUD, the City, or both, LUD shall satisfy the same, including all chargeable costs and attorney's service charges.

   The City shall, prior to the connection of any property to the City sewer system pursuant to this Agreement, obtain modification of the Pierce County Sewer General Plan to reflect LUD's designation as the provider of treatment for the service area noted in Exhibit "B" and procure, and provide to LUD, any other necessary approvals for this Agreement and the services to be provided by LUD from agencies with jurisdiction over sewer service within the City.

   The obligations to indemnify, defend and hold harmless expressed herein shall survive the expiration of this Agreement.

6. Dispute Resolution/Venue. The parties agree to cooperate to submit any dispute or disputes that arise in connection with this Agreement or the performance of any term hereunder to mediation and to use good faith in attempting to secure a resolution through meditation. In the event that the parties are unable to resolve such dispute or disputes through mediation, it is agreed that the disputed matter/s shall be submitted to the jurisdiction of the King County Superior Court. In any such proceeding, the parties shall bear their own attorneys fees and costs, including those costs and attorneys fees incurred on appeal.

7. No Third-Party Beneficiary. LUD does not intend by this agreement to assume any contractual obligations to anyone other than the City, and the City does not intend by this agreement to assume any contractual obligations to anyone other than LUD. LUD and the City do not intend that there be any third-party beneficiary to this agreement.

8. Assignment. Neither LUD nor the City shall have the right to transfer or assign, in whole or in part, any or all of its obligations and rights hereunder without the prior written consent of the other Party.

9. Notice. Any formal notice or communication to be given by LUD to the City under this agreement shall be deemed properly given if delivered, or if mailed postage prepaid and addressed to:

   City of Edgewood
   2221 Meridian Avenue East
   Edgewood, WA 98371-1010
   Attention: City Manager

   Any formal notice or communication to be given by the City to the LUD under this agreement shall be deemed properly given if delivered, or if mailed postage prepaid and addressed to:

   Lakehaven Utility District
   31627 1st Avenue South
   Federal Way, WA 98003
   Attention: General Manager

   The name and address to which notices and communications shall be directed may be changed at any time, and from time to time, by either the City or LUD giving notice thereof to the other as herein provided.

10. LUD As Independent Contractor. LUD is, and shall at all times be deemed to be, an independent contractor. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between City and LUD or any of the LUD's agents or employees. The LUD shall retain all authority for standards of performance, control of personnel, and other matters incident to the performance of services by LUD pursuant to this Agreement.

    Nothing in this agreement shall make any employee of the City a LUD employee or any employee of the LUD a City employee for any purpose, including, but not limited to, for withholding of taxes, payment of benefits, worker's compensation pursuant to Title 51 RCW, or any other rights or privileges accorded LUD or City employees by virtue of their employment.

11. Waiver. No waiver by either party of any term or condition of this Agreement shall be deemed or construed to constitute a waiver of any other term or condition or of any subsequent breach, whether of the same or a different provision of this agreement.

12. Amendment. Provisions within this agreement may be amended with the mutual consent of the parties hereto. No additions to, or alteration of, the terms of this agreement shall be valid unless made in writing, formally approved and executed by duly authorized agents of both parties.

13. No Real Property Acquisition or Joint Financing. This Agreement does not provide for the acquisition, holding or disposal of real property. Nor does this Agreement contemplate the financing of any joint or cooperative undertaking. There shall be no budget maintained for any joint or cooperative undertaking pursuant to this Agreement. Pursuant to RCW 39.34.040 this Agreement shall be listed by subject matter on each party's web site.

14. Severability. If any of the provisions contained in this Agreement is illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Agreement this 23rd day of January, 2007.

LAKEHAVEN UTILITY DISTRICT

Donald Perry, General Manager

Date: 1/23/07

APPROVED AS TO FORM:

Steven H. Pritchett, General Counsel

CITY OF EDGEWOOD

Henry J. Lawrence, Jr., City Manager

Date: 1/3/07

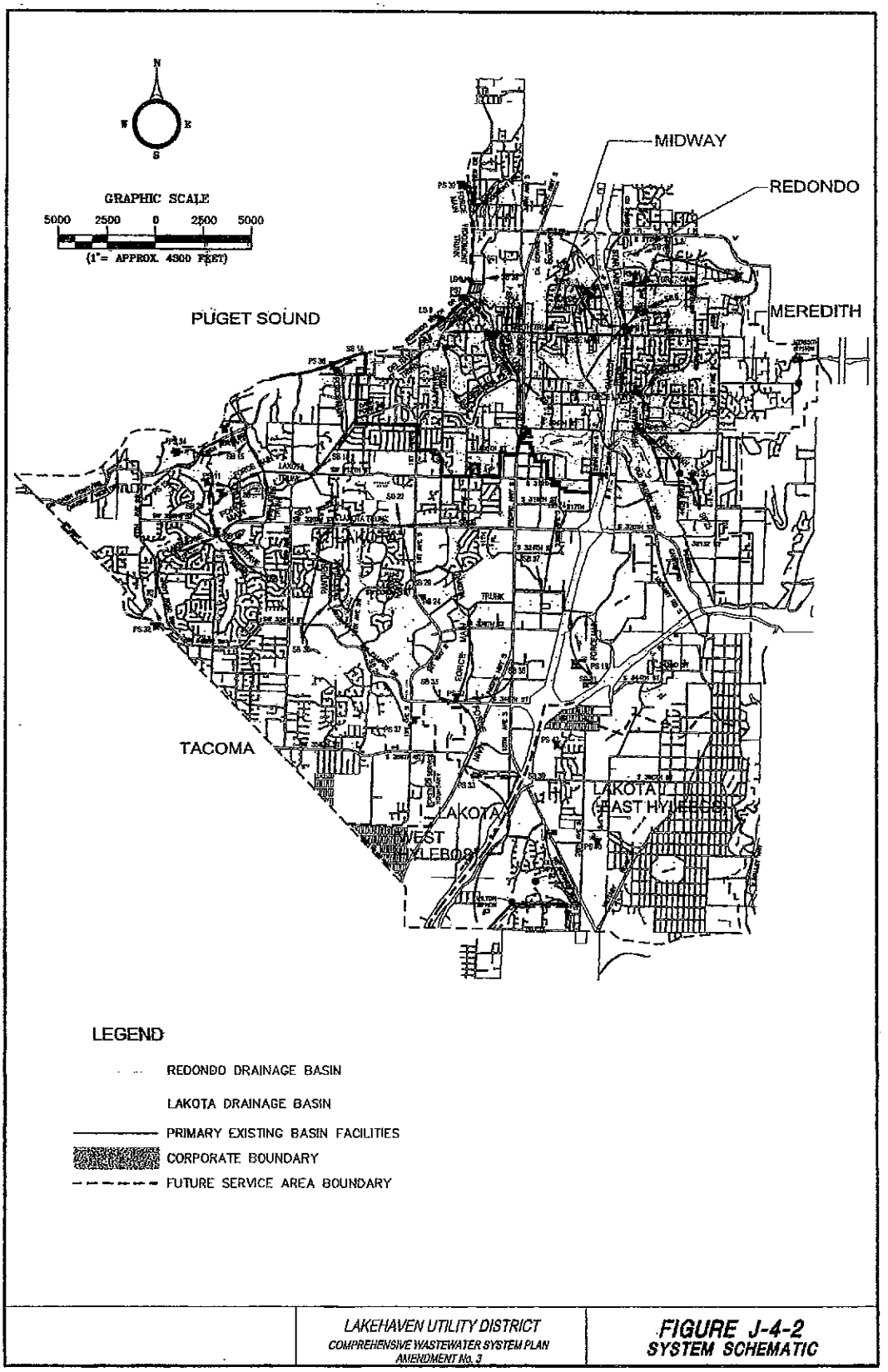
ATTEST/AUTHENTICATED:

Terri Berry, City Clerk

APPROVED AS TO FORM:

Wayne D. Tanaka, City Attorney

EXHIBIT A
LAKEHAVEN UTILITY DISTRICT
SERVICE AREA



LAKEHAVEN UTILITY DISTRICT
COMPREHENSIVE WASTEWATER SYSTEM PLAN
AMENDMENT No. 3

FIGURE J-4-2
SYSTEM SCHEMATIC

Exhibit "B"

Edgewood City Limits

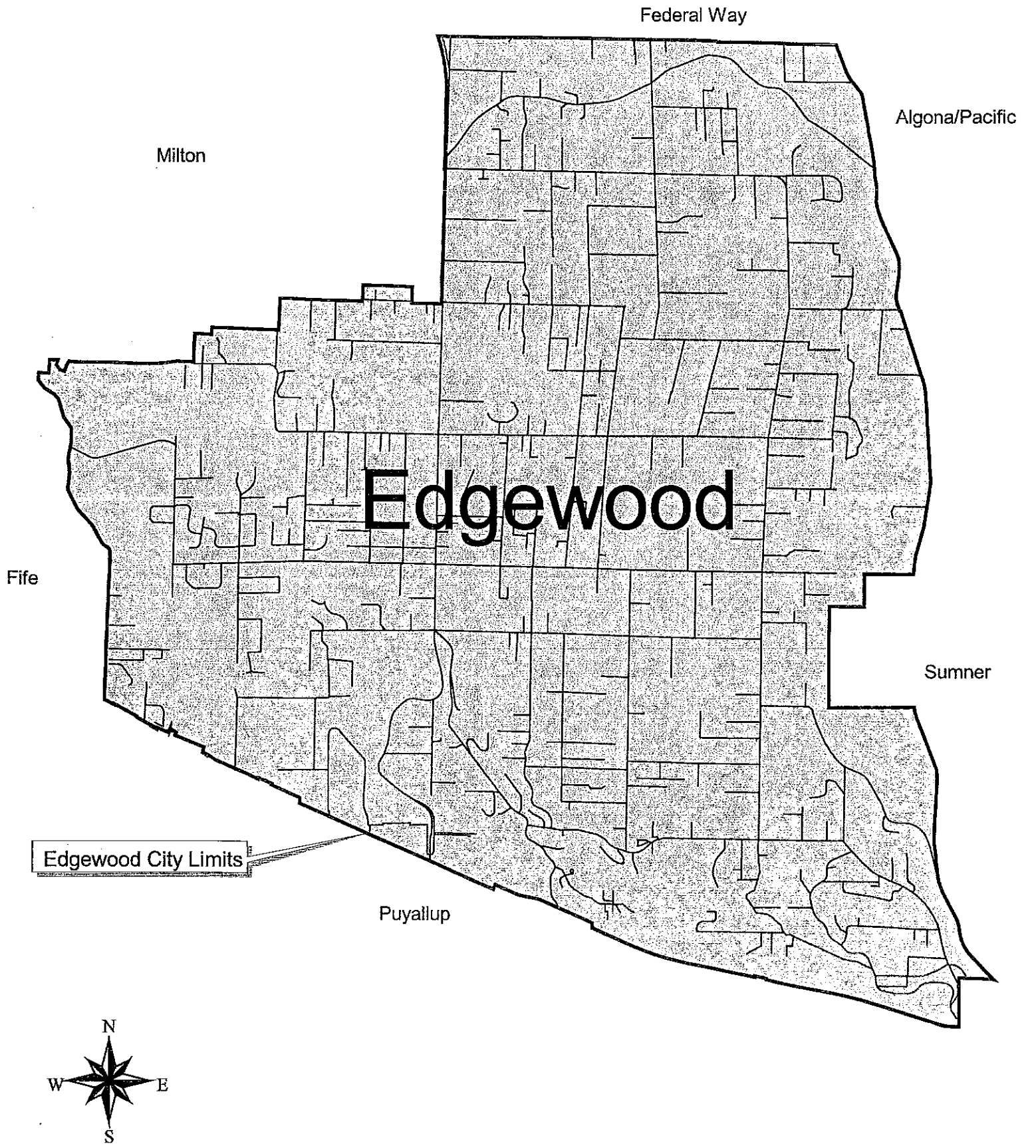


EXHIBIT "C"

June 15, 2007

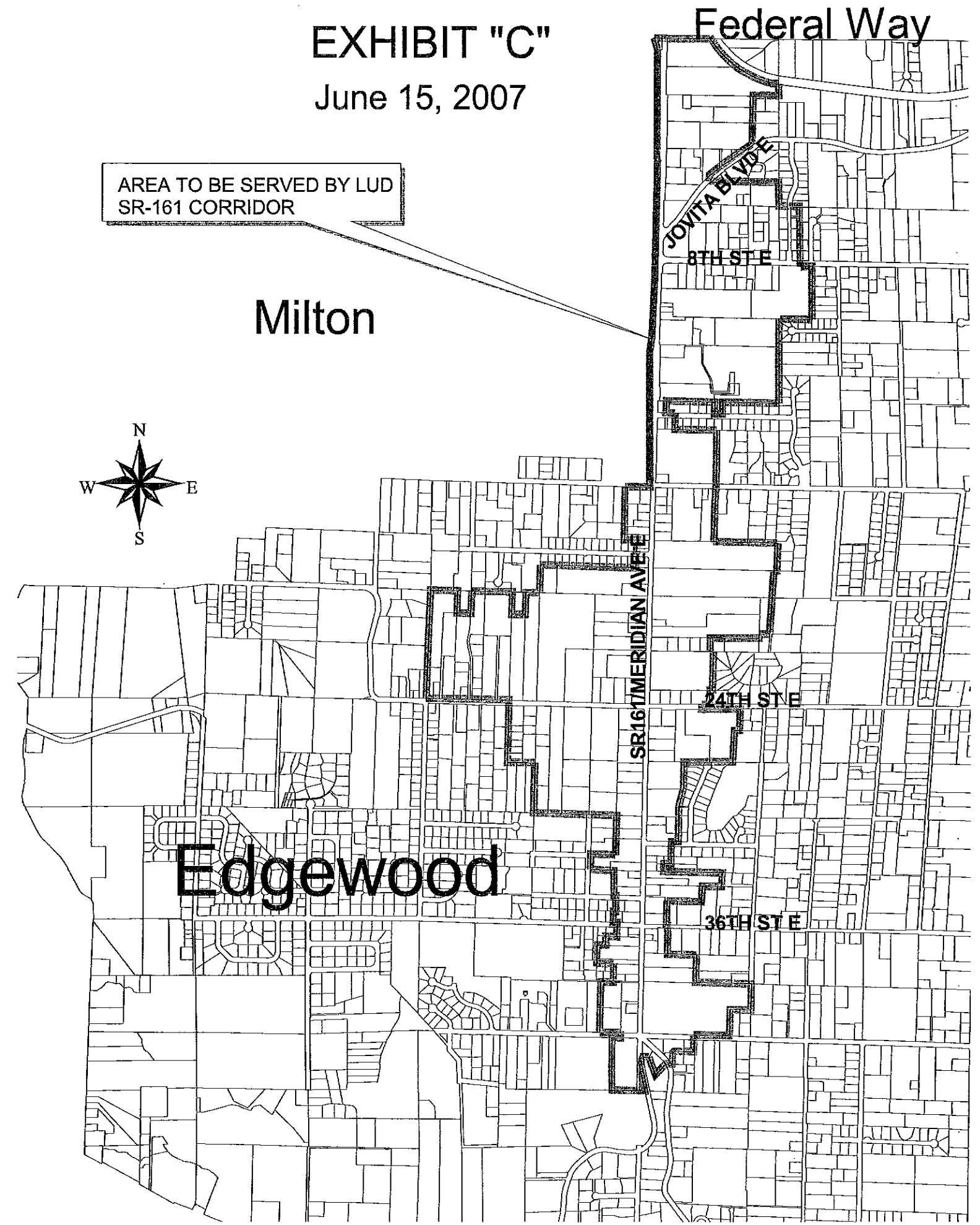


EXHIBIT D

CUSTOMER BILLS WITHIN THE CITY OF EDGEWOOD

Items that may be included in the LUD billing to City customers include but are not be limited to the following:

1. Normal fees and charges for service for LUD.

2. LUD capacity lease or rental cost, if utilization of capacity exceeds that purchased by the customer for the property.

3. Any capacity charge lease or rental cost the City would charge for utilization of capacity exceeding that which was purchased by the customer for the property.

4. Discharge cost for customer: (NPDES, pretreatment etc) any additional charges related to pretreatment or NPDES charges that are related to the property specifically.

5. City of Edgewood costs that the City sets and the LUD will be including on the bills are: Overhead costs incurred by Lakehaven for administering and responding to non-Lakehaven charges and reimbursements exclusive to the City, such as for collection of utility taxes imposed by the City and reimbursements for same.

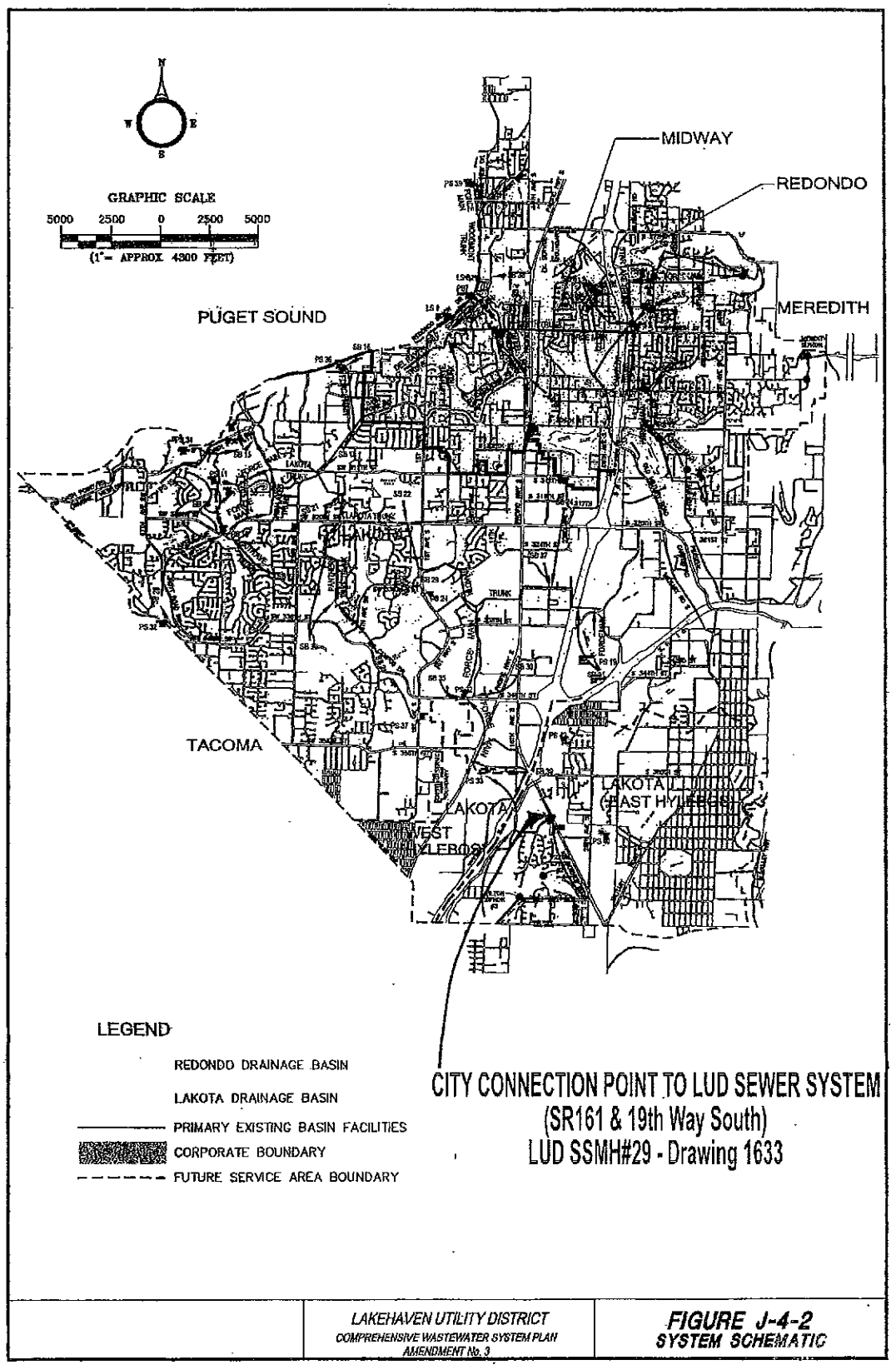
6. Normal taxes that are included on LUD bills (based on the total of the above charges noted).

7. Delinquent Charges and penalties.

8. City Utility Tax, if applicable.

EXHIBIT E(1)

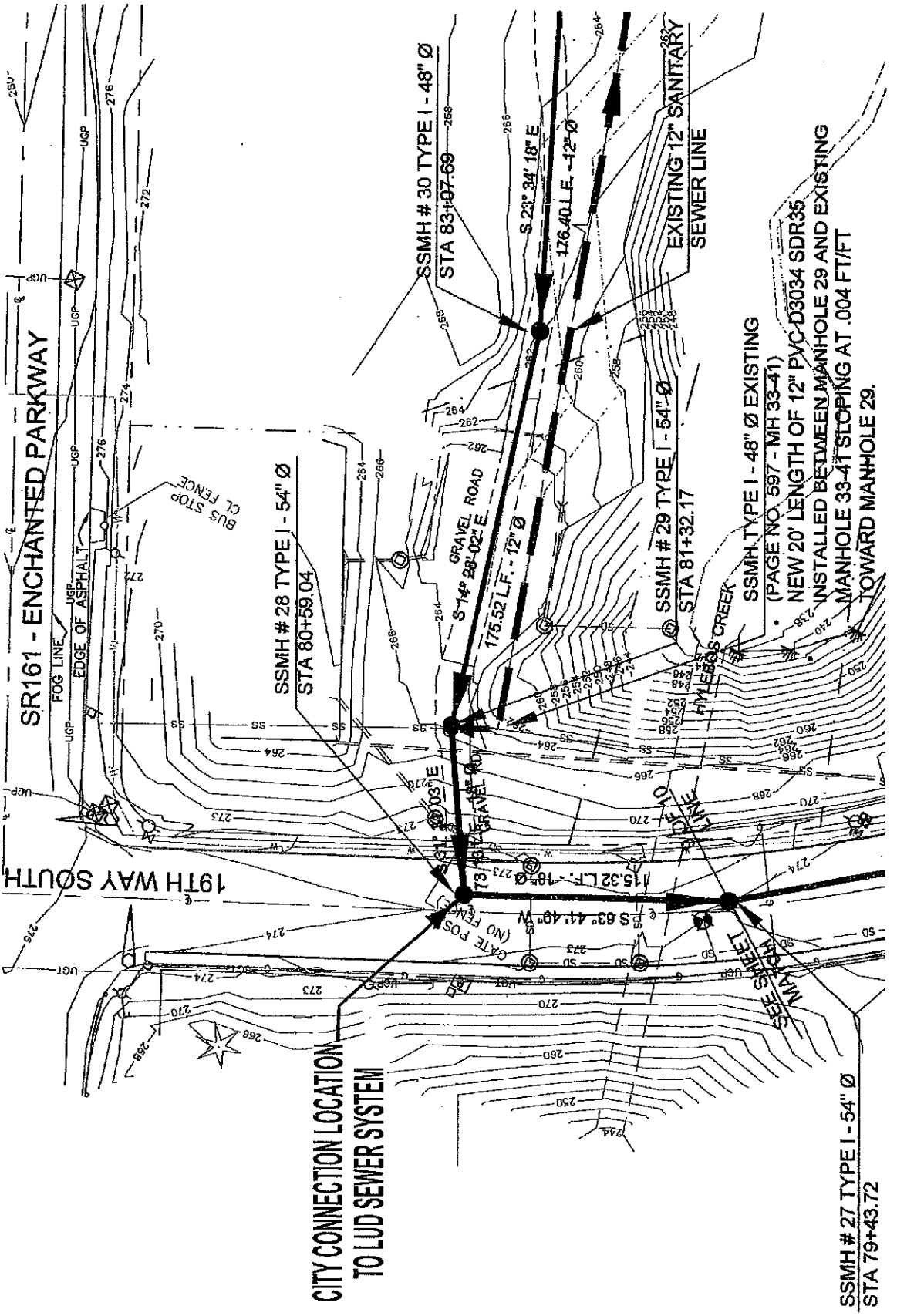
LOCATION OF CONNECTION OF CITY TO LUD SEWER SYSTEM



	LAKEHAVEN UTILITY DISTRICT COMPREHENSIVE WASTEWATER SYSTEM PLAN AMENDMENT No. 3	FIGURE J-4-2 SYSTEM SCHEMATIC

EXHIBIT E(2)

LOCATION OF CONNECTION OF CITY TO LUD SEWER SYSTEM



AGREEMENT BETWEEN
CITY OF EDGEWOOD
AND
LAKEHAVEN UTILITY DISTRICT

THIS AGREEMENT is made this date between the City of Edgewood, a municipal corporation of the State of Washington hereinafter referred to as "City", and the Lakehaven Utility District, a municipal corporation of the State of Washington, hereinafter referred to as "LUD".

WHEREAS, the boundaries of LUD and the City, which are set forth in Exhibit A and B, respectively and attached hereto and by this reference made a part hereof, are geographically proximate; and

WHEREAS, the City has formed a sewer utility and will be constructing a new sewer system; and

WHEREAS, because the City is not planning to construct wastewater treatment facilities, it desires to discharge its sewage into the facilities of a nearby jurisdiction with adequate capacity to convey and treat such sewage flows; and

WHEREAS, LUD operates sewer facilities near the northern boundary of the City; and

WHEREAS, LUD is willing to allow properties within the City to connect and discharge sewage for treatment by LUD under terms and conditions as set forth herein; and

WHEREAS, this Agreement will promote the health, safety, and welfare of the public; and

WHEREAS, LUD has or will have, as needed, adequate capacity to convey sewage from the City of Edgewood to its wastewater treatment plant to meet demand projected in Phase One of the City's General Sewer Plan; and

WHEREAS, LUD has wastewater treatment capacity adequate for itself and the City;

NOW, THEREFORE, pursuant to the Interlocal Cooperation Act (RCW 39.34) and in consideration of the terms and conditions set forth herein, the parties mutually agree as follows:

1. Purpose: This Agreement establishes the terms and conditions under which LUD will accept, convey, and treat sewage from residential and non-residential property lying within the City.

2. Sewer Connections:

   2.1 Connection: LUD agrees to provide, pursuant to all regulatory requirements, sewer service to property lying within the City Sewer Service Area, as shown on Exhibit "C", upon connection of the sewer improvements identified in section three (3) below to the LUD sewer system. Sewer service to property within the City which is outside of the City Sewer Service Area shall be subject to the execution of a separate agreement or agreements between the parties providing for such service. Following connection of such improvements to the LUD sewer system, property owners may, subject to approval of the City and LUD, connect to the collection system owned by the City and, to the extent of the sewer service provided by LUD, shall be subject to all regulations and be afforded all privileges of LUD customers. LUD shall exclusively determine any capacity limitations for service to City customers and shall be under no obligation to permit connections which may cause it to exceed capacity projections included in the current Phase One of the City's General Sewer Plan. As a condition of service to any property within the City, the City shall issue a letter to

LUD indicating the parcel, or parcels, of property meets the City planning criteria for connecting to the City sewer system, and by so doing, the City shall be deemed to be exercising approval authority for sewer connections issued within the City.

2.2 Connection Charges: The City shall establish connection charges for customers within its jurisdiction. Property owner's connecting to the sewer system shall, prior to connection, pay to LUD the connection charges established by LUD and those adopted by the City for connection to its system and the connection charges established by the City for service through its sewer system. City connection charges collected by LUD shall be sent to the City monthly. LUD will determine the level of sewer system capacity utilization of customers within the City and will retain the authority to levy charges to such customers for excess capacity utilized in the LUD system. LUD will provide such capacity information to the City and, where directed, levy charges to customers within the City as set forth in the City capacity charge schedule, and remit to the City, upon payment, the charge for excess capacity utilized in the City sewer system.

2.3 Rates: The City shall set monthly rates for sewer service to customers within its jurisdiction. Such rates shall include LUD rates, as set by resolution of the LUD Board of Commissioners. LUD shall communicate its estimated schedule for updates to its rate resolution for the following year by the first of September for the adoption by the City beginning January 1 of the following year. LUD will bill, on a bi-monthly basis, sewer customers within the City and remit the City rates collected during the preceding billing period to the City on a bi-monthly basis. By execution of this Agreement, the City, to the extent permissible, assigns its authority to collect rates and charges to LUD as necessary to enable it to collect rates and charges on behalf of Edgewood. LUD will be responsible to collect any delinquent customer accounts for service to property within the City. The form of the customer bill shall be as determined by LUD (Exhibit "D" is attached as a sample of information that may be included in customer bills within the City).

3. Sewer Improvements:

3.1 Construction: The parties acknowledge that a connection facility shall be installed between the City and the LUD sewer system at LUD SSMH No. 29, Record Drawing No. 1633, located in the vicinity of the intersection of 19th Way S. and Enchanted Parkway S. (see Exhibit E). The City shall be responsible for installing and shall own such connection improvements and other appurtenances pursuant to the approval of plans and specifications by LUD. Unless expressly approved by the City, LUD shall have no authority to make connections into such line to serve LUD customers.

3.2 Improvements/Extensions: The City shall own all collection system improvements within its boundaries, the installation of which shall be made to conform to LUD standards. The City shall install and maintain, at its cost, a radio telemetry system sufficient, as determined by LUD, to provide functional telemetry-based connectivity of its facilities to LUD's telemetry system. The City shall be solely responsible for the authorization for, and administration of, any Utility Local Improvement Districts (ULID's) or Local Improvement Districts (LID's) to be formed for the installation of sewer facilities within the City. Applications for private extensions to the sewer system with the City will be made to the City and contracts for extensions will be executed between the property owner and the City. LUD will administer the contracts for system extensions in accordance with its standards and practices for contracts for system extensions within LUD, and will collect all charges from the City in reimbursement of its costs associated therewith. The parties agree to

cooperate to share information concerning their respective development requirements and standards as necessary to allow LUD to efficiently administer the extension agreements. The installation of any joint facilities required for service shall be administered pursuant to separate agreement between the parties.

3.3 Approvals: The City shall provide LUD with a copy of its General Sewer Plan upon approval of such plan by DOE. All changes, updates, or modifications to the City General Sewer Plan, Title 11 EMC, or Design and Construction Standards, shall be submitted to LUD for review and comment prior to adoption by the City.

3.4 Operation and Maintenance: LUD shall perform regular operation and maintenance of the connection facility and the City collection system as necessary and consistent with the level of operation and maintenance it provides within its service area. Should additional or abnormal maintenance activities be required, including, but not limited to, the replacement of manholes or repair or replacement of any capital item costing in excess of $5,000, due to the condition of the City facilities or sewage, LUD shall consult, either orally or in writing with the City about the need for such expenditure and if the City gives approval, which approval shall not be unreasonably withheld, bill the City for the cost of such additional maintenance and the City shall pay LUD such amounts within thirty days of the date of the billing for such services. The City shall be responsible to repair any damage caused by vandalism and to cause the disconnection of, or otherwise remedy at the direction of LUD, illegal connections, including those that violate discharge or pretreatment standards applicable to LUD, occurring within the City. LUD shall be indemnified and held harmless from the cost of vandalism and from liability of any kind for illegal connections and be reimbursed by the City for its costs associated therewith. The City shall be responsible to, where appropriate, disconnect property no longer deemed by LUD to require, or otherwise be eligible for, sewer service from the system. Except to the extent resulting from the negligence of LUD, the City shall be solely responsible to the District and/or the property owner for any backups in the sewer system within the City and to repair, rehabilitate or replace, in a reasonable time, any facility LUD determines to require repair, rehabilitation or replacement. In an emergency, LUD shall perform the work needed and bill the City for said work. LUD shall make a good faith effort to notify City staff before such work begins, if possible, in the emergency situation. City staff will be notified as soon as possible, if the work needs to be accomplished immediately. LUD shall perform facility locations requested within the City, however, LUD shall not be responsible for the consequences of erroneous locates resulting from any incomplete or inaccurate information provided to it in connection with the locate service. Billings to the City for any work or administrative charge levied in accordance with this Agreement shall be paid by the City within thirty (30) days of the date of transmittal of such billing and the City agrees to pay LUD interest on such billings not paid when due at a rate of 6% per annum. Should it be necessary to institute legal action to collect such amounts, the prevailing party shall be entitled to collect its costs, including attorneys fees, from the non-prevailing party.

3.5 The City agrees that sewer service within the City will be provided pursuant to LUD standards, regulations and policies as currently exist and as may be amended from time to time. The District may recognize City regulations not in conflict with LUD regulations.

4. Term: Unless terminated for default or as otherwise agreed in writing by the parties, this agreement shall run for twenty years from the date of execution below and shall automatically extend for five additional twenty year terms, unless within five years from the end of the initial

or any extension term, a party gives notice of its intent to not extend the agreement, in which case the agreement shall expire at the end of the term. In the event either party intends to terminate earlier than the end of a term, or extension term, the party shall give notice of its intent to terminate ten years prior to termination. The parties agree that either party may terminate this Agreement at any time the other shall be in material default of its obligations hereunder, including, but not limited to, the obligation to pay any bill when due or to remedy any illegal connection in a timely manner; provided, however, that before termination, such party shall give the other party 180 days prior written notice of the alleged default and an opportunity to cure such default. The City shall have the authority to elect to independently manage and maintain the collection system within the City without terminating the treatment provisions of this Agreement. In the event the city so elects to independently manage and maintain the collection system within the City without terminating the treatment provisions of this Agreement, the City shall give LUD 180 days notice of such election and parties will agree to meet to discuss any administrative matters associated therewith. Lakehaven shall determine whether, and to what extent, that it will make any rate adjustment for City customers in response to the City's operation and maintenance of the sewer collection system.

5. Indemnification and Defense: LUD shall defend, indemnify and save harmless the City, its officers, employees and agents from any and all costs, claims, judgments, or awards of damages, resulting from the acts or omissions of LUD, its officers, employees, or agents associated with this agreement. In executing this agreement, LUD does not assume liability or responsibility for or in any way release the City from any liability or responsibility which arises in whole or in part from the existence or effect of City ordinances, rules, regulations, resolutions, customs, policies, or practices. If any cause, claim, suit, action or administrative proceeding is commenced in which the enforceability and/or validity of any such City ordinance, rule, regulation, resolution, custom, policy or practice is at issue, the City shall defend the same at its sole expense and if judgment is entered or damages are awarded against the City, LUD, or both, the City shall satisfy the same, including all chargeable costs and attorney's service charges.

   The City shall defend, indemnify and save harmless LUD, its officers, employees and agents from any and all costs, claims, judgments or awards of damages, resulting from the acts or omissions of the City, its officers, employees or agents associated with this agreement. In executing this agreement, the City does not assume liability or responsibility for or in any way release LUD from any liability or responsibility which arises in whole or in part from the existence or effect of LUD ordinances, rules, regulations, resolutions, customs, policies, or practices. If any cause, claim, suit, action or administrative proceeding is commenced in which the enforceability and/or validity of any such LUD ordinance, rule, regulation, resolution, custom, policy or practice is at issue, LUD shall defend the same at its sole expense and if judgment is entered or damages are awarded against LUD, the City, or both, LUD shall satisfy the same, including all chargeable costs and attorney's service charges.

   The City shall, prior to the connection of any property to the City sewer system pursuant to this Agreement, obtain modification of the Pierce County Sewer General Plan to reflect LUD's designation as the provider of treatment for the service area noted in Exhibit "B" and procure, and provide to LUD, any other necessary approvals for this Agreement and the services to be provided by LUD from agencies with jurisdiction over sewer service within the City.

   The obligations to indemnify, defend and hold harmless expressed herein shall survive the expiration of this Agreement.

6. Dispute Resolution/Venue. The parties agree to cooperate to submit any dispute or disputes that arise in connection with this Agreement or the performance of any term hereunder to mediation and to use good faith in attempting to secure a resolution through meditation. In the event that the parties are unable to resolve such dispute or disputes through mediation, it is agreed that the disputed matter/s shall be submitted to the jurisdiction of the King County Superior Court. In any such proceeding, the parties shall bear their own attorneys fees and costs, including those costs and attorneys fees incurred on appeal.

7. No Third-Party Beneficiary. LUD does not intend by this agreement to assume any contractual obligations to anyone other than the City, and the City does not intend by this agreement to assume any contractual obligations to anyone other than LUD. LUD and the City do not intend that there be any third-party beneficiary to this agreement.

8. Assignment. Neither LUD nor the City shall have the right to transfer or assign, in whole or in part, any or all of its obligations and rights hereunder without the prior written consent of the other Party.

9. Notice. Any formal notice or communication to be given by LUD to the City under this agreement shall be deemed properly given if delivered, or if mailed postage prepaid and addressed to:

   City of Edgewood
   2221 Meridian Avenue East
   Edgewood, WA 98371-1010
   Attention: City Manager

   Any formal notice or communication to be given by the City to the LUD under this agreement shall be deemed properly given if delivered, or if mailed postage prepaid and addressed to:

   Lakehaven Utility District
   31627 1st Avenue South
   Federal Way, WA 98003
   Attention: General Manager

   The name and address to which notices and communications shall be directed may be changed at any time, and from time to time, by either the City or LUD giving notice thereof to the other as herein provided.

10. LUD As Independent Contractor. LUD is, and shall at all times be deemed to be, an independent contractor. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between City and LUD or any of the LUD's agents or employees. The LUD shall retain all authority for standards of performance, control of personnel, and other matters incident to the performance of services by LUD pursuant to this Agreement.

    Nothing in this agreement shall make any employee of the City a LUD employee or any employee of the LUD a City employee for any purpose, including, but not limited to, for withholding of taxes, payment of benefits, worker's compensation pursuant to Title 51 RCW, or any other rights or privileges accorded LUD or City employees by virtue of their employment.

11. Waiver. No waiver by either party of any term or condition of this Agreement shall be deemed or construed to constitute a waiver of any other term or condition or of any subsequent breach, whether of the same or a different provision of this agreement.

12. Amendment. Provisions within this agreement may be amended with the mutual consent of the parties hereto. No additions to, or alteration of, the terms of this agreement shall be valid unless made in writing, formally approved and executed by duly authorized agents of both parties.

13. No Real Property Acquisition or Joint Financing. This Agreement does not provide for the acquisition, holding or disposal of real property. Nor does this Agreement contemplate the financing of any joint or cooperative undertaking. There shall be no budget maintained for any joint or cooperative undertaking pursuant to this Agreement. Pursuant to RCW 39.34.040 this Agreement shall be listed by subject matter on each party's web site.

14. Severability. If any of the provisions contained in this Agreement is illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Agreement this 23rd day of January, 2007.

LAKEHAVEN UTILITY DISTRICT

Donald Perry, General Manager

Date: 1/23/07

APPROVED AS TO FORM:

Steven H. Pritchett, General Counsel

CITY OF EDGEWOOD

Henry J. Lawrence, Jr., City Manager

Date: 1/3/07

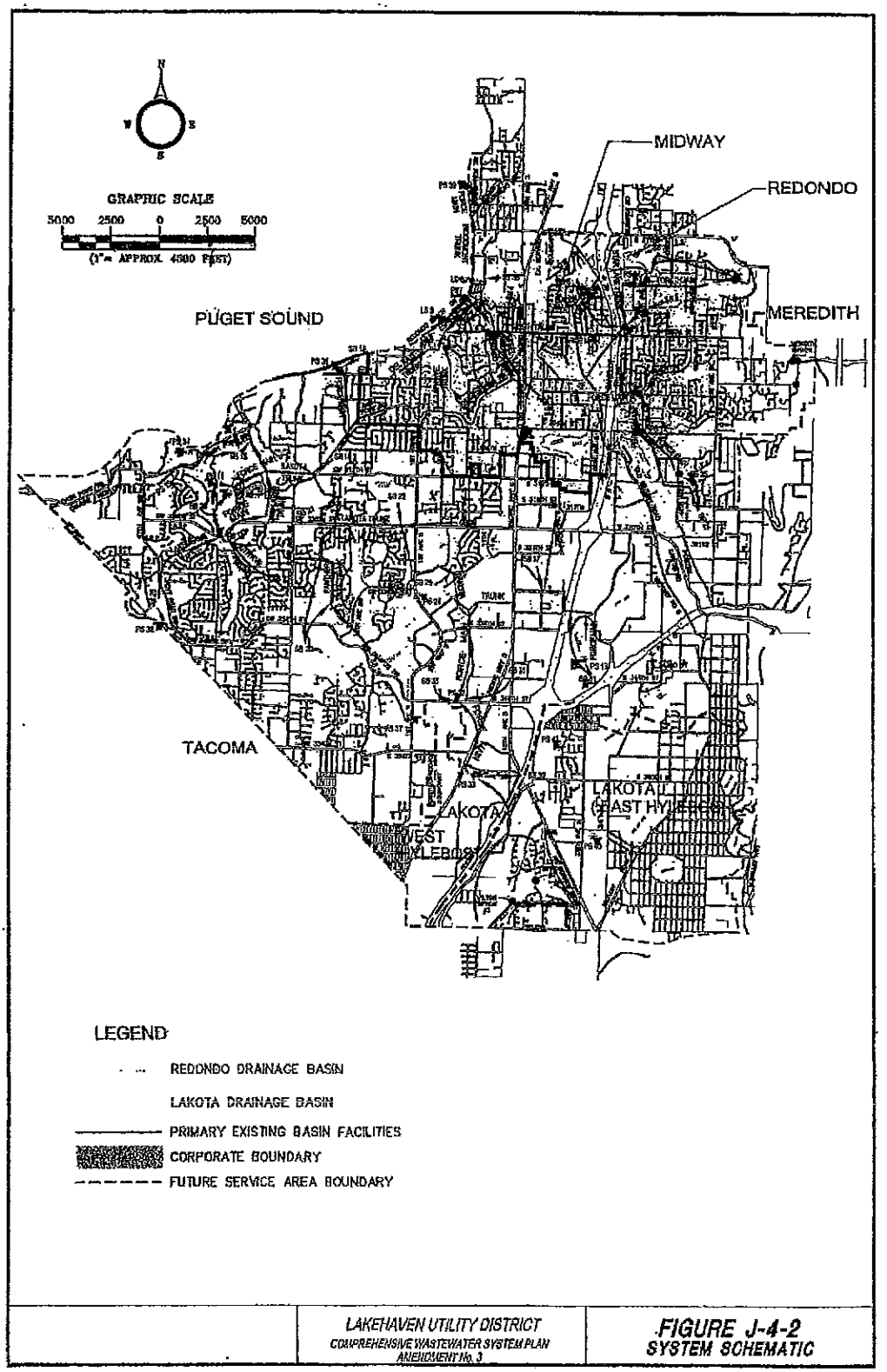
ATTEST/AUTHENTICATED:

Terri Berry, City Clerk

APPROVED AS TO FORM:

Wayne D. Tanaka, City Attorney

EXHIBIT A
LAKEHAVEN UTILITY DISTRICT
SERVICE AREA



	LAKEHAVEN UTILITY DISTRICT COMPREHENSIVE WASTEWATER SYSTEM PLAN AMENDMENT No. 3	FIGURE J-4-2 SYSTEM SCHEMATIC

Exhibit "B"

Edgewood City Limits

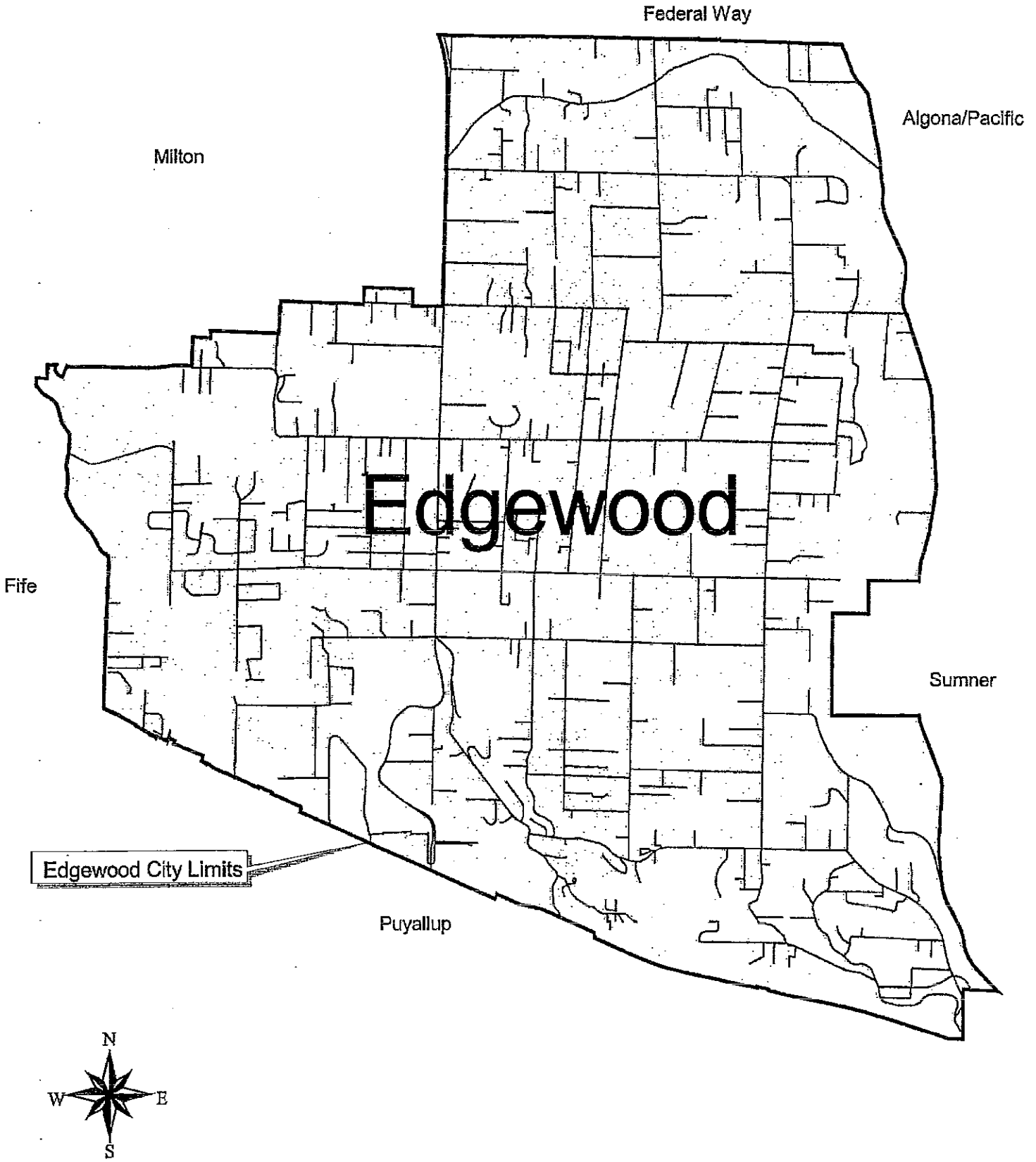


EXHIBIT "C"

June 15, 2007

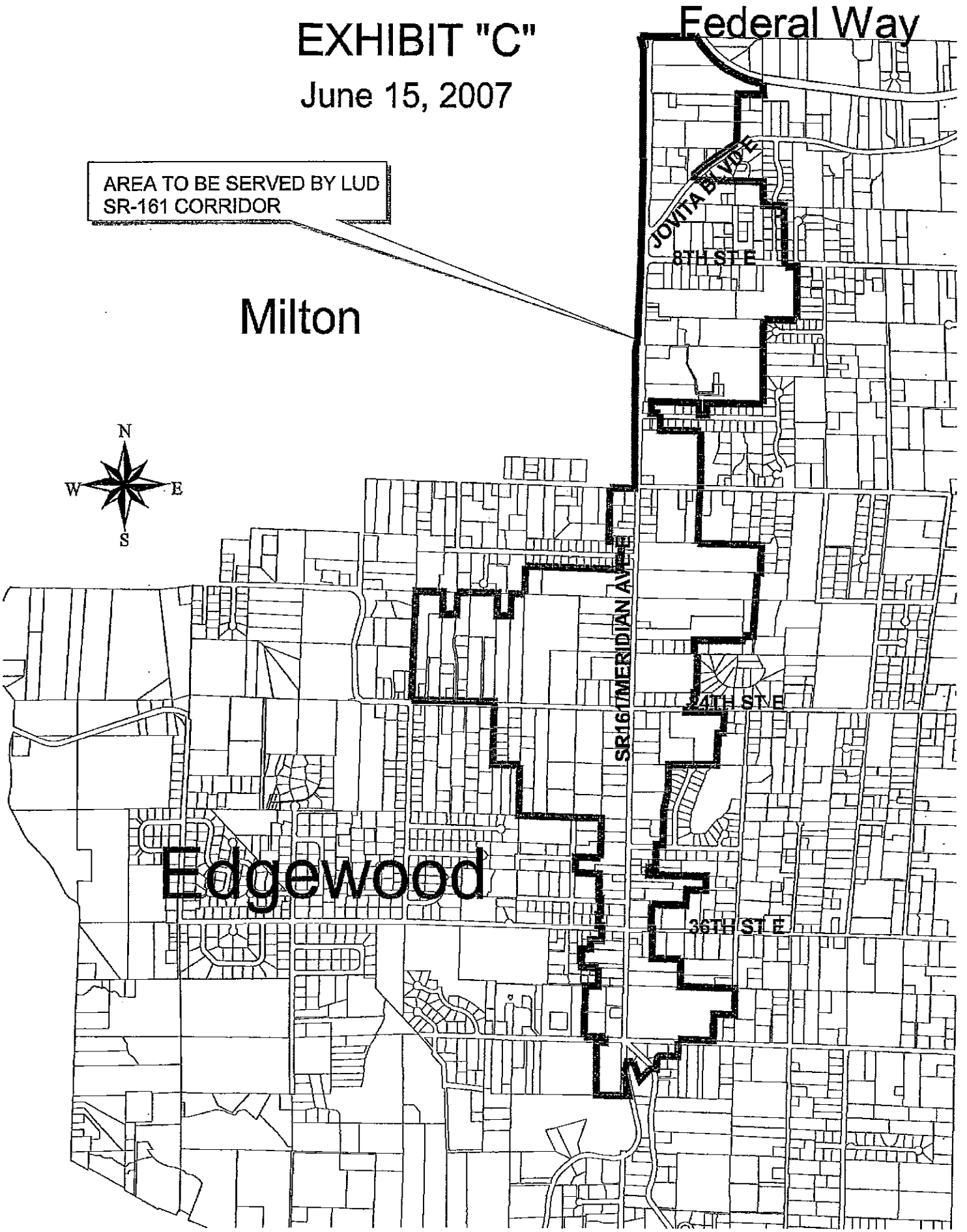


EXHIBIT D

CUSTOMER BILLS WITHIN THE CITY OF EDGEWOOD

Items that may be included in the LUD billing to City customers include but are not be limited to the following:

1. Normal fees and charges for service for LUD.

2. LUD capacity lease or rental cost, if utilization of capacity exceeds that purchased by the customer for the property.

3. Any capacity charge lease or rental cost the City would charge for utilization of capacity exceeding that which was purchased by the customer for the property.

4. Discharge cost for customer: (NPDES, pretreatment etc) any additional charges related to pretreatment or NPDES charges that are related to the property specifically.

5. City of Edgewood costs that the City sets and the LUD will be including on the bills are: Overhead costs incurred by Lakehaven for administering and responding to non-Lakehaven charges and reimbursements exclusive to the City, such as for collection of utility taxes imposed by the City and reimbursements for same.

6. Normal taxes that are included on LUD bills (based on the total of the above charges noted).

7. Delinquent Charges and penalties.

8. City Utility Tax, if applicable.

EXHIBIT E(1)

LOCATION OF CONNECTION OF CITY TO LUD SEWER SYSTEM

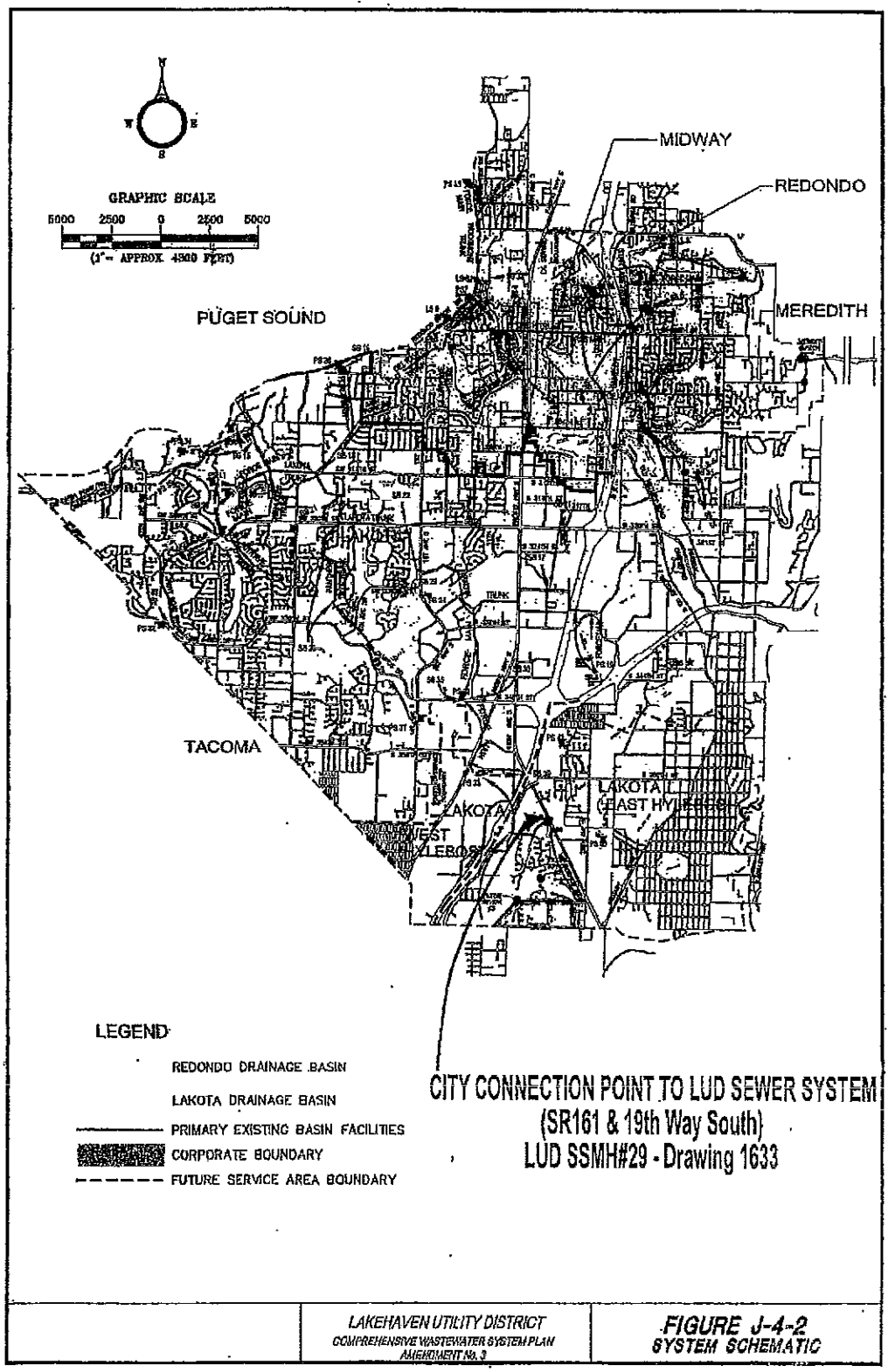
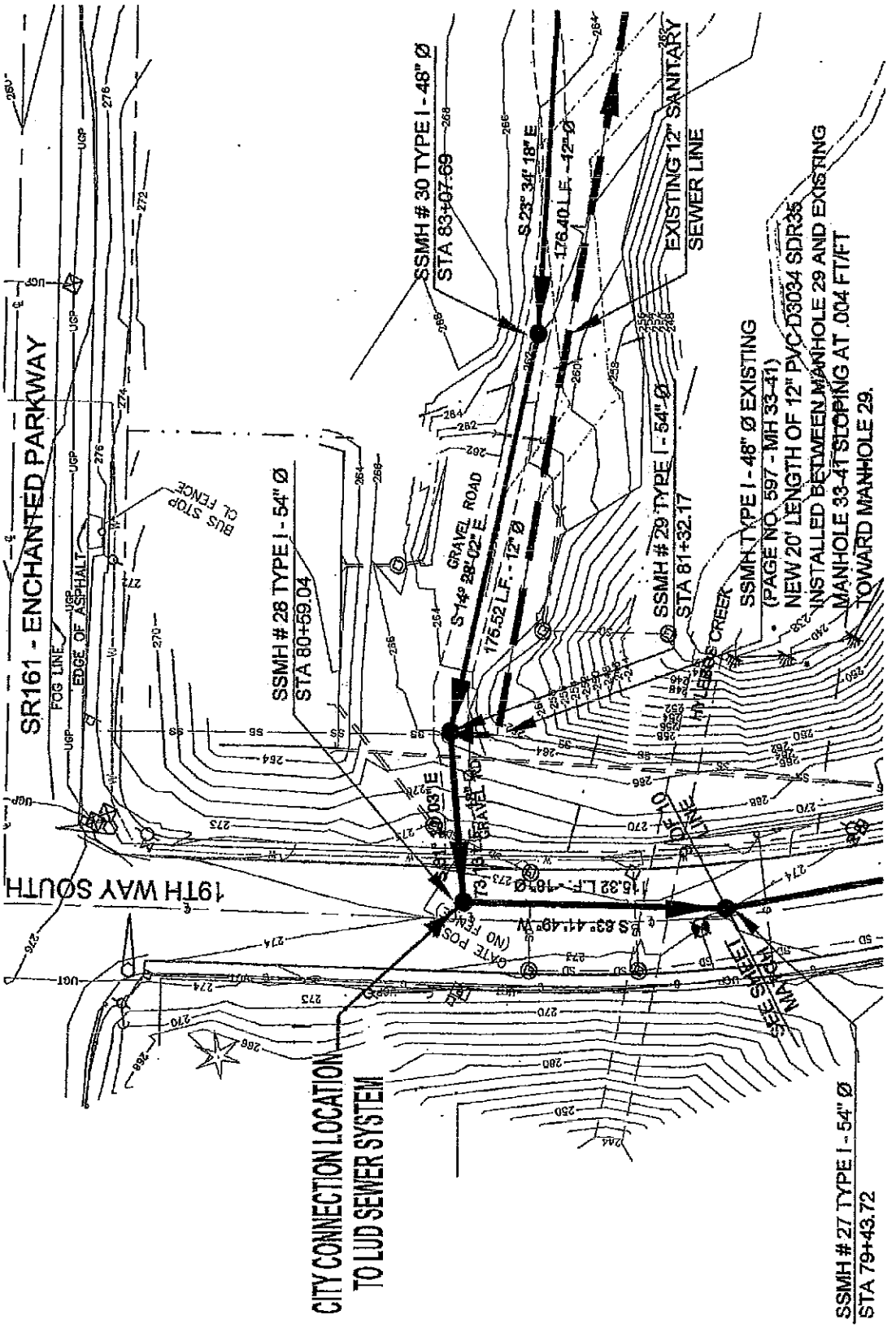


EXHIBIT E(2)

LOCATION OF CONNECTION OF CITY TO LUD SEWER SYSTEM



RESOLUTION NO. 21-0592

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, AUTHORIZING THE MAYOR TO SIGN INTO A FIRST AMENDMENT TO THE INTERLOCAL AGREEMENT WITH LAKEHAVEN WATER AND SEWER DISTRICT

WHEREAS, on January 23, 2007, the City of Edgewood ("City") and Lakehaven Water and Sewer District ("Lakehaven" or "District") executed an Interlocal Agreement pursuant to RCW Ch. 39.34 ("ILA"); and

WHEREAS, the City and the District now desire to amend the ILA to revise Exhibit C-1 of the ILA, depicting the City's Sewer Service Area—Phase 1;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The Mayor is hereby authorized to sign the First Amendment to the Interlocal Agreement between the City of Edgewood and Lakehaven Water and Sewer District, in substantially the same form as attached to this resolution and incorporated herein as Exhibit A.

Section 2. This resolution will take effect immediately upon passage by the City Council.

ADOPTED THIS 24TH DAY OF AUGUST, 2021.

Daryl Eidinger, Mayor

ATTEST:

Rachel Pitzel, CMC
City Clerk

Exhibit A

First Amendment to Interlocal Agreement Between City of Edgewood and Lakehaven Water and Sewer District

FIRST AMENDMENT TO AGREEMENT BETWEEN CITY OF EDGEWOOD AND LAKEHAVEN WATER AND SEWER DISTRICT

WHEREAS, the City of Edgewood ("City" or "Edgewood") and the Lakehaven Water and Sewer District ("LWSD" or "District") entered into an Interlocal Agreement pursuant to RCW Ch. 39.34 dated January 23, 2007 ("ILA"); and

WHEREAS, the ILA established the terms and conditions under which the LWSD accepts, conveys, and treats sewage from residential and non-residential property lying within the City; and

WHEREAS, the parties desires to amend the ILA through this First Amendment to the ILA ("First Amendment");

NOW, THEREFORE, IN CONSIDERATION OF THE PROMISES, COVENANTS, AND AGREEMENTS CONTAINED IN THE INTERLOCAL AGREEMENT, THE PARTIES FURTHER AGREE AS FOLLOWS:

A. Exhibit C of the ILA is hereby superseded and replaced with Exhibit C-1 attached to this First Amendment and incorporated herein by reference.

B. All other terms of the ILA remain unchanged and enforceable. In the case of any conflict between the terms of the ILA and this First Amendment, the provisions of this First Amendment shall control.

IN WITNESS THEREOF, the Parties have caused this First Amendment to be executed this 23rd day of September, 2021.

CITY OF EDGEWOOD

By: _____

Its: Mayor, Daryl Eidinger

Date: 25 AUGUST 2021

LAKEHAVEN WATER AND SEWER DISTRICT

By: _____

Printed Name: John Bowman

Its: General Manager

Date: 9/23/21

ATTEST:

_____

City Clerk, Rachel Pitzel

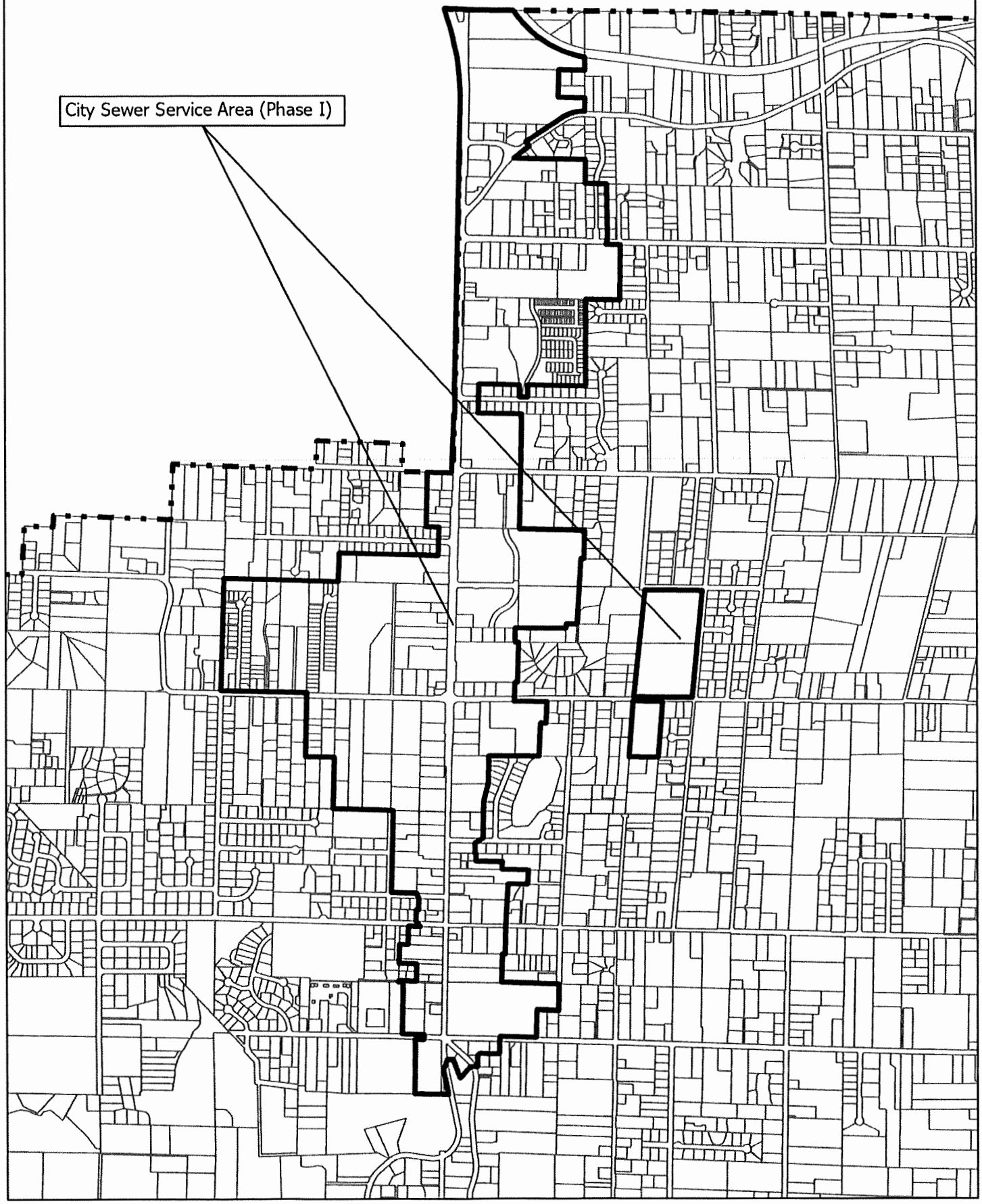
APPROVED AS TO FORM:

City Attorney, Ann Marie Soto

APPROVED AS TO FORM:

General Counsel, Steven H. Pritchett

Exhibit C-1



RESOLUTION NO. 22-0621

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, AUTHORIZING THE MAYOR TO SIGN INTO A SECOND AMENDMENT TO THE INTERLOCAL AGREEMENT WITH LAKEHAVEN WATER AND SEWER DISTRICT

WHEREAS, on January 23, 2007, the City of Edgewood ("City") and Lakehaven Water and Sewer District ("Lakehaven" or "District") executed an Interlocal Agreement pursuant to RCW Ch. 39.34 ("ILA"); and

WHEREAS, the City and the District executed the First Amendment to the ILA on September 23, 2021; and

WHEREAS, the City and the District now desire to amend the ILA to revise Exhibit C-1 of the ILA, depicting the City's Sewer Service Area—Phase 1;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The Mayor is hereby authorized to sign the Second Amendment to the Interlocal Agreement between the City of Edgewood and Lakehaven Water and Sewer District, in substantially the same form as attached to this resolution and incorporated herein as Exhibit A.

Section 2. This resolution will take effect immediately upon passage by the City Council.

ADOPTED THIS 26TH DAY OF APRIL, 2022.

Daryl Eidinger, Mayor

ATTEST:

Rachel Pitzel, CMC
City Clerk

Exhibit A

Second Amendment to Interlocal Agreement Between City of Edgewood and Lakehaven Water and Sewer District

SECOND AMENDMENT TO AGREEMENT BETWEEN CITY OF EDGEWOOD AND LAKEHAVEN WATER AND SEWER DISTRICT

WHEREAS, the City of Edgewood ("City" or "Edgewood") and the Lakehaven Water and Sewer District ("LWSD" or "District") entered into an Interlocal Agreement pursuant to RCW Ch. 39.34 dated January 23, 2007 ("ILA"); and

WHEREAS, the ILA established the terms and conditions under which the LWSD accepts, conveys, and treats sewage from residential and non-residential property lying within the City; and

WHEREAS, the parties executed the First Amendment to the ILA on September 23, 2021; and

WHEREAS, the parties desire to amend the ILA through this Second Amendment to the ILA ("Second Amendment");

NOW, THEREFORE, IN CONSIDERATION OF THE PROMISES, COVENANTS, AND AGREEMENTS CONTAINED IN THE INTERLOCAL AGREEMENT, THE PARTIES FURTHER AGREE AS FOLLOWS:

A. Exhibit C-1 of the amended ILA is hereby superseded and replaced with Exhibit C-2 attached to this Second Amendment and incorporated herein by reference.

B. All other terms of the ILA remain unchanged and enforceable. In the case of any conflict between the terms of the ILA, the First Amendment, and this Second Amendment, the provisions of this Second Amendment shall control.

IN WITNESS THEREOF, the Parties have caused this First Amendment to be executed this 26th day of April, 2022.

CITY OF EDGEWOOD

By: _____

Its: Mayor, Daryl Eidinger

Date: 4/27/22

ATTEST:

Rachel Ame

City Clerk, Rachel Pitzel

LAKEHAVEN WATER AND SEWER DISTRICT

By: _____

Printed Name: John Bowman

Its: General Manager

Date: 5/16/22

APPROVED AS TO FORM:

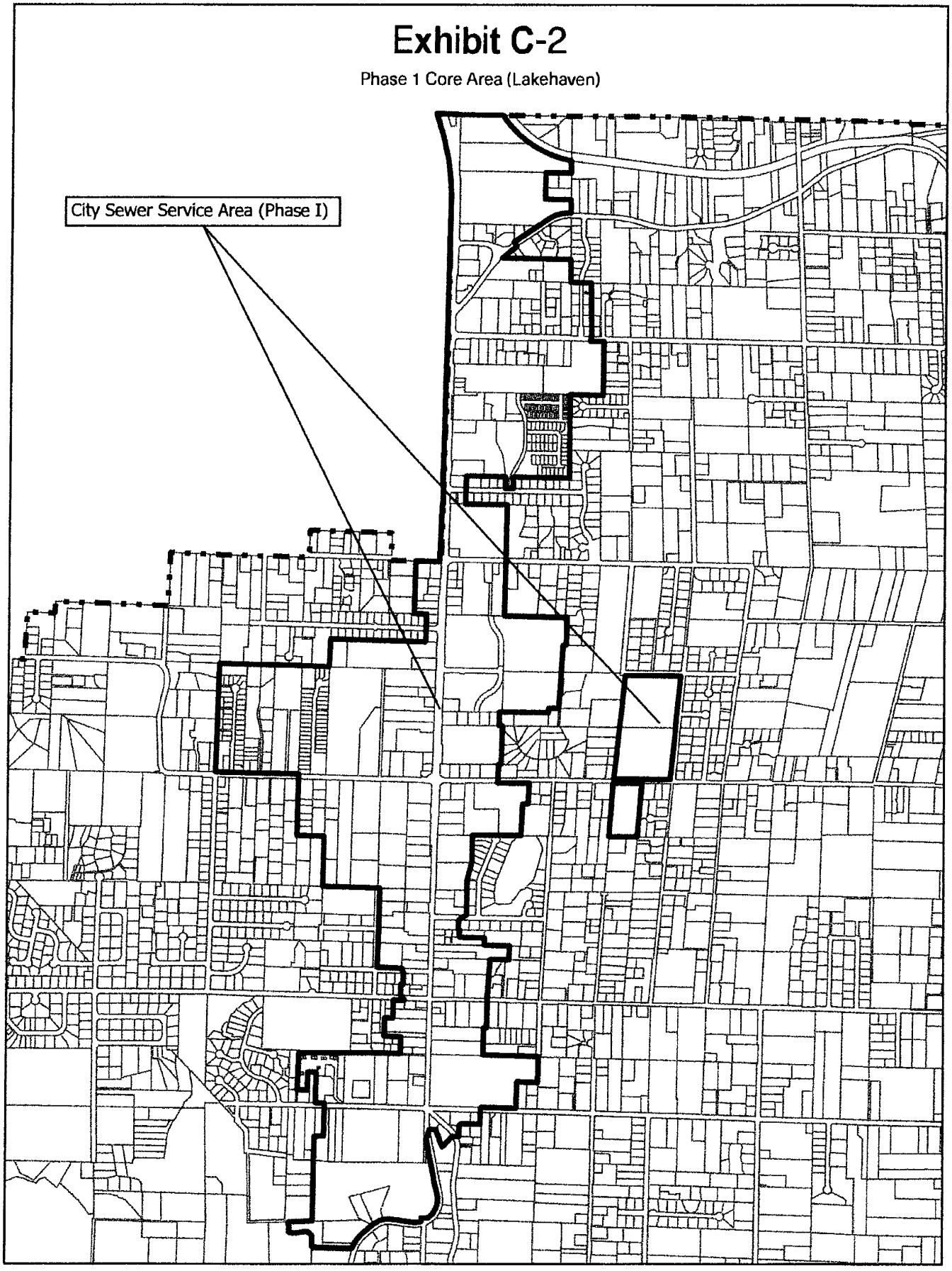
City Attorney, Ann Marie Soto

APPROVED AS TO FORM:

General Counsel, Steven H. Pritchett

Exhibit C-2

Phase 1 Core Area (Lakehaven)



INTERLOCAL AGREEMENT BETWEEN THE PUYALLUP SCHOOL DISTRICT, PIERCE COUNTY AND THE CITY OF EDGEWOOD FOR THE PROVISION OF SANITARY SEWER SERVICE TO NORTHWOOD ELEMENTARY SCHOOL

THIS AGREEMENT is entered into this day by and between the Puyallup School District (herein known as the "District"), Pierce County (herein known as the "County"), and The City of Edgewood (herein known as the "City").

WHEREAS, the City incorporated on February 28, 1996; and

WHEREAS, the City is in the process of preparing its first comprehensive plan; and

WHEREAS, through the comprehensive planning process, the City will determine where it is appropriate for growth and development to occur within its boundaries; and

WHEREAS, the City Council of the City of Edgewood desires that sewer service not be extended or installed until such time as the City has completed its comprehensive planning process; and

WHEREAS, Pierce County operates a sanitary sewer utility which includes a sanitary sewer line located within Taylor Way East (also known as 16th Street East); and

WHEREAS, the Puyallup School District owns and operates the Northwood Elementary School located within the City at 9805 24th Street East, which disposes of its waste by directing its effluent unto a large holding tank which is pumped and trucked for disposal on a regular basis; and

WHEREAS, the Puyallup School District desires to connect its Northwood Elementary School to a permanent sanitary sewer system to alleviate the need to regularly pump the holding tanks serving the school; and

WHEREAS, connection of Northwood Elementary would require the installation of a sewer line that would traverse over private property and within the City's right-of-way to a connection point in Taylor Way East; and

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

ORIGINAL

97-025

SECTION 1. The district shall design and construct, at its own cost, an 8" sanitary sewer line to serve its Northwood Elementary School property. The City hereby authorizes the District and the County to utilize a portion of the City right-of-way within which to locate the sewer line. The routing of the sewer line, including that portion of right-of-way to be utilized, based on preliminary engineering drawings is shown in Exhibit "A" attached hereto and incorporated herein by this reference. This authorization is further conditioned by the terms outlined below:

A. The District shall be responsible for obtaining all plan and permit approval from the County in order to connect to the County's sanitary sewer line in Taylor Way East.

   1. All plans must be reviewed and approved by the City prior to submittal to the County for approval.

   2. The County shall consult with the City on all matters pertaining to the placement of lines within the City right-of-way and road restoration.

B. This agreement shall apply to the provision of sanitary sewer service to Northwood Elementary School property only, and shall in no way be construed to apply to any other property near or adjacent to Northwood, except as provided for in this agreement.

   1. Provided that the district shall not permit any other property owners to hookup to their private side sewer.

   2. Provided that nothing in this agreement shall prevent the School District from hooking up the new Edgemont Junior High to their private side sewer.

C. Sanitary sewer service shall be provided only in accordance with plans developed by a licensed engineer and approved by the County and after payment of all relevant fees and connection charges to the County.

D. The Puyallup School District shall assume responsibility for all costs associated with the connection of sewer service to Northwood Elementary School property, including all County permit fees, connection charges, and construction and engineering costs associated with installing the pipeline, and pretreatment facilities such as a grease interceptor or acid neutralizers; provided that

1. Nothing shall preclude the District from executing a latecomers' agreement in accordance with the provisions of this agreement in order to recoup a portion of the expenses associated with installing the line from subsequent property owners who may utilize the sanitary sewer main;

2. The City shall incur no expense associated with this agreement.

E. As the area within which the District property is located may fall within the sanitary sewer service area of the City of Puyallup and the City of Puyallup has no sewer facilities within this area, the District will assist the County in obtaining the written consent of the City of Puyallup for the County to provide sanitary sewer service to the District property.

SECTION 2. Nothing in this agreement shall preclude the County from approving requests from individual property owners to connect to the sanitary sewer line installed by the District, PROVIDED that all of the following conditions have been met:

A. Any associated land use or right-of-way use permit application request has been reviewed and approved by the City.

B. The request is to serve an existing single family residence whose septic system has failed and cannot be repaired or replaced in accordance with Tacoma-Pierce County Health Department standards, or the request is for side sewer service to serve a newly constructed single family residence located on property within 300' from the sanitary sewer line as depicted in exhibit A.

1. Provided that nothing in this agreement shall be construed to permit the extension of sanitary sewer service to new construction beyond this 300' limitation.

C. The request to connect to sewers is entirely voluntary. No involuntary connections, other than those mandated by the Health Department due to health risks associated with failed systems, shall be required.

D. All engineering and construction costs and connection charges associated with connecting the property to sewers will be borne by the party seeking connection.

SECTION 3. **CITY WILL GRANT A LIMITED FRANCHISE.** The City of Edgewood hereby confers to Pierce County a franchise to use City right-of-way for

purposes of maintaining and operating the sewer line to be installed by the District within the City right-of-way and for other purposes as outlined in this agreement.

SECTION 4. **TERM OF THE AGREEMENT.** This agreement shall become effective upon signature by all parties, and shall remain in effect as along as Northwood Elementary School remains in service, provided that this agreement shall become null and void if construction has not commenced by January 1, 1999. This agreement may be modified by mutual agreement of all parties.

SECTION 5. **INDEMNIFICATION AND DEFENSE.** The City shall defend, indemnify and save harmless the County, its officers, employees and agents from any and all costs, claims, judgments, or awards of damages, resulting from the acts or omissions of the City, its officers, employees or agents associated with this Agreement. In executing this Agreement, the City does not assume liability or responsibility for or in any way release the County from any liability or responsibility which arises in whole or in part from the existence or effect of County ordinances, rules, regulations, resolutions, customs, policies or practices. If any cause, claim, suite, action, or administrative proceeding is commenced in which the enforceability and/or validity of any such County ordinance, rule, regulation, resolution, custom, policy, or practice is at issue, the County shall defend the same at its sole expense, and if judgment is entered or damages are awarded against the County, the City or both, the County shall satisfy the same including all chargeable costs and attorney's service charges.

The County shall defend, indemnify and save harmless the City, its officers, employees and agents from any and all costs, claims, judgments, or awards of damages, resulting from the acts or omissions of the County, its officers, employees, or agents associated with this agreement. In executing this agreement, the County does not assume liability or responsibility for, or release the City from, any liability or responsibility to the extent that such liability or responsibility arises from the existence or effect of City ordinances, rules, regulations, resolutions, customs, policies, or practices. If any cause, claim, suit, action or administrative proceeding is commenced in which the enforceability and/or validity of any such City ordinance, rule, regulation, resolution, custom, policy or practice is at issue, the City shall defend the same at its sole expense and if judgment is entered or damages are awarded against the City, the County, or both, the City shall satisfy the same, including all chargeable costs and attorney's fees.

SECTION 6. **NO REAL PROPERTY ACQUISITION OR JOINT FINANCING.** This Interlocal Agreement doe not provide for the acquisition, holding or disposal of real property. Nor does this Agreement contemplate the financing of any joint or cooperative undertaking. There shall be no budget maintained for any joint or cooperative undertaking pursuant to this Interlocal Agreement.

SECTION 7. **NO THIRD PARTY BENEFICIARY.** The County does not intend by this agreement to assume any contractual obligations to anyone other than the City, and the City does not intend by this agreement to assume any contractual obligations to anyone other than the County. The County and the City do not intend that there be any third-party beneficiary to this agreement.

SECTION 8. **SEVERABILITY.** If any of the provisions contained in this Agreement are held illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on this 9th day of December, 1997

EDGEWOOD

T.D. Faherty, Mayor

Stephen L. Anderson, City Manager

APPROVED AS TO FORM:

Lisa Marshall, City Attorney

Nacelle Heuslein, City Clerk

PUYALLUP SCHOOL DISTRICT

By: Mindy Thompson

Its: President of the Board

PIERCE COUNTY

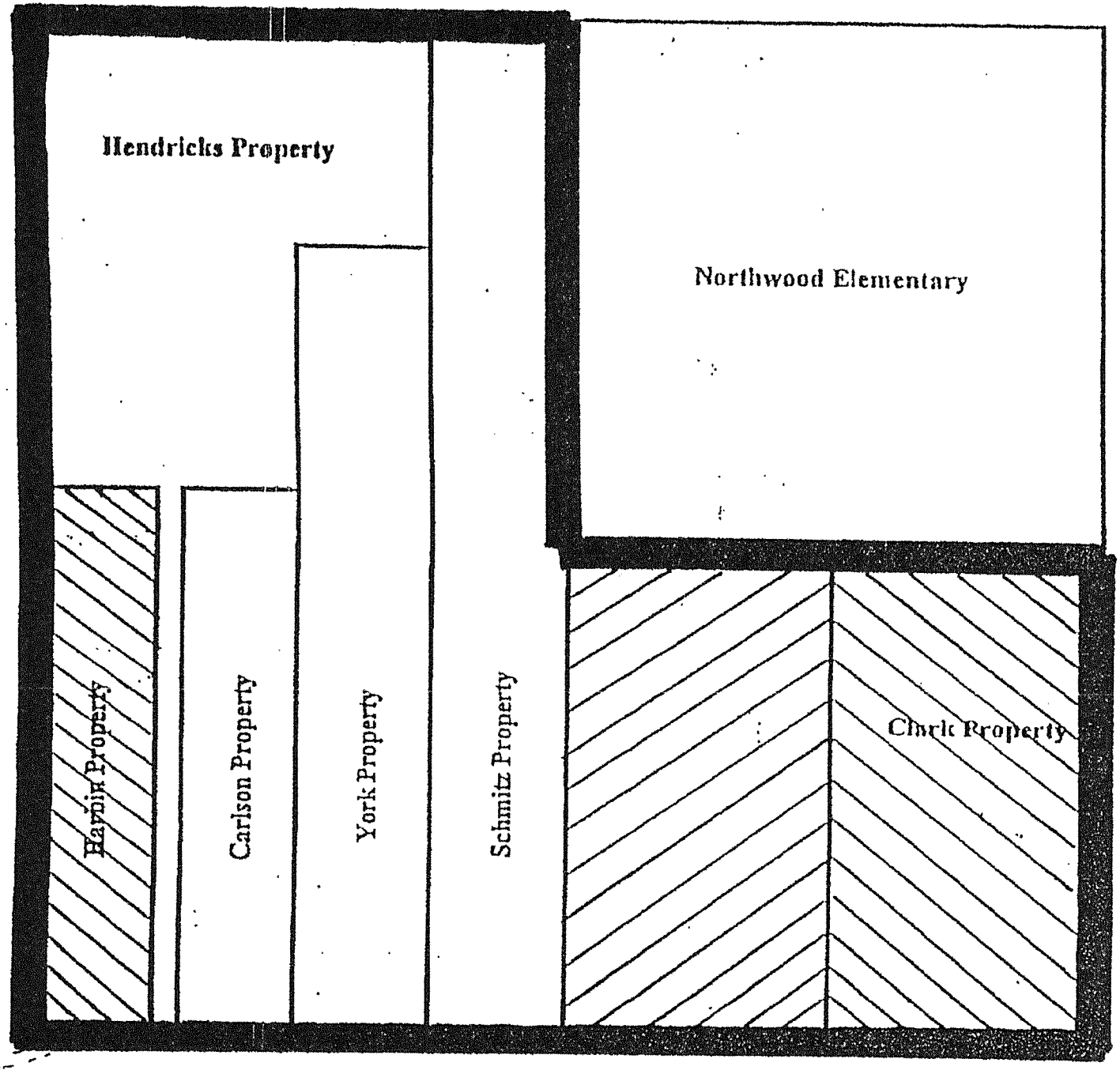
Department Director — Date 11/14/97

Dep. Prosecuting Attorney — Date 11/18/97
(As to form only)

Budget and Finance — Date 12-8

Executive Director — Date 12/9

County Executive — Date
(if over $50,000)



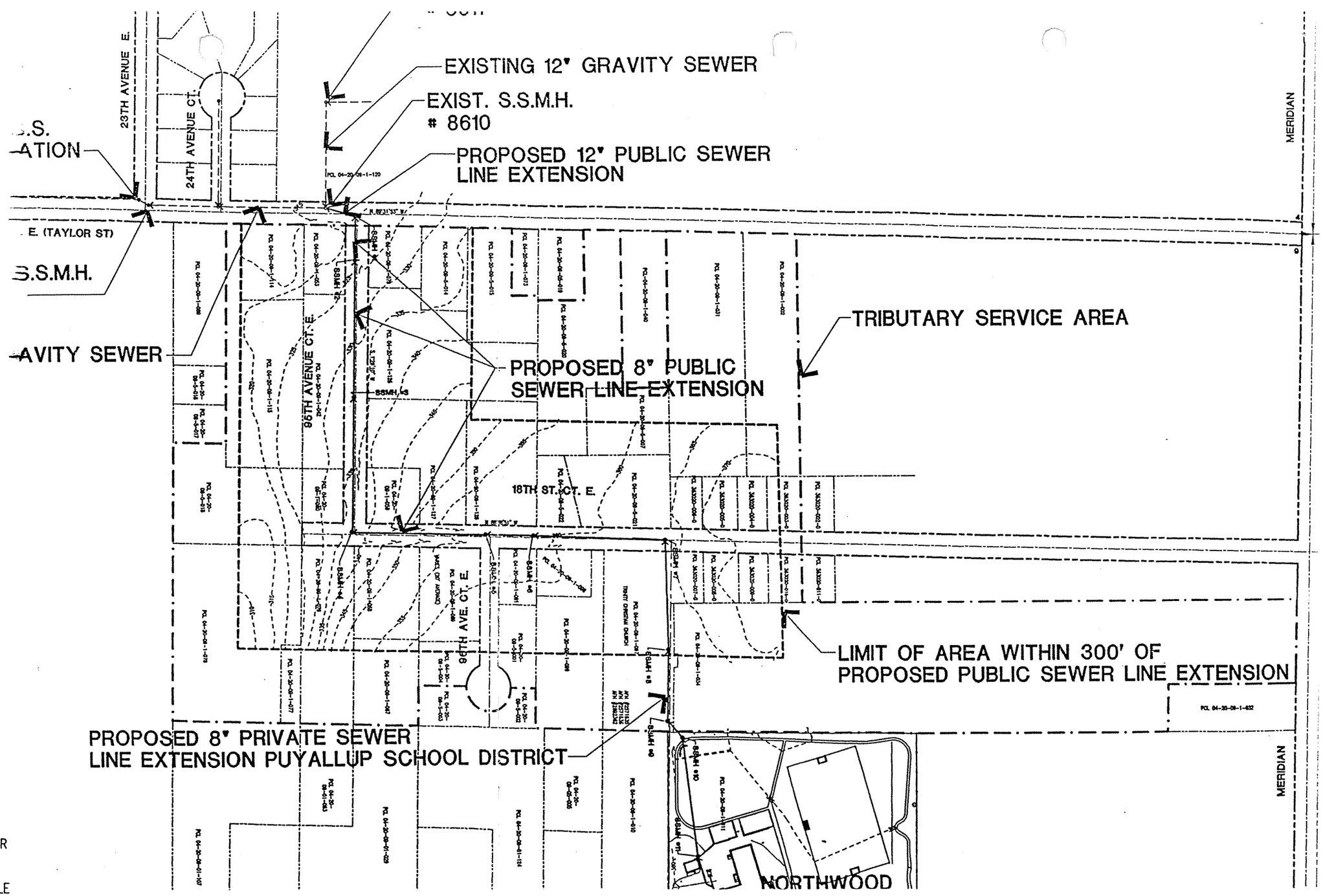
7/14/97

North Hill
Property Acquis.

= Purchased by the District

= Already owned the District

Dec 10 98 04:14p Facilities Department 841-8640 p.16



LEGEND

- CENTERLINE
- RIGHT OF WAY
- 300' AREA LIMIT
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPERTY LINE
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- TRIBUTARY SERVICE AREA

ORIGINAL

INTERLOCAL AGREEMENT BETWEEN THE CITY OF FIFE AND THE CITY OF EDGEWOOD REGARDING SANITARY SEWER SERVICE

1. Date and Parties.

This agreement, for reference purposes only, is dated the 5th day of November 2013, and is entered into between the City of Fife (hereinafter "Fife") and the City of Edgewood (hereinafter "Edgewood") under authority of the Interlocal Cooperation Act (Chapter 39.34 RCW) and the laws governing non-charter code cities.

2. Recitals.

2.1 Pursuant to RCW 35A.11.040, and RCW 39.34, Fife and Edgewood have the legal authority to cooperate with each other on a basis of mutual advantage and thereby to provide services and facilities in a manner that will accord best with geographic, economic, population and other factors influencing the needs and development of local communities.

2.2 Pursuant to RCW 35A.21.150, Fife and Edgewood each have the legal authority to maintain a sanitary sewerage system.

2.3 Edgewood has evaluated and determined it is in Edgewood's best interest to negotiate an interlocal agreement ("ILA") with Fife allowing certain property located within Edgewood to be served by Fife's sanitary sewerage system and included within Fife's sewer utility.

2.4 Fife has sufficient wastewater conveyance capacity within its sanitary sewer facilities to support this adjustment to the existing sewer services areas, provided the flows do not exceed the flows set forth in Edgewood's General Sewer Plan in effect on January 1, 2013, or as otherwise agreed within this document.

2.5 Fife does not have its own treatment facilities and contracts with the City of Tacoma for all treatment of all of its sewage. The contract with Tacoma determines Fife's sewage treatment capacity. Fife has sufficient treatment capacity within its contract with Tacoma to provide for Edgewood's sewage treatment flow requirements set forth in Edgewood's General Sewer Plan in effect on January 1, 2013, or as otherwise agreed within this document. Fife's capacity commitment hereunder shall be based on equivalent residential units, ERU's, where one ERU is equal to 230 gallons per day of sewerage flow.

2.6 Fife's provision of sewer service to this area will provide the maximum efficiency in the use of existing and future facilities, together with orderly and efficient sanitary sewer planning.

Fife Edgewood

Now, therefore it is hereby agreed by and between the parties hereto as follows:

3. Sewer Service Area.

3.1 Fife agrees to provide, pursuant to all applicable regulatory requirements, sanitary sewer service to the Edgewood Non-Core West Phase I Sewer Area, as described in Edgewood's approved General Sewer Plan and Exhibit A attached hereto ("Edgewood Service Area"), provided that total sewer flows within the Edgewood Service Area do not exceed the flows set forth in Edgewood's General Sewer Plan in effect on January 1, 2013. Edgewood shall provide Fife with a copy of its approved General Sewer Plan in effect on January 1, 2013. Fife will accept sewer flows within the Edgewood Sewer Area up to 600 ERUs, at such time as Fife's General Sewer Plan is amended and approved by all government agencies from which approval is required to include the Edgewood Service Area at a capacity of 600 ERUs. Edgewood shall pay the cost of so amending Fife's General Sewer Plan, including consultant fees and attorney fees, and Fife shall diligently pursue completion and approval of such amendment. At its discretion Edgewood may either reimburse Fife for said costs at the time of their occurrence, or credit Fife for payments as provided for in Section 7 below. Any future sewer service provided by Fife to property within Edgewood which is outside of the Edgewood Sewer Service Area shall be subject to the execution of a separate agreement or agreements between the parties providing such service. Provided, that nothing herein shall be construed as requiring the parties to execute any such agreement, or as entitling any property owner to receive sanitary sewer service.

3.2 The parties acknowledge that connection facilities shall be constructed between Fife and Edgewood. Following construction and connection of these improvements to the Fife system, property owners may, subject to approval of Fife and Edgewood, connect to the collection system owned by Fife, and to the extent of the sewer service provided by Fife, shall be subject to all regulations and be afforded all privileges of Fife Customers. Fife shall determine capacity requirements for service to Edgewood customers and shall be under no obligation to permit connections which may cause Fife to exceed its capacity commitment as stated in 3.1. As a condition of service to any property within Edgewood, Edgewood shall issue a letter to Fife indicating that the parcel, or parcels, of property meets the City planning criteria for connecting to the Fife sewer system, and by so doing, Edgewood shall be deemed to be exercising approval authority for sewer connections issued within Edgewood.

4. Authority to Fix Rates and Charges. The rates, connection fees, capital facilities charges, or other fees or charges for sanitary sewer service within the Edgewood Service Area shall be fixed, altered, regulated and controlled solely by Fife, subject to the limitations set forth in RCW 35.67.020. Edgewood shall work with Fife to secure available potable water usage information for properties within the Edgewood Service Area, from Mountain View Edgewood Water Corporation. Fife shall develop a flat rate charge for all residential customers in the Edgewood Service Area. The initial flat rate sanitary sewer service of a single family residential unit in the Edgewood Service Area shall be $61.61 per month effective upon approval of this document. Fife may thereafter modify the fixed rate in accordance with RCW 35.67.020. Fife

Fife Edgewood

shall be exclusively responsible for collecting rates and charges from connections within the Edgewood Service Area, and collecting any delinquent customer accounts for service to property within the Edgewood Service Area using liens and other legally authorized methods.

5. Conformance with Fife Code and Edgewood Code. Edgewood agrees to adopt by reference those portions of Fife's Municipal Code, Title 13, chapters 13.08, 13.09, 13.12 and 13.14 necessary to require each residential and business use within the Edgewood Service Area to obtain and maintain sanitary sewer service from Fife, and to comply with the terms of this Agreement relative to sanitary sewer service to such residential and\or business use.

6. Sewage Works Design Standards. Edgewood shall adopt by reference City of Fife's standards and operating procedures for collecting, pumping, treating and disposing of sanitary sewage for all sewage facilities within the Edgewood Sewer Service Area. All facilities receiving sanitary sewer service within the Edgewood Sewer Service Area shall comply with Fife's design and construction standards for sewage works as amended at the time that an application for construction of such improvements is submitted.

7. Use and Administrative Fee. To compensate Edgewood for the use of the public right of way within the Edgewood Service Area and for the administrative expense of implementing this ILA, Fife shall pay Edgewood a quarterly administrative fee during the term of this Agreement equal to six (6) percent of the gross rate revenues received by Fife from sanitary sewer customers within the Edgewood Service Area.

8. Land Use Approval. Fife shall, upon application by a landowner or development applicant, timely issue a certificate of sanitary sewer availability for any land development project (i.e. subdivision, short subdivision, binding site plan and building permits) within the Edgewood Sewer Service Area that will use or result in using the Fife sanitary sewer system. Fife shall in writing issue or deny with stated reasons a requested certificate of sewer availability within 30 days upon receiving a copy of the underlying project application from the development applicant or landowner, unless delay is caused by circumstances beyond Fife's reasonable control. Fife shall timely upon request provide staff, as necessary, for Edgewood pre-application meetings and others that require representation by the sewer provider. The certificate shall include all conditions deemed reasonably necessary by Fife to provide for the sanitary sewer flow and sanitary sewer treatment that will be required by the project. Such conditions shall be included by Edgewood as conditions of permit approval for the project, subject to applicable legal standards as determined Edgewood. Edgewood shall not provide final approval of a subdivision, short subdivision, binding site plan or any other division of property, that requires sewer service from Fife, until the landowner or development applicant has provided Edgewood with a certificate of "Completion of Sewer System Improvements" from Fife which indicates that all connection charges, capital facilities charges and permit fees for the project owed to Fife have been paid or otherwise provided for, all required sewer facilities and/or extensions have been constructed or otherwise provided for, all necessary sewer permits have been obtained, and all other applicable Fife Municipal Code requirements have been satisfied. Any parcel or facility, in the Edgewood Service Area, requiring sewer service from Fife shall be required to

Fife Edgewood

provide Edgewood with a certificate of sanitary sewer availability before a building permit will be issued. Edgewood's building permit will include a section requiring Fife's sanitary sewer requirements to be met before gaining occupancy of the building.

9. Use of Public Right of Way. Pursuant to all applicable regulatory requirements, Fife shall have the right and privilege to lay down, construct, relay, connect, replace and/or maintain pipes, conduits and mains, trunk lines, and appurtenances and facilities thereto, in, along, through, and under the avenues, streets, highways and road rights-of-way controlled by Edgewood within the Edgewood Service Area, as may be necessary, convenient and/or proper in order to provide sanitary sewer service to business and residential properties and uses within the Edgewood Service Area, and for that purpose to make any and all connections which may be necessary, convenient and/or proper in accordance with the terms and conditions set forth herein. The right of way use rights described in this section shall not be deemed or held to be exclusive, and shall not prevent Edgewood from entering other agreements or franchises for use of any avenues, streets, highways or road rights-of-way controlled by Edgewood within the Edgewood Service Area.

10. Relocation of Facilities for Edgewood Street Projects. Fife agrees and covenants at its sole cost and expense, to protect, support, temporarily disconnect, relocate or remove from any public right of way within the Edgewood Sewer Service Area, any component of Fife's sanitary sewerage system when so required by Edgewood by reason of traffic conditions or any public works project, including without limitation public safety, widening, relocating or improvement of existing rights-of-way, streets or avenues, or change or establishment of street grade, provided that Fife shall in all such cases have the privilege to temporarily bypass, in the authorized portion of the same street upon approval of Edgewood, any sanitary sewer line or portion thereof required to be temporarily disconnected or removed. The provisions of this section shall not be applicable if the relocation is due to a private development, use or activity. Provided further that when street widening or improvement is desired by Edgewood within the Edgewood Service Area, that Edgewood will acquire sufficient right-of-way to accommodate all utilities including Fife's sanitary sewerage system.

If Edgewood determines that a project (other than a project due to a private development, use or activity) necessitates the relocation of Fife's then existing facilities, Edgewood shall:

a. At least one hundred and eighty (180) days prior to commencement of construction of such project, provide Fife with plans and written notice requiring such relocation, unless another time period for the notice is agreed to by the parties for a particular project; and

b. Provide Fife with copies of pertinent portions of the plans and specifications for such project and a proposed location for Fife's facilities so that Fife may relocate its facilities in other Edgewood right-of-way in order to accommodate such project.

After receipt of such notice and such plans and specifications, Fife shall timely complete relocation of its facilities at no charge or expense to Edgewood (except as hereinafter provided)

Fife Edgewood

so as to accommodate the project construction schedule and prevent any delay to the project.

Fife shall indemnify, defend and hold harmless Edgewood, its officers, officials, boards, commissions, authorized agents and employees for any damages or claims, specifically including without limitation any additional costs or expenses assessed against, or payable by, Edgewood related to, arising out of, or resulting, directly or indirectly, from Fife's failure to remove, adjust or relocate any of its facilities in the Right-of-Way in a timely manner in accordance with any relocation required by Edgewood.

11. Excavations.

11.1 During any period of installation, relocation, construction, maintenance or repair of Fife's facilities, all surface structures, if any, shall be erected and used in such places and positions within said public right-of-ways and other public properties so as to interfere as little as practicable with the free passage of traffic and the free use of adjoining property, and Fife shall at all times post and maintain proper barricades and comply with all applicable safety regulations during such period of construction as required by the ordinances of Edgewood or the laws of the State of Washington.

11.2 Whenever Fife shall excavate in any public right-of-way or other public property for the purpose of installation, construction, repair, maintenance or relocation of its facilities, it shall apply to Edgewood for a permit to do so and upon obtaining a permit shall give Edgewood at least twenty-four (24) hours written notice during the normal work week of Fife's intent to commence such work. In no case shall any work commence within any public right-of-way or other public property without a permit, except as otherwise provided in this Agreement. At least 90 days before commencing on new construction of sewer improvements within the Edgewood sewer service area, Fife shall provide Edgewood with an approved set of plans for those improvements as well as a construction schedule for work in the Rights-of-Ways.

During the progress of the work, Fife shall not unnecessarily obstruct the passage or proper use of the right-of-way or other public property, and shall file as-built plans or maps with Edgewood showing the proposed and final location of its facilities.

11.3 If either Fife or Edgewood at any time plans to make excavations in any area covered by this Agreement and as described in this Section, the party planning such excavation shall afford the other, upon receipt of a written request to do so, the first opportunity to use such excavation at no additional cost, provided that:

(1) Such joint use shall not unreasonably delay the work of the party causing the excavation to be made;

(2) Such joint use shall be arranged and accomplished on terms and conditions satisfactory to both parties;

Fife Edgewood

(3) Either party may deny such request for safety reasons; and

(4) If either party increases the size of the original excavation, said party shall be responsible for the extra cost associated with the additional excavation.

12. Restoration after Construction. Fife shall, after installation, construction, relocation, maintenance, or repair of its sewerage facilities within the Edgewood Service Area, restore the surface of the street, right-of-way or public property to at least the same condition the property was in immediately prior to any such installation, construction, relocation, maintenance or repair, unless other arrangements are mutually agreed to by both parties for a particular project. The Edgewood Public Works Director shall have final approval of the condition of such streets, rights-of-way and public places after restoration. All concrete encased monuments that have been disturbed or displaced by such work shall be restored pursuant to all federal, state and local standards and specifications. Fife agrees to promptly complete all restoration work and to promptly repair any damage caused by such work to the Edgewood Service Area at its sole cost and expense.

13. Permits and Fees. Fife shall be required to obtain all applicable permits from Edgewood necessary for sewer related work by Fife in Edgewood and/or in Edgewood's rights-of-way. However, in consideration of the administrative fee established in Section 7 and Fife's willingness to provide sanitary sewer service to the Edgewood Service Area, Fife shall not be subject to any permit fees associated with Fife's sanitary sewer service maintenance or construction activities.

14. Excavation and Restoration by Developer. The parties acknowledge that construction of sewer facilities within right of way in the Edgewood Service Area will be primarily accomplished by developers in conjunction with the land use development process. The provisions of Section 11 to 13 apply to work done by Fife only. Nothing herein shall be construed as limiting or otherwise waiving the compliance of any such developers or other third parties with respect to all applicable Edgewood requirements for utility work in Edgewood right of way, including without limitation the requirement to obtain all necessary permits from Edgewood and pay all applicable permit fees.

15. Emergency Work -- Permit Waiver. In the event of an emergency in which any of Fife's facilities located in or under any street or right of way controlled by Edgewood are broken, damaged, or if Fife's construction area is otherwise in such a condition as to immediately endanger the property, life, health or safety of any individual, Fife shall immediately take the proper emergency measures to repair its facilities, to cure or remedy the dangerous conditions for the protection of property, life, health or safety of individuals without first applying for and obtaining a permit as required by this Agreement. However, this shall not relieve Fife from the requirement of obtaining any permits necessary for this purpose, and Fife shall apply for all such permits not later than the next succeeding day during which Edgewood's offices are open for business.

Fife Edgewood

16. 26th Street Sewer Main. In order to serve the Edgewood Service Area a developer constructed sewer main on 26th Street East will need to be conveyed to Fife. Fife's obligation to serve the Edgewood Service Area shall not commence unless and until either the sewer main on 26th Street East is conveyed to Fife or an alternate conveyance route is developed and agreed upon by the parties.

17. Agreement Term. This Agreement shall be effective upon execution by both parties ("Effective Date"). Fife's obligation to provide sanitary sewer service within the Edgewood Sewer Service Area under this Agreement shall commence at such time as all governmental approvals necessary for Fife to serve the Edgewood Service Area have been obtained, Edgewood has adopted all ordinances, standards, and regulations required under Sections 5 and 6 of this Agreement, and Fife has obtained ownership of the 26th Street sewer main or an alternate conveyance route is developed and agreed upon by the parties. There shall be no fixed term associated with this Agreement, however, this Agreement may be terminated, and all property acquired and used by the parties disposed, by mutual agreement of the parties per RCW 39.34.030(3). Unless otherwise expressly provided herein, ownership of any real and personal property acquired or owned by a party before and during the term of this Agreement shall remain vested in said party upon termination.

18. Street Vacations. Edgewood may have occasion to vacate certain streets, public ways or areas that have Fife's facilities located thereon. Edgewood agrees to notify Fife of such an occurrence and to reserve an easement for Fife's lines and facilities when a street, public way or area is vacated. If it is not feasible for Edgewood to reserve an easement for Fife's lines and facilities, the proponents of the vacation shall be required by Edgewood as a condition of finalizing the vacation, and as part of land use or other permitting approvals, to reimburse Fife all costs to relocate said lines and facilities.

19. Contract Administration. The parties do not by this Agreement create any separate legal or administrative entity. The City Manager of Fife, or his designee shall be responsible for working with the City Manager of Edgewood, or his/her designee to administer the terms of this Agreement. The parties do not intend to jointly own any real or personal property as part of this undertaking. The parties will cooperatively work together to further the intent and purpose of this Agreement.

20. Consent to Formation of LID. By approving this Agreement, the City Council of the City of Edgewood hereby authorizes and approves the formation by Fife of local improvement districts or utility local improvement districts for sewer infrastructure purposes exclusively, that are composed entirely or in part of territory within the Edgewood Service Area.

21. Indemnification.

21.1 Fife agrees to indemnify and hold Edgewood, its elected officials, officers, employees, agents and volunteers harmless from any and all claims, demands, losses, actions and liabilities (including costs and all attorney fees) to or by any and all persons or entities,

Fife Edgewood

including, without limitation their respective agents, licensees, or representatives arising from, resulting from, or connected with this Agreement to the extent caused by the negligent acts, errors or omissions of Fife, its elected officials, officers, employees, agents, and volunteers or by Fife's breach of this Agreement.

21.2 Edgewood agrees to indemnify and hold Fife, its elected officials, officers, employees, agents and volunteers harmless from any and all claims, demands, losses, actions and liabilities (including costs and all attorney fees) to or by any and all persons or entities, including, without limitation their respective agents, licensees, or representatives arising from, resulting from, or connected with this Agreement to the extent caused by the negligent acts, errors or omissions of Edgewood, its elected officials, officers, employees, agents, and volunteers or by Edgewood 's breach of this Agreement.

21.3 In the event of a claim, loss, or liability based upon the alleged concurrent or joint negligence of the parties, the parties shall bear their respective liability, including cost, in accordance with their respective liability established in accordance with the laws of the State of Washington.

21.4 FOR PURPOSES OF INDEMNIFICATION ONLY, THE PARTIES, BY MUTUAL NEGOTIATION, HEREBY WAIVE, AS RESPECTS THE OTHER PARTY ONLY, ANY IMMUNITY THAT WOULD OTHERWISE BE AVAILABLE AGAINST SUCH CLAIMS UNDER THE INDUSTRIAL INSURANCE PROVISIONS OF TITLE 51 RCW.

21.5 The provisions of this section shall survive the expiration or termination of this Agreement with respect to acts and omissions occurring during the term hereof.

22. Comprehensive Sewer Planning. The terms of this Agreement shall be included in Fife and Edgewood's respective Comprehensive Sanitary Sewerage Plans. Edgewood shall pay all direct costs associated with the updating of updating Fife's Comprehensive Sewerage Plan necessary to implement this agreement. At its discretion Edgewood may either reimburse Fife as such costs are incurred, or provide a credit against fees charged to Fife by Edgewood under Section 7 of this Agreement.

23. Government Approvals. The parties shall give notice of the adoption of this Agreement to the Pierce County Department of Health, State of Washington Department of Ecology, and to any other agency with jurisdiction relevant to the terms hereof, and shall cooperate and assist in all reasonable manner in procuring any necessary approvals hereof by those agencies, including necessary approvals of sewer service boundary revisions consistent with this Agreement.

24. Assignment. Neither party may assign this Agreement or any interest, obligation or duty therein without the express written consent of the other party.

Fife Edgewood

25. Venue and Attorneys Fees. This Agreement shall be governed in all respects by the laws of the State of Washington. The Venue for any dispute related to this Agreement shall be with the United States District Court for the Western District of Washington or the Pierce County Superior Court, Tacoma, Washington. In any suit or action instituted to enforce any right granted in this Agreement, the substantially prevailing party shall be entitled to recover its costs, disbursements, and reasonable attorneys' fees from the other party.

26. Insurance. Both Fife and Edgewood shall maintain membership in WCIA's liability and risk pool or have equivalent limits of liability from another insurance program or liability pool.

27. Notice. Any notice or information required or permitted to be given to the parties under this Agreement may be sent to the following addresses unless otherwise specified:

City of Fife Attn: Public Works Director 5411 23rd Street East Fife, WA 98424	City of Edgewood Attn: Public Works Director 2224 104th Avenue E. Edgewood, WA 98372

28. Modification. This Agreement constitutes the complete and final agreement of the parties, and replaces and supersedes all oral and/or written proposals and agreements heretofore made by the parties on the subject matter. No provision of this Agreement may be amended or added to except by agreement, in writing, signed by both parties.

29. Signature Authority

29.1 The Fife City Manager was authorized to execute this Agreement by Resolution No. 1557 adopted by a majority of the entire City Council on the 13th day of August, 2013, at a regularly scheduled Council meeting. Fife shall record its Agreement with Pierce County and/or post it on the Fife City website prior to its entry into force.

29.2 The Edgewood City Manager was authorized to execute this Agreement by ~~Resolution~~ Ord No. 13040 adopted by a majority of the entire City Council on the 10 day of Sept. 2013 at a regularly scheduled Council meeting, which date was at least five days after its introduction. The resolution had been submitted to the Edgewood City Attorney prior to adoption, and has been published at least once in a newspaper of general circulation in the City of Edgewood. Edgewood shall then recorded its Agreement with Pierce County and/or post it on the Edgewood City website prior to its entry into force.

30. No Third-Party Beneficiaries. This Agreement is executed for the sole and exclusive benefit of the signatory parties. Nothing in this Agreement, whether expressed or implied, is intended to confer any right, remedy or other entitlement upon any person other than the parties hereto, nor is anything in this Agreement intended to relieve or discharge the obligation or liability of any third party, nor shall any provision herein give any third party any right of action against any party hereto.

Fife Edgewood

31. Severability. Should any clause, phrase, sentence or paragraph of this Agreement or its application be declared invalid or void by a court of competent jurisdiction, the remaining provisions of this Agreement or its applications of those provisions not so declared shall remain in full force and effect.

CITY OF FIFE

By: _____
Dave Zabell
City Manager

ATTEST:

_____
Carol Etgen
City Clerk

Approved as to form:

_____
Loren D. Combs
City Attorney

CITY OF EDGEWOOD

By: _____
Mark D Bauer
City Manager

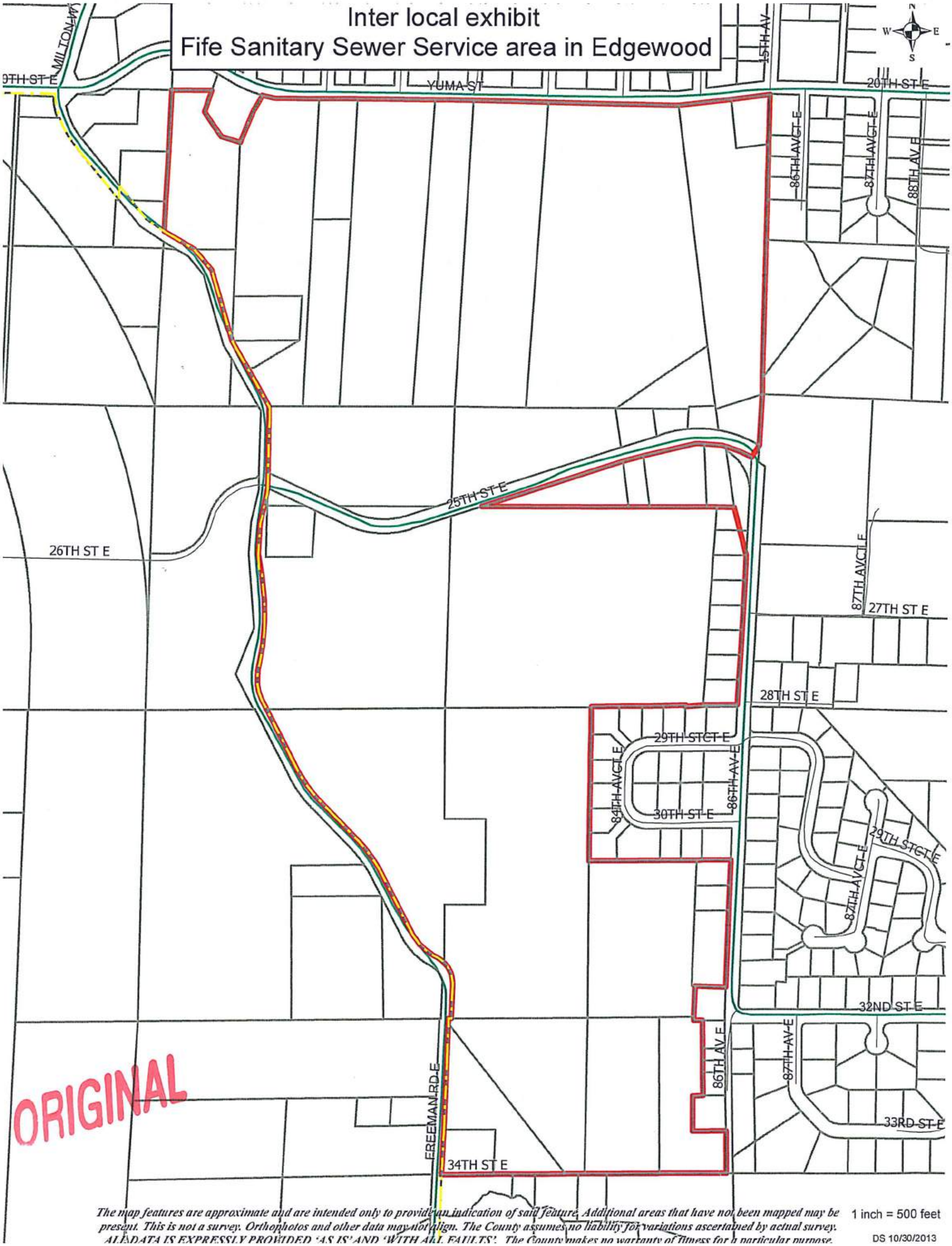
ATTEST:

_____
Debbie Zabell
City Clerk

Approved as to form:

_____
Zach Lell
City Attorney

Fife Edgewood



The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

1 inch = 500 feet

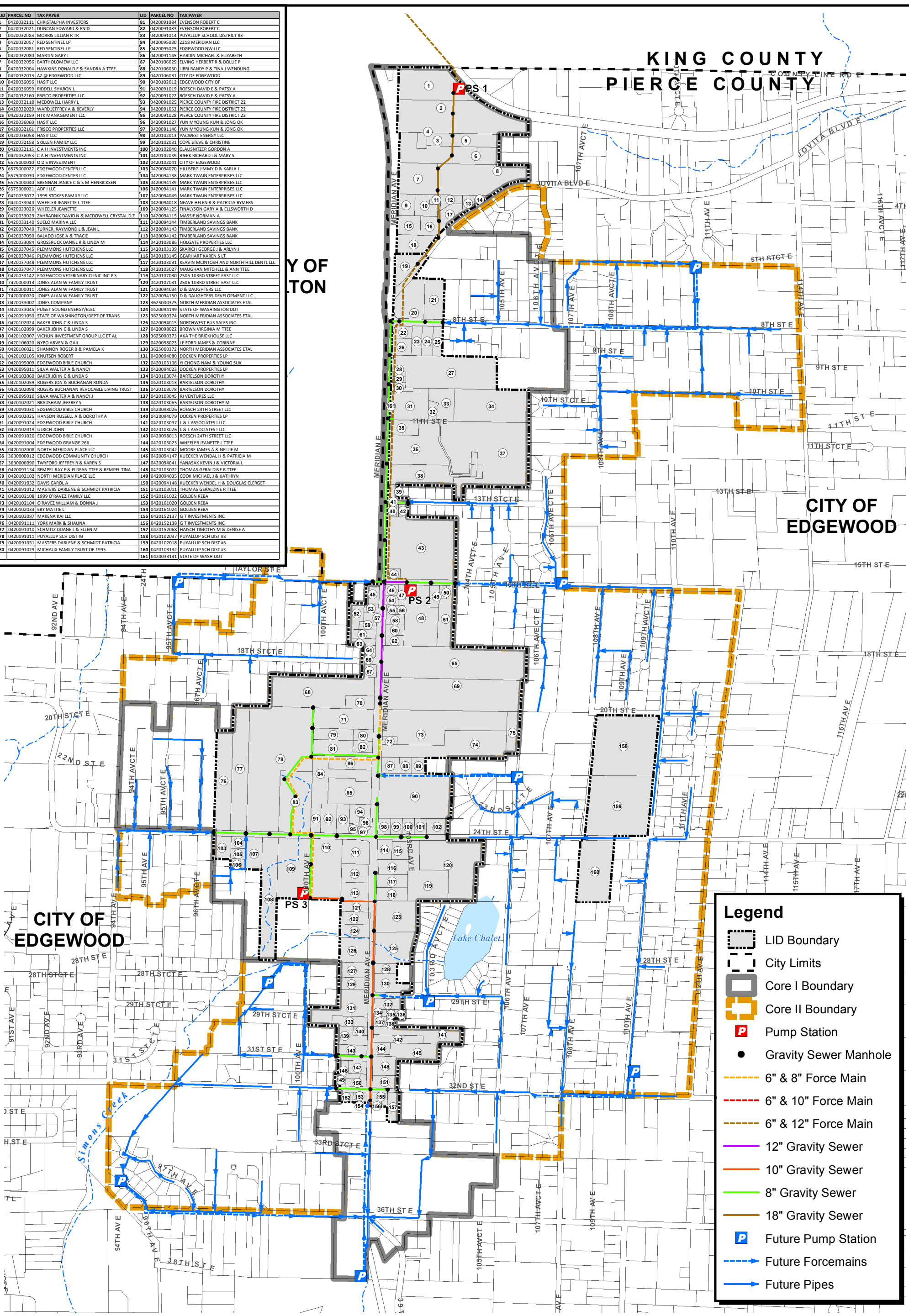
DS 10/30/2013

APPENDIX E

LID ASSESSMENT ROLL FIGURE

LID	PARCEL NO	TAX PAYER
1	0420032111	CHRISTALPHA INVESTORS
2	0420032021	DUNCAN EDWARD & ENID
3	0420032083	MORRIS LILLIAN R TR
4	0420032057	RED SENTINEL LP
5	0420032081	RED SENTINEL LP
6	0420032080	MARTIN GARY J
7	0420032056	BARTHOLOMEW LLC
8	0420032004	HAWKINS DONALD F & SANDRA A TTEE
9	0420032013	AZ @ EDGEWOOD LLC
10	0420036056	HASIT LLC
11	0420036059	RIDDELL SHARON L
12	0420032160	FRISCO PROPERTIES LLC
13	0420032118	MCDOWELL HARRY L
14	0420032029	WARD JEFFREY A & BEVERLY
15	0420032159	HTK MANAGEMENT LLC
16	0420036060	HASIT LLC
17	0420032161	FRISCO PROPERTIES LLC
18	0420036058	HASIT LLC
19	0420032158	SKILLEN FAMILY LLC
20	0420032115	C A H INVESTMENTS INC
21	0420032053	C A H INVESTMENTS INC
22	6575000010	O D S INVESTMENT
23	6575000022	EDGEWOOD CENTER LLC
24	6575000030	EDGEWOOD CENTER LLC
25	6575000040	BRENNAN JANICE C & S M HENRICKSEN
26	6575000021	ADF I LLC
27	0420033077	1999 STOKES FAMILY LLC
28	0420033040	WHEELER JEANETTE L TTEE
29	0420033026	WHEELER JEANETTE
30	0420033029	ZAHRADNIK DAVID N & MCDOWELL CRYSTAL D Z
31	0420033140	SUELO MARINA LLC
32	0420037049	TURNER, RAYMOND L & JEAN L
33	0420037050	BALADO JOSE A & TRACIE
34	0420033084	GROSSRUCK DANIEL R & LINDA M
35	0420037045	PLEMMONS HUTCHENS LLC
36	0420037046	PLEMMONS HUTCHENS LLC
37	0420037048	PLEMMONS HUTCHENS LLC
38	0420037047	PLEMMONS HUTCHENS LLC
39	0420033142	EDGEWOOD VETERINARY CLINIC INC P S
40	7420000013	JONES ALAN W FAMILY TRUST
41	7420000011	JONES ALAN W FAMILY TRUST
42	7420000020	JONES ALAN W FAMILY TRUST
43	0420033007	JONES COMPANY
44	0420033045	PUGET SOUND ENERGY/ELEC
45	0420091050	STATE OF WASHINGTON/DEPT OF TRANS
46	0420102024	BAKER JOHN C & LINDA S
47	0420102099	BAKER JOHN C & LINDA S
48	0420102007	VICHUN INVESTMENT GROUP LLC ET AL
49	0420106020	NYBO ARVEN & GAIL
50	0420106021	SHANNON ROGER B & PAMELA K
51	0420102105	KNUTSEN ROBERT
52	0420095009	EDGEWOOD BIBLE CHURCH
53	0420095011	SILVA WALTER A & NANCY
54	0420102060	BAKER JOHN C & LINDA S
55	0420102059	ROGERS JON & BUCHANAN RONDA
56	0420102098	ROGERS BUCHANAN REVOCABLE LIVING TRUST
57	0420095010	SILVA WALTER A & NANCY J
58	0420102021	BRADSHAW JEFFREY S
59	0420091030	EDGEWOOD BIBLE CHURCH
60	0420102025	HANSON RUSSELL A & DOROTHY A
61	0420091024	EDGEWOOD BIBLE CHURCH
62	0420102019	ULRICH JOHN
63	0420091020	EDGEWOOD BIBLE CHURCH
64	0420091004	EDGEWOOD GRANGE 266
65	0420102008	NORTH MERIDIAN PLACE LLC
66	3630000012	EDGEWOOD COMMUNITY CHURCH
67	3630000090	TWYFORD JEFFREY R & KAREN S
68	0420091134	REMPEL RAY E & ELDEAN TTEE & REMPEL TINA
69	0420102102	NORTH MERIDIAN PLACE LLC
70	0420091032	DAVIS CAROL A
71	0420091012	MASTERS DARLENE & SCHMIDT PATRICIA
72	0420102108	1999 O'RAVEZ FAMILY LLC
73	0420102104	O'RAVEZ WILLIAM & DONNA J
74	0420102033	EBY MATTIE L
75	0420102087	MAKENA KAI LLC
76	0420091111	YORK MARK & SHAUNA
77	0420091010	SCHMITZ DUANE L & ELLEN M
78	0420091011	PUYALLUP SCH DIST #3
79	0420091051	MASTERS DARLENE & SCHMIDT PATRICIA
80	0420091029	MICHAUX FAMILY TRUST OF 1995

LID	PARCEL NO	TAX PAYER
81	0420091084	EVENSON ROBERT C
82	0420091083	EVENSON ROBERT C
83	0420091014	PUYALLUP SCHOOL DISTRICT #3
84	0420095030	2218 MERIDIAN LLC
85	0420095025	EDGEWOOD NW LLC
86	0420091145	HARDIN MICHAEL & ELIZABETH
87	0420106029	ELVING HERBERT R & DOLLIE P
88	0420106030	LIBRI RANDY P & TINA J WENDLING
89	0420106031	CITY OF EDGEWOOD
90	0420102012	EDGEWOOD CITY OF
91	0420091019	ROESCH DAVID E & PATSY A
92	0420091022	ROESCH DAVID E & PATSY A
93	0420091025	PIERCE COUNTY FIRE DISTRICT 22
94	0420091052	PIERCE COUNTY FIRE DISTRICT 22
95	0420091028	PIERCE COUNTY FIRE DISTRICT 22
96	0420091027	YUN MYOUNG KUN & JONG OK
97	0420091146	YUN MYOUNG KUN & JONG OK
98	0420102013	PACWEST ENERGY LLC
99	0420102031	COPE STEVE & CHRISTINE
100	0420102040	CLAUSNITZER GORDON A
101	0420102039	BJERK RICHARD I & MARY S
102	0420102041	CITY OF EDGEWOOD
103	0420094070	HILLBERG JIMMY D & KARLA J
104	0420094138	MARK TWAIN ENTERPRISES LLC
105	0420094139	MARK TWAIN ENTERPRISES LLC
106	0420094141	MARK TWAIN ENTERPRISES LLC
107	0420094049	MARK TWAIN ENTERPRISES LLC
108	0420094018	NEAVE HELEN R & PATRICIA BYMERS
109	0420094125	FINALYSON GARY A & ELLSWORTH D
110	0420094115	MASSIE NORMAN A
111	0420094144	TIMBERLAND SAVINGS BANK
112	0420094143	TIMBERLAND SAVINGS BANK
113	0420094142	TIMBERLAND SAVINGS BANK
114	0420103086	HOLGATE PROPERTIES LLC
115	0420103139	SKARICH GEORGE J & ARLYN J
116	0420103145	GEARHART KAREN S LT
117	0420103031	KEAVIN MCINTOSH AND NORTH HILL DENTL LLC
118	0420103027	MAUGHAN MITCHELL & ANN TTEE
119	0420107030	2506 103RD STREET EAST LLC
120	0420107031	2506 103RD STREET EAST LLC
121	0420094034	D & DAUGHTERS LLC
122	0420094150	D & DAUGHTERS DEVELOPMENT LLC
123	3625000375	NORTH MERIDIAN ASSOCIATES ETAL
124	0420094149	STATE OF WASHINGTON DOT
125	3625000374	NORTH MERIDIAN ASSOCIATES ETAL
126	0420094015	NORTHWEST BUS SALES INC
127	0420098022	BROWN VIRGINIA M TTEE
128	3625000373	AKA THE BRICKHOUSE LLC
129	0420098023	LE FORD JAMES & CORINNE
130	3625000372	NORTH MERIDIAN ASSOCIATES ETAL
131	0420094080	DOCKEN PROPERTIES LP
132	0420103106	YI CHONG NAM & YOUNG SUK
133	0420094023	DOCKEN PROPERTIES LP
134	0420103074	BARTELSON DOROTHY
135	0420103013	BARTELSON DOROTHY
136	0420103078	BARTELSON DOROTHY
137	0420103045	RJ VENTURES LLC
138	0420103065	BARTELSON DOROTHY M
139	0420098026	ROESCH 24TH STREET LLC
140	0420094079	DOCKEN PROPERTIES LP
141	0420103097	L & L ASSOCIATES I LLC
142	0420103026	L & L ASSOCIATES I LLC
143	0420098013	ROESCH 24TH STREET LLC
144	0420103023	WHEELER JEANETTE L TTEE
145	0420103042	MOORE JAMES A & NELLIE M
146	0420094147	KUECKER WENDAL H & PATRICIA M
147	0420094041	YANASAK KEVIN J & VICTORIA L
148	0420103072	THOMAS GERALDINE R TTEE
149	0420094035	COOK MICHAEL J & KATHRYN
150	0420094148	KUECKER WENDEL H & DOUGLAS CLERGET
151	0420103011	THOMAS GERALDINE R TTEE
152	0420161022	GOLDEN REBA
153	0420161020	GOLDEN REBA
154	0420161024	GOLDEN REBA
155	0420152137	G T INVESTMENTS INC
156	0420152138	G T INVESTMENTS INC
157	0420152068	HAISCH TIMOTHY M & DENISE A
158	0420102037	PUYALLUP SCH DIST #3
159	0420102018	PUYALLUP SCH DIST #3
160	0420103132	PUYALLUP SCH DIST #3
161	0420033141	STATE OF WASH DOT



City of Edgewood - Meridian Avenue Assessment Roll for Hearing June 1, 2011

Presented by:

BHC CONSULTANTS

TETRA TECH

This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

MAP DATE: APRIL 2011

0 500 1,000 Feet

N W E S

P:\Mapping\Maps_Generated\Edgewood\10-10218.00\001\maps\Assessment Roll - April 2011 11x17.mxd

APPENDIX F

COST ESTIMATES

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 21-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$224,000	$224,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	600	CY	$30	$18,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,830	TN	$40	$73,000
11.	Crushed Surfacing Base Course	1,830	TN	$40	$73,000
12.	Bank Run Gravel for Trench Backfill	17,600	TN	$40	$704,000
13.	Foundation Gravel	600	CY	$60	$36,000
14.	21-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$150	$750,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	1,070	TN	$200	$214,000
18.	HMA Overlay	710	TN	$200	$142,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$3,018,000
	Grand Total				$3,018,000
	Construction Contingencies (30%)				$905,000
	Subtotal				$3,923,000
	Sales Tax (10%)				$392,000
	Total Estimated Construction Cost				**$4,316,000**
	Engineering Services (13%)				$561,000
	Construction Adminstration (12%)				$518,000
	Legal, City Administration, Permitting (5%)				$216,000
	Total Estimated Project Cost				**$5,610,000**
	Unit Cost/LF				**$1,122**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 18-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$220,000	$220,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	600	CY	$30	$18,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,830	TN	$40	$73,000
11.	Crushed Surfacing Base Course	1,830	TN	$40	$73,000
12.	Bank Run Gravel for Trench Backfill	17,600	TN	$40	$704,000
13.	Foundation Gravel	600	CY	$60	$36,000
14.	18-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$140	$700,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	1,070	TN	$200	$214,000
18.	HMA Overlay	710	TN	$200	$142,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,964,000
	Grand Total				$2,964,000
	Construction Contingencies (30%)				$889,000
	Subtotal				$3,853,000
	Sales Tax (10%)				$385,000
	Total Estimated Construction Cost				**$4,239,000**
	Engineering Services (13%)				$551,000
	Construction Adminstration (12%)				$509,000
	Legal, City Administration, Permitting (5%)				$212,000
	Total Estimated Project Cost				**$5,510,000**
	Unit Cost/LF				**$1,102**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 15-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$188,000	$188,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	400	CY	$30	$12,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,470	TN	$40	$59,000
11.	Crushed Surfacing Base Course	1,470	TN	$40	$59,000
12.	Bank Run Gravel for Trench Backfill	11,700	TN	$40	$468,000
13.	Foundation Gravel	400	CY	$60	$24,000
14.	15-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$130	$650,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	860	TN	$200	$172,000
18.	HMA Overlay	570	TN	$200	$114,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,529,000
	Grand Total				$2,529,000
	Construction Contingencies (30%)				$759,000
	Subtotal				$3,288,000
	Sales Tax (10%)				$329,000
	Total Estimated Construction Cost				**$3,616,000**
	Engineering Services (13%)				$470,000
	Construction Adminstration (12%)				$434,000
	Legal, City Administration, Permitting (5%)				$181,000
	Total Estimated Project Cost				**$4,701,000**
	Unit Cost/LF				**$1,000**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 12-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$184,000	$184,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	400	CY	$30	$12,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,470	TN	$40	$59,000
11.	Crushed Surfacing Base Course	1,470	TN	$40	$59,000
12.	Bank Run Gravel for Trench Backfill	11,700	TN	$40	$468,000
13.	Foundation Gravel	400	CY	$60	$24,000
14.	12-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$120	$600,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	860	TN	$200	$172,000
18.	HMA Overlay	570	TN	$200	$114,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,475,000
	Grand Total				$2,475,000
	Construction Contingencies (30%)				$743,000
	Subtotal				$3,218,000
	Sales Tax (10%)				$322,000
	Total Estimated Construction Cost				**$3,539,000**
	Engineering Services (13%)				$460,000
	Construction Adminstration (12%)				$425,000
	Legal, City Administration, Permitting (5%)				$177,000
	Total Estimated Project Cost				**$4,601,000**
	Unit Cost/LF				**$920**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 10-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$168,000	$168,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	300	CY	$30	$9,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,380	TN	$40	$55,000
11.	Crushed Surfacing Base Course	1,380	TN	$40	$55,000
12.	Bank Run Gravel for Trench Backfill	10,300	TN	$40	$412,000
13.	Foundation Gravel	300	CY	$60	$18,000
14.	10-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$100	$500,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	800	TN	$200	$160,000
18.	HMA Overlay	530	TN	$200	$106,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,267,000
	Grand Total				$2,267,000
	Construction Contingencies (30%)				$680,000
	Subtotal				$2,947,000
	Sales Tax (10%)				$295,000
	Total Estimated Construction Cost				**$3,242,000**
	Engineering Services (13%)				$421,000
	Construction Adminstration (12%)				$389,000
	Legal, City Administration, Permitting (5%)				$162,000
	Total Estimated Project Cost				**$4,214,000**
	Unit Cost/LF				**$843**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 8-inch Pipe

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$154,000	$154,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Connection to Existing Sewer System	2	EA	$5,000	$10,000
8.	Removal of Unsuitable Material	300	CY	$30	$9,000
9.	Manhole, 48 In. Diam.	16	EA	$8,000	$128,000
10.	Crushed Surfacing Top Course	1,280	TN	$40	$51,000
11.	Crushed Surfacing Base Course	1,280	TN	$40	$51,000
12.	Bank Run Gravel for Trench Backfill	8,800	TN	$40	$352,000
13.	Foundation Gravel	300	CY	$60	$18,000
14.	8-inch PVC Sewer Pipe (Incl Bedding)	5,000	LF	$80	$400,000
15.	Side Sewer Connection	100	EA	$5,000	$500,000
16.	Sawcutting	10,000	LF	$3	$30,000
17.	HMA Trench Repair	750	TN	$200	$150,000
18.	HMA Overlay	500	TN	$200	$100,000
19.	Site Restoration	1	LS	$20,000	$20,000
20.	Unexpected Site Changes	1	LS	$20,000	$20,000
21.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,069,000
	Grand Total				$2,069,000
	Construction Contingencies (30%)				$621,000
	Subtotal				$2,690,000
	Sales Tax (10%)				$269,000
	Total Estimated Construction Cost				**$2,959,000**
	Engineering Services (13%)				$385,000
	Construction Adminstration (12%)				$355,000
	Legal, City Administration, Permitting (5%)				$148,000
	Total Estimated Project Cost				**$3,846,000**
	Unit Cost/LF				**$769**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 2-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$60,000	$60,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	100	CY	$30	$3,000
8.	Crushed Surfacing Top Course	1,010	TN	$40	$40,000
9.	Crushed Surfacing Base Course	1,010	TN	$40	$40,000
10.	Bank Run Gravel for Trench Backfill	1,700	TN	$40	$68,000
11.	Foundation Gravel	100	CY	$60	$6,000
12.	2- -inch PVC Force Main (Incl Bedding)	5,000	LF	$50	$250,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	590	TN	$200	$118,000
15.	HMA Overlay	390	TN	$200	$78,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$809,000
	Grand Total				$809,000
	Construction Contingencies (30%)				$243,000
	Subtotal				$1,052,000
	Sales Tax (10%)				$105,000
	Total Estimated Construction Cost				**$1,157,000**
	Engineering Services (13%)				$150,000
	Construction Adminstration (12%)				$139,000
	Legal, City Administration, Permitting (5%)				$58,000
	Total Estimated Project Cost				**$1,504,000**
	Unit Cost/LF				**$301**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 4-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$73,000	$73,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	300	CY	$30	$9,000
8.	Crushed Surfacing Top Course	1,280	TN	$40	$51,000
9.	Crushed Surfacing Base Course	1,280	TN	$40	$51,000
10.	Bank Run Gravel for Trench Backfill	3,300	TN	$40	$132,000
11.	Foundation Gravel	300	CY	$60	$18,000
12.	4- -inch PVC Force Main (Incl Bedding)	5,000	LF	$50	$250,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	750	TN	$200	$150,000
15.	HMA Overlay	500	TN	$200	$100,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$980,000
	Grand Total				$980,000
	Construction Contingencies (30%)				$294,000
	Subtotal				$1,274,000
	Sales Tax (10%)				$127,000
	Total Estimated Construction Cost				**$1,401,000**
	Engineering Services (13%)				$182,000
	Construction Adminstration (12%)				$168,000
	Legal, City Administration, Permitting (5%)				$70,000
	Total Estimated Project Cost				**$1,822,000**
	Unit Cost/LF				**$364**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 6-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$79,000	$79,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	300	CY	$30	$9,000
8.	Crushed Surfacing Top Course	1,280	TN	$40	$51,000
9.	Crushed Surfacing Base Course	1,280	TN	$40	$51,000
10.	Bank Run Gravel for Trench Backfill	3,300	TN	$40	$132,000
11.	Foundation Gravel	300	CY	$60	$18,000
12.	6-inch PVC Force Main (Incl Bedding)	5,000	LF	$65	$325,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	750	TN	$200	$150,000
15.	HMA Overlay	500	TN	$200	$100,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$1,061,000
	Grand Total				$1,061,000
	Construction Contingencies (30%)				$318,000
	Subtotal				$1,379,000
	Sales Tax (10%)				$138,000
	Total Estimated Construction Cost				**$1,517,000**
	Engineering Services (13%)				$197,000
	Construction Adminstration (12%)				$182,000
	Legal, City Administration, Permitting (5%)				$76,000
	Total Estimated Project Cost				**$1,972,000**
	Unit Cost/LF				**$394**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 8 & 10-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$141,000	$141,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	500	CY	$30	$15,000
8.	Crushed Surfacing Top Course	1,650	TN	$40	$66,000
9.	Crushed Surfacing Base Course	1,650	TN	$40	$66,000
10.	Bank Run Gravel for Trench Backfill	5,500	TN	$40	$220,000
11.	Foundation Gravel	500	CY	$60	$30,000
12.	8- and 10-inch PVC Force Main (Incl Bedding)	5,000	LF	$180	$900,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	960	TN	$200	$192,000
15.	HMA Overlay	640	TN	$200	$128,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$1,903,000
	Grand Total				$1,903,000
	Construction Contingencies (30%)				$571,000
	Subtotal				$2,474,000
	Sales Tax (10%)				$247,000
	Total Estimated Construction Cost				**$2,721,000**
	Engineering Services (13%)				$354,000
	Construction Adminstration (12%)				$327,000
	Legal, City Administration, Permitting (5%)				$136,000
	Total Estimated Project Cost				**$3,538,000**
	Unit Cost/LF				**$708**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 10 & 12-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$157,000	$157,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	500	CY	$30	$15,000
8.	Crushed Surfacing Top Course	1,650	TN	$40	$66,000
9.	Crushed Surfacing Base Course	1,650	TN	$40	$66,000
10.	Bank Run Gravel for Trench Backfill	5,500	TN	$40	$220,000
11.	Foundation Gravel	500	CY	$60	$30,000
12.	8- and 10-inch PVC Force Main (Incl Bedding)	5,000	LF	$220	$1,100,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	960	TN	$200	$192,000
15.	HMA Overlay	640	TN	$200	$128,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$2,119,000
	Grand Total				$2,119,000
	Construction Contingencies (30%)				$636,000
	Subtotal				$2,755,000
	Sales Tax (10%)				$275,000
	Total Estimated Construction Cost				**$3,030,000**
	Engineering Services (13%)				$394,000
	Construction Adminstration (12%)				$364,000
	Legal, City Administration, Permitting (5%)				$152,000
	Total Estimated Project Cost				**$3,939,000**
	Unit Cost/LF				**$788**

September 2022 ENR Index - 15197.93

City of Edgewood
General Sewer Plan (#19614)

Unit Price Estimate 12-inch Force Main

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	AMOUNT
1.	Mobilization, Cleanup, and Demobilization	1	LS	$109,000	$109,000
2.	Survey	1	LS	$10,000	$10,000
3.	Locate Existing Utilities	1	LS	$7,000	$7,000
4.	Project Temporary Traffic Control	1	LS	$40,000	$40,000
5.	Temporary Erosion Control	1	LS	$7,000	$7,000
6.	Trench Excavation Safety Systems	1	LS	$10,000	$10,000
7.	Removal of Unsuitable Material	400	CY	$30	$12,000
8.	Crushed Surfacing Top Course	1,470	TN	$40	$59,000
9.	Crushed Surfacing Base Course	1,470	TN	$40	$59,000
10.	Bank Run Gravel for Trench Backfill	4,400	TN	$40	$176,000
11.	Foundation Gravel	400	CY	$60	$24,000
12.	8- and 10-inch PVC Force Main (Incl Bedding)	5,000	LF	$120	$600,000
13.	Sawcutting	10,000	LF	$3	$30,000
14.	HMA Trench Repair	860	TN	$200	$172,000
15.	HMA Overlay	570	TN	$200	$114,000
16.	Site Restoration	1	LS	$20,000	$20,000
17.	Unexpected Site Changes	1	LS	$20,000	$20,000
18.	SPCC Plan	1	LS	$1,000	$1,000
	Subtotal				$1,470,000
	Grand Total				$1,470,000
	Construction Contingencies (30%)				$441,000
	Subtotal				$1,911,000
	Sales Tax (10%)				$191,000
	Total Estimated Construction Cost				**$2,102,000**
	Engineering Services (13%)				$273,000
	Construction Adminstration (12%)				$252,000
	Legal, City Administration, Permitting (5%)				$105,000
	Total Estimated Project Cost				**$2,733,000**
	Unit Cost/LF				**$547**

September 2022 ENR Index - 15197.93

						CSBC:		HMA Trench Patch:	
Sewer Main, diam (in)	Sewer Main (lf)	Trench Width (ft)	Area (sf)	Depth (in)	Weight (tons)	Depth (in)	Weight (tons)	Depth (in)	Weight (tons)
4	5000	3	35000	6	1283	6	1283	3	749
6	5000	3	35000	6	1283	6	1283	3	749
8	5000	3	35000	6	1283	6	1283	3	749
10	5000	3.5	37500	6	1375	6	1375	3	802
12	5000	4	40000	6	1467	6	1467	3	856
14	5000	5	45000	6	1650	6	1650	3	963
15	5000	4	40000	6	1467	6	1467	3	856
16	5000	6	50000	6	1833	6	1833	3	1069
18	5000	6	50000	6	1833	6	1833	3	1069
21	5000	6	50000	6	1833	6	1833	3	1069

						CSBC:		HMA Trench Patch:	
Force Main, diam (in)	Sewer Main (lf)	Trench Width (ft)	Area (sf)	Depth (in)	Weight (tons)	Depth (in)	Weight (tons)	Depth (in)	Weight (tons)
2	5000	1.5	27500	6	1008	6	1008	3	588
4	5000	3	35000	6	1283	6	1283	3	749
6	5000	3	35000	6	1283	6	1283	3	749
4 & 6	5000	3	35000	6	1283	6	1283	3	749
8 & 10	5000	5	45000	6	1650	6	1650	3	963
10 & 12	5000	5	45000	6	1650	6	1650	3	963
12	5000	4	40000	6	1467	6	1467	3	856

HMA Overlay:		Unsuitable Material		Bank Run Gravel	
Depth (in)	Weight (tons)	Depth (ft)	Volume (cy)	Depth (ft)	Weight (tons)
2	499	1	278	8	8800
2	499	1	278	8	8800
2	499	1	278	8	8800
2	535	1	324	8	10267
2	570	1	370	8	11733
2	642	1	463	8	14667
2	570	1	370	8	11733
2	713	1	556	8	17600
2	713	1	556	8	17600
2	713	1	556	8	17600

HMA Overlay:		Unsuitable Material		Bank Run Gravel	
Depth (in)	Weight (tons)	Depth (ft)	Volume (cy)	Depth (ft)	Weight (tons)
2	392	1	139	3	1650
2	499	1	278	3	3300
2	499	1	278	3	3300
2	499	1	278	3	3300
2	642	1	463	3	5500
2	642	1	463	3	5500
2	570	1	370	3	4400

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 1

Item No.	**Descripton**	**Quantity**	**Unit Cost**	**Cost**
Force Main				
1	4 Inch Force Main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	-	$ -	$ -
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Existing Lift Station Upgrade (LS No. 1)				
13	3 - 75 HP Pumps	3	$362,440	$ 1,087,300
				$ -
Total				***$ 1,087,300***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 2

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force Main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	1,200	$ 769	$ 923,100
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ 923,100***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 3

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force Main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	2,600	$ 769	$ 2,000,100
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				*$ 2,000,100*

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 4

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	1,500	$ 769	$ 1,153,900
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
13	Existing Lift Station Upgrade (LS No. 2)			$ -
13a	Assume installation of surplus 25 HP pump from LS 1	1	$ 50,000	$ 50,000
13b	3 - 75 HP Pumps	3	$ 362,440	$ 1,087,300
Total				***$ 2,291,200***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 5

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	-	$ -	$ -
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ -***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 6

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	1,800	$ 769	$ 1,384,700
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ 1,384,700***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 7

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	-	$ -	$ -
6	10 Inch	200	$ 843	$ 168,600
7	12 Inch	643	$ 920	$ 591,700
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
13	Existing Lift Station Upgrade (LS No. 3)	-	$ -	$ -
13a	Assume installation of surplus 25 HP pump from LS 1	1	$ 50,000	$ 50,000
13b	3- 75 HP pumps	3	$362,440	$ 1,087,300
Total				***$ 1,897,600***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 8

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	-	$ -	$ -
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ -***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 9

Item No.	Descripton	Quantity	Unit Cost		Cost
Force Main					
1	4 Inch Force main	-	$ -	$	-
2	6 Inch Force Main	-	$ -	$	-
3	8 and 10 Inch Force Main	-	$ -	$	-
4	10 and 12 Inch Force Main	-	$ -	$	-
Gravity Sewer					
5	8 Inch	1,100	$ 769	$	846,200
6	10 Inch	-	$ -	$	-
7	12 Inch	-	$ -	$	-
8	15 Inch	-	$ -	$	-
9	18 Inch	-	$ -	$	-
10	21 Inch	-	$ -	$	-
Lift Stations					
11a	Neighborhood Small Diameter Force Main	-	$ -	$	-
11b	Grinder Pumps (length of FM/75)	-	$ -	$	-
12	New Lift Station	-	$ -	$	-
Total				***$***	***846,200***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 10

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	480	$ 394	$ 189,400
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	200	$ 769	$ 153,900
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ 343,300***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 11

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	800	$ 394	$ 315,600
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	-	$ -	$ -
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main		$ -	$ -
11b	Grinder Pumps (length of FM/75)		$ -	$ -
12	New Lift Station	1	250,000	$ 250,000
Total				***$ 565,600***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 12

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch	1,000	$ 769	$ 769,300
6	10 Inch	-	$ -	$ -
7	12 Inch	-	$ -	$ -
8	15 Inch	-	$ -	$ -
9	18 Inch	-	$ -	$ -
10	21 Inch	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ 769,300***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 13

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	1,510	$ 394	$ 595,700
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	4,050	$ 769	$ 3,115,500
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	2,400	$ 301	$ 721,900
11b	Grinder Pumps (length of FM/75)	32	$ 25,000	$ 800,000
12	New Lift Station (LS No. 18)	1	$ 1,380,000	$ 1,380,000
Total				***$ 6,613,100***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 14

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	1,750	$ 394	$ 690,300
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	14,400	$ 769	$ 11,077,300
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	5,200	$ 301	$ 1,564,100
11b	Grinder Pumps (length of FM/75)	69	$ 25,000	$ 1,733,300
12	New Lift Station (LS No. 16)	1	$ 1,380,000	$ 1,380,000
13	New Lift Station (LS No. 17)	1	$ 1,725,000	$ 1,725,000
Total				***$ 18,170,000***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 15

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	-	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	960	$ 301	$ 288,800
11b	Grinder Pumps (length of FM/75)	13	$ 25,000	$ 320,000
12	New Lift Station	-	$ -	$ -
Total				***$ 608,800***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 16

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	-	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	2,260	$ 301	$ 679,800
11b	Grinder Pumps (length of FM/75)	30	$ 25,000	$ 753,300
12	New Lift Station	-	$ -	$ -
Total				***$ 1,433,100***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 17

Item No.	Descripton	Quantity	Unit Cost		Cost
Force Main					
1	4 Inch Force main	-	$ -	$	-
2	6 Inch Force Main	-	$ -	$	-
3	8 and 10 Inch Force Main	-	$ -	$	-
4	10 and 12 Inch Force Main	-	$ -	$	-
Gravity Sewer					
5	8 Inch PVC Sewer	2,700	$ 769	$	2,077,000
6	10 Inch PVC Sewer	-	$ -	$	-
7	12 Inch PVC Sewer	-	$ -	$	-
8	15 Inch PVC Sewer	-	$ -	$	-
9	18 Inch PVC Sewer	-	$ -	$	-
10	21 Inch PVC Sewer	-	$ -	$	-
Lift Stations					
11a	Neighborhood Small Diameter Force Main	3,500	$ 301	$	1,052,800
11b	Grinder Pumps (length of FM/75)	47	$ 25,000	$	1,166,700
12	New Lift Station	-	$ -	$	-
Total				***$***	***4,296,500***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 18 _ Total Project

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	3,000	$ 394	$ 1,183,400
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	5,450	$ 769	$ 4,192,400
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 14)	1	$ 1,380,000	$ 1,380,000
Total				***$ 6,755,800***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 18 _ Wolfe Point

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	3,000	$ 394	$ 1,183,400
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	5,450	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 14)	1	$ 1,380,000	$ 1,380,000
Total				***$ 2,563,400***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 18 - Excluding Wolf Point

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main		$ -	
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main		$ -	
4	10 and 12 Inch Force Main		$ -	
Gravity Sewer				
5	8 Inch PVC Sewer	5,450	$ 769	$ 4,192,400
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 14)	-		$ -
Total				***$ 4,192,400***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 19

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	500	$ 708	$ 353,800
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	18,860	$ 769	$ 14,508,100
6	10 Inch PVC Sewer	2,000	$ 843	$ 1,685,700
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	2,600	$ 940	$ 2,444,700
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	4,330	$ 301	$ 1,302,400
11b	Grinder Pumps (length of FM/75)	99	$ 25,000	$ 2,463,300
12	New Lift Station (LS No. 12)	1	$ 2,300,000	$ 2,300,000
Railroad Crossing				
13	Railroad Crossing (casing, pipe, railroad inspection)	1	$ 765,440	$ 765,400
Total				***$ 25,823,400***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 20

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	4,100	$ 394	$ 1,617,400
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	18,500	$ 769	$ 14,231,200
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	940	$ 301	$ 282,700
11b	Grinder Pumps (length of FM/75)	13	$ 25,000	$ 313,300
12	New Lift Station (LS No. 15)	1	$ 1,380,000	$ 1,380,000
Railroad Crossing				
13	Railroad Crossing (casing, pipe, railroad inspection)	1	$ 765,440	$ 765,400
Total				***$ 18,590,000***

General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 20 - Prologics connection only

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main		$ -	$ -
2	6 Inch Force Main		$ -	$ -
3	8 and 10 Inch Force Main			
4	10 and 12 Inch Force Main			
Gravity Sewer				
5	8 Inch PVC Sewer		$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	600	$ 920	$ 552,100
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 15)	-	$ -	$ -
Railroad Crossing				
13	Railroad Crossing (casing, pipe, railroad inspection)	-	$ -	$ -
Total				***$ 552,100***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 21 - excluding force mains along Interurban Trail

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	6,100	$ 769	$ 4,692,500
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 4)	1	$ 2,070,000	$ 2,070,000
13	New Lift Station (LS No. 6)	1	$ 1,150,000	$ 1,150,000
Total				***$ 7,912,500***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. ***21 - Force Main along Interurban Trail only (including dual force main included in Basin 23 costs)***

Item No.	**Descripton**	**Quantity**	**Unit Cost**	**Cost**
Force Main				
1	4 Inch Force main	2,400	$ 364	$ 874,500
2	6 Inch Force Main	500	$ 394	$ 197,200
3	8 and 10 Inch Force Main			
4	10 and 12 Inch Force Main	3,600	$ 788	$ 2,836,200
Gravity Sewer				
5	8 Inch PVC Sewer	-	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	2,600	$ 301	$ 782,000
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 4)	-	$ -	$ -
13	New Lift Station (LS No. 6)	-	$ -	$ -
Total				***$ 4,689,900***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 22

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	1,563	$ 394	$ 616,600
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	4,450	$ 769	$ 3,423,200
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station (LS No. 8)	1	$ 1,265,000	$ 1,265,000
Total				***$ 5,304,800***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 23

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	5,100	$ 788	$ 4,018,000
5	12 Inch Force Main (from Edgewood to LWSD	4,800	$ 547	$ 2,623,400
Gravity Sewer				
6	8 Inch PVC Sewer	5,600	$ 769	$ 4,307,800
7	10 Inch PVC Sewer	-	$ -	$ -
8	12 Inch PVC Sewer	-	$ -	$ -
9	15 Inch PVC Sewer	-	$ -	$ -
10	18 Inch PVC Sewer	2,300	$ 1,102	$ 2,534,600
11	21 Inch PVC Sewer	650	$ 1,122	$ 729,400
Lift Stations				
12a	Neighborhood Small Diameter Force Main	650	$ 301	$ 195,500
12b	Grinder Pumps (length of FM/75)	9	$ 25,000	$ 216,700
13	New Lift Station (LS No. 5)	1	$ 4,830,000	$ 4,830,000
Total				***$ 19,455,400***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 24

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	-	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	1,490	$ 301	$ 448,200
11b	Grinder Pumps (length of FM/75)	20	$ 25,000	$ 496,700
12	New Lift Station	-	$ -	$ -
Total				***$ 944,900***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 25

Item No.	Descripton	Quantity	Unit Cost		Cost
Force Main					
1	4 Inch Force main	-	$ -	$	-
2	6 Inch Force Main	-	$ -	$	-
3	8 and 10 Inch Force Main	-	$ -	$	-
4	10 and 12 Inch Force Main	480	$ 788	$	378,200
Gravity Sewer					
5	8 Inch PVC Sewer	16,950	$ 769	$	13,038,900
6	10 Inch PVC Sewer	-	$ -	$	-
7	12 Inch PVC Sewer	-	$ -	$	-
8	15 Inch PVC Sewer	-	$ -	$	-
9	18 Inch PVC Sewer	3,800	$ 1,102	$	4,187,700
10	21 Inch PVC Sewer	-	$ -	$	-
Lift Stations					
11a	Neighborhood Small Diameter Force Main	9,900	$ 301	$	2,977,800
11b	Grinder Pumps (length of FM/75)	132	$ 25,000	$	3,300,000
12	New Lift Station	-	$ -	$	-
Total				***$***	***23,882,600***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 26

Item No.	Descripton	Quantity		Unit Cost		Cost
Force Main						
1	4 Inch Force main	-	$	-	$	-
2	6 Inch Force Main	2,400	$	394	$	946,800
3	8 and 10 Inch Force Main	-	$	-	$	-
4	10 and 12 Inch Force Main	-	$	-	$	-
Gravity Sewer						
5	8 Inch PVC Sewer	11,500	$	769	$	8,846,400
6	10 Inch PVC Sewer	-	$	-	$	-
7	12 Inch PVC Sewer	-	$	-	$	-
8	15 Inch PVC Sewer	-	$	-	$	-
9	18 Inch PVC Sewer	-	$	-	$	-
10	21 Inch PVC Sewer	-	$	-	$	-
Lift Stations						
11a	Neighborhood Small Diameter Force Main	-	$	-	$	-
11b	Grinder Pumps (length of FM/75)	-	$	-	$	-
12	New Lift Station (LS No. 7)	1	$	1,725,000	$	1,725,000
Total					***$***	***11,518,200***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 27

Item No.	Descripton	Quantity		Unit Cost		Cost
Force Main						
1	4 Inch Force main	-	$	-	$	-
2	6 Inch Force Main	-	$	-	$	-
3	8 and 10 Inch Force Main	4,000	$	708	$	2,830,100
4	10 and 12 Inch Force Main	-	$	-	$	-
Gravity Sewer						
5	8 Inch PVC Sewer	10,850	$	769	$	8,346,400
6	10 Inch PVC Sewer	1,300	$	843	$	1,095,700
7	12 Inch PVC Sewer	1,300	$	920	$	1,196,300
8	15 Inch PVC Sewer	-	$	-	$	-
9	18 Inch PVC Sewer	-	$	-	$	-
10	21 Inch PVC Sewer	-	$	-	$	-
Lift Stations						
11a	Neighborhood Small Diameter Force Mai	5,350	$	301	$	1,609,200
11b	Grinder Pumps (length of FM/75)	77	$	25,000	$	1,913,300
12	New Lift Station (LS No. 9)	1	$	2,300,000	$	2,300,000
Total					***$***	***19,291,000***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 28

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	4,850	$ 769	$ 3,730,900
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	2,600	$ 940	$ 2,444,700
9	18 Inch PVC Sewer		$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station	-	$ -	$ -
Total				***$ 6,175,600***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 29

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	-
2	6 Inch Force Main	1,820	$ 394	718,000
3	8 and 10 Inch Force Main	-	$ -	-
4	10 and 12 Inch Force Main	-	$ -	-
Gravity Sewer				
5	8 Inch PVC Sewer	-	-	-
6	10 Inch PVC Sewer	-	-	-
7	12 Inch PVC Sewer	-	-	-
8	15 Inch PVC Sewer	-	-	-
9	18 Inch PVC Sewer	-	-	-
10	21 Inch PVC Sewer	-	-	-
Lift Stations				
11a	Neighborhood Small Diameter Force Main	-	$ -	$ -
11b	Grinder Pumps (length of FM/75)	-	$ -	$ -
12	New Lift Station			
Total				***718,000***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 30

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	1,400	$ 394	$ 552,300
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	8,250	$ 769	$ 6,346,300
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	470	$ 301	$ 141,400
11b	Grinder Pumps (length of FM/75)	6	$ 25,000	$ 156,700
12	New Lift Station (LS No. 11)	1	$ 1,380,000	$ 1,380,000
Total				***$ 8,576,700***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 31

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	500	$ 708	$ 353,800
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	13,800	$ 769	$ 10,615,700
6	10 Inch PVC Sewer	1,800	$ 843	$ 1,517,200
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	8,850	$ 301	$ 2,662,000
11b	Grinder Pumps (length of FM/75)	173	$ 25,000	$ 4,336,700
12	New Lift Station (LS No. 13)	1	$ 2,300,000	$ 2,300,000
Railroad Crossing				
13	Railroad Crossing (casing, pipe, railroad inspection)	1	$ 765,440	$ 765,400
Total				***$ 22,550,800***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 32

Item No.	Descripton	Quantity		Unit Cost		Cost
Force Main						
1	4 Inch Force main	-	$	-	$	-
2	6 Inch Force Main	1,300	$	394	$	512,800
3	8 and 10 Inch Force Main	-	$	-	$	-
4	10 and 12 Inch Force Main	-	$	-	$	-
Gravity Sewer						
5	8 Inch PVC Sewer	8,440	$	769	$	6,492,500
6	10 Inch PVC Sewer	20	$	843	$	16,900
7	12 Inch PVC Sewer	-	$	-	$	-
8	15 Inch PVC Sewer	-	$	-	$	-
9	18 Inch PVC Sewer	-	$	-	$	-
10	21 Inch PVC Sewer	-	$	-	$	-
Lift Stations						
11a	Neighborhood Small Diameter Force Main	-	$	-	$	-
11b	Grinder Pumps (length of FM/75)	-	$	-	$	-
12	New Lift Station (LS No. 10)	1	$	1,265,000	$	1,265,000
Total					***$***	***8,287,200***

City of Edgewood
General Sewer Plan (#19614)
Basin Cost Estimate

Basin No. 33

Item No.	Descripton	Quantity	Unit Cost	Cost
Force Main				
1	4 Inch Force main	-	$ -	$ -
2	6 Inch Force Main	-	$ -	$ -
3	8 and 10 Inch Force Main	-	$ -	$ -
4	10 and 12 Inch Force Main	-	$ -	$ -
Gravity Sewer				
5	8 Inch PVC Sewer	-	$ -	$ -
6	10 Inch PVC Sewer	-	$ -	$ -
7	12 Inch PVC Sewer	-	$ -	$ -
8	15 Inch PVC Sewer	-	$ -	$ -
9	18 Inch PVC Sewer	-	$ -	$ -
10	21 Inch PVC Sewer	-	$ -	$ -
Lift Stations				
11a	Neighborhood Small Diameter Force Main	1,550	$ 301	$ 466,200
11b	Grinder Pumps (length of FM/75)	21	$ 25,000	$ 516,700
12	Lift Station	-	$ -	$ -
Total				***$ 982,900***

APPENDIX G

RATE STUDY

City of Edgewood

Sewer Utility

Sewer Utility Rate Study

FINAL REPORT

November 2022

Washington
7525 166th Avenue NE, Ste. D215
Redmond, WA 98052
425.867.1802

Oregon
5335 Meadows Road, Ste 330
Lake Oswego, OR 97035
503.841.6543

Colorado
1320 Pearl St, Ste 120
Boulder, CO 80302
719.284.9168

www.fcsgroup.com

This entire report is made of readily recyclable materials, including the bronze wire binding and the front and back cover, which are made from post-consumer recycled plastic bottles.

FCS GROUP
Solutions-Oriented Consulting

FCS GROUP
Solutions-Oriented Consulting

Firm Headquarters
Redmond Town Center
7525 166th Ave NE, Ste. D-215
Redmond, Washington 98052

Established 1988
Washington | 425.867.1802
Oregon | 503.841.6543
Colorado | 719.284.9168

November 16, 2022

Jeremy Metzler, P.E.
Public Works Director
City of Edgewood
2224 104th Ave E.
Edgewood, WA 98372

Subject: Sewer Utility Rate Study

Dear Mr. Metzler:

FCS GROUP is pleased to submit this report documenting the revenue requirement analysis conducted for the City of Edgewood's sewer utility. As you had requested, of the six scenarios included in the June 23, 2022 presentation (1, 1a, 2, 2a, 3, and 3a), this report includes only Scenarios 1a and 2a. Slight modifications have been made to the analyses since that time and this report reflects the latest forecasts for these two scenarios.

- Scenario 1a assumes annual growth of 100 ERUs and that 25% of the capital improvement plan (CIP) is completed by 2050.
- Scenario 2a assumes annual growth of 200 ERUs and that 50% of the CIP is completed by 2050

Both scenarios utilize a combination of rate increases, debt issuances, and conveyance development charge (CDC) revenue to cover the anticipated capital expenditures. Given the length of this forecast (30 years) and the material assumptions related to customer growth and capital plan completion, we recommend these forecasts be viewed as high-level planning numbers. The analysis should be frequently revisited to ensure that the City is still on track, especially as the City begins taking on sewer-related debt, which is forecast to begin in the mid-2030s.

It has been a pleasure to work with you and other City staff on this effort. Please let us know if you have any questions or need additional information. Tage can be reached at (425) 615-6487 or TageA@fcsgroup.com.

Sincerely,

John Ghilarducci
Project Principal

Tage Aaker
Project Manager

Evan Coughlan
Analyst

TABLE OF CONTENTS

Section I. Introduction 1

Section II. Fiscal Policies 3

Section III. Revenue Requirement 5

Section IV. Summary 10

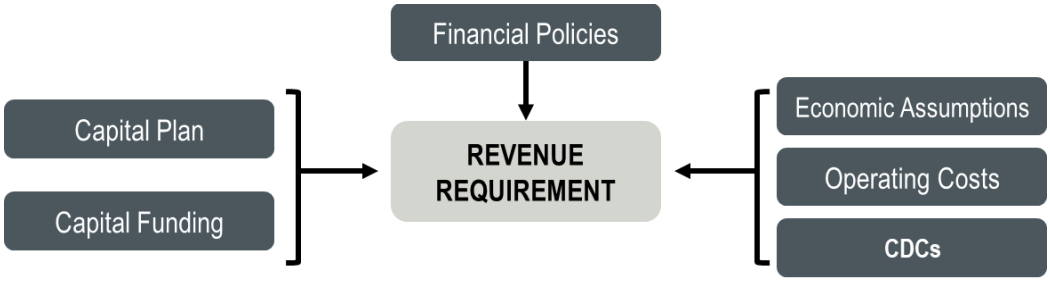
Section I. INTRODUCTION

The City of Edgewood (City) contracted with FCS GROUP through Gray & Osborne, Inc. to perform a revenue requirement and conveyance development charge (CDC) study for its sewer utility. This report documents the revenue requirement analysis; the CDC analysis is documented in a separate report that has been provided to the City.

Revenue Requirement

The purpose of this rate study is to establish a funding plan ("revenue requirement") for the City's sewer utility for the 2021-2050 study period. The revenue requirement identifies the total revenue needed to fully fund the utility on a standalone basis considering current financial obligations and future capital expenditures identified in the capital improvement program (CIP). The rates that are presented in this report are not inclusive of the rates charged to provide wastewater conveyance outside of City limits and treatment.

Exhibit 1: Revenue Requirement Overview



Sometimes, multiple revenue requirement scenarios are modeled to measure the rate impact of varied assumptions. For example, it can be helpful to model the rate impacts of completing a six-year capital plan over twelve years so that decision-makers can strike a balance between completing capital projects and customer rate impacts.

This report documents two scenarios – one that assumes annual growth of 100 ERUs with 25% completion of the CIP by 2050, and one that assumes annual growth of 200 ERUs with 50% completion of the CIP by 2050.

Scenario 1a – 100 Annual ERUs & Funding 25% of CIP by 2050

The funding plan for this scenario forecasts 12.0% across-the-board rate increases each year from 2023 through 2027. This is followed by 9.0% annual increases in 2028-2039. After that, increases range from 2.5% to 8.0% per year. Due to table constraints, **Exhibit 2** depicts these rate increases for years 2023-2030 rather than the entire rate setting period. As noted, rate increases are applied "across-the-board" – that is, it is assumed that every charge on the rate schedule increases by the same percentage, which maintains the balance of the existing rate structure.

Key assumptions are noted below:

- Cash funded capital of $19 million by 2050 (17% of the scenario's 2022-2050 capital plan).
- Borrowing of $55 million by 2050 (48% of the of the scenario's 2022-2050 capital plan).

- CDC revenue of $40 million by 2050 (35% of the scenario's 2022-2050 capital plan), based on 100 ERUs per year and a CDC charge of $14,000.

Exhibit 2: Scenario 1a: 100 Annual ERUs & Funding 25% of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%

In summary, these rate increases (along with debt issuances and CDC revenue) are forecasted to allow the City to fund $113 million in escalated capital costs of the total $439 million inflated-adjusted capital program for 2022-50.

Scenario 2a – 200 Annual ERUs & Funding 50% of CIP by 2050

The funding plan for this scenario forecasts 12.0% across-the-board rate increases each year from 2023 through 2032. At that time 8% increases are assumed from 2033 to 2040. After that, 6% annual increases are forecast through 2050. Key assumptions are noted below:

- Cash funded capital of $27 million by 2050 (12% of the scenario's 2022-2050 capital plan).
- Borrowing of $119 million by 2050 (53% of the of the scenario's 2022-2050 capital plan).
- CDC revenue of $80 million by 2050 (35% of the scenario's 2022-2050 capital plan), based on 200 ERUs per year and a CDC charge of $14,000.

Exhibit 3: Scenario 2a: 200 Annual ERUs & Fund 50% of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%

In summary, these rate increases (along with debt issuances and CDC revenue) are forecasted to allow the City to fund $223 million in escalated capital costs of the total $439 million inflated-adjusted capital program for 2022-50.

Section II. FISCAL POLICIES

The basic framework for evaluating utility revenue needs includes sound fiscal policies. Several policy topics are important to consider as part of managing the finances of the utility including cash reserves, debt management (likely applicable in the future), and rate funded system reinvestment (planned rate funded capital).

Cash Reserves

When evaluating reserve levels and objectives, it is important to recognize that the value of reserves lies in their potential use. A reserve strategy that deliberately avoids any use of reserves negates their purpose. The fluctuation of reserve levels may indicate that the system is working, while lack of variation over many years strongly suggests that the reserves are, in fact, unnecessary.

Operating Reserves

An operating reserve is designed to provide a liquidity cushion; it protects the utility from the risk of short-term variation in the timing of revenue collection or payment of expenses. The most common operating reserve target for sewer utilities is between 45 days to 60 days of operating expenses.

Recommended Policy: Since the Lakehaven Water & Sewer District provides a majority of the operating and maintenance related activity for the City's sewer system, the City does not have many operating expenses that it pays for out of its own fund. Therefore, this reserve is not material / applicable at this time. The City's primary operating expense is state business and occupation taxes owed on rate and CDC revenues. If in the future, the City's operating costs become material, it may want to revisit and possibly implement an operating reserve policy.

Capital Reserves

The capital reserve provides a source of emergency funding for unexpected asset failures or other unanticipated capital needs. This capital reserve policy is not intended to guard against catastrophic system failure or extreme acts of nature. The most common capital reserve target for sewer utilities is between 1-2% of the original cost of the utility's plant-in-service, although another option common to sewer utilities is to hold in reserve an amount sufficient to fund a small to moderate asset or equipment failure.

Recommended Policy: Achieve a year-end minimum balance target of between 1-2% of the original cost of the utility's plant-in-service. This equates to a range of roughly $175,000-$350,000 based on the plant-in-service cost estimate of $17.6 million (net of LID formation and financing costs) according to the City's Utility Local Improvement District Number 1's formation documentation. This reserve target is projected to grow as the City executes its capital improvement plan, which varies by scenario. Alternatively, the City may want to hold in reserve an amount that allows the City to respond to a pump station failure or an emergency main break.

Debt Related Policies

The City does not currently have any outstanding sewer utility debt. It will be prudent for the City to coordinate with bond counsel and reference the debt policies cited below when borrowing occurs.

Debt Reserve

A debt reserve is most often required as a condition of bond issuance, though some loan programs also require a reserve. The reserve intends to protect bondholders (or the agency issuing loans) from the risk of the borrower defaulting on their payments and is most often linked to either average annual debt service or maximum annual debt service.

> **Recommended Policy:** The policy should be dictated by terms outlined in contracts for debt obligations if the sewer utility chooses to utilize debt in the future.

Debt Service Coverage

Debt service coverage is typically a requirement associated with revenue bonds (not often associated with state loans), and it is an important benchmark to measure the riskiness of a utility's capital funding plans. Coverage is most easily understood as a factor applied to annual debt service. In such a case, if it issues revenue bonds, the sewer utility agrees to collect enough revenue to meet operating expenses and not only pay debt service but to collect an additional 25% above bonded debt service. The extra revenue is a "cushion" that makes bondholders more confident that debt service will be paid on time.

> **Recommended Policy:** While 1.25 is a common legal minimum coverage for revenue bonds, FCS GROUP recommends the City strive to achieve a more conservative internal policy coverage target of at least 1.50-2.00 for planning purposes. However, achieving a more conservative target has rate impacts. In any given year, the City may need to balance the decision of rate impacts versus achieving a more conservative target. It is also worth noting the debt service coverage figures in **Exhibits 7** and **10** assume CDC revenues are incorporated into the calculation. CDC revenues are growth-dependent and care should be taken to ensure that as the City begins to borrow, it can meet coverage even if CDC revenues slow.

Rate Funded System Reinvestment

Rate funded system reinvestment, often referred to as rate funded capital, is the funding of long-term infrastructure replacement needs through a regular (annual) and predictable rate provision. It is typically recommended that utilities strive to cash-fund original cost depreciation expense.

> **Recommended Policy:** Both scenarios 1a and 2a allow the utility to cash-fund an average of $300,000 and $400,000 of capital projects each year (2023-2030). The City's Utility Local Improvement District #1 formation documentation estimates annual depreciation expense of $235,000 based on the plant-in-service cost estimate of $17.6 million and an assumed useful life of 75 years. As the City begins to borrow in the mid-2030s, it should reevaluate its ability to meet this target along with debt service coverage.

Section III. Revenue Requirement

This section presents the revenue requirement results for the sewer utility, which compare revenue generated from current and future rate revenues against projected operating and capital needs.

Economic & Inflation Factors

The following factors affect various aspects of the revenue requirement forecast:

- Construction Cost Inflation – Assumed to be 3.0 percent per year based on the historical Engineering News-Record's Construction Cost Index (20-City Average). Capital cost estimates were provided in 2021 and 2022 dollars and are escalated to the year of construction in the forecast.
- Taxes – A State excise tax rate of 3.852 percent applies to monthly rate revenue (sewer collection related revenues) and a State business and occupation tax rate of 1.50 percent applies to CDC revenue.
  - **Note:** the City also collects a 6% utility tax on sewer revenues. Our understanding is that this tax is currently added on top of stated rates when Lakehaven bills and collects the Edgewood sewer rates. The City will need to ensure that this practice continues, by adding 6% to the rates shown in each scenario's forecast.
- Fund Earnings – Assumed to be 0.25 percent per year based on recent history for the Local Government Investment Pool (LGIP) for Washington. This rate allows the forecast to calculate annual interest earnings each year.
- Future revenue bonds – Assumed 20-year maturity, 1.0% issuance costs, and a 4% interest rate.
- The City had approximately $509,000 in beginning 2022 Fund 401 fund balance.

Capital Expenditure Forecast

An initial capital replacement schedule was provided by Gray & Osborne, per a July 29, 2021 memo titled *Pump Station Equipment Replacement Cost Estimates*. Costs were provided by project, by general timeframe in 2021 dollars. Gray & Osborne subsequently provided capital cost estimates to provide sanitary sewer to the City's thirty-three basins. Both cost estimates are shown in **Exhibit 4**.

Exhibit 4: Capital Cost Estimates – In 2022 $, Not Escalated to Year of Construction

Description	Amount
Pump Station Equipment Replacement Cost Estimates (2022 dollars)	$2 million
Citywide Sanitary Sewer Across 33 Basins (2022 dollars)	$254 million
Total	$256 million

Revenue Requirement Results

As noted in the beginning of the report, many rate and capital funding scenarios were created, including funding 25%, 50%, and 100% of these costs by 2050. This report documents one scenario that funds 25% of the capital plan (Scenario 1a) and a second scenario that funds 50% of the capital

plan (Scenario 2a). Based on input from City staff, both scenarios include conveyance development charge revenues at $14,000 per ERU, supported by the updated CDC calculation (which is a few thousand dollars higher than $14,000), documented in a separate report.

Scenario 1a

The funding plan for this scenario forecasts 12.0% annual across-the-board rate increases from 2023 through 2027. This is followed by 9.0% annual increases in 2028-2039. After that, increases range from 2.5% to 8% per year.

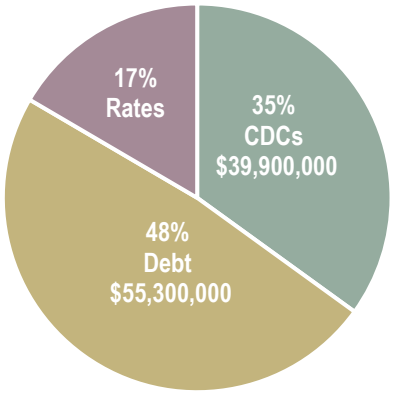
Exhibit 5: Scenario 1a: 100 Annual ERUs & Funding 25% of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%

The capital funding strategy is noted below and summarized in **Exhibit 6**:

- Cash funded capital of $19 million by 2050 (17% of the scenario's 2022-2050 capital plan).
- Borrowing of $55 million by 2050 (48% of the of the scenario's 2022-2050 capital plan).
- CDC revenue of $40 million by 2050 (35% of the scenario's 2022-2050 capital plan), based on 100 ERUs per year and a CDC charge of $14,000.

Exhibit 6: Scenario 1a Capital Funding Plan 2022-2050



Scenario 1a: Revenue Requirement

Exhibit 7 graphically represents the revenue requirement forecast for Scenario 1a. The bars represent capital costs (and a small amount of taxes), the solid line represents total rate revenue from the sewer utility, and the dotted line represents the ending fund balance each year.

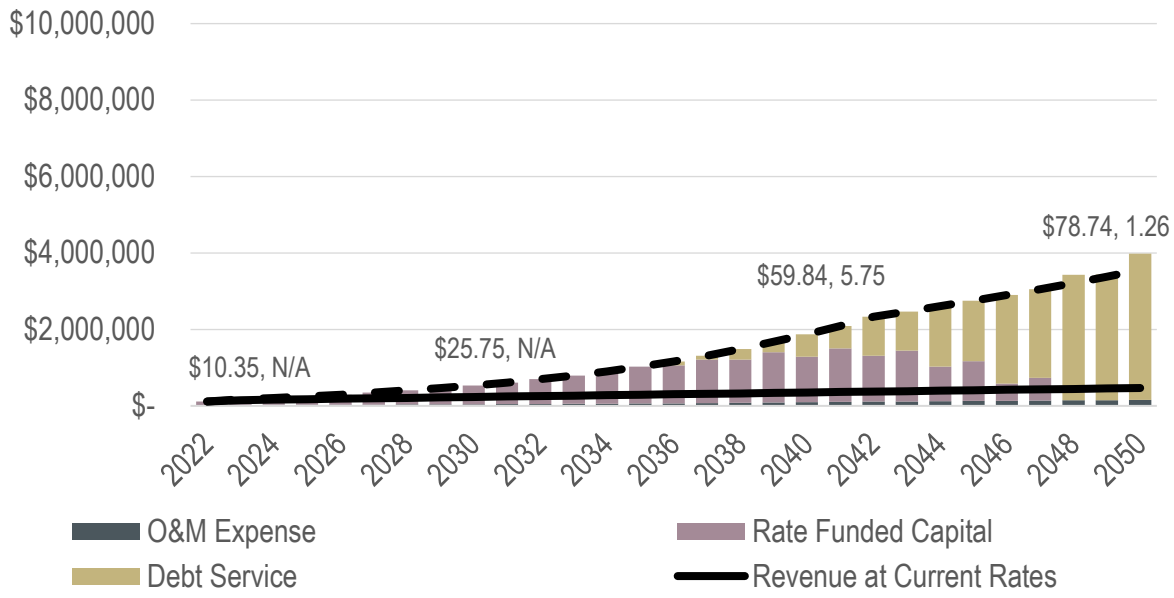
- Solid black line: Revenue at existing rates.
  - » Rate revenue is expected to be roughly $114,000 in 2022 at 294 ERUs and is expected to grow 100 ERUs per year with customer growth.
- Dashed black line: Revenues with rate increases.
  - » Rate revenue must increase to allow the utility to cover its existing financial obligations while also funding capital improvement projects. These rate increases start in 2023.

- Dark grey bar: Cash operating expenses excluding Lakewood.
  - » Operating expenses are primarily State taxes on rate and CDC revenues.
- Gold bar: Debt Service.
  - » Annual debt service payments begin in 2036 and increase to $3.8 million by 2050.
- Purple bar: Cash available for capital (i.e., rate funded capital).
  - » In 2022, roughly $100,000 is available for rate funded capital. With rate increases, this amount is projected to steadily grow to $1.3 million by 2039. After that, this amount decreases to zero by 2048 as new debt service erodes rate funded capital.

The dollar-based data labels in the exhibit below show the estimated monthly single-family bill (excluding Lakehaven rates), assuming monthly consumption of 5 ccf per. These monthly rates include the 6% City utility tax.

The second number shows estimated debt service coverage, taking into account rate and CDC revenues. As rate funded capital declines in the 2040s, the City will need to rely on CDC revenue to meet debt service coverage. Ideally, the City would not need to rely on this growth-dependent revenue to meet debt service coverage. When the City begins borrowing in the mid-2030s, the rate forecast should be re-evaluated.

Exhibit 7: Scenario 1a Revenue Requirement



While the revenue requirement spans the next thirty years, utilities typically perform rate studies every 2-6 years to review the forecast and update it with fresh information. Given the materiality of the City's potential growth, and the corresponding CIP, we recommend that the City routinely evaluate its revenue requirement to monitor key assumptions and update the forecast as needed. For example, if the City were to receive grants or other outside funding, or perhaps secure state loans to batch projects closer together, that would be information that could alter this forecast.

Scenario 2a

The funding plan for this scenario forecasts 12.0% annual across-the-board rate increases from 2023 through 2032. At that time 8% increases are assumed from 2033 to 2040. After that, 6% annual increases are forecast through 2050.

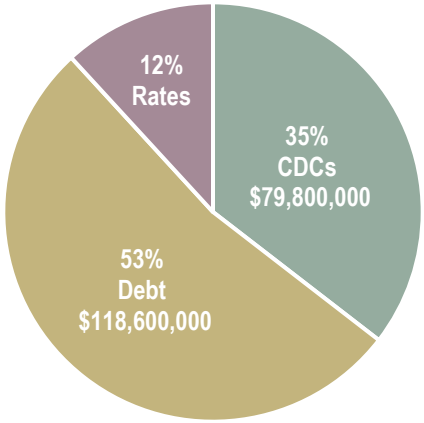
Exhibit 8: Scenario 2a: 200 Annual ERUs & Fund 50% of CIP by 2050

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Rate Increase	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%

The capital funding strategy is noted below and summarized in **Exhibit 9**:

- Cash funded capital of $27 million by 2050 (12% of the scenario's 2022-2050 capital plan).
- Borrowing of $119 million by 2050 (53% of the of the scenario's 2022-2050 capital plan).
- CDC revenue of $80 million by 2050 (35% of the scenario's 2022-2050 capital plan), based on 200 ERUs per year and a CDC charge of $14,000.

Exhibit 9: Scenario 2a Capital Funding Plan 2022-2050



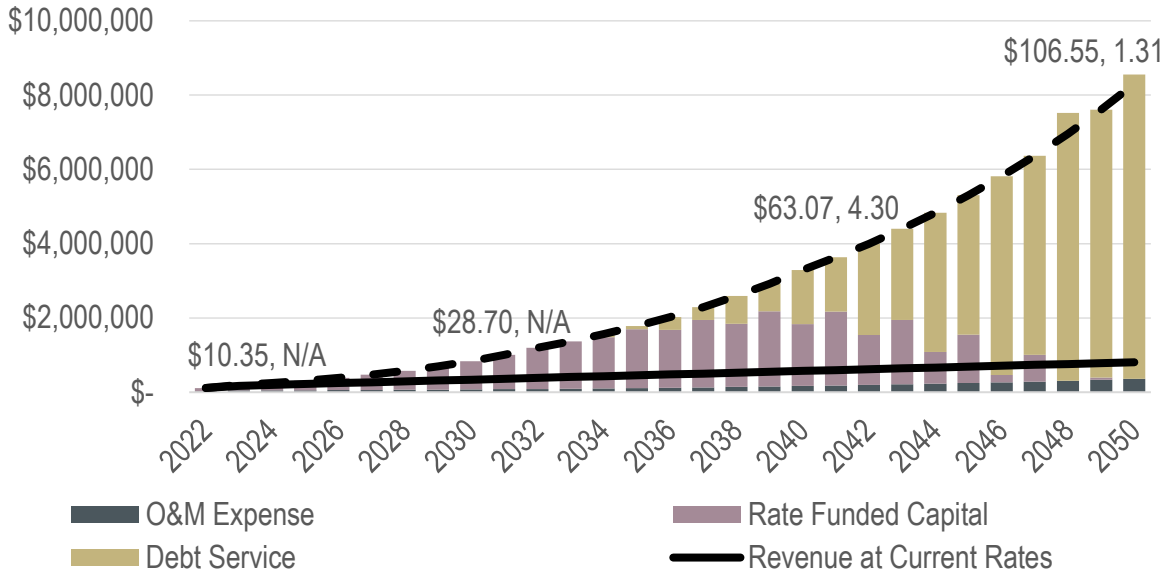
Scenario 2a: Revenue Requirement

Exhibit 10 graphically represents the revenue requirement forecast for Scenario 2a. The bars represent capital costs (and a small amount of taxes), the solid line represents total rate revenue from the sewer utility, and the dotted line represents the ending fund balance each year.

- Solid black line: Revenue at existing rates.
  - » Rate revenue is expected to be roughly $114,000 in 2022 at 294 ERUs and is expected to grow 200 ERUs per year with customer growth.
- Dashed black line: Revenues with rate increases.
  - » Rate revenue must increase to allow the utility to cover its existing financial obligations while also funding capital improvement projects. These rate increases start in 2023.
- Dark grey bar: Cash operating expenses excluding Lakewood.
  - » Operating expenses are primarily State taxes on rate and CDC revenues.

- Gold bar: Debt Service.
  - » Annual debt service payments begin in 2036 and increase to $8.2 million by 2050.
- Purple bar: Cash available for capital (i.e., rate funded capital).
  - » With rate increases, this amount is projected to steadily grow to $2.0 million by 2039. After that, this amount decreases to zero by 2048 as new debt service erodes rate funded capital.

Exhibit 10: Scenario 2a Revenue Requirement



Section IV. SUMMARY

Revenue Requirement & Rate Schedule

Both Scenarios 1a and 2a forecast 12% annual rate increases for 2023-2027. Where these two plans diverge is beginning in 2028, when Scenario 2a continues at 12% per year for many years, while Scenario 1a reduces to 9% per year. The extra 3% in Scenario 2a, along 200 ERUs of growth instead of 100 ERUs of growth, allow Scenario 2a to fund roughly 50% of the total citywide capital plan instead of 25% as is the case in Scenario 1a.

Exhibit 11: Scenario 1a Rate Increases

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase	--	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	8.00%	2.50%
Monthly Base Rate per Account	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.60	$10.47	$11.41	$26.77	$38.04
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.82	$1.99	$2.17	$5.09	$7.23

Exhibit 12: Scenario 2a Rate Increases

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Annual Rate Increase	--	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	6.00%
Monthly Base Rate per Account	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.87	$11.05	$12.38	$28.74	$51.48
Usage Rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.88	$2.10	$2.35	$5.46	$9.78

Updating Study Findings

It is recommended that the City frequently revisit study findings during the forecast period to check that the assumptions used (such as customer growth) are still appropriate and that no significant changes have occurred that would alter the results of the study. The City should use the study as a living document, routinely comparing the study outcomes to actual revenues and expenses. New information could have positive (grant, low-cost state loans) or negative (slower growth, less CDC revenue) impacts on the forecast.

Any significant or unexpected changes may require adjustments to the rate strategy recommended in this report. In particular, the City should routinely evaluate its fund balance and remaining

replacement needs at multiple points throughout the forecast period to determine if the current level of rates is still adequate or appropriate.

TECHNICAL APPENDIX

Appendix A.

Technical Model Summary Tables

Scenario 1a – 100 ERUs at 25% CIP Completion (2050)

Sewer Utility Rate Study 2022 Summary		Budget 2022	Forecast 2023	Forecast 2024	Forecast 2025	Forecast 2026	Forecast 2027	Forecast 2028	Forecast 2029	Forecast 2030	Forecast 2031	Forecast 2032	Forecast 2033	Forecast 2034	Forecast 2035	Forecast 2036	Forecast 2037	Forecast 2038	Forecast 2039	Forecast 2040	Forecast 2041	Forecast 2042	Forecast 2043	Forecast 2044	Forecast 2045	Forecast 2046	Forecast 2047	Forecast 2048	Forecast 2049	Forecast 2050
Key Metrics																														
Annual Rate Increases		0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	8.00%	8.00%	8.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Monthly Single Family Charge (w/ 500 cf per month)*		$9.75	$10.92	$12.23	$13.70	$15.34	$17.18	$18.73	$20.41	$22.25	$24.25	$26.44	$28.82	$31.41	$34.24	$37.32	$40.68	$44.34	$48.33	$52.20	$56.37	$60.88	$62.40	$63.96	$65.56	$67.20	$68.88	$70.60	$72.37	$74.18
Monthly Single Family Charge Annual Increase*		$0.00	$1.17	$1.31	$1.47	$1.64	$1.84	$1.55	$1.69	$1.84	$2.00	$2.18	$2.38	$2.59	$2.83	$3.08	$3.36	$3.66	$3.99	$3.87	$4.18	$4.51	$1.52	$1.56	$1.60	$1.64	$1.68	$1.72	$1.77	$1.81
CIP Completion		0.0%	0.4%	0.8%	1.2%	1.6%	2.2%	2.8%	3.3%	3.9%	4.5%	5.2%	5.9%	6.6%	7.3%	8.1%	8.9%	9.7%	10.6%	11.6%	12.8%	14.0%	15.3%	16.5%	17.8%	19.2%	20.6%	22.1%	23.5%	25.0%
Debt Service Coverage - Total Debt		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.08	25.52	10.16	10.84	5.39	5.75	3.54	3.68	2.47	2.56	1.80	1.87	1.36	1.41	1.26

*Does not include Lakehaven Bill

Economic & Other Factors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Economic Assumptions																													
General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
State Sewer Excise Tax	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%
State B&O Tax	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
LGIP Rate	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
CDC Assumptions																													
Actual Charge	$7,060	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000
Incremental Customer Base	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Conveyance Development Charges	$ 706,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000

Revenues		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Monthly Rates (Before City Utility Tax)																														
Base rate per month per account		$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.60	$10.47	$11.41	$12.44	$13.56	$14.78	$16.11	$17.56	$19.14	$20.86	$22.74	$24.78	$26.77	$28.91	$31.22	$32.00	$32.80	$33.62	$34.46	$35.32	$36.21	$37.11	$38.04
Usage rate per 100 cubic feet		$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.82	$1.99	$2.17	$2.36	$2.58	$2.81	$3.06	$3.34	$3.64	$3.96	$4.32	$4.71	$5.09	$5.49	$5.93	$6.08	$6.23	$6.39	$6.55	$6.71	$6.88	$7.05	$7.23
Accounts																														
Current Accounts (Mix of SF, MF, & Comm)		294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
Single Family Residential Accounts (1 Account = 1 ERU)		100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Cumulative Total Accounts		394	494	594	694	794	894	994	1,094	1,194	1,294	1,394	1,494	1,594	1,694	1,794	1,894	1,994	2,094	2,194	2,294	2,394	2,494	2,594	2,694	2,794	2,894	2,994	3,094	3,194
Consumption																														
Current Annual Usage	*Calculated*	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124
Annual Usage Growth (SF Only)	5 ccf	6,000	12,000	18,000	24,000	30,000	36,000	42,000	48,000	54,000	60,000	66,000	72,000	78,000	84,000	90,000	96,000	102,000	108,000	114,000	120,000	126,000	132,000	138,000	144,000	150,000	156,000	162,000	168,000	174,000
Cumulative Total Consumption		122,124	128,124	134,124	140,124	146,124	152,124	158,124	164,124	170,124	176,124	182,124	188,124	194,124	200,124	206,124	212,124	218,124	224,124	230,124	236,124	242,124	248,124	254,124	260,124	266,124	272,124	278,124	284,124	290,124
Rate Revenue																														
Base Rate Annual Revenue		$ 23,630	$ 33,186	$ 44,694	$ 58,487	$ 74,947	$ 94,514	$ 114,546	$ 137,419	$ 163,480	$ 193,119	$ 226,770	$ 264,913	$ 308,084	$ 356,881	$ 411,967	$ 474,076	$ 544,029	$ 622,732	$ 704,672	$ 795,735	$ 896,860	$ 957,683	$ 1,020,987	$ 1,086,858	$ 1,155,385	$ 1,226,658	$ 1,300,773	$ 1,377,827	$ 1,457,920
Usage Rate Annual Revenue		116,018	136,324	159,833	187,021	218,432	254,690	288,561	326,467	368,858	416,235	469,152	528,223	594,126	667,613	749,516	840,753	942,342	1,055,407	1,170,354	1,296,938	1,436,286	1,508,675	1,583,786	1,661,709	1,742,539	1,826,372	1,913,307	2,003,447	2,096,899
Total Calculated Rate Revenue		$ 139,648	$ 169,510	$ 204,527	$ 245,508	$ 293,379	$ 349,204	$ 403,108	$ 463,885	$ 532,338	$ 609,354	$ 695,921	$ 793,135	$ 902,210	$ 1,024,495	$ 1,161,482	$ 1,314,829	$ 1,486,371	$ 1,678,140	$ 1,875,026	$ 2,092,674	$ 2,333,145	$ 2,466,358	$ 2,604,773	$ 2,748,567	$ 2,897,923	$ 3,053,029	$ 3,214,080	$ 3,381,274	$ 3,554,819
Total Revenues	**Escalation**																													
Total Rate Revenue Used	*Calculated*	$ 114,061	$ 169,510	$ 204,527	$ 245,508	$ 293,379	$ 349,204	$ 403,108	$ 463,885	$ 532,338	$ 609,354	$ 695,921	$ 793,135	$ 902,210	$ 1,024,495	$ 1,161,482	$ 1,314,829	$ 1,486,371	$ 1,678,140	$ 1,875,026	$ 2,092,674	$ 2,333,145	$ 2,466,358	$ 2,604,773	$ 2,748,567	$ 2,897,923	$ 3,053,029	$ 3,214,080	$ 3,381,274	$ 3,554,819
Investment Pool Interest	*Calculated*	1,271	3,203	4,455	5,752	6,998	8,354	8,236	7,552	7,521	6,444	4,605	3,857	2,496	1,880	1,370	2,785	1,351	5,112	1,585	8,800	1,799	10,380	2,109	12,314	2,423	16,016	2,732	20,601	3,185
Conveyance Development Charges	*Calculated*	706,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
Oper Trns - Temp Sewer LID	No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Extra)	No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue		$ 821,332	$ 1,572,712	$ 1,608,982	$ 1,651,261	$ 1,700,377	$ 1,757,558	$ 1,811,343	$ 1,871,437	$ 1,939,858	$ 2,015,798	$ 2,100,526	$ 2,196,992	$ 2,304,706	$ 2,426,375	$ 2,562,852	$ 2,717,615	$ 2,887,722	$ 3,083,252	$ 3,276,610	$ 3,501,474	$ 3,734,944	$ 3,876,738	$ 4,006,882	$ 4,160,882	$ 4,300,347	$ 4,469,045	$ 4,616,811	$ 4,801,875	$ 4,958,004
ANNUAL RATE INCREASE		0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	8.00%	8.00%	8.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
CUMULATIVE RATE INCREASE		0.00%	12.00%	25.44%	40.49%	57.35%	76.23%	92.10%	109.38%	128.23%	148.77%	171.16%	195.56%	222.16%	251.16%	282.76%	317.21%	354.76%	395.69%	435.34%	478.17%	524.42%	540.03%	556.04%	572.44%	589.25%	606.48%	624.14%	642.24%	660.80%

Expenses		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Operating Expenses	**Escalation**																													
State Taxes	*Calculated*	$ 14,984	$ 27,530	$ 28,878	$ 30,457	$ 32,301	$ 34,451	$ 36,528	$ 38,869	$ 41,506	$ 44,472	$ 47,807	$ 51,552	$ 55,753	$ 60,464	$ 65,740	$ 71,647	$ 78,255	$ 85,642	$ 93,226	$ 101,610	$ 110,873	$ 116,004	$ 121,336	$ 126,875	$ 132,628	$ 138,603	$ 144,806	$ 151,247	$ 157,932
Professional Services	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cap Improvements - Sewer Plan Update	No Future Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Improvements - Northwood School Mitigation	No Future Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer Out - General Fund OH	No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer Out - Civic Center Bond	No Escalation	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123
(New FTEs? - To Manage Growing Sewer System?)	No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Extra)	No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Expenses		$ 15,107	$ 27,653	$ 29,001	$ 30,580	$ 32,424	$ 34,574	$ 36,651	$ 38,992	$ 41,629	$ 44,595	$ 47,930	$ 51,675	$ 55,876	$ 60,587	$ 65,863	$ 71,770	$ 78,378	$ 85,765	$ 93,349	$ 101,733	$ 110,996	$ 116,127	$ 121,459	$ 126,998	$ 132,751	$ 138,726	$ 144,929	$ 151,370	$ 158,055

Capital Improvement Plan		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CIP Basin Buildout Cost:	$ 253,845,200																													
CIP Basin Buildout Completion (2050)	25.02%																													
Capital Expenses ($2022)																														
CIP Basin Buildout		$ -	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,750,000	$ 1,750,000	$ 1,750,000	$ 1,750,000	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	$ 3,000,000	$ 3,000,000	$ 3,250,000	$ 3,250,000	$ 3,250,000	$ 3,500,000	$ 3,500,000	$ 3,750,000	$ 3,750,000	$ 3,750,000
Valve Replacement		-	-	-	-	-	-	-	-	143,661	574,642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 1		11,192	13,787	-	-	-	-	215,469	-	-	-	-	-	-	-	199,543	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 2		11,192	-	-	27,151	-	-	-	-	194,671	-	-	-	-	-	-	-	198,708	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 3		11,192	-	-	-	-	27,151	-	-	-	-	-	193,167	-	-	-	-	-	-	-	198,708	-	-	-	-	-	-	-	-	-
Total Capital Expenses ($2022)		$ 33,576	$ 1,013,787	$ 1,000,000	$ 1,027,151	$ 1,000,000	$ 1,527,151	$ 1,715,469	$ 1,500,000	$ 1,838,332	$ 2,074,642	$ 1,750,000	$ 1,943,167	$ 1,750,000	$ 1,750,000	$ 2,199,543	$ 2,000,000	$ 2,198,708	$ 2,500,000	$ 2,500,000	$ 3,198,708	$ 3,000,000	$ 3,250,000	$ 3,250,000	$ 3,250,000	$ 3,500,000	$ 3,500,000	$ 3,750,000	$ 3,750,000	$ 3,750,000
Construction Cost Inflation (Annual)			3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Construction Cost Inflation (Cumulative)			3.0%	6.1%	9.3%	12.6%	15.9%	19.4%	23.0%	26.7%	30.5%	34.4%	38.4%	42.6%	46.9%	51.3%	55.8%	60.5%	65.3%	70.2%	75.4%	80.6%	86.0%	91.6%	97.4%	103.3%	109.4%	115.7%	122.1%	128.8%
CIP Realization Factor		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capital Expenses (Escalated)		$ 33,576	$ 1,044,201	$ 1,060,900	$ 1,122,395	$ 1,125,509	$ 1,770,386	$ 2,048,359	$ 1,844,811	$ 2,328,744	$ 2,706,938	$ 2,351,854	$ 2,689,797	$ 2,495,082	$ 2,569,934	$ 3,327,007	$ 3,115,935	$ 3,528,281	$ 4,132,119	$ 4,256,083	$ 5,608,954	$ 5,418,334	$ 6,045,957	$ 6,227,336	$ 6,414,156	$ 7,114,779	$ 7,328,223	$ 8,087,217	$ 8,329,834	$ 8,579,729
Basin Completion		0.0%	0.4%	0.8%	1.2%	1.6%	2.2%	2.8%	3.3%	3.9%	4.5%	5.2%	5.9%	6.6%	7.3%	8.1%	8.9%	9.7%	10.6%	11.6%	12.8%	14.0%	15.3%	16.5%	17.8%	19.2%	20.6%	22.1%	23.5%	25.0%

Fund Balance	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Funds:																													
Beginning Fund Balance	$ 508,398	$ 1,281,047	$ 1,781,906	$ 2,300,986	$ 2,799,272	$ 3,341,716	$ 3,294,314	$ 3,020,648	$ 3,008,282	$ 2,577,768	$ 1,842,033	$ 1,542,776	$ 998,296	$ 752,044	$ 547,898	$ 1,114,188	$ 540,405	$ 2,044,954	$ 633,809	$ 3,519,941	$ 719,681	$ 4,152,197	$ 843,753	$ 4,925,715	$ 969,318	$ 6,406,337	$ 1,092,636	$ 8,240,251	$ 1,273,872
Annual Revenue	821,332	1,572,712	1,608,982	1,651,261	1,700,377	1,757,558	1,811,343	1,871,437	1,939,858	2,015,798	2,100,526	2,196,992	2,304,706	2,426,375	2,562,852	2,717,615	2,887,722	3,083,252	3,276,610	3,501,474	3,734,944	3,876,738	4,006,882	4,160,882	4,300,347	4,469,045	4,616,811	4,801,875	4,958,004
Operating Expenses	(15,107)	(27,653)	(29,001)	(30,580)	(32,424)	(34,574)	(36,651)	(38,992)	(41,629)	(44,595)	(47,930)	(51,675)	(55,876)	(60,587)	(65,863)	(71,770)	(78,378)	(85,765)	(93,349)	(101,733)	(110,996)	(116,127)	(121,459)	(126,998)	(132,751)	(138,726)	(144,929)	(151,370)	(158,055)
Capital Expenses	(33,576)	(1,044,201)	(1,060,900)	(1,122,395)	(1,125,509)	(1,770,386)	(2,048,359)	(1,844,811)	(2,328,744)	(2,706,938)	(2,351,854)	(2,689,797)	(2,495,082)	(2,569,934)	(3,327,007)	(3,115,935)	(3,528,281)	(4,132,119)	(4,256,083)	(5,608,954)	(5,418,334)	(6,045,957)	(6,227,336)	(6,414,156)	(7,114,779)	(7,328,223)	(8,087,217)	(8,329,834)	(8,579,729)
New Debt Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(103,692)	(103,692)	(276,513)	(276,513)	(591,047)	(591,047)	(1,023,099)	(1,023,099)	(1,576,125)	(1,576,125)	(2,315,797)	(2,315,797)	(3,287,050)	(3,287,050)	(3,819,338)
Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,500,000	-	2,500,000	-	4,550,000	-	6,250,000	-	8,000,000	-	10,700,000	-	14,050,000	-	7,700,000
Ending Fund Balance	$ 1,281,047	$ 1,781,906	$ 2,300,986	$ 2,799,272	$ 3,341,716	$ 3,294,314	$ 3,020,648	$ 3,008,282	$ 2,577,768	$ 1,842,033	$ 1,542,776	$ 998,296	$ 752,044	$ 547,898	$ 1,114,188	$ 540,405	$ 2,044,954	$ 633,809	$ 3,519,941	$ 719,681	$ 4,152,197	$ 843,753	$ 4,925,715	$ 969,318	$ 6,406,337	$ 1,092,636	$ 8,240,251	$ 1,273,872	$ 1,374,755
Minimum Fund Balance	*$ 178,944*	*$ 191,449*	*$ 202,279*	*$ 213,763*	*$ 225,321*	*$ 243,378*	*$ 264,203*	*$ 283,036*	*$ 306,757*	*$ 334,314*	*$ 358,381*	*$ 385,894*	*$ 411,536*	*$ 438,010*	*$ 472,147*	*$ 504,277*	*$ 540,646*	*$ 583,182*	*$ 626,989*	*$ 684,457*	*$ 740,163*	*$ 801,466*	*$ 864,616*	*$ 929,668*	*$ 1,001,762*	*$ 1,076,026*	*$ 1,157,918*	*$ 1,242,275*	*$ 1,329,171*

Scenario: 25% Basin Completion - $14,000 CDC	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Rate Increases																													
Annual Rate Increase	0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	8.00%	8.00%	8.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Revenue Bonds	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,500,000	$ -	$ 2,500,000	$ -	$ 4,550,000	$ -	$ 6,250,000	$ -	$ 8,000,000	$ -	$ 10,700,000	$ -	$ 14,050,000	$ -	$ 7,700,000
Coverage After Rate Increase: Total Debt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.08	25.52	10.16	10.84	5.39	5.75	3.54	3.68	2.47	2.56	1.80	1.87	1.36	1.41	1.26

Scenario 2 – 200 ERUs at 50% CIP Completion (2050)

Sewer Utility Rate Study 2022 Summary	Budget 2022	Forecast 2023	Forecast 2024	Forecast 2025	Forecast 2026	Forecast 2027	Forecast 2028	Forecast 2029	Forecast 2030	Forecast 2031	Forecast 2032	Forecast 2033	Forecast 2034	Forecast 2035	Forecast 2036	Forecast 2037	Forecast 2038	Forecast 2039	Forecast 2040	Forecast 2041	Forecast 2042	Forecast 2043	Forecast 2044	Forecast 2045	Forecast 2046	Forecast 2047	Forecast 2048	Forecast 2049	Forecast 2050
Key Metrics																													
Annual Rate Increases	0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Monthly Single Family Charge (w/ 500 cf per month)*	$9.75	$10.92	$12.23	$13.70	$15.34	$17.18	$19.24	$21.55	$24.14	$27.04	$30.28	$32.70	$35.32	$38.15	$41.20	$44.49	$48.05	$51.90	$56.05	$59.41	$62.98	$66.76	$70.76	$75.01	$79.51	$84.28	$89.34	$94.70	$100.38
Monthly Single Family Charge Annual Increase*	$0.00	$1.17	$1.31	$1.47	$1.64	$1.84	$2.06	$2.31	$2.59	$2.90	$3.24	$2.42	$2.62	$2.83	$3.05	$3.30	$3.56	$3.84	$4.15	$3.36	$3.56	$3.78	$4.01	$4.25	$4.50	$4.77	$5.06	$5.36	$5.68
CIP Completion	0.0%	0.8%	1.6%	2.4%	3.2%	4.3%	5.5%	6.7%	7.9%	9.1%	10.4%	11.8%	13.2%	14.6%	16.2%	17.7%	19.3%	21.3%	23.2%	25.6%	28.0%	30.5%	33.2%	35.8%	38.6%	41.5%	44.3%	47.2%	50.0%
Debt Service Coverage - Total Debt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	49.37	51.79	13.75	14.52	7.03	7.47	4.06	4.30	2.69	2.85	1.97	2.10	1.56	1.66	1.31	1.40	1.31
**Does not include Lakehaven Bill*																													
Economic & Other Factors	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Economic Assumptions																													
General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
State Sewer Excise Tax	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%
State B&O Tax	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
LGIP Rate	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
CDC Assumptions																													
Actual Charge	$7,060	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000
Incremental Customer Base	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conveyance Development Charges	$ 1,412,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000	$ 2,800,000

Revenues	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Monthly Rates (Before City Utility Tax)																													
Base rate per month per account	$5.00	$5.60	$6.27	$7.02	$7.87	$8.81	$9.87	$11.05	$12.38	$13.87	$15.53	$16.77	$18.11	$19.56	$21.13	$22.82	$24.64	$26.61	$28.74	$30.47	$32.30	$34.23	$36.29	$38.47	$40.77	$43.22	$45.81	$48.56	$51.48
Usage rate per 100 cubic feet	$0.95	$1.06	$1.19	$1.33	$1.49	$1.67	$1.88	$2.10	$2.35	$2.63	$2.95	$3.19	$3.44	$3.72	$4.01	$4.34	$4.68	$5.06	$5.46	$5.79	$6.14	$6.50	$6.89	$7.31	$7.75	$8.21	$8.70	$9.23	$9.78
Accounts																													
Current Accounts (Mix of SF, MF, & Comm)	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
Single Family Residential Accounts (1 Account = 1 ERU)	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600	4,800	5,000	5,200	5,400	5,600	5,800
Cumulative Total Accounts	494	694	894	1,094	1,294	1,494	1,694	1,894	2,094	2,294	2,494	2,694	2,894	3,094	3,294	3,494	3,694	3,894	4,094	4,294	4,494	4,694	4,894	5,094	5,294	5,494	5,694	5,894	6,094
Consumption																													
Current Annual Usage *Calculated*	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124	116,124
Annual Usage Growth (SF Only) 5 ccf	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000	108,000	120,000	132,000	144,000	156,000	168,000	180,000	192,000	204,000	216,000	228,000	240,000	252,000	264,000	276,000	288,000	300,000	312,000	324,000	336,000	348,000
Cumulative Total Consumption	128,124	140,124	152,124	164,124	176,124	188,124	200,124	212,124	224,124	236,124	248,124	260,124	272,124	284,124	296,124	308,124	320,124	332,124	344,124	356,124	368,124	380,124	392,124	404,124	416,124	428,124	440,124	452,124	464,124
Rate Revenue																													
Base Rate Annual Revenue	$ 29,630	$ 46,626	$ 67,273	$ 92,205	$ 122,152	$ 157,959	$ 200,600	$ 251,200	$ 311,055	$ 381,659	$ 464,728	$ 542,158	$ 629,003	$ 726,273	$ 835,080	$ 956,649	$ 1,092,324	$ 1,243,584	$ 1,412,055	$ 1,569,902	$ 1,741,607	$ 1,928,265	$ 2,131,053	$ 2,351,233	$ 2,590,162	$ 2,849,299	$ 3,130,208	$ 3,434,568	$ 3,764,183
Usage Rate Annual Revenue	121,718	149,092	181,283	219,053	263,278	314,962	375,259	445,492	527,177	622,051	732,104	828,911	936,522	1,056,046	1,188,701	1,335,821	1,498,872	1,679,463	1,879,355	2,061,584	2,258,914	2,472,503	2,703,590	2,953,506	3,223,679	3,515,641	3,831,033	4,171,615	4,539,276
Total Calculated Rate Revenue	$ 151,348	$ 195,718	$ 248,557	$ 311,259	$ 385,430	$ 472,921	$ 575,858	$ 696,691	$ 838,232	$ 1,003,710	$ 1,196,832	$ 1,371,069	$ 1,565,525	$ 1,782,319	$ 2,023,781	$ 2,292,469	$ 2,591,196	$ 2,923,047	$ 3,291,410	$ 3,631,486	$ 4,000,521	$ 4,400,768	$ 4,834,642	$ 5,304,738	$ 5,813,842	$ 6,364,940	$ 6,961,241	$ 7,606,183	$ 8,303,459
Total Revenues **Escalation**																													
Total Rate Revenue Used *Calculated*	$ 114,061	$ 195,718	$ 248,557	$ 311,259	$ 385,430	$ 472,921	$ 575,858	$ 696,691	$ 838,232	$ 1,003,710	$ 1,196,832	$ 1,371,069	$ 1,565,525	$ 1,782,319	$ 2,023,781	$ 2,292,469	$ 2,591,196	$ 2,923,047	$ 3,291,410	$ 3,631,486	$ 4,000,521	$ 4,400,768	$ 4,834,642	$ 5,304,738	$ 5,813,842	$ 6,364,940	$ 6,961,241	$ 7,606,183	$ 8,303,459
Investment Pool Interest *Calculated*	1,271	4,941	7,133	9,339	11,467	13,689	12,982	11,694	11,069	9,434	7,105	5,135	2,557	3,655	1,777	6,055	2,040	11,083	2,504	18,140	2,989	22,396	3,552	27,233	4,258	34,054	4,999	38,767	5,747
Conveyance Development Charges *Calculated*	1,412,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000
Oper Trns - Temp Sewer LID No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Extra) No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	$ 1,527,332	$ 3,000,659	$ 3,055,690	$ 3,120,597	$ 3,196,897	$ 3,286,610	$ 3,388,840	$ 3,508,386	$ 3,649,301	$ 3,813,144	$ 4,003,936	$ 4,176,204	$ 4,368,082	$ 4,585,974	$ 4,825,558	$ 5,098,524	$ 5,393,236	$ 5,734,129	$ 6,093,914	$ 6,449,626	$ 6,803,510	$ 7,223,164	$ 7,638,194	$ 8,131,971	$ 8,618,100	$ 9,198,994	$ 9,766,239	$ 10,444,950	$ 11,109,205
ANNUAL RATE INCREASE	0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
CUMULATIVE RATE INCREASE	0.00%	12.00%	25.44%	40.49%	57.35%	76.23%	97.38%	121.07%	147.60%	177.31%	210.58%	235.43%	262.27%	291.25%	322.55%	356.35%	392.86%	432.29%	474.87%	509.36%	545.92%	584.68%	625.76%	669.31%	715.47%	764.39%	816.26%	871.23%	929.51%

Expenses	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Operating Expenses **Escalation**																													
State Taxes *Calculated*	$ 25,574	$ 49,539	$ 51,574	$ 53,990	$ 56,847	$ 60,217	$ 64,182	$ 68,837	$ 74,289	$ 80,663	$ 88,102	$ 94,814	$ 102,304	$ 110,655	$ 119,956	$ 130,306	$ 141,813	$ 154,596	$ 168,785	$ 181,885	$ 196,100	$ 211,518	$ 228,230	$ 246,339	$ 265,949	$ 287,177	$ 310,147	$ 334,990	$ 361,849
Professional Services General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cap Improvements - Sewer Plan Update No Future Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Improvements - Northwood School Mitigation No Future Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer Out - General Fund OH No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer Out - Civic Center Bond No Escalation	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123
(New FTEs? - To Manage Growing Sewer System?) No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Extra) No Escalation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Expenses	$ 25,697	$ 49,662	$ 51,697	$ 54,113	$ 56,970	$ 60,340	$ 64,305	$ 68,960	$ 74,412	$ 80,786	$ 88,225	$ 94,937	$ 102,427	$ 110,778	$ 120,079	$ 130,429	$ 141,936	$ 154,719	$ 168,908	$ 182,008	$ 196,223	$ 211,641	$ 228,353	$ 246,462	$ 266,072	$ 287,300	$ 310,270	$ 335,113	$ 361,972

Capital Improvement Plan	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
CIP Basin Buildout Cost:	$ 253,845,200																												
CIP Basin Buildout Completion (2050)	50.03%																												
Capital Expenses ($2022)																													
CIP Basin Buildout	$ -	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 4,000,000	$ 4,000,000	$ 4,000,000	$ 5,000,000	$ 5,000,000	$ 6,000,000	$ 6,000,000	$ 6,500,000	$ 6,750,000	$ 6,750,000	$ 7,000,000	$ 7,250,000	$ 7,250,000	$ 7,250,000	$ 7,250,000
Valve Replacement	-	-	-	-	-	-	-	-	143,661	574,642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 1	11,192	13,787	-	-	-	-	215,469	-	-	-	-	-	-	-	199,543	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 2	11,192	-	-	27,151	-	-	-	-	194,671	-	-	-	-	-	-	-	198,708	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station 3	11,192	-	-	-	-	27,151	-	-	-	-	-	193,167	-	-	-	-	-	-	-	198,708	-	-	-	-	-	-	-	-	-
Total Capital Expenses ($2022)	$ 33,576	$ 2,013,787	$ 2,000,000	$ 2,027,151	$ 2,000,000	$ 3,027,151	$ 3,215,469	$ 3,000,000	$ 3,338,332	$ 3,574,642	$ 3,500,000	$ 3,693,167	$ 3,500,000	$ 3,500,000	$ 4,199,543	$ 4,000,000	$ 4,198,708	$ 5,000,000	$ 5,000,000	$ 6,198,708	$ 6,000,000	$ 6,500,000	$ 6,750,000	$ 6,750,000	$ 7,000,000	$ 7,250,000	$ 7,250,000	$ 7,250,000	$ 7,250,000
Construction Cost Inflation (Annual)		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Construction Cost Inflation (Cumulative)		3.0%	6.1%	9.3%	12.6%	15.9%	19.4%	23.0%	26.7%	30.5%	34.4%	38.4%	42.6%	46.9%	51.3%	55.8%	60.5%	65.3%	70.2%	75.4%	80.6%	86.0%	91.6%	97.4%	103.3%	109.4%	115.7%	122.1%	128.8%
CIP Realization Factor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Capital Expenses (Escalated)	$ 33,576	$ 2,074,201	$ 2,121,800	$ 2,215,122	$ 2,251,018	$ 3,509,297	$ 3,839,438	$ 3,689,622	$ 4,228,899	$ 4,664,098	$ 4,703,707	$ 5,112,206	$ 4,990,163	$ 5,139,868	$ 6,352,186	$ 6,231,870	$ 6,737,694	$ 8,264,238	$ 8,512,165	$ 10,869,472	$ 10,836,667	$ 12,091,915	$ 12,933,698	$ 13,321,709	$ 14,229,559	$ 15,179,890	$ 15,635,287	$ 16,104,345	$ 16,587,476
Basin Completion	0.0%	0.8%	1.6%	2.4%	3.2%	4.3%	5.5%	6.7%	7.9%	9.1%	10.4%	11.8%	13.2%	14.6%	16.2%	17.7%	19.3%	21.3%	23.2%	25.6%	28.0%	30.5%	33.2%	35.8%	38.6%	41.5%	44.3%	47.2%	50.0%

Fund Balance	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Funds:																													
Beginning Fund Balance	$ 508,398	$ 1,976,457	$ 2,853,253	$ 3,735,445	$ 4,586,808	$ 5,475,717	$ 5,192,690	$ 4,677,787	$ 4,427,592	$ 3,773,582	$ 2,841,842	$ 2,053,846	$ 1,022,907	$ 1,461,989	$ 710,907	$ 2,422,014	$ 816,055	$ 4,433,075	$ 1,001,662	$ 7,255,897	$ 1,195,435	$ 8,958,544	$ 1,420,643	$ 10,893,119	$ 1,703,254	$ 13,621,738	$ 1,999,556	$ 15,506,703	$ 2,298,658
Annual Revenue	1,527,332	3,000,659	3,055,690	3,120,597	3,196,897	3,286,610	3,388,840	3,508,386	3,649,301	3,813,144	4,003,936	4,176,204	4,368,082	4,585,974	4,825,558	5,098,524	5,393,236	5,734,129	6,093,914	6,449,626	6,803,510	7,223,164	7,638,194	8,131,971	8,618,100	9,198,994	9,766,239	10,444,950	11,109,205
Operating Expenses	(25,697)	(49,662)	(51,697)	(54,113)	(56,970)	(60,340)	(64,305)	(68,960)	(74,412)	(80,786)	(88,225)	(94,937)	(102,427)	(110,778)	(120,079)	(130,429)	(141,936)	(154,719)	(168,908)	(182,008)	(196,223)	(211,641)	(228,353)	(246,462)	(266,072)	(287,300)	(310,270)	(335,113)	(361,972)
Capital Expenses	(33,576)	(2,074,201)	(2,121,800)	(2,215,122)	(2,251,018)	(3,509,297)	(3,839,438)	(3,689,622)	(4,228,899)	(4,664,098)	(4,703,707)	(5,112,206)	(4,990,163)	(5,139,868)	(6,352,186)	(6,231,870)	(6,737,694)	(8,264,238)	(8,512,165)	(10,869,472)	(10,836,667)	(12,091,915)	(12,933,698)	(13,321,709)	(14,229,559)	(15,179,890)	(15,635,287)	(16,104,345)	(16,587,476)
New Debt Service	-	-	-	-	-	-	-	-	-	-	-	-	(86,410)	(86,410)	(342,185)	(342,185)	(746,585)	(746,585)	(1,458,607)	(1,458,607)	(2,457,510)	(2,457,510)	(3,753,666)	(3,753,666)	(5,353,985)	(5,353,985)	(7,213,536)	(7,213,536)	(8,195,158)
Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	1,250,000	-	3,700,000	-	5,850,000	-	10,300,000	-	14,450,000	-	18,750,000	-	23,150,000	-	26,900,000	-	14,200,000
Ending Fund Balance	$ 1,976,457	$ 2,853,253	$ 3,735,445	$ 4,586,808	$ 5,475,717	$ 5,192,690	$ 4,677,787	$ 4,427,592	$ 3,773,582	$ 2,841,842	$ 2,053,846	$ 1,022,907	$ 1,461,989	$ 710,907	$ 2,422,014	$ 816,055	$ 4,433,075	$ 1,001,662	$ 7,255,897	$ 1,195,435	$ 8,958,544	$ 1,420,643	$ 10,893,119	$ 1,703,254	$ 13,621,738	$ 1,999,556	$ 15,506,703	$ 2,298,658	$ 2,463,258
Minimum Fund Balance	$ 180,685	$ 205,367	$ 226,919	$ 249,467	$ 272,447	$ 308,094	$ 347,140	$ 384,802	$ 427,987	$ 475,676	$ 523,936	$ 576,161	$ 627,294	$ 680,065	$ 745,116	$ 809,136	$ 878,405	$ 963,148	$ 1,050,603	$ 1,161,451	$ 1,272,154	$ 1,395,608	$ 1,527,692	$ 1,663,886	$ 1,809,405	$ 1,964,693	$ 2,124,822	$ 2,289,949	$ 2,460,239

Scenario: 50% Basin Completion - $14,000 CDC	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Rate Increases																													
Annual Rate Increase	0.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Revenue Bonds	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,250,000	$ -	$ 3,700,000	$ -	$ 5,850,000	$ -	$ 10,300,000	$ -	$ 14,450,000	$ -	$ 18,750,000	$ -	$ 23,150,000	$ -	$ 26,900,000	$ -	$ 14,200,000
Coverage After Rate Increase: Total Debt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	49.37	51.79	13.75	14.52	7.03	7.47	4.06	4.30	2.69	2.85	1.97	2.10	1.56	1.66	1.31	1.40	1.31

Appendix B.

July 29, 2021 Memo, '*Pump Station Equipment Replacement Cost Estimates City Of Edgewood, Pierce County, Washington'* Gray & Osborne, Inc.

APPENDIX H

CONNECTION CHARGE STUDY

City of Edgewood

Sewer Utility

Conveyance Development Charge Update

FINAL REPORT
November 2022

Washington
7525 166th Avenue NE, Ste. D215
Redmond, WA 98052
425.867.1802

Oregon
5335 Meadows Road, Ste 330
Lake Oswego, OR 97035
503.841.6543

Colorado
1320 Pearl St, Ste 120
Boulder, CO 80302
719.284.9168

www.fcsgroup.com

This entire report is made of readily recyclable materials, including the bronze wire binding and the front and back cover, which are made from post-consumer recycled plastic bottles.

FCS GROUP
Solutions-Oriented Consulting

FCS GROUP
Solutions-Oriented Consulting

Firm Headquarters
Redmond Town Center
7525 166th Ave NE, Ste. D-215
Redmond, Washington 98052

Established 1988
Washington | 425.867.1802
Oregon | 503.841.6543
Colorado | 719.284.9168

November 16, 2022

Jeremy Metzler, P.E.
Public Works Director
City of Edgewood
2224 104th Ave E.
Edgewood, WA 98372

Subject: Conveyance Development Charge (CDC) Update

Dear Mr. Metzler:

FCS GROUP is pleased to submit this report documenting the conveyance development charge update conducted for the City of Edgewood's sewer utility. CDCs are one-time fees paid at the time of development. These charges help provide equity between existing and new customers, and they also provide a source of funding for sewer-related capital projects as growth occurs.

The resulting maximum CDC per equivalent residential unit (ERU) is $18,700, which is an $11,640 increase above the currently adopted CDC. The detailed methodology used to arrive at this result is covered within this report.

Summary of Results	Current CDC in 2022	Calculated CDC	Increase
CDC per ERU	$7,060	$18,700	$11,640

Please let us know if you have any questions or need additional information. Tage can be reached at (425) 615-6487 or TageA@fcsgroup.com.

Sincerely,

John Ghilarducci
Project Principal

Tage Aaker
Project Manager

Evan Coughlan
Analyst

TABLE OF CONTENTS

Section I. Introduction 1

Section II. CDC Calculation 3

Section III. Conclusion 6

Section I. INTRODUCTION

The City of Edgewood (City) contracted with FCS GROUP through Gray & Osborne, Inc. to perform a rate and conveyance development charge (CDC) study for its sewer utility. This report documents the CDC system analysis.

Introduction

CDCs are imposed on newly connecting customers and are intended to recover a proportionate share of the utility's investment in system capacity. CDCs serve two main purposes: to provide equity between existing and new customers and to provide a source of utility capital funding. In addition, CDCs help ensure that growth helps pay for the cost of growth. The charge is imposed on both new development and redevelopment that increases demand for system capacity. These types of charges are referred to by many names including connection charges, system development charges, general facilities charges, etc. The City refers to these as conveyance development charges for its sewer utility and as system development charges for its stormwater utility.

Legal Basis

The City is authorized to assess CDCs under Section 35.92.025 of the Revised Code of Washington (RCW).

> RCW 35.92.025: "Cities and towns are authorized to charge property owners seeking to connect to the water or sewerage system of the city or town as a condition to granting the right to so connect, in addition to the cost of such connection, such reasonable connection charge as the legislative body of the city or town shall determine proper in order that such property owners shall bear their equitable share of the cost of such system."

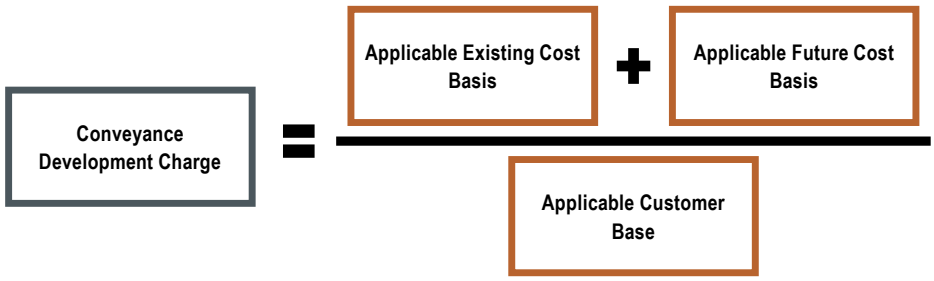
The statute also authorizes a CDC to include an equitable share of interest on the existing system for up to ten years from the date of construction at a maximum rate of ten percent per year. The City's methodology to determine cost-based connection charges must be consistent with RCW 35.92.025 and applicable case law. Since the calculated charges represent the maximum allowable charge, the City may choose to implement a charge at any level up to the calculated charge.

General Methodology

Under the methodology shown in **Exhibit 1**, both existing assets and future projects are divided by estimated system capacity upon completion of the projects (i.e., buildout). The main policy emphasis here is on intergenerational equity – the goal is to implement an approach where there is no cost advantage for either existing or new customers. This calculation is like a simple buy-in charge (which consists of existing costs divided by existing customers), except that it is projected into a future year, after the planned capital projects are completed. The resulting CDC is generally stable over time. We recommend this methodology for the City.

The system capacity is the applicable customer base measured in equivalent residential units (ERUs) for the City's sewer utility and is defined as 220 gallons per day per ERU (see City municipal code *11.60.060 City conveyance development charge.*).

Exhibit 1: CDC Methodology



Background: Phase 1 Project

The City completed a sewer project in 2012 to provide sewer service to a portion of the City; this project is referred to as 'Phase 1' throughout this report. The Phase 1 project included local collection pipes serving individual properties, large-diameter conveyance pipes serving a larger area, and three pump stations. The sewage from this area, along with any inflow and infiltration (I&I), is pumped to the Lakehaven Water & Sewer District (LWSD) which provides wastewater treatment services under an interlocal agreement signed in 2007.

The Phase 1 sewer system was sized to accommodate development within the Local Improvement District (LID) Number 1 service area plus some surrounding area. The initial cost of Phase 1 is being paid for by LID No. 1 through property-based assessments. In 2012, the City adopted a CDC of $4,700 per equivalent residential unit (ERU) to ensure that future growth within the service area pays a proportionate share of the conveyance and pumping assets originally paid for by LID No. 1. The City collects the CDC from all properties within the Phase I sewer system boundary which did not participate in LID No. 1. **Exhibit 2** shows the other cost recovery mechanisms to be used for different types of remaining sewer capital investment.

Exhibit 2: Capital Cost Recovery Mechanisms

Type of Capital Cost	Recovered From:
Local Collection Lines	Future LIDs or Developer Funding
Conveyance & Pumping	City Conveyance Development Charge
Treatment	Lakehaven WSD Capital Facility Charge

Revenue generated by the CDC is set aside to help offset future capital costs related to the conveyance and pumping assets. Since 2012, the City has increased the charge by 4.625% per year, resulting in the current CDC of $7,060 in 2021 as shown in **Exhibit 3**. The City did not increase the CDC in 2022.

Exhibit 3: City of Edgewood Conveyance Development Charge

Year	Conveyance Development Charge per ERU
2012	$4,700
....	....
2021	$7,060
2022	$7,060

Section II. CDC Calculation

Allocable Existing Cost Basis (Numerator)

The existing cost basis is intended to recognize the current investment in the original cost of system assets by existing customers. The main components of the calculation include utility plant-in-service and up to ten years of interest.

Utility Plant-In-Service

The City's records identify Phase 1 costs of $21.2 million, adjusted to $17.6 million after excluding LID formation, financing, and grant/loan application costs, as shown in **Exhibit 4**. The net cost includes project development, design, easements, permitting, and direct construction costs.

Exhibit 4: Utility Plant-in-Service with Adjustments

Cost Element	Total Cost	Adjustments	Net Cost
Project Development	$86,645	n/a	$86,645
Grant & Loan Applications		-14,500	-14,500
Design / Easements / Permitting	4,029,385	n/a	4,029,385
Construction - Collection & Conveyance	7,497,723	n/a	7,497,723
Construction - Pump Stations	3,322,612	n/a	3,322,612
Construction - All Other	2,676,158	n/a	2,676,158
LID Formation	1,253,121	-1,253,121	0
Financing	2,372,624	-2,372,624	0
Total	$21,238,268	-$3,640,245	**$17,598,023**

Source: Meridian Avenue Sewer LID NO. 1 Evaluation of Oversizing Costs - June 17, 2014.pdf' on page 28/61.

Based on information in the City's 2011 CDC report, we assumed that 26% of Phase 1 direct construction costs are related to local collection lines and 74% are related to conveyance and pumping assets. The 74% of direct construction cost is then applied to the Net Cost from **Exhibit 4.** This results in an allocable cost basis of $13.1 million, as shown in **Exhibit 5**.

Exhibit 5: Phase 1 Allocable Existing Cost Basis Before Interest

Description	Amount
Net Phase 1 Cost	$17,598,023
Percentage of Costs Assumed to be Conveyance & Pumping	74.3%
Phase 1 Cost Assumed to be Conveyance & Pumping	**$13,076,309**

Source of 74%: KIA EDGEWOOD CONVEYANCE CHARGE STUDY DRAFT 102711

Interest on Non-Contributed Plant

Applicable statute and subsequent legal interpretations allow CDCs to include interest on an asset at the rate applicable at the time of construction. Interest can accumulate for a maximum of ten years from the date of construction for any particular asset. Conceptually, this interest provision attempts to account for the opportunity costs that the City's customers incurred by supporting investments in infrastructure rather than having it available for other needs. Assuming that the project was substantially complete in 2011, the charge can take into account interest during the 2012-2021 period, which is ten years. Accumulated interest adds approximately $5.9 million to the allocable existing cost basis as shown in **Exhibit 6**.

Exhibit 6: Accumulated Interest for Phase 1

Description	Amount
Net Conveyance & Pumping Costs	$13,076,309
Annual Interest Rate (Avg. 20-Bond GO Index in 2011) x 10 Years	4.51%
Accumulated Interest	**$5,897,415**

Total Existing Cost Basis

Exhibit 7 summarizes the allocable existing cost basis for the conveyance development charge.

Exhibit 7: Total Existing Cost Basis

Description	Amount
Net Conveyance / Pumping Costs	$13,076,309
Accumulated Interest	$5,897,415
Total Existing Cost Basis	**$18,973,724**

Future Cost Basis (Numerator)

The future cost basis is intended to recognize investment needed to serve future customers. The main components of the calculation include the capital improvement program (CIP), notably a citywide buildout plan to increase the number of sewer connections within Edgewood.

Gray & Osborne provided a total cost estimate of $254 million to provide citywide sanitary sewer, specifically basins 1 through 33. Total project costs are in 2022 dollars as shown in **Exhibit 8**. A full list of basin costs is provided in the appendices. Often, project costs can be offset by grants or developer contributions, neither of which were assumed in this analysis.

Exhibit 8: Capital Improvement Program Projects

Description	Amount
Citywide Sanitary Sewer Buildout Capital Cost Estimate (2022 dollars) for Basins 1 through 33	$253,845,200

In addition to the amounts shown in Exhibit 8, there are a handful of replacement projects associated with Phase 1, totaling less than $2 million in 2020 dollars. Because those projects repair and or

replace assets already included in the $17,598,023 existing cost basis, noted in **Exhibit 4**, they are excluded here to avoid double counting the same asset twice.

Applicable Customer Base (Denominator)

The denominator in the CDC calculation is based on the total number of equivalent residential units (ERUs) for basins 1 through 33 that can be served upon buildout. Gray & Osborne estimated this to be 14,589 ERUs, as shown in **Exhibit 9.** A full list of ERUs that could be served upon buildout, by basin, is provided in the appendices.

Exhibit 9: ERU Forecast

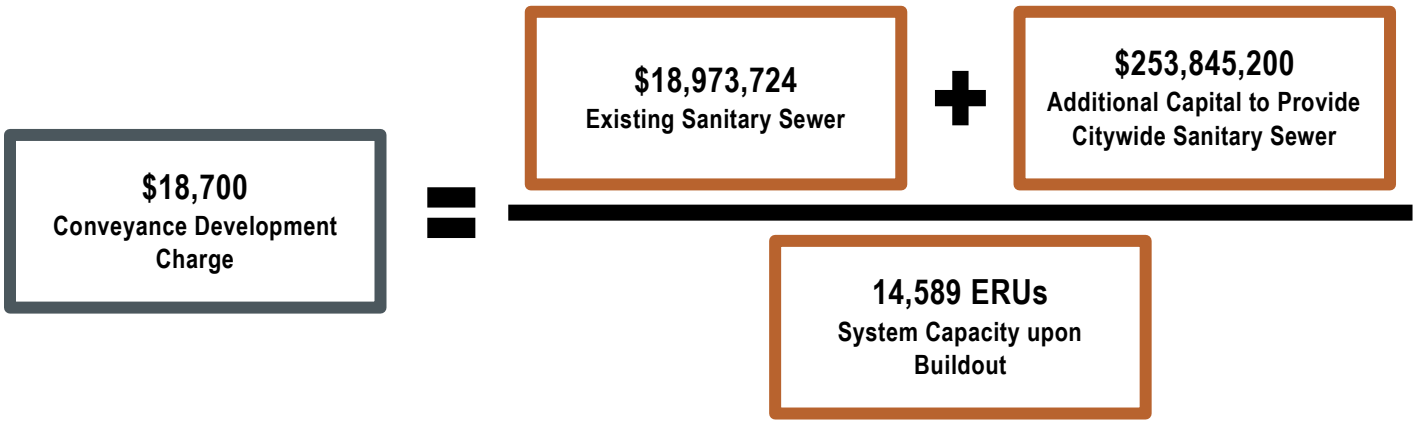
Description	Amount
Citywide Sanitary Sewer Buildout ERUs for Basins 1 through 33	14,589 ERUs

To align the timing of the numerator and denominator, capital costs through buildout and ERUs served upon buildout are used.

Calculating the CDC

Exhibit 10 brings all components together to shows the calculation of the maximum CDC based on the methodology described earlier. Included in this is the existing cost basis of $18.97 million, future cost basis of $253.85 million, and the applicable customer base of 14,589 ERUs. This results in a calculated maximum CDC of $18,700. This represents an $11,640 or 165% increase above the current CDC of $7,060.

Exhibit 10: CDC Calculation



Section III. CONCLUSION

SUMMARY

As previously noted, the calculated charges represent maximum allowable charges to recover from new customers a proportionate share of the utility's investment in capital infrastructure. The City may choose to implement a charge at any level up to the calculated charge or may wish to phase into calculated charges over a multi-year period. **Exhibit 11** summarizes the total calculated change to the CDC.

Exhibit 11: Summary of Existing and Calculated CDC

Capital Development Charge	Existing 2022	Calculated 2022	$ Change	% Change
Sewer Utility	$7,060	$18,700	+$11,640	+165

Given the sizeable gap between the current CDC and the calculated maximum, the City requested a couple of phase-in scenarios. **Exhibit 12** shows three scenarios for the CDC to increase at current year, three-year, or five-year implementation.

Exhibit 12: CDC Phase-In

CDC Escalated Phase-In	2022	2023	2024	2025	2026	2027
ENR Construction Cost Index		*2.50%*	*2.50%*	*2.50%*	*2.50%*	*2.50%*
Scenario 1 - No Phase-In:	**$7,060**	**$18,700**	**$19,168**	**$19,647**	**$20,138**	**$20,642**
Annual $ Change		*$11,640*	*$468*	*$479*	*$491*	*$503*
Annual % Change		*164.9%*	*2.5%*	*2.5%*	*2.5%*	*2.5%*
Scenario 2 - 3-Year Phase-In:	**$7,060**	**$11,256**	**$15,451**	**$19,647**	**$20,138**	**$20,642**
Annual $ Change		*$4,196*	*$4,196*	*$4,196*	*$491*	*$503*
Annual % Change		*59.4%*	*37.3%*	*27.2%*	*2.5%*	*2.5%*
Scenario 3 - 5-Year Phase-In:	**$7,060**	**$9,776**	**$12,493**	**$15,209**	**$17,925**	**$20,642**
Annual $ Change		*$2,716*	*$2,716*	*$2,716*	*$2,716*	*$2,716*
Annual % Change		*38.5%*	*27.8%*	*21.7%*	*17.9%*	*15.2%*

The charges noted in **Exhibit 12** calculations include annual projected construction cost escalation.

APPENDICES

City of Edgewood
Conveyance Development Charge
2022 Updated Calculation

Numerator

Numerator Summary	Total Cost	Adjustments	Net Cost
Existing Cost Basis: Total Phase I Cost - Assumed Completed in 2011 [a]			
Project Development	$ 86,645		$ 86,645
Grant & Loan Applications		(14,500)	(14,500)
Design / Easements / Permitting	4,029,385		4,029,385
Construction - Collection & Conveyance	7,497,723		7,497,723
Construction - Pump Stations	3,322,612		3,322,612
Construction - All Other	2,676,158		2,676,158
LID Formation	1,253,121	(1,253,121)	-
Financing [b]	2,372,624	(2,372,624)	-
Total	$ 21,238,268	$ (3,640,245)	$ 17,598,023
Share of LID Assumed to be Conveyance (from KIA 2011 Report)			74.3%
Numerator for Conveyance Cost and Share of Other Costs			$ 13,076,309
Accumulated Interest up to 10 Years (20-Bond GO Index in 2011)		4.51%	5,897,415
Existing Cost Basis Total:			**$ 18,973,724**
Future Cost Basis: Total Cost - Projects Assumed Completed ($2022)			
Basin Buildout (May 2022 dollars) [c]	$ 253,845,200	$ -	$ 253,845,200
[Extra]	-	-	-
[Extra]	-	-	-
Total	$ 253,845,200	$ -	$ 253,845,200
Grants Assumed			$ -
Future Cost Basis Total:			**$ 253,845,200**
Combined Cost Basis Total:			**$ 272,818,924**

[a] Per 'Meridian Avenue Sewer LID NO. 1 Evaluation of Oversizing Costs -June 17,2014.pdf' page 28/61.
Based on '12-31-12 Cost Update.xlsx' from City of Edgewood staff, 97% of costs completed by 2011.
[b] Primarily BAN Bond Anticipation Note, accrued interest, and LID Guaranty Fund
[c] Per Gray & Osborne Cost Estimates per 7/29/2021 emailed file.

Conveyance Development Charge (CDC) Calculation

Description	
Total Cost to Include in Conveyance Development Charge	$ 272,818,924
Total Equivalent Residential Units (ERU) Allowed by Lakehaven Agreement for Phase I	14,589
Calculated Conveyance Development Charge per ERU	**$18,700**
Current CDC for City of Edgewood in 2022 [a]	$7,060
Increase / (Decrease) $	$11,640
Increase / -Decrease %	165%

[a] Edgewood Municipal Code - 11.60.060. City conveyance development charge.

City of Edgewood
Conveyance Development Charge
Project Costs by Basin

Basin	Total Project Cost
Basin 1	$ 1,087,300
Basin 2	1,338,900
Basin 3	1,941,100
Basin 4	1,773,100
Basin 5	167,800
Basin 6	-
Basin 7	1,585,900
Basin 8	239,800
Basin 9	822,800
Basin 10	680,700
Basin 11	786,200
Basin 12	770,400
Basin 13	7,426,900
Basin 14	19,097,200
Basin 15	980,200
Basin 16	3,467,400
Basin 17	4,524,300
Basin 18	6,503,700
Basin 19	27,084,700
Basin 20	18,509,300
Basin 21	17,964,400
Basin 22	5,362,600
Basin 23	17,470,500
Basin 24	940,000
Basin 25	23,284,300
Basin 26	14,579,600
Basin 27	19,382,300
Basin 28	7,142,800
Basin 29	710,100
Basin 30	8,071,800
Basin 31	30,555,600
Basin 32	8,413,900
Basin 33	1,179,600
Total	**$ 253,845,200**

Note: Project costs include
30% Construction Cost Contingency
8.80% WSST
25% Engineering

ENR CCI: 13004 May-22

Email:
Nancy Lockett <nlockett@g-o.com>
Mon 5/9/2022 9:49 AM
Info for FCSG.xlsx

See attached spreadsheet. The current ERUs have not been updated per the current Lakehaven report Jeremy shared the other day.

City of Edgewood
Conveyance Development Charge
ERU by Basin by Period

Basin	Phase	Total Sewered ERUs					
		Current	2027	2031	2036	2041	Buildout
1	existing / 1	132	149	161	177	194	194
2	existing / 1	10	88	103	124	149	234
3	existing / 1	78	179	207	250	301	478
4	existing / 1	179	267	310	373	450	524
5	existing / 1	224	319	370	446	537	777
6	existing / 1	51	80	93	112	135	140
7	existing / 1	134	209	242	292	352	621
8	existing / 1	9	78	91	109	131	218
9	existing / 1	5	59	68	82	99	102
10	Fife/1	196	272	316	381	459	930
11	NA	84	84	84	84	84	84
12	NA	0	6	10	15	20	44
13	NA	0	33	56	86	118	384
14	NA	0	111	189	292	400	695
15	NA	0	7	12	18	25	77
16	NA	0	20	34	53	72	187
17	NA	0	52	88	135	185	322
18	NA	0	81	94	113	136	356
19	NA	0	211	359	553	758	1562
20	NA	0	152	185	229	275	626
21	NA	0	95	162	249	341	293
22	NA	0	44	76	121	172	350
23	NA	0	53	89	134	181	656
24	NA	0	0	1	1	2	1304
25	NA	0	108	181	274	368	785
26	NA	0	77	131	202	278	415
27	NA	0	91	155	241	331	131
28	NA	0	40	67	102	137	337
29	NA	0	3	5	8	11	192
30	NA	0	30	50	76	102	279
31	NA	0	145	247	380	522	854
32	NA	0	54	92	142	194	319
33	NA	0	19	33	53	76	118
Total		**1101**	**3,215**	**4,360**	**5,905**	**7,594**	**14,589**

Email:
Nancy Lockett <nlockett@g-o.com>
Mon 5/9/2022 9:49 AM
Info for FCSG.xlsx

See attached spreadsheet. The current ERUs have not been updated per the current Lakehaven report Jeremy shared the other day.

APPENDIX I

ORDINANCE 20-0590

ORDINANCE NO. 20-0590

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON RELATING TO LAND USE AND ZONING, ADOPTING FINDINGS AND CONCLUSIONS; AMENDING THE COMPREHENSIVE PLAN IN ACCORDANCE WITH CHAPTER 18.60 OF THE EDGEWOOD MUNICIPAL CODE (EMC) AND RCW 36.70A.130; STATING INTENT TO ADOPT CORRESPONDING DEVELOPMENT REGULATIONS; DIRECTING THE PLANNING DIRECTOR TO SUBMIT THIS ORDINANCE TO THE DEPARTMENT OF COMMERCE; PROVIDING FOR SEVERABILITY; AND ESTABLISHING AN EFFECTIVE DATE

WHEREAS, RCW 36.70A.130 of the Growth Management Act generally allows cities and counties to consider comprehensive plan amendments no more frequently than once every year; and

WHEREAS, except in special circumstances (RCW 36.70A.130(2)(a)), the City may consider amendments to the City's Comprehensive Plan once a year; and

WHEREAS, the City of Edgewood City Council has established a process and criteria for making modifications to the City's Comprehensive Plan in EMC Chapter 18.60, including text and map amendments in accordance with the Growth Management Act and State Law; and

WHEREAS, the City received applications for seven (7) comprehensive plan amendments and rezones; and

WHEREAS, two (2) site-specific applications were submitted by citizens, which were entitled "Sandhu Commercial" (received December 20, 2019) under file number 19-1561 and another entitled "Bridge Development" (received December 24, 2019) under file number 19-1569; and

WHEREAS, four (4) applications were initiated by the City upon recommendation by the Planning Commission on December 9, 2019. The four (4) applications were entitled "Abolish Public Designations" (file number 19-1570), "East Side Commercial FLUM" (file number 19-1571), "Eliminate Study Overlay" (file number 19-1572), and "Study Overlay Industrial FLUM" (file number 19-1573); and

WHEREAS, one (1) additional application was initiated by the City upon recommendation of the Public Works Director and submitted on December 31, 2019. This application was entitled "Transportation Systems Plan" (file number 19-1574); and

WHEREAS, in accordance with the Edgewood Municipal Code (EMC) Section 18.60.140, the City's Planning Director ("Director") maintained a preliminary docket and prepared a report concerning which suggested amendments the director believed should be placed on the final docket for consideration during the annual amendment process; and

WHEREAS, the Director suggested five (5) amendments for the final docket, which were file numbers 19-1569, 19-1571, 19-1572, 19-1573, and 19-1574; and

WHEREAS, on May 11, 2020, the Planning Commission held a public hearing on the Director's suggested amendments and made the recommendation to City Council that file numbers 19-1569, 19-1571, 19-1572, 19-1573, and 19-1574 should be placed on the Final Docket; and

WHEREAS, on May 26, 2020, City Council held a public hearing on the Final Docket that included file numbers 19-1569, 19-1571, 19-1572, 19-1573, and 19-1574; and

WHEREAS, on June 9, 2020, City Council voted 5-0 to pass Resolution No. 20-0507, which adopted the City's 2019-2020 Comprehensive Plan Amendment Final Docket with file numbers 19-1569, 19-1571, 19-1572, 19-1573, and 19-1574; and

WHEREAS, in accordance with the State Environmental Policy Act (SEPA), the City's responsible SEPA Official issued a Determination of Nonsignificance (DNS) on October 28, 2020, and this threshold determination was not appealed; and

WHEREAS, on November 9, 2020, the Planning Commission held a public hearing on the proposed comprehensive plan amendments, and recommended approval; and

WHEREAS, pursuant to RCW 36.70A.106, the City sent its notice of intent to adopt the proposed comprehensive plan amendments to Department of Commerce on October 9, 2020, which is at least sixty (60) days prior to the adoption date of this Ordinance; and

WHEREAS, the City Council considered the proposed comprehensive plan amendments in their regular study session meeting held on November 17, 2020; and

WHEREAS, the City Council held a public hearing on the proposed comprehensive plan amendments during their regular meeting held on November 24, 2020; and

WHEREAS, the City Council considered the proposed comprehensive plan amendments in their regular study session meeting held on December 1, 2020; and

WHEREAS, the proposed amendments to the Edgewood Comprehensive Plan Land Use map are consistent with the City's planning goals and objectives;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, HEREBY ORDAINS AS FOLLOWS:

Section 1. Adoption of Findings and Conclusions in Support of Comprehensive Plan Amendments. The City Council hereby adopts the findings and conclusions included in the December 2, 2020 Report prepared by AHBL and attached hereto as Exhibit A and incorporates that Report herein by reference.

Section 2. Amendments to City of Edgewood Comprehensive Plan. The City Council hereby amends the City of Edgewood Comprehensive Plan as follows:

A. The Comprehensive Plan Future Land Use Map is amended to change the designation of tax parcels 0420163000, 0420164004, 0420164050, 0420164130, 0420164095, 0420164096, 0420164097, and 0420164098 from Single Family Moderate and Mixed Residential Moderate to Industrial. Further, Tables 3, 5, 6, 7, 8, 9, 10 and 16 and

associated text references to such tables are amended to be consistent with this change to the Future Land Use Map, as shown on Exhibit B to this ordinance.

B. The Comprehensive Plan Future Land Use Map is amended to change the designation of tax parcels 0420024003, 0420024021, 0420024054, 4495400931, 4495400932, 4495400947, 4495400951, 4495400952, 4495400949, 4495400948, and 4495400941 from Single Family Low to Commercial.

C. The Comprehensive Plan Future Land Use Map is amended to change the designation of tax parcels 0420163003, 0420163024, 0420163034, 0420163037, 0420163038, 0420163043, 0420163051, 0420163074, 0420163075, 0420167703, 0420167704, 042067705, 0420167706, and 0420164131 (partial) from Single Family Moderate to Industrial.

D. The Comprehensive Plan Future Land Use Map is amended to remove the Special Land Use Study Overlay. Further, the sidebar on page 22 and discussion of the Special Land Use Study Overlay on pages 90-91 of the Comprehensive Plan shall be amended to be consistent with this change to the Future Land Use Map, as shown on Exhibit C to this ordinance.

E. The Comprehensive Plan is amended as follows:

i. Page 44 – Transportation Goals and Policies, Mobility and Capacity
New Policy T.I.p is added as follows: "Create a system of streets and trails that form an interconnected transportation network."

ii. Page 44 – Transportation Goals and Policies, Mobility and Capacity, Policy
Policy T.II.a is amended to read: "Support improved connectivity and access from between the City's employment centers ~~to SR 167~~ and the regional transportation system."

iii. Page 131 – Transportation Systems Plan, Street and Highway System, Roadway Functional Classification is amended to add the following paragraph before the "Roadway Standards" section: "Maintaining a network of connected streets helps to facilitate the efficient and safe movement of people and goods between activity areas, neighborhoods, and employment centers. The functional classification system supports the addition of new collector arterials to improve access for emergency vehicles, allow alternate routes in case of blockage or congestion, improve travel time, and reduce travel distances for all transportation modes."

iv. Page 131 – Transportation Systems Plan, Street and Highway System, Roadway Functional Classification, the "Roadways Standards" section is amended as shown on Exhibit D of this ordinance.

v. Figure 9 is replaced with the figure shown on Exhibit E of this ordinance

vi. Figure 10 is replaced with the figure shown on Exhibit F of this ordinance

vii. Figure 11 is replaced with the figure shown on Exhibit G of this ordinance

viii. Figure 12 is replaced with the figure shown on Exhibit H of this ordinance;

ix. Table 31 is revised as shown on Exhibit I of this ordinance; and

x. Table 41 is revised as shown on Exhibit J of this ordinance.

Section 3. Intent to Adopt Development Regulations. The City Council hereby states its intent to adopt development regulations corresponding with the changes to the Comprehensive Plan described in Sections (1)(A) and (1)(E), above. The Planning Staff and the City Attorney shall

prepare the necessary ordinances so that, following adoption of this Ordinance, the Council may formally adopt said development regulations in separate ordinances in the manner required by law.

Section 4. Directing Submission to Department of Commerce. Pursuant to RCW 36.70A.106, the City's Planning Director or designee shall transmit a complete and accurate copy of this Ordinance and attachments to the Washington State Department of Commerce within ten (10) calendar days of the date of passage.

Section 5. Severability. If any section, sentence, clause or phrase of this ordinance should be held invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 6. Effective Date. This Ordinance will take effect five (5) days after publication as required by law.

PASSED BY THE EDGEWOOD CITY COUNCIL ON THIS 8TH DAY OF DECEMBER, 2020.

Daryl Eidinger, Mayor

ATTEST:

Rachel Pitzel, CMC
City Clerk

APPROVED AS TO FORM:

Ann Marie Soto, City Attorney

Date of Publication: December 10, 2020
Effective Date: December 15, 2020

City of Edgewood, Washington

2224 104th Avenue East, Edgewood WA 98372-1513

Phone: (253) 952-3299 Fax: (253) 952-3537

Staff Report

Comprehensive Plan Amendments
File #s 19-1569, 19-1573, 19-1572 & 19-1574
Discussion Item December 8, 2020 at 7:00 PM

To:	**City of Edgewood City Council**
From:	**Brittany Port, AICP and Wayne Carlson, FAICP (Contract Planners)**
Date:	**December 2, 2020**
Subject:	**Annual Comprehensive Plan Amendment**

Part 1 – Background

Pursuant to RCW 36.70A.130(4), the City of Edgewood must update its Comprehensive Plan every eight years. The deadline for the next major update is June 2024. However, per Edgewood Municipal Code (EMC) Section 18.60.130, the City may consider amendments to its Comprehensive Plan once every year. Applications for Comprehensive Plan amendments are to be submitted before December 31st in order to be considered during the following year's amendment process. All applications submitted before the December 31st deadline are identified on the preliminary docket that is maintained by the Community Development Director. After compiling the preliminary docket, the Director reviews the suggested amendments and prepares a report suggesting which amendments should be placed on the final docket.

In 2019, the City received two citizen-initiated applications that met the required deadline to be processed in 2020. On December 9, 2019, the Planning Commission voted 5-0 to suggest four additional amendments be processed as part of the City's 2020 Comprehensive Plan amendments. The Public Works Director also gained the support of City Council to add one additional proposed amendment. In total, seven amendments were submitted for consideration. On May 7, 2020, the City Council advanced five of the Comprehensive Plan amendment requests to the final docket for consideration.

The five Comprehensive Plan amendment requests under consideration include one citizen-initiated request to amend Comprehensive Plan Future Land Use Map (FLUM) designations and zoning and four City-initiated requests for amendments to the Comprehensive Plan FLUM designations, associated text, and transportation related text throughout the Comprehensive Plan. Request numbers one, three, and four are interrelated as they would all occur within the Economic Study Overlay identified on the 2015 Comprehensive Plan FLUM. The requests are described in Part 2 of this staff report.

Part 2 –Requests

1. SITE-SPECIFIC REQUEST #1 – BRIDGE POINT EDGEWOOD



FILE NUMBER: 19-1569 – Bridge Point Edgewood

LOCATION: 4515-4519 96th Avenue East

TAX PARCEL(S): Parcel Nos. 0420163000, 0420164004, 0420164050, 0420164130, 0420164095, 0420164096, 0420164097, 0420164098

APPLICANT: Bridge Acquisition Company, LLC,
10655 NE 4th Street, Suite 210, Bellevue, WA 98004

EXISTING COMPREHENSIVE PLAN: Single Family Moderate and Mixed Residential Moderate

REQUESTED COMPREHENSIVE PLAN: Industrial

EXISTING ZONING: Single-Family Moderate (SF-3)

REQUESTED ZONING: Industrial (I)

REASON FOR REQUEST:
The applicant requests concurrent approval of an amendment to the Future Land Use Map (FLUM) in the 2015 Edgewood Comprehensive Plan and a rezoning or zone change to Industrial (I) for eight tax parcels in the southwest corner of Edgewood. The parcels are located near the southern edge of the City, north of Valley Avenue East, and immediately adjacent to the Union Pacific railway. The applicant states the reason for the request is to develop the property as a light industrial complex and cites the need for additional industrial zoned land in Edgewood as the primary basis for the request.

Within the Edgewood/Puyallup/Fife area, there is virtually no vacant industrial space. Since 2015, 2.6 million square feet of new industrial buildings on 175 acres of industrial land have been developed within 1.5 miles of the proposed amendment area (Bridge Point Edgewood); twelve industrial structures have been constructed – with nearly 100% occupancy of the new spaces.

The rezone of the Bridge Point Edgewood site is supported by the existing industrial development in the area and infrastructure improvements made in the area by adjacent jurisdictions including:

- The City of Fife widened and reconstructed Freeman Road from Valley Avenue to 20th Street.

- The City of Puyallup created, widened and signalized the intersection on Valley Avenue, west of the Bridge Point Edgewood site.

- WSDOT is proposing the extension of Highway 167 from its current terminus at Meridian Avenue to the Port of Tacoma, with an interchange proposed in the immediate vicinity of the Bridge Point Edgewood property.

The benefits of the proposed comprehensive plan amendment and development of the Bridge Point Edgewood property to the City of Edgewood includes acceleration of job creation within the City, spurring growth within the local housing market, and both increased and diversified tax revenues.

The request may also assist the cities of Edgewood, Fife, and Puyallup to one day achieve designation as a Manufacturing/Industrial Center (MIC) within Pierce County, making the City eligible for transportation funding from Puget Sound Regional Council.

Approval of Site-Specific Request #1 would require amendments within several areas of the City's Comprehensive Plan. Specifically, the Future Land Use Map contained on page 23 of the Comprehensive Plan would need to be updated, as well as Tables 5, 6, 7, 8, 9,10 and 16.

SURROUNDING ZONING & LAND USE:
The Bridge Point Edgewood site is surrounded by the following land uses:

	Existing Zoning	Existing Land Use
North	Single-Family Moderate (SF-3) and Public	Single-family residences, undeveloped land, and a community well
South	City of Puyallup, Limited-Manufacturing (ML)	Union Pacific Railway and industrial development
East	Single-Family Moderate (SF-3)	Single-family residences
West	Single-Family Moderate (SF-3) and Industrial	Single-family residences and agriculture

The requested area is contiguous and abuts one of the tax parcels that were re-designated Industrial in 2019 as part of the colloquially named "Uchida Farms, LLC Comprehensive Plan amendment" (Uchida) request. All the tax parcels, to some extent, are included in the Economic Study Overlay identified on the 2015 Comprehensive Plan FLUM (tax parcels 042016-4004 and 042016-4130 have a portion of their parcel area included in the Economic Study Overlay).

AVAILABILITY OF UTILITIES:
The City of Edgewood was notified by the City of Fife that it has significant capacity in its sewer system, which extends to its boundary with Edgewood along Freeman Road south of 34th Street East. The sewer line in that segment of Freeman Road is a force main. The force main extends to the west from Freeman Road to 70th Avenue East, where it discharges to a larger municipal pump station. The lines were sized for commercial and industrial development in a service area that includes substantial amounts of property subsequently acquired by the Washington State Department of Transportation for the construction of SR 167 and its interchange with Valley Avenue. Since WSDOT's uses will not generate sewage flows, Fife's system has excess capacity that is available to serve properties in Edgewood, including the Cherrywood Mobile Home Park, Cherrywood Apartments, and the potential Edgewood industrial area to the east.

The Mt. View-Edgewood Water Company provides water service to most of the City of Edgewood including the parcels associated with this amendment request.

Urban services and utilities are available, or can be extended at the applicant's expense, to accommodate future development that may occur due to the reclassification. Project SEPA environmental review will occur with developments that exceed the City's adopted thresholds for environmental review.

AVAILABILITY OF PUBLIC SERVICES:
There are no known public service deficiencies in this area. The City requires future development proposals to demonstrate service demand and available capacity as part of the permitting process

SITE CHARACTERISTICS:
The Bridge Point Edgewood site consists of mainly undeveloped land with some pastureland that has been farmed. Two year-round streams flow through the site; Wapato Creek and Simons Creek which converges with Wapato Creek, eventually draining into

Commencement Bay. The terrain of the site is mostly flat with some minor sloping along the banks of the creeks.

CRITICAL AREAS:
In 2017, the City of Edgewood amended its standards governing the protection and uses allowed within critical areas and buffers (see Title 14 EMC). These standards include management practices deemed by the Washington State Department of Ecology and the Washington State Department of Commerce to incorporate best available science.

The City's critical area maps show the probable existence of the following critical areas on all or some of the parcels in the proposed amendment area:

- Wellhead protection area,
- Aquifer recharge Area,
- Regulated floodplains,
- Wetlands and their buffers,
- Steep slopes, and
- Seismic and volcanic hazard area.

Wapato and Simons Creeks flow through the site and the Pierce County streams map and DNR stream typing map identify and classify both as Type F streams with a standard buffer of 100 feet. The mapped wetland areas are located along the creeks and FEMA's FIRM Panel Number 53053C0333E (effective 3/17/17) indicates portions of floodway associated with both creeks, with most of the site classified with a low risk of flooding.

Any future industrial development on the site would need to avoid impacts to the critical areas on or adjacent to the site and incorporate these buffers into their plan, though buffer averaging can be evaluated on an individual project basis.

While site constraints exist in the form of wetlands, the overall topography of the site lends itself to development of large-scale industrial projects. The conceptual plan submitted by the applicant offers an initial insight into how the needs of a particular use might be accommodated on the sites comprising the amendment area.

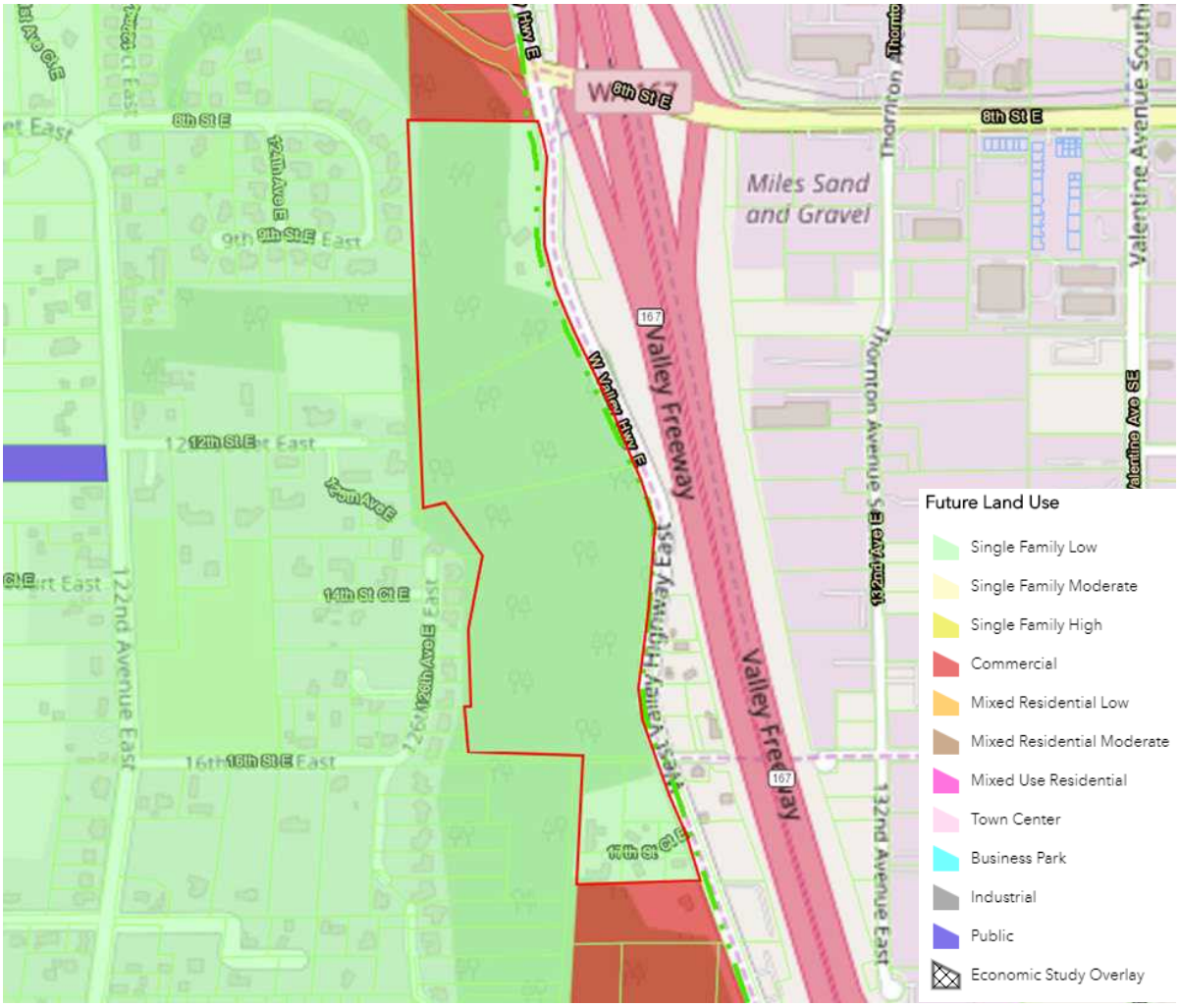
The protection of critical areas will not diminish or change if the area was to be reclassified from Single-Family 3 (SF3) to Industrial (I).

ACCESS:
Vehicular access to the site would be provided from 98th Avenue East, which provides access to Valley Avenue East via 7th Street Northwest. The applicant provided a Trip Generation Summary that shows the number of daily trips generated by industrial uses would double the total daily trips generated by single family homes built at maximum density on the proposal site.

Future development applications will be subject to project specific SEPA environmental review. As applicable, the applicants will be required to submit detailed traffic impact

analysis reviewed for concurrency and conformance to applicable city codes and standards, as well as certificates of availability for all utilities.

2. SITE-SPECIFIC REQUEST #2-EAST SIDE COMMERCIAL FLUM



FILE NUMBER: 19-1571 – East Side Commercial FLUM

LOCATION: Generally, along or near West Valley Highway East along the eastern edge of Edgewood

TAX PARCEL(S): Parcel Nos. 042024003, 040024021, 0420024054, 4495400931, 4495400932, 4495400947, 4495400951, 4495400952, 4495400949, 4495400948, 4495400941

APPLICANT: City of Edgewood

EXISTING COMPREHENSIVE PLAN: Single Family Low

REQUESTED COMPREHENSIVE PLAN: Commercial

EXISTING ZONING: Single-Family 2 (SF-2)

REQUESTED ZONING: No change requested

REASON FOR REQUEST:
On December 9, 2019, the City of Edgewood Planning Commission discussed whether to include a Comprehensive Plan FLUM amendment re-designating 10 tax parcels along or near West Valley Highway East from Single-Family Low to Commercial. A concomitant zoning map amendment would not be made at this time in order to avoid creating nonconforming zoning issues for the properties within this area and instead could be processed on request from the respective subject property owners.

PAST AND FUTURE LAND USE AND ZONING ACTIONS:
The processing of this FLUM amendment would not require a concomitant zoning map amendment, and thus would not require any text amendments to the City's Zoning Code. The property owners, when ready, could apply for zoning map amendments consistent with the FLUM designation of their property to rezone to a Commercial zoning designation. The City should consider future Zoning and Comprehensive Plan amendments to ensure this area is able to meet the City's Commercial design standards. Development standards for the Commercial zoning district generally assume frontage along Meridian Avenue East. A Commercial district abutting West Valley Highway East may be better suited for a separate Commercial zoning district or potentially an overlay or small area plan to ensure development is compatible with the vision for the area.

SURROUNDING ZONING & LAND USE:
The East Side Commercial site is surrounded by the following land uses:

	Existing Zoning	**Existing Land Use**
North	Commercial (C)	Commercial (C)
South	Single-Family Low (SF-2)	Commercial (C)
East	City of Pacific – Light Industry (North of 16th Street East) and City of Sumner-Interchange Commercial (South of 16th Street East)	City of Pacific – Commercial (North of 16th Street East) and City of Sumner-Interchange Commercial (South of 16th Street East)
West	Single-Family Low (SF-2)	Single-Family Low

AVAILABILITY OF UTILITIES:
Both the City of Pacific and the City of Sumner have existing water lines along 16th Street East to West Valley Highway. The City of Sumner provides water to the parcels included in this request that are located south of 16th Street East. Sumner also has existing sewer lines along West Valley Highway south of 16th Street East.

Urban services and utilities are available, or can be extended at the applicant's expense, to accommodate future development that may occur due to the reclassification. Project SEPA environmental review will occur with developments that exceed the City's adopted thresholds for environmental review.

AVAILABILITY OF PUBLIC SERVICES:
There are no known public service deficiencies in this area. The City requires future development proposals to demonstrate service demand and available capacity as part of the permitting process.

SITE CHARACTERISTICS:
The East Side Commercial proposal site consists of mainly undeveloped land with some single-family residences. The northern-most parcel of the site is currently being used as an illegal, nonconforming commercial business use. The terrain of the site includes steep slopes, generally sloping from west down to east with potential wetlands located in the lower elevations.

CRITICAL AREAS:
In 2017, the City of Edgewood amended its standards governing the protection and uses allowed within critical areas and buffers (see Title 14 EMC). These standards include management practices deemed by the Washington State Department of Ecology and the Washington State Department of Commerce to incorporate best available science.

The City's critical area maps show the probable existence of the following critical areas on all or some of the parcels in the proposed amendment area:

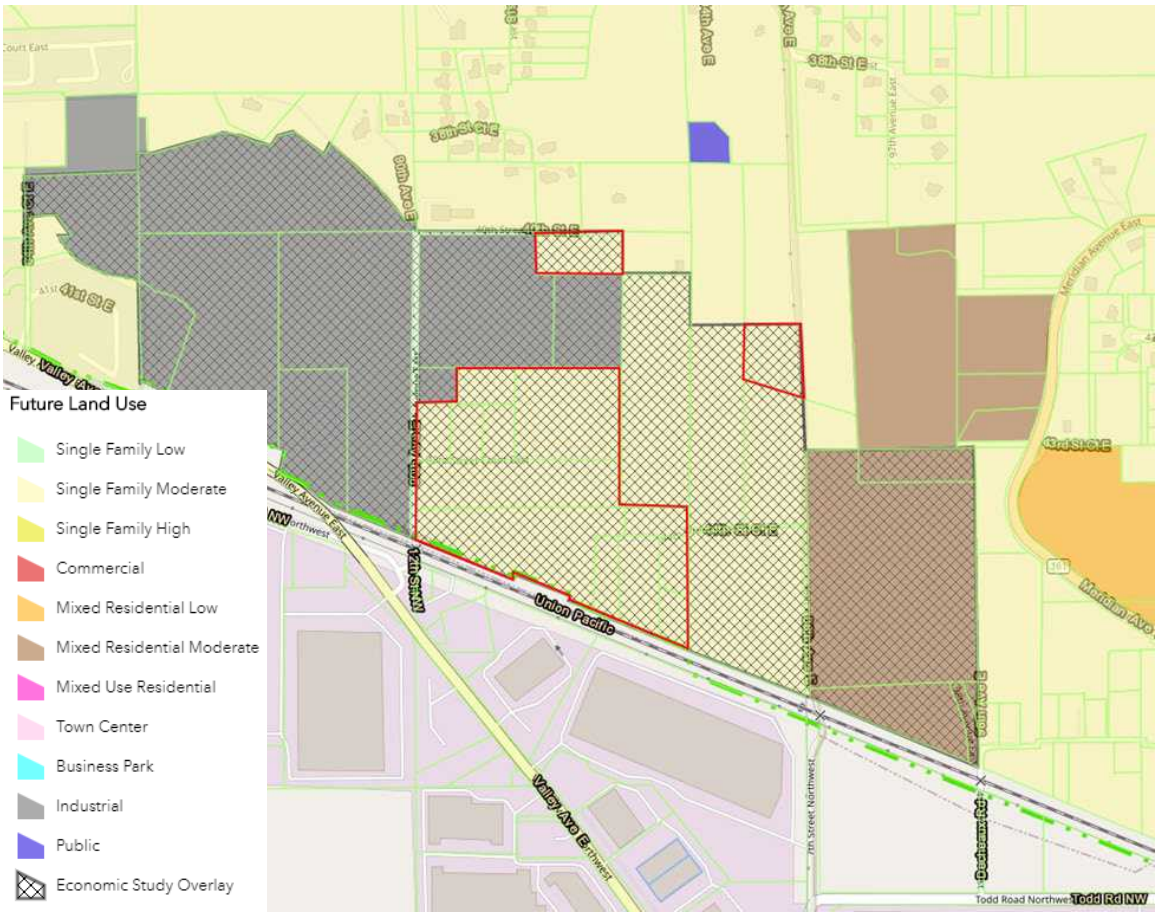
- Potential Wetlands and their buffers, and
- Steep slopes.

The protection of critical areas will not diminish or change if the area was to be reclassified from Single-Family Low to Commercial.

ACCESS:
Vehicular access to the site would be provided from West Valley Highway and 16th Avenue East.

Future development applications will be subject to project specific SEPA environmental review. As applicable, the applicants will be required to submit detailed traffic impact analysis reviewed for concurrency and conformance to applicable city codes and standards, as well as certificates of availability for all utilities.

3. SITE-SPECIFIC REQUEST #3 – COMPLETE FLUM DESIGNATION ON THE SPECIAL LAND USE STUDY OVERLAY



FILE NUMBER: 19-1573 – Complete FLUM Designation on the Special Land Use Study Overlay

LOCATION: Generally, north of Valley Avenue East and the Union Pacific Railway in the southwest corner of Edgewood

TAX PARCEL(S): Parcel Nos. 042016-3003, 042016-3024, 042016-3034, 042016-3037, 042016-3038, 042016-3043, 042016-3051, 042016-3074, 042016-3075, 042016-7703, 042016-7704, 042016-7705, 042016-7706, 042016-4131 (partial)

APPLICANT: City of Edgewood

EXISTING COMPREHENSIVE PLAN: Single Family Moderate

REQUESTED COMPREHENSIVE PLAN: Industrial

EXISTING ZONING: Single-Family Moderate (SF-3)

REQUESTED ZONING: No change requested

REASON FOR REQUEST:
The request is to change the future land use designation of 14 tax parcels within the Comprehensive Plan Special Land Use Study Overlay from Single Family-Moderate to Industrial.

As part of the 2015 Comprehensive Plan update, the public discussed the area to the west of and including the site for the Bridge Point Edgewood proposal (Site-Specific Request #1) in the southwest corner of the City. The City held public input meetings to discuss the possibility for a FLUM designation change in this area. The updated plan did not change the designation; however, a Special Land Use Study Overlay was approved in the southwest portion of the City.

As part of the 2019 Comprehensive Plan Amendment process, 12 tax parcels within the Special Land Use Study Overlay were re-designated Industrial as part of the colloquially named "Uchida Farms, LLC Comprehensive Plan amendment" (Uchida) request. The Uchida request included a market study for the lands included in that request which discussed industrial development in the vicinity of the overlay as well as the potential for job creation, and addressing the changing economics of small-scale farming uses that are currently practiced in the area.

On December 9, 2019, the City of Edgewood Planning Commission discussed changing the designation of all properties not previously or currently proposed as a Comprehensive Plan amendment located within the Special Land Use Study Overlay and designation as Mixed Residential Moderate or Single Family Moderate to Industrial and adopting a concomitant zoning map amendment to Industrial (I). With the inclusion of Request #1-Bridge Point Edgewood, over half of the Special Land Use Study Overlay has been or is proposed to be re-designated as Industrial. Market studies have or will be prepared by private entities for the majority of this area thereby completing the City's obligation to study this area for future economic development uses and addressing the changing agricultural practices away from small-scale farming operations.

PAST AND FUTURE LAND USE AND ZONING ACTIONS:
On December 9, 2019, the Planning Commission indicated it would like to also rezone the parcels included in this amendment request. Making a concurrent amendment to the City's Zoning Map would help to mitigate potential conflicts between industrial developments surrounding low density single-family development on both sides of this area. However, it would also create non-conforming uses that would limit the expansion of these properties as single-family residences.

No text amendments to the City's Zoning Code or map amendments to the City's Zoning Map should be necessary at this time as a result of this request. The property owners, when ready, could apply for zoning map amendments consistent with the FLUM designation of their property to rezone to an Industrial zoning designation.

SURROUNDING ZONING & LAND USE:
The subject property is surrounded by the following land uses:

	Existing Zoning	Existing Land Use
North	Single-Family Moderate (SF-3)	Single-family residences and undeveloped land
South	City of Puyallup, Limited-Manufacturing (ML)	Union Pacific railway and industrial development
East	Single-Family Moderate (SF-3)	Undeveloped land
West	Industrial (I)	Single-family residences and agriculture

AVAILABILITY OF UTILITIES:
The City of Edgewood was notified by the City of Fife that it has significant capacity in its sewer system, which extends to its boundary with Edgewood along Freeman Road south of 34th Street East. The sewer line in that segment of Freeman Road is a force main. The force main extends to the west from Freeman Road to 70th Avenue East, where it discharges to a larger municipal pump station. The lines were sized for commercial and industrial development in a service area that includes substantial amounts of property subsequently acquired by the Washington State Department of Transportation for the construction of SR 167 and its interchange with Valley Avenue. Since WSDOT's uses will not generate sewage flows, Fife's system has excess capacity that is available to serve properties in Edgewood, including the Cherrywood Mobile Home Park, Cherrywood Apartments, and the potential Edgewood industrial area to the east.

The Mt. View-Edgewood Water Company provides water service to most of the City of Edgewood including the parcels associated with this amendment request.

Urban services and utilities are available, or can be extended at an applicant's expense, to accommodate future development that may occur due to the reclassification. Project SEPA environmental review will occur with developments that exceed the City's adopted thresholds for environmental review.

AVAILABILITY OF PUBLIC SERVICES:
There are no known public service deficiencies in this area. The City requires development proposals to demonstrate service demand and available capacity as part of the permitting process. Staff anticipates this analysis will occur closer to the time of site development.

SITE CHARACTERISTICS:
The site consists of mainly pastureland that has been farmed, some single-family residences, and some undeveloped land. Two year-round streams flow through most of the 14 parcels included in the site; Wapato Creek and Simons Creek which converges with Wapato Creek, eventually draining into Commencement Bay. The terrain of the site is mostly flat with some minor sloping along the banks of the creeks.

CRITICAL AREAS:

The City's critical area maps show the probable existence of the following critical areas on all or some of the parcels in the proposed amendment area:

- Wellhead protection area,
- Aquifer recharge Area,
- Regulated floodplains,
- Wetlands and their buffers,
- Steep slopes, and
- Seismic and volcanic hazard area.

Wapato and Simons Creeks flow through the site and the Pierce County streams map and DNR stream typing map identify and classify both as Type F streams with a standard buffer of 100 feet. The mapped wetland areas are located along the creeks and FEMA's FIRM Panel Number 53053C0333E (effective 3/17/17) indicates portions of floodway associated with both creeks.

Any future industrial development on the site would need to avoid impacts to the critical areas on or adjacent to the site and incorporate these buffers into their plan, though buffer averaging can be evaluated on an individual project basis.

The protection of critical areas will not diminish or change if the area was to be reclassified from Single-Family 3 to Industrial.

ACCESS:
Vehicular access to the site would be provided from 90th Avenue East, which provides access to Valley Avenue East via 27th Avenue Court Northwest.

Future development applications will be subject to project specific SEPA environmental review. As applicable, the applicants will be required to submit detailed traffic impact analysis reviewed for concurrency and conformance to applicable city codes and standards, as well as certificates of availability for all utilities.

4. REQUEST #4 – ELIMINATE SPECIAL LAND USE STUDY OVERLAY

FILE NUMBER: 19-1572 – Eliminate the Special Land Use Study Overlay

LOCATION: Generally, north of Valley Avenue East and the Union Pacific railway in the southwest corner of Edgewood

TAX PARCEL(S): Uchida Farms Parcel Nos. 0420163054, 0420163055, 0420163702, 0420163047, 0420163026, 0420163023, 0420163052, 0420162700, 0420165004, 0420166003, 0420175005

Bridge Point Edgewood Parcel Nos. 0420163000, 0420164004, 0420164050, 0420164130, 0420164095, 0420164096, 0420164097, 0420164098

Remaining Parcel Nos. 042016-3003, 042016-3024, 042016-3034, 042016-3037, 042016-3038, 042016-3043, 042016-3051, 042016-3074, 042016-3075, 042016-7703, 042016-7704, 042016-7705, 042016-7706, 042016-4131 (partial)

APPLICANT: City of Edgewood

EXISTING COMPREHENSIVE PLAN: Special Land Use Study Overlay

REQUESTED COMPREHENSIVE PLAN: No overlay

EXISTING ZONING: Single-Family Moderate (SF-3) and Industrial

REQUESTED ZONING: No change requested

REASON FOR REQUEST:
With the processing of Requests #1 and #3, as well as the Uchida request that was adopted in 2019, the City should remove the Special Land Use Study Overlay from the FLUM and delete any associated textual references to the overlay within the body of the Comprehensive Plan. The City, in processing the associated citizen-initiated and City-initiated requests, would have fulfilled its plan to study the feasibility of changing the land use designations within the overlay.

Approval of this request would require amendments within several areas of the City's Comprehensive Plan. Specifically, the Future Land Use Map contained on page 23 of the Comprehensive Plan would need to be updated, as well as amendments to the sidebar on Page 22 and discussion of the land use map on Pages 90 and 91 which discuss the Special Land Use Study Overlay.

5. REQUEST #5 – TRANSPORTATION SYSTEMS PLAN

FILE NUMBER: 19-1574 – Transportation Systems Plan

As stated in the Comprehensive Plan amendment application submitted on December 31, 2019, discussions with Council have revealed a need to improve connectivity between Edgewood and adjacent communities, as well as between the hilltop and valley areas within Edgewood. There is also a discrepancy in the existing Comprehensive Plan, when

comparing the Functional Classification System and Long-Term Transportation Projects Maps. In addition, a recent discussion with the Planning Commission regarding recommendations from the City's traffic engineering consultants, Transpo Group and DN Traffic Consultants, has identified amendments to the City's parallel road network ordinance that may be made as part of this project.

Approval of this text amendment request would require amendments within several areas of the City's Comprehensive Plan. Specifically, the Transportation Goals and Policies, Mobility and Capacity section on page 44 of the Comprehensive Plan would need to be updated, as well as amendments to the Transportation Systems Plan, Street and Highway System, Roadway Functional Classification sections on pages 130 and 131 (Figure 9 and additional connectivity language). If the City's parallel road network ordinance is amended, further amendments may need to be made to the Comprehensive Plan, including Figure 10 on page 132, Figure 11 on page 133, Figure 12 on page 134, Table 31 on pages 135 through 137, and Table 41 on pages 163 and 164.

Part 3 – Compliance with EMC 18.60.220

Edgewood Municipal Code Section 18.60.220 establishes the evaluation criteria for proposed amendments to the Comprehensive Plan and development regulations. Pursuant to EMC 18.60.010(B), the development regulations are the controls placed on development or land use, including, but not limited to, the City's codes on zoning, critical areas, official controls, planned unit developments, subdivisions, binding site plans and the Shoreline Master Program. Applicants provide responses to said criteria as part of their submittal packages. The following lists the review criteria and staff's assessment of the applicants' responses:

A. All Amendments. All the comprehensive plan amendments shall be reviewed under the following criteria:

1. Whether the proposed amendment(s) conform to the Growth Management Act (Chapter 36.70A RCW);

SITE-SPECIFIC REQUEST #1

Applicant Response: As stated in the Responses to Comprehensive Plan Amendment Questions submitted with the application, the applicant believes the proposed map amendment and rezoning is consistent with the City of Edgewood's Comprehensive Plan and with the goals of the State of Washington's Growth Management Act (GMA). The applicant provided the following responses to the GMA goals:

Concentrated urban growth: Consistency would be achieved through an emphasis on controlled urban growth; concurrent with infrastructure capacity and public service capabilities identified through a comprehensive review of proposed plans versus existing capabilities of affected jurisdictions.

Sprawl reduction: Consistency would be achieved through encouragement of new industrial development within existing City boundaries; presumably in proximity to adequate infrastructure and services.

Regional transportation: Consistency would be achieved by requiring future development resulting from the proposed amendment, to provide for improvements necessary to accommodate growth while maintaining acceptable levels of service within the community's road network. A commitment to such accommodation is amply demonstrated in the applicant's preliminary conceptual site plan for the proposed Bridge Point site; a project conditioned on the approval of this amendment.

Affordable housing: Consistency would be achieved through the secondary impacts of economic growth driven by the growth in the community's industrial base, as workers may realize local opportunities to shorten their commute by living in the community where they work.

Economic development: Consistency would be achieved through the amendment's fostering of industrial growth – a staple element of the growth projections of the current comprehensive plan.

Property rights: Consistency would be achieved within the amendment process through the public hearings and community engagement elements associated with said review; preserving the rights of the Bridge Development Partners consortium to seek changes to policies which would allow them to realize full value of their properties. For those who may oppose this amendment, their property rights are maintained through their right to comment and a corresponding right to appeal a decision they view as contradictory to their interest.

Permit processing: Consistency is achieved through the initial entitlement process focusing on the comprehensive plan map amendment process; should approval be granted, consistency would be further reinforced by the plan review and permitting processes implemented by the City of Edgewood staff.

Natural resource industries: Consistency would be achieved through the applicant's commitment to work to preserve natural resources identified as present on the site; including the preservation and enhancement of trees, creek beds and shorelines affected by future development.

Open space and recreation: Consistency would be achieved through the addition of significant industrial growth in a manner which does not adversely impact existing open space or recreational opportunities on a macro scale. On a smaller scale, the proposed Bridge Point site offers a conceptual site plan with significant open space and landscaping aesthetics scattered throughout the site; emphasizing a commitment to maintaining and enhancing critical areas.

Environmental protection: Consistency would be achieved through the responsible integration and implementation of best management practices in future development activity by the applicant; as evidence by a conceptual site plan lending credence to the level of consistency to be achieved.

Early and continuous public participation: Consistency would be achieved as a result of the community outreach and engagement inherent in the comprehensive plan amendment process as implemented by the City of Edgewood.

Public facilities and services: Consistency would be initially achieved through a thorough evaluation of impacts identified as a result of the proposed amendment review process. Later, as development activity is initiated, a more thorough analysis of the need for additional public facilities and the responsibility for additional costs would be addressed through system development charges.

Historic preservation: Consistency will be achieved through an initial opportunity to review and comment on the presence of any historic, architectural or cultural resources on any of the subject properties. Future development activity will be conducted in a manner which is fully cognizant of the possibility of undiscovered cultural artifacts; plans can be formulated to document the protocols to be followed in such case.

Staff Response: Staff concurs with the applicant's assessment. Beginning with the most wide-ranging element – conformance with the requirements of the GMA, specifically RCW 36.70A – the applicant has submitted the requisite documents in accordance with Edgewood's protocols for amendments and rezoning. Staff will continue the process of amending the maps in a manner which ensures early and continuous public participation and review by the appropriate commissions and elected officials.

Additionally, the City's Municipal Code outlines a process for amendments to the Comprehensive Plan FLUM in accordance with GMA. By following the City's process and incorporating public participation, the amendments conform to the procedural requirements of GMA. In particular, the amendment supports the following Statewide planning goals: Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all residents of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.

The proposed amendment from *Single-Family Moderate* to *Industrial* supports this effort to promote economic development within the City of Edgewood, the recruitment of new businesses, and employment opportunities within the City of Edgewood.

SITE-SPECIFIC REQUEST #2

Staff Response: The proposed map amendment from *Single-Family Low* to *Commercial* is consistent with the City of Edgewood's Comprehensive Plan and with the goals of the State of Washington's Growth Management Act (GMA). The City's encouragement of new commercial development within City boundaries and within proximity to urban utilities and services would meet the GMA goal to reduce urban sprawl by allowing opportunities for additional employment and housing within the City. The GMA goal of economic development would be achieved through the amendment's fostering of commercial growth – a staple element of the growth projections of the current Comprehensive Plan.

Compliance with many of the planning goals of the GMA will be further analyzed as the owners of subject parcels apply for zoning designation changes to their individual properties. In particular, conformity with the GMA goals related to public facilities and services and regional transportation would be achieved by requiring future development resulting from the proposed amendment, to provide for improvements necessary to accommodate growth while maintaining acceptable levels of service within the community's infrastructure networks.

SITE-SPECIFIC REQUEST #3

Staff Response: Like Site-Specific Request #1, the proposed amendment from *Single-Family Moderate* to *Industrial* is consistent with the goals of the Growth Management Act (Chapter 36.70A RCW). The City's encouragement of new industrial development within City boundaries and within proximity to urban utilities and services would meet the GMA goal to reduce urban sprawl by allowing opportunities for additional employment within the City. The GMA goal of economic development would be achieved through the amendment's fostering of industrial growth – a staple element of the growth projections of the current Comprehensive Plan.

Compliance with many of the planning goals of the GMA will be further analyzed as the owners of subject parcels apply for zoning designation changes to their individual properties. In particular, conformity with the GMA goals related to public facilities and services and regional transportation would be achieved by requiring future development resulting from the proposed amendment, to provide for improvements necessary to accommodate growth while maintaining acceptable levels of service within the community's infrastructure networks.

REQUEST #4

Staff Response: The proposal to eliminate the Special Land Use Study Overlay is consistent with the goals to the Growth Management Act (Chapter 36.70A RCW) and the established procedures for processing comprehensive plan amendments. The City of Edgewood continuously reviews and evaluates its Comprehensive plan as required by the GMA and allows proposals for Comprehensive Plan amendments once per year.

REQUEST #5

Staff Response: The City's Public Works Department's proposal to amend specific text, tables, and figures within the Comprehensive Plan meets the GMA goal to encourage efficient multimodal transportation systems. The proposed amendments are based on regional priorities and work to improve regional transportation connectivity.

2. Whether the proposed amendment(s) are consistent with and implement the City's Comprehensive Plan, including the goals, policies and implementation strategies of the various elements of the plan;

SITE-SPECIFIC REQUEST #1

Applicant Response: Fostering the economic growth of the City's industrial base remains a key element of the overall comprehensive planning process (LU.1.m/Page 25). A proposal such as Bridge Point, which adapts underdeveloped farmland and vacant land, turning it into an economic engine for employment and sector growth, is certainly consistent with the goals of a comprehensive plan - as long as the proposal respects the environment and takes advantage of proximity to assets required by industrial uses such as convenient highway and rail access.

Amending the Comprehensive Plan and the concurrent rezoning of the Bridge Point properties will offer Edgewood a chance to realize these benefits and take advantage of a surging local real estate market and national economy.

Over the past four (4) years, development along Valley Avenue and Freeman Road has produced millions of square feet of industrial space - including Edgewood's recent approval of the Uchida Farm LLC project, which is a similar redevelopment currently beginning the permitting and plan review process with Edgewood staff.

Staff Response: Staff concurs with the applicant's assessment. Though the request is not consistent with the future land use map designations, it is consistent with many instances of Comprehensive Plan text, goals and policies. Of most relevance, the incorporation of this area into a "Special Land Use Study Overlay" in the City's 2015 Comprehensive Plan (Volume 1, Page 22) denotes the City's identification of the changing character of this area as well as its acknowledgement of the need for industrial development to support local job creation in the City of Edgewood. The proposed amendment from *Single-Family Moderate* to *Industrial* and accompanying application materials serve to address a portion of the Special Land Use Study Overlay area with its findings of an *Industrial* designation being appropriate for the amendment area.

The Land Use Element provides several policies that support this amendment, including policies for studying new land use designations and responding to changing community conditions. The potential for economic development, recruitment of businesses, transportation access, availability of public facilities and services, compatibility with surrounding development, and property owner interests are all listed as factors for considering new land use designations. The re-designation of the Bridge Point Edgewood site to *Industrial* meets most of these requirements.

SITE-SPECIFIC REQUEST #2

Staff Response: The change from *Single Family* to *Commercial* is consistent with the goals of the GMA. The proposed development will encourage urban growth in a consolidated manner, promote urban infill, and reduce sprawl. Because the development is in the urban area, people will also have access to multimodal transportation systems. This meets GMA in providing design and layout that shape the City into more livable and healthy spaces.

SITE-SPECIFIC REQUEST #3

Staff Response: See Staff Response to Site-Specific Request #1.

REQUEST #4

Staff Response: The proposal to remove the Special Land Use Study Overlay from the FLUM and delete any associated textual references to the overlay within the body of the Comprehensive Plan is consistent with and implements the City's Comprehensive Plan. This proposal is specifically consistent with GOAL LU.I.c on page 22 in the Land Use Element that establishes the obligation to update the FLUM and Comprehensive Plan text as needed. The City, in processing the associated citizen-initiated and City-initiated requests, would have fulfilled its plan to study the feasibility of changing the land use designations within the overlay and the Special Land Use Study Overlay becomes obsolete.

The proposal is consistent with the implementation strategies of the Comprehensive Plan section titled "Amending the Comprehensive Plan" found on page 12. The removal of the Special Land Use Study Overlay is the direct implementation of the need to "Maintain the Comprehensive Plan to ensure that changing conditions, including changes in the community and changes to regional, state and federal policies and regulation, are reflected in the Plan." Additionally, the proposal takes into consideration various efforts and applications since 2015 to change the land use designations of the parcels included within the Special Land Use Study Overlay and meets the intention to "Consider proposed Comprehensive Plan amendments concurrently so that the cumulative effect of the proposals can be determined."

REQUEST #5

Staff Response: The proposal brought by Public Works to update the Transportation Goals and Policies, Mobility and Capacity section on page 44 of the Comprehensive Plan, as well as amendments to the Transportation Systems Plan, Street and Highway System, Roadway Functional Classification sections is consistent with and implements the City's Comprehensive Plan. Specifically, the proposal meets the obligation stated on page 13 under "Amending the Comprehensive Plan" to "Ensure that the Comprehensive Plan, development regulations, City and other agency functional plans and budgets are mutually consistent and reinforce each other."

3. Whether circumstances related to the proposed amendment(s) and/or the area in which it is located have substantially changed since the adoption of the city's comprehensive plan;

SITE-SPECIFIC REQUEST #1

Applicant Response: Whereas the national and regional economies have shown a degree of sustainable growth in a variety of sectors, Edgewood has lagged behind in recent times (page 2l of the Edgewood Comprehensive Plan 2015). While recession may create the initial opportunities, one of the main drivers of consistent growth lies in the development of industrial land uses. Besides the benefits of increased tax revenues, industrial development drives employment, which in turn radiates economic growth into residential and retail sectors. The City of Edgewood has responded to this need by designating much of the southwest portion of Edgewood - including the entire Bridge Point Edgewood site – as the subject to a Special Land Use Overlay Study Area.

While certain observers catalog a surplus of available industrial land in Edgewood (12.82 acres according to the Puget Sound Regional Council), the applicant believes the perceived underutilization of Edgewood's industrial base is essentially incorrect and does not reflect current market conditions.

Local market activity indicates a shortage of industrial land in all submarkets stretching from Tacoma to Seattle - and this submarket is one of the region's most sought-after industrial locations.

Over the past four years approximately 2.6 million square feet of Class A industrial buildings have been developed on 175 acres of industrial land located within 1 ½ miles of the Bridge Point site. The majority of this development is located within ½-mile of the site – and serving as an even greater indicator of demand – all of the twelve industrial structures are 100% occupied.

Taking advantage of a competitive marketplace and being able to add to Edgewood's inventory of market-driven industrial infrastructure needed by tenants, is an advantage provided by the applicant's proposal- a project with the size, scale, and location capable of focusing regional industrial interest on a signature project for Edgewood.

Staff Response: As discussed above, the area in question was identified within the 2015 Comprehensive Plan as an area where "a number of factors have led to interest in possible re-designation of land uses in the overlay area, including industrial development in the surrounding area, support for local job creation, and changes in the economics of the small-scale farming activities that are currently practiced in the area." As the applicant has assessed in their analysis of the changing market factors in the area: industrial growth in both Fife and Puyallup and a lack of vacant industrial space lend this property to have a more productive use under an *Industrial* land use designation.

SITE-SPECIFIC REQUEST #2

Staff Response: Since the adoption of the Comprehensive Plan, the City discovered that one of the parcels included in the request to amend the FLUM is currently being used as an illegal, nonconforming commercial business use. The Planning Commission considered a proposal to change the FLUM designation and zoning for the single parcel and ultimately decided to include it within the current proposal to re-designate 10 tax parcels along or near West Valley Highway East from *Single-Family Low* to *Commercial.*

SITE-SPECIFIC REQUEST #3

Staff Response: Circumstances in southwest Edgewood have changed since the adoption of the Comprehensive Plan. The market for available industrial spaces has increased as explained by the applicant for Request #1 and with the exception of the 14 parcels included in this request, all of the parcels included within the Special Land Use Study Overlay have been re-designated on the FLUM as *Industrial*. The parcels included in this request are in the center of those previously re-designated and near industrial uses to the south in neighboring Puyallup. Although there is not a request to change the zoning of the parcels, changing the land use provides an opportunity for larger-scale industrial uses and facilities.

REQUEST #4

Staff Response: The City's plan for the Special Land Use Study Overlay was to study the feasibility of changing land use designations in the area. With the processing of Requests #1 and #3, as well as the Uchida Farms, LLC request that was adopted in 2019, the land uses of all the parcels included in the Special Land Use Study area have or will be re-designated. The goal to study the feasibility of changing the land use designations of these parcels has been met and the Overlay is no longer necessary.

REQUEST #5

Staff Response: Circumstances regarding the City's transportation network have changed since the City's Comprehensive Plan was adopted. The City has identified a need for increased connectivity within the City and adjacent communities, due to the very limited number of routes between the plateau and valley and recognizing a need for resiliency during emergencies. Amendments are necessary to the Comprehensive Plan goals and policies, as well as the City's Functional Classification System and Long-Term Transportation Projects Maps to prioritize connectivity improvements and reconcile with development that has occurred since adoption of the Comprehensive Plan.

4. Whether the assumptions upon which the City's Comprehensive Plan is based are no longer valid, or whether new information is available which was not considered during the adoption process or any annual amendments of the City's Comprehensive Plan; and

SITE-SPECIFIC REQUEST #1

Applicant Response: The Bridge Point project would be a prime example of the validity of assumptions serving as the foundation of Edgewood's comprehensive planning effort; including the projection that 30% of future industrial growth would occur in the southwest corner of Edgewood.

Projecting possible industrial growth in an area currently zoned and planned for residential growth creates circumstances which foresee a potential need for an amendment process. Review and subsequent approval will allow the applicant's proposal to allow Edgewood to realize desired economic growth.

The source of new information supporting the need for an amendment lies within the overall assessment of industrial need put forth by the 2015 Pierce County Buildable Lands inventory; strongly emphasizing the role played by industrial growth in the regional economy. By extension, the lack of recent industrial growth in Edgewood places the community at a disadvantage in today's economy.

Staff Response: Staff concurs with the applicant's assessment - the assumptions within the City's Comprehensive Plan are valid. The Future Land Use Map of the City's 2015 Comprehensive Plan identifies a "Special Land Use Study Overlay" including the Bridge Point Edgewood site that the City intended for possible re-designation after further study to align with the industrial development in the surrounding area. The Transportation Element of the City's 2015 Comprehensive Plan already identifies within its land use forecasts the southwestern areas of the City, near the railroad corridor, accommodating 30% of the employment growth in manufacturing and industrial/warehousing uses.

SITE-SPECIFIC REQUEST #2

Staff Response: The assumptions upon which the City's Comprehensive Plan is based continue to be valid, and the Comprehensive Plan goals and policies support the proposed Comprehensive Plan amendments as shown in the analysis of the proposal in Part 4 below.

SITE-SPECIFIC REQUEST #3

Staff Response: See the Staff Response to this question (A.4) given for Site-Specific Request #1.

REQUEST #4

Staff Response: See the Staff Response to this question (A.4) given for Site-Specific Request #1.

REQUEST #5

Staff Response: Since the City's Comprehensive Plan was last updated, the City has identified a need to improve connectivity within the City of Edgewood, as well as between Edgewood and adjacent communities, due to the very limited number of routes between the plateau and valley and recognizing a need for resiliency during emergencies.. The City's Parallel Road Network Ordinance, which seeks to create a parallel road system to provide safe access to properties along Meridian Avenue East (SR 161), needs amending to resolve confusion over its applicability and ensure consistent application. In addition, there is a discrepancy in the existing Comprehensive Plan when comparing the Functional Classification System and Long-Term Transportation Projects Maps.

5. Whether the proposed amendment(s) reflects current, widely held values of the residents of the city.

SITE-SPECIFIC REQUEST #1

Applicant Response: The applicant's proposal conforms with and supports community values in two ways; first, through the collective engagement process used to debate the proposal's merits; and second, in the proposal's obvious efforts to address any and all issues which may arise from the approval of this amendment and the implementation of development (LU.V.11/Page 28).

The amendment will also increase the concentration of industrial traffic on major arterials such as Valley Avenue, restricting usage of local collectors except for deliveries and/or service needs (T.11 .c/Page 44).

ln anticipation of this increased industrial usage, in recent years both Valley Avenue and Freeman Road have been substantially improved to accommodate increased traffic.

Staff Response to Site-Specific Request #1, #3, and Request #4: These criteria are difficult to determine compliance with at this stage. It is likely that the proposed amendments will reflect the values of some residents and not others. The proposed amendments for changes to the FLUM may present some compatibility challenges along the northern and eastern boundaries. The proposed designation to *Industrial* represents a change in intensity for the areas that abut the *Single-Family Moderate* and *Mixed Residential Moderate* designations. However, the intensity change will occur along rights-of way and along rear and side lot lines of the abutting parcels, many not yet developed. Furthermore, the EMC requires buffers, landscaping, and building design solutions where higher intensity zones abut residential.

The City is soliciting for public feedback through comments, and a public hearing. Following the conclusion of these efforts, it is hoped that a consensus can be formed as to the merits of the proposals and their reflection of the community's values.

SITE-SPECIFIC REQUEST #2

Staff Response: Similar to the above, it is difficult to determine compliance with these criteria at this stage. However, one of the property owners within the request area specifically requested a Comprehensive Plan Future Land Use Map amendment to reclassify their property to Commercial, as proposed. The reclassification of *Single Family Low* to *Commercial* is in keeping with the character of development along West Valley Highway. As mentioned previously, the western boundary of the request area contains steep slopes that will provide for a natural buffer between any development that may ensue and the existing single-family development to the west. Furthermore, the EMC requires buffers, landscaping, and building design solutions where higher intensity zones abut residential.

The City is soliciting for public feedback through comments, and a public hearing. Following the conclusion of these efforts, it is hoped that a consensus can be formed as to the merits of the proposals and their reflection of the community's values.

REQUEST #5

Staff Response: The text amendment request is a result of discussions with the City Council that revealed a need to improve connectivity between Edgewood and adjacent communities, as well as between the hilltop and valley areas within Edgewood. Also, the request is the result of efforts to provide accurate information and guidance through amendments to correct a discrepancy in the existing Comprehensive Plan.

Like the requests to amendments to the FLUM, the proposed text amendment is being processed according to the procedures established in Chapter 18.60 EMC which includes requirements for opportunity for public comment. All public comments gathered through this process will help determine whether the proposal reflects the values of the residents of Edgewood beyond those included in the adopted Comprehensive Plan.

B. Amendments for Site-Specific Proposals. In addition to the above, any proposal for a site-specific development or amendment shall be reviewed under the following criteria:

1. Whether the proposed site-specific amendment(s) meets concurrency requirements for transportation and does not adversely affect adopted level of service standards for other public facilities and services (e.g., police, fire and emergency medical services, parks, fire flow and general governmental services);

SITE-SPECIFIC REQUEST #1

Applicant Response:

Transportation: Since the applicant's initial application which included a concurrency application/evaluation and trip generation numbers, they have retained Transportation Engineering North West, Inc. (TENW) to prepare a preliminary traffic impact analysis. The proposed Bridge Point Edgewood project is estimated to generate 2,256 weekday daily trips with 147 trips occurring during the weekday AM peak hour, and 121 trips occurring during the weekday PM peak hour. If the site were to be built out to conform with current single-family zoning, there would be 1,069 total daily trips generated with 78 trips occurring during the weekday AM peak hour, and 147 trips occurring during the weekday PM peak hour.

Public Service Demand: While new growth of any kind will add to the potential for increased demand for public services, the applicant believes the Bridge Point proposal will minimize demand by focusing development in an area where existing services are available; limiting growth in service demand, if any, to minimal levels.

Staff Response: Based on the results of the preliminary traffic analysis, staff does not expect that the proposed amendment from *Single-Family Moderate* to *Industrial* will adversely affect the adopted level of service standards for transportation and public services. The applicant has identified preliminary mitigation for the projected level of service declines at the intersection of 7th Street NW and Valley Ave NW. A more detailed

operational analysis should be completed with a formal project application, which is expected to include evaluation of site access, circulation design, and peak hour queues at the various intersections.

Project SEPA environmental review will occur with developments that exceed the City's adopted thresholds for environmental review and reasonable and proportional mitigation measures may be required to offset impacts. Traffic impact analyses will be required to evaluate the impacts associated with development proposals within the amendment areas. Traffic impact fees will be required consistent with Chapter 4.30 EMC (Traffic Impact Fees). Additional point impacts may also require mitigation. Projects within the amendment areas will be required to satisfy the City's transportation concurrency requirements.

SITE-SPECIFIC REQUEST #2

Staff Response: Staff does not expect that the proposed amendment from *Single-Family Low* to *Commercial* will adversely affect the adopted level of service standards for transportation and public services. Pursuant to the Comprehensive Plan, the City's streets and parks have available capacity to accommodate future development. The City will determine other service capacity at the time of applications for zoning changes and at the time of project applications to better assess the direct impact.

SITE-SPECIFIC REQUEST #3

Staff Response: Staff does not expect that the proposed amendment from *Single-Family Moderate* to *Industrial* will adversely affect the adopted level of service standards for transportation and public services. Pursuant to the Comprehensive Plan, the City's streets and parks have available capacity to accommodate future development. The City will determine other service capacity at the time of applications for zoning changes and at the time of project applications to better assess the direct impact.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

2. Any proposed site-specific amendment(s) will not result in probable significant adverse impacts to the city's transportation network, capital facilities, utilities, parks and environmental features that cannot be mitigated, and will not place uncompensated burdens upon existing or planned service capabilities;

SITE-SPECIFIC REQUEST #1

Applicant Response: The design of the proposed Bridge Point Edgewood project will not only mitigate any adverse impacts identified through a review process but will also

continue a tradition of increased accessibility to improved public services dating to the sewer installation in the Meridian Corridor in 2011.

New infrastructure will not only add to land values but will also promote creative development proposals which may better integrate civic plans with future development opportunities.

A secondary impact, with the potential of tremendous benefit, is found in the City of Edgewood's Proposed Capital Improvement Plan, 2015-2020. The applicant's proposal and resulting development may help structure and accelerate a significant program element in the Transportation Category – the Railroad Frontage Road – which has feasibility expenditures scheduled for FY2019-20. Likewise, the extension of sewer service from Fife will provide benefit to properties along the frontage of Valley Avenue.

Staff Response: In correspondence to the City of Edgewood, City of Fife staff noted that there is significant capacity in its sewer system, which extends to its boundary with Edgewood along Freeman Road south of 34th Street East. The sewer line in that segment of Freeman Road is a force main. The force main extends to the west from Freeman Road to 70th Avenue East, where it discharges to a larger municipal pump station. The lines were sized for commercial and industrial development in a service area that includes substantial amounts of property subsequently acquired by the Washington State Department of Transportation for the construction of SR 167 and its interchange with Valley Avenue. Since WSDOT's uses will not generate sewage flows, Fife's system has excess capacity that is available to serve properties in Edgewood, including the Cherrywood Mobile Home Park, Cherrywood Apartments, and the potential Edgewood industrial area to the east.

Other public services such as water and sewer have the capacity to meet the utility needs associated with the amendment.

SITE-SPECIFIC REQUEST #2

Staff Response: Staff do not expect that the proposed amendment from *Single-Family Low* to *Commercial* will cause significant adverse impacts to the City's transportation network, capital facilities, utilities, parks, and environmental features. Services are located within proximity to the amendment area.

Future development that occurs as a result of the proposed amendment must demonstrate that proposed service demands and impacts on transportation and public services are mitigated. Applicants must mitigate these impacts on the transportation network and provide solutions where other public services are unavailable. The future analysis will consider the project's land uses, scale, and intensity.

SITE-SPECIFIC REQUEST #3

Staff Response: See response to Site-Specific Request #1.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

3. **In the case of a site-specific amendment(s) to the Comprehensive Plan's land use map, that the subject parcels are physically suitable for the requested land use designation and the anticipated land use development, including, but not limited to, the following: (a) access; (b) provision of utilities; and (c) compatibility with existing and planned surrounding land uses;**

SITE-SPECIFIC REQUEST #1

Applicant Response: While site constraints may be identified, the overall topography of the site lends itself to development of large-scale industrial projects.

The conceptual plan for the Bridge Point site offers an initial insight into how the needs of a particular use can be accommodated on a unique site. The site's suitability for the intended industrial development is supported by the substantial amount of development in the immediate area; occurring on industrial-zoned land with strikingly similar characteristics to the Bridge Point site.

Staff Response: City staff finds that the amendment area is physically suitable for industrial uses. The property has utilities either readily available or available to extend. Access to the site is sufficiently available or can be provided. The site will also be accessible to the new SR-167 extension and an interchange, linking it to the Port of Tacoma and further supporting its designation as *Industrial*. The character of nearby development in Fife and Puyallup also supports the designation of the Bridge Point Edgewood property as *Industrial*. Where existing uses are incompatible with the proposed use of the property as Industrial (such as existing residential uses in the area), any proposed development will be required to comply with the City's Municipal Code which requires buffers, screening, and landscaping where higher intensity zones abut residential zoned uses.

SITE-SPECIFIC REQUEST #2

Staff Response: Upon staff's review of the proposed amendment, the subject parcels appear to be physically suitable for the requested land use designation. The request for a *Commercial* designation will allow for a broad range of land uses that can be designed with the existing topography of the site. The topography allows for urban development near West Valley Highway East and its critical areas (steep slopes) appear to be located mostly along the western portions of the parcels which may contribute to natural screening of the commercial uses from nearby residential zoned properties.

The parcel has opportunities for access along West Valley Highway East. The site is located near existing utilities and service lines can be extended from previously developed portions of the amendment areas

SITE-SPECIFIC REQUEST #3

Staff Response: See response to Site-Specific Request #1.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

4. **The proposed site-specific amendment(s) will not create pressure to change the land use designation of other properties, unless the change of land use designation for other properties is in the long-term best interests of the City as a whole;**

SITE-SPECIFIC REQUEST #1

Applicant Response: The existence of industrial properties in the immediate vicinity serve as an indicator of successful industrial demand.

Edgewood's stated goals of increased industrial growth, supported by the targeting of this area as a candidate for industrial development as evidenced by the overlay district, indicates an intent to respond to market forces. These goals will be mutually reinforced by the applicant's proposal for the Bridge Point Edgewood project – should it be approved.

Staff Response: Staff concurs with the applicant's response. The proposed amendment may create pressure to change the land use designation of other properties within the "Special Land Use Study Overlay" (see Site-Specific Request #2). However, this is not contrary to the City's Comprehensive Plan as the plan designated an even larger area as potentially appropriate for industrial uses. In addition, it is likely that the pressure to rezone may come from permitted development in adjacent jurisdictions (Fife and Puyallup), as a multi-city industrial center is created within the valley.

SITE-SPECIFIC REQUEST #2

Staff Response: The proposed amendment will not create pressure to change the land use designation of other properties in the vicinity.

SITE-SPECIFIC REQUEST #3

Staff Response: The proposed amendment to complete the FLUM designations of the remaining parcels in the Special Land Use Study Overlay will not create pressure to change the land use designation of other properties rather, it is completing the intended

implementation of a Comprehensive Plan goal that serves the long-term best interests of the City as a whole.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

5. The proposed site-specific amendment(s) does not materially affect the land use and population growth projections that are the bases of the Comprehensive Plan;

SITE-SPECIFIC REQUESTS #1 AND #3

For the purpose of analyzing the impacts of Comprehensive Plan amendments, staff has combined the two requests for analysis of the City's land use and population growth projections and impacts. The Planning Commission and City staff proposed Site-Specific Request #2 so there is no applicant response listed below for that request.

Site-Specific Request #1 Applicant Response: There is no doubt that approval of this amendment and the construction of the Bridge Point Edgewood project will serve as a catalyst for additional changes in land use categories and planning designations.

Population growth may follow on a slower pace, but the development of employment centers typically provides for some increase in local populations as workers relocate to shorten their commutes and/or improve their lifestyle.

Staff Response: The City's Comprehensive Plan strives to achieve a balance with housing, commercial, jobs, and open space. The proposed Comprehensive Plan amendments do not negatively affect the City's ability to accommodate/achieve its growth projections. Moreover, the amendments could provide for a wider range of employment opportunities to accommodate future populations. Staff do not expect the proposed amendments to change the basis of the Comprehensive Plan.

The Comprehensive Plan estimates a 2035 capacity surplus for both jobs and housing. Staff acknowledges that the proposed amendments (Site-Specific Request #1 and #3) may increase the employment surplus and decrease the housing surplus marginally.

The proposed amendment and zone change at the Bridge Point Edgewood site and the remainder of the Special Land Use Study Overlay from *Single-Family Moderate* to *Industrial* would lower the housing capacity for the City by approximately 182 units using the methodology described in the Pierce County Buildable Lands Report:

	Single-Family Moderate (Existing)	**Industrial (Proposed)**
Gross Acres	88.40	88.40

Residential Split[1]	88.40	0
Public Facilities[2]	1.68	1.68
Adjusted Gross Acres	86.72	86.72
Plat Deductions		
Roads[3]	8.50	8.50
Critical Areas[4]	12.50	12.50
Parks and Open Space[5]	4.34	4.34
Net Acres	61.38	61.38
Assumed Density	3 du/ac	0
Unit Capacity	184	0
Displaced Units	2	2
Total Capacity	**182**	**0**

[1]The residential/commercial split for SF-3 zoned properties is assumed to be 100% (residential).
[2]Public facilities are assumed to encompass 1.90% of the gross acres
[3]Roads are assumed to encompass 9.80% of the gross acres
[4]Critical areas were measured using the applicant's submitted site plan and include an assumption of buffers.
[5]Parks and open space are assumed to encompass 5% of the gross acres

SITE-SPECIFIC REQUEST #2

Staff Response: Similar to the response above, the City's Comprehensive Plan strives to achieve a balance with housing, commercial, jobs, and open space. The proposed Comprehensive Plan amendments do not negatively affect the City's ability to accommodate/achieve its growth projections. Moreover, the amendments could provide for a wider range of employment opportunities to accommodate future populations. Staff do not expect the proposed amendments to change the basis of the Comprehensive Plan.

The Comprehensive Plan estimates a 2035 capacity surplus for both jobs and housing. Staff acknowledges that the proposed amendment may increase the employment surplus and decrease the housing surplus marginally.

The proposed amendment from *Single-Family Low* to *Commercial* would lower the housing capacity for the City by approximately 76 units using the methodology described in the Pierce County Buildable Lands Report:

	Single-Family Low (Existing)	**Commercial (Proposed)**
Gross Acres	49.24	49.24
Residential Split[1]	49.24	0

Public Facilities[2]	0.94	0.94
Adjusted Gross Acres	48.31	48.31
Plat Deductions		
Roads[3]	4.73	4.73
Critical Areas	24.47	24.47
Parks and Open Space[4]	2.42	2.42
Net Acres	16.69	16.69
Assumed Density	2 du/ac	0
Unit Capacity	33	0
Displaced Units	1	1
Total Capacity	**32**	**0**

[1]The residential/commercial split for SF-2 zoned properties is assumed to be 100% (residential).
[2]Public facilities are assumed to encompass 1.90% of the gross acres
[3]Roads are assumed to encompass 9.80% of the gross acres
[4]Critical areas were measured using the City's GIS data for potential wetlands and potential erosion and landslide hazard areas. Buffers were not included.
[5]Parks and open space are assumed to encompass 5% of the gross acres.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

6. **If within an incorporated urban growth area (UGA), the proposed site-specific amendment(s) does not materially affect the adequacy or availability of urban facilities and services to the immediate area and the overall UGA;**

SITE-SPECIFIC REQUESTS #1 AND #3

For the purpose of analyzing the effects of Comprehensive Plan amendments on urban facilities and services within the UGA, staff has combined the two site-specific requests.

Applicant Response: No response.

Staff Response: As part of the Comprehensive Plan Amendment application for Site-Specific Request #1, the applicant applied for a Concurrency Reservation Certificate, which implements the concurrency provisions of the transportation and utilities elements of the City's Comprehensive Plan.

The amendment area for both site-specific requests is within proximity to urban services, including adjacency to the BNSF railway. The proposed amendment from *Single-Family Moderate* to *Industrial* will increase the development potential on the subject parcels to allow more intense land uses. The *Industrial* designation establishes opportunities for a range of industrial uses, such as regional research, manufacturing, warehousing, or other regional employment uses that will make use of the available urban services.

Staff does not anticipate that the proposed amendment will materially affect the adequacy or availability of urban facilities and services. Future development that occurs as a result of this proposed amendment will require land use review (e.g., Process I, II, or III). During this review, future projects must demonstrate that proposed service demands and impacts on transportation and public services are mitigated. The future analysis will consider the project's land uses, scale, and intensity. Currently, staff are unaware of any service deficiencies in this immediate area.

SITE-SPECIFIC REQUEST #2

The amendment area for the site-specific request is within proximity to urban services, including adjacency to W Valley Highway E and in proximity to SR 167. The proposed amendment from *Single-Family Low* to *Commercial* will increase the development potential on the subject parcels to allow more intense land uses. The *Commercial* designation establishes opportunities for a range of commercial uses, such as large-format retail, auto-oriented commercial uses, and regional scale commercial uses that will make use of the available urban services.

Staff does not anticipate that the proposed amendment will materially affect the adequacy or availability of urban facilities and services. Future development that occurs as a result of this proposed amendment will require land use review. During this review, future projects must demonstrate that proposed service demands and impacts on transportation and public services are mitigated. The future analysis will consider the project's land uses, scale, and intensity. Currently, staff are unaware of any service deficiencies in this immediate area.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

7. The proposed amendment(s) is consistent with any applicable county-wide policies for the city and any other applicable interjurisdictional policies or agreements, and any other local, state or federal laws.

SITE-SPECIFIC REQUEST #1

Applicant Response: No response.

Staff Response: Regionally, the planning process described in Vision 2040 emphasizes growth being directed towards the manufacturing distribution centers and regional growth centers as defined by the Puget Sound Regional Council (PSRC). While not a defined growth center under Vision 2040, Edgewood's strategic location within an urban growth area and adjacent to one of the region's transportation projects (Highway 167 Expansion) suggests consideration under the same growth projections used by PSRC to define said centers. Vision 2040 states that, "…Subregional centers, such as those designated through county-wide processes or identified locally, will also play important roles in accommodating planned growth according to the regional vision. (PSRC Vision 2040, Page 49)."

With the approval of the applicant's proposed map amendment and rezoning, Edgewood will significantly support this regional goal; enabling the community to complement nearby growth centers while achieving a level of diversity in both the local economy and land use inventory which can only lead to benefits being realized by every sector of Edgewood's economic base; including support for residential growth - which complies with a key goal of GMA planning. The City's expressed desire for retail and mixed-use growth, particularly in the Meridian Corridor, could also support additional residential growth from those employed on the Bridge Point Edgewood site who may consider living in the community in which they work. This could help increase residential growth.

SITE-SPECIFIC REQUEST #2

The County-wide Planning Policies (CCPs) help implement the Puget Sound Regional Council's (PSRC) Vision 2040 plan for the region. The CPPs' purpose is to achieve consistency amongst area plans on regional matters. Staff finds that the proposed amendment is consistent with the CPPs. Specifically, the following CCPs support the amendment:

- Goal EC-2. The County, and each municipality in the County, shall promote diverse economic opportunities for all citizens of the County, especially the unemployed, disadvantaged persons, minorities and small businesses. The following measures may be used in accomplishing this policy, where appropriate:
    - 2.5 Encouraging flexibility in local zoning and land use controls in order to permit a variety of economic uses, but doing so without sacrificing sound design and development standards;
- Goal Rur-9. Direct commercial, retail, and community services that serve rural residents into neighboring cities and existing activity areas to prevent the conversion of rural land into commercial uses.

SITE-SPECIFIC REQUEST #3

With the approval of the proposed map amendment and rezoning of the remaining parcels in the Special Land Use Study area, Edgewood will significantly support the regional goal of viable regional centers by creating a "subcenter" within Edgewood's corporate boundaries, separate, but readily accessible to neighboring centers within 1½ miles and would be capable of accepting any outstanding or unique requirements the market may have. The Highway 167 Expansion project could clearly provide and enhance transportation access required for Edgewood to meet this goal. Edgewood could prepare a subarea plan for regional evaluation of the inclusion of the "subcenter" within the regional planning framework.

The County-wide Planning Policies (CCPs) help implement the Puget Sound Regional Council's (PSRC) Vision 2040 plan for the region. The CPPs' purpose is to achieve consistency amongst area plans on regional matters. Staff finds that the proposed amendment is consistent with the CPPs. Specifically, the following CCPs support the amendment:

- Goal EC-2. The County, and each municipality in the County, shall promote diverse economic opportunities for all citizens of the County, especially the unemployed, disadvantaged persons, minorities and small businesses. The following measures may be used in accomplishing this policy, where appropriate:
    - 2.2 Identifying urban land suitable for the accommodation of a wide range of non-residential development activities;
    - 2.5 Encouraging flexibility in local zoning and land use controls in order to permit a variety of economic uses but doing so without sacrificing sound design and development standards.

REQUEST #4

Staff Response: This is not a site-specific request, so the question does not apply.

REQUEST #5

Staff Response: This is not a site-specific request, so the question does not apply.

Part 4 – Compliance with Comprehensive Plan Goals and Policies

The following existing Comprehensive Plan goals and policies support the proposed Comprehensive Plan amendments:

1. SITE-SPECIFIC REQUEST #1

   Applicant Response: Refer to criterion A.2 in Part 3 of this report for the applicant's explanation of how the proposed amendment advances the goals and policies of the Comprehensive Plan.

Staff Response: The City of Edgewood Comprehensive Plan includes several goals and policies to help guide staff, the Planning Commission, City Council, and the public to decide whether the proposed Future Land Use amendment and rezone are appropriate at this location.

The request to amend the Comprehensive Plan FLUM to redesignate the Bridge Point Edgewood site from its existing designation of *Single-Family Moderate* to *Industrial* allows for a range of light-industrial, manufacturing, warehousing, and research uses. In 2015, the City designated this area a "Special Land Use Study Overlay" that it intended to study and potentially redesignate to accommodate industrial development (Volume I, Page 22).

Staff did not discover any goals or policies that specifically discourage this type of amendment at this location. The following goals and policies support the proposed amendment:

Land Use Element
GOAL LU.I.c: Continue to use the adopted FLUM to guide land use and development regulations; updating as needed.

Beginning in 2015, the City and the public have discussed a need for changes to the land use designations for this area within the context of supporting the City's vision. The City held public input meetings in 2015 as part of the Comprehensive Plan update process to discuss the possibility for a FLUM designation change in this area. The Special Land Use Study Overlay was added to the FLUM at that time in order to further study the feasibility of changing the land use designations. As part of the 2019 Comprehensive Plan update process, the applicants for the Uchida Farms, LLC properties demonstrated a need to update the FLUM and the designation of the properties was changed.

The applicant's proposal is based on the obligation to update the FLUM to reflect a need for additional industrial land use within Edgewood, as identified through an analysis of current market trends within the industrial sector.

GOAL LU.1.d: Study the potential for new land use designations within the City on an as-needed basis, in response to changing community conditions or regulatory requirements.

- Consider the following as part of the study: Potential for economic development, including recruitment of businesses that provide family-wage jobs and support for locally owned businesses

The applicant for the Bridge Point Edgewood proposal has demonstrated a need for a new land use designation. The benefits of the proposed comprehensive plan amendment and development of the Bridge Point Edgewood property to the City of Edgewood includes acceleration of job creation within the City, spurring growth within the local housing market and increased tax revenues.

GOAL LU.1.m: The Industrial designation is intended to accommodate industrial uses that provide local and regional employment opportunities, such as research, light manufacturing and warehousing. Compatible uses are also allowed.

The Bridge Point Edgewood request for an industrial designation complements and supports the City's efforts to encourage industrial economic development in the southwest corner of Edgewood. The development of the site as industrial would provide opportunities for local and regional employment when considered together with the Uchida Farms LLC site and existing industrial businesses in nearby Puyallup.

GOAL LU.III.a: Provide design flexibility to encourage the preservation and integration of existing natural site features in new development, including clusters of trees, watercourses, slopes and open spaces.

The Bridge Point Edgewood applicant included a preliminary site plan and brief narrative with their application that shows flexibility in site design and commitment to addressing the streams and buffers located on the site.

GOAL LU.VII.a: Establish opportunities for a range of industrial uses, such as regional research, manufacturing, warehousing or other regional employment uses.

GOAL LU.VII.b: Expand the number and type of industrial uses in the City through more intensive use of existing industrial lands and expansion of industrial uses in appropriate locations

The development of the site as industrial would provide opportunities for a variety of local and regional uses and employment when considered together with the Uchida Farms LLC site and existing industrial businesses in nearby Puyallup.

GOAL LU.VII.b: Expand the number and type of industrial uses in the City through more intensive use of existing industrial lands and expansion of industrial uses in appropriate locations.

The City's decision to create the Special Land Use Study Overlay as part of the FLUM and the market studies conducted indicate that industrial uses are appropriate at this location.

2. SITE-SPECIFIC REQUEST #2

Land Use Element
Goal LU.I
Establish a future land use pattern that is consistent with the City's vision.
Commercial LU.I.k: "The Commercial designation is intended to accommodate a wide range of commercial uses, including large-format retail, auto-oriented commercial uses and regional scale commercial uses. Compatible uses are also allowed."

GOAL LU.VI.e: Promote easy access to commercial corridors and centers for pedestrians, bicyclists and transit users.

A commercial corridor will essentially be created with the change from single family to commercial land uses on the parcels included in the East Side Commercial FLUM. The FLUM shows the parcels adjacent to West Valley Highway, beginning north of the proposal site and continuing north to the Pierce/King County line as having a *Commercial* land use designation. Likewise, the parcels adjacent to West Valley Highway, beginning south of the proposal site and continuing south to approximately 32nd Street East are designated as *Commercial* on the FLUM. The re-designation of land uses as proposed would lay the groundwork for the development of an easily accessible commercial corridor along West Valley Highway.

3. SITE-SPECIFIC REQUEST #3

Staff Response: See Staff Response to Site-Specific Request #1

4. REQUEST #4

Land Use Element
GOAL LU.I.c: Continue to use the adopted FLUM to guide land use and development regulations; updating as needed.

With the processing of Requests #1 and #2, as well as the Uchida Farms, LLC request that was adopted in 2019, an update to the FLUM is warranted and the City should remove the Special Land Use Study Overlay from the FLUM and delete any associated textual references to the overlay within the body of the Comprehensive Plan. The City, in processing the associated citizen-initiated and City-initiated requests, would have fulfilled its plan to study the feasibility of changing the land use designations within the overlay.

5. REQUEST #5

Staff did not discover any goals or policies that specifically discourage this type of amendment. The following goals and policies support the proposed amendment:

Land Use Element
Goal LU.I.e: Ensure that the City's sewer plan and other functional plans are supportive of the land use patterns outlined in this Element.

As stated in the application submitted on December 31, 2019, discussions with Council have revealed a need to improve connectivity between Edgewood and adjacent communities, as well as between the land uses located in the hilltop and valley areas within Edgewood.

Transportation Element
Goal T.I Develop a safe and efficient street system that accommodates all transportation modes and maximizes people-carrying capacity. Improve the operating efficiency of the existing system and maintain the capacity to adequately serve present and future travel demand.

- T.I.b: Restrict roadway access points and locate driveways on Meridian Avenue E to improve safety, maintain optimal capacity and provide for the efficient

movement of automobiles, bicycles, pedestrians and transit. Access management measures may include:

- Providing internal access between off-street parking in commercial areas through reciprocal agreements;
- Using intersecting streets as access points;
- Designing subdivisions for efficient internal circulation; and/or
- Completion of the collector arterial system

- T.I.c: Require dedication of roadway rights-of-way as part of new development consistent with the appropriate functional classification, adopted road standards and Comprehensive Plan.

- T.I.d: Coordinate with the Washington State Department of Transportation (WSDOT) and City of Milton to address traffic congestion and circulation issues on Meridian Avenue E and surrounding roadways.

- T.I.f: Design transportation facilities to fit within the context of the built or natural environments in which these facilities are located.

- T.I.g: Assure that transportation systems are appropriately sized and designed to support the land use element, serve the surrounding land uses and minimize the negative impacts of growth.

- T.I.o: Protect the transportation system against disaster, develop prevention and recovery strategies and plan for coordinated responses.

Goal T.VII Minimize transportation conflicts to ensure safety.

- T.VII.f: Where needed, provide access control to improve the safety of roadways, install improved lighting or intersection control, provide adequate facilities for pedestrians (especially around schools) and provide safe areas at bus stops for transit patrons.

Goal T.X Maintain a dynamic relationship between transportation and land use along the Meridian Avenue E corridor.

- T.X.b: Work to create an interconnected transportation system by requiring new roadway connections consistent with the Comprehensive Plan.

Part 5 – Public Notices and Comment:

1. PUBLIC NOTICES:

   The City received an application for Site-Specific Request #1 to amend the Comprehensive Plan Future Land Use Map (FLUM) on December 24, 2019, prior to the December 31, 2019, deadline for inclusion in the 2020 preliminary docket.

   The Planning Commission voted to include City initiated requests #2-5 to amend the Comprehensive Plan Future Land Use Map (FLUM) on December 9, 2019, at a public hearing on the preliminary docket.

   On May 7, 2020, the Planning Director issued a recommendation to City Council to include the proposed amendments on its final docket. The City Council at its regular meeting on June 9, 2020 adopted the 2019-2020 Comprehensive Plan Final Docket.

   The Planning Commission discussed the proposed amendment during a regularly scheduled meeting held at City Hall on October 12, 2020 in which members of the public are invited to attend. A public hearing before the Planning Commission was held on November 9, 2020.

2. PUBLIC COMMENTS:

   During the discussion before Planning Commission, public comments supporting Request #1 were provided by the applicant and the property owner. No public comments opposing Request #1 were received. No public comments, either supporting or opposing, were received related to Requests #2 through #5.

Part 6 – State Environmental Policy Act Compliance and Agency Comment:

The City has prepared a non-project SEPA checklist for the proposed amendments. The City's SEPA Official issued a Determination of Non-Significance regarding probable environmental impacts of the amendments.

Part 7 – Staff Recommendations:

1. SITE-SPECIFIC REQUEST #1

   - Staff recommends that the City Council approve the proposed Future Land Use Amendment from *Single-Family Moderate* and *Mixed Residential Moderate* to *Industrial*.

   - Staff recommends that the City Council approve the change in zone from SF-3 to I.

   - Staff recommends that the City Council approve amendments to the applicable text, figures, tables, and maps in the Comprehensive Plan to reflect the Future Land Use Map amendment.

2. SITE-SPECIFIC REQUEST #2

   - Staff recommends that the City Council approve the proposed Future Land Use Amendment from *Single-Family Low* to *Commercial*.

- Staff recommends that the City Council approve amendments to the applicable text, figures, tables, and maps in the Comprehensive Plan to reflect the Future Land Use Map amendment.

3. SITE-SPECIFIC REQUEST #3

- Staff recommends that the City Council approve the proposed Future Land Use Amendment from *Single-Family Moderate* to *Industrial*.

- Staff recommends that the City Council approve amendments to the applicable text, figures, tables, and maps in the Comprehensive Plan to reflect the Future Land Use Map amendment.

4. REQUEST #4

- Staff recommends that the City Council approve the proposed Future Land Use Amendment to eliminate the Special Land Use Study Overlay.

- Staff recommends that the City Council approve amendments to the applicable text, figures, tables, and maps in the Comprehensive Plan to reflect the Future Land Use Map amendment.

5. REQUEST #5

- Staff recommends that the City Council approve the proposed amendments to the Transportation Goals and Policies, Mobility and Capacity section on page 44 of the Comprehensive Plan.

- Staff recommends that the City Council approve the proposed amendments to the Transportation Systems Plan, Street and Highway System, Roadway Functional Classification section.

- Staff recommends that the City Council approve amendments to the applicable text, figures, tables, and maps in the Comprehensive Plan to reflect the Future Land Use Map amendment.

STAFF PREPARING THE REPORT:

Brittany Port

Brittany Port, AICP/Consulting Planner

December 2, 2020
Date

\\ahbl.com\data\Projects\2018\2180349\30_PLN\Working_Files\2020 Comprehensive Plan Amendments\20201202_Comp Plan Amds Staff Report_2180349.docx

Table 3 Existing Land Use

LAND USE CATEGORY	ACREAGE	PERCENT OF TOTAL CITY ACREAGE
Single-Family	~~3,152~~3,080~~2,992~~	~~58.6%~~57.2%~~55.6%~~
Multi-Family	~~246~~250	4.6%
Retail	~~33~~34	0.6%
Services	~~84~~85	1.6%
Industrial	~~168~~3171	~~0.3%~~1.5%~~3.2%~~
Civic	9	0.2%
Parks & Open Space	111	2.1%
Schools	56	1.0%
Utilities	41	0.8%
Resource Lands	303	5.6%
Unimproved Lands	883	16.4%
All Other Uses (Including Roads)	448	8.3%

Note: Acreage numbers are based on the Washington State Department of Ecology's 2010 draft land use GIS dataset. The dataset includes over 50 separate categories of land use, the ones shown here are more general categories developed by 3 Square Blocks.

established in the Pierce County Countywide Planning Policies. Under this assumption, the adopted 2030 growth target is also an appropriate 2035 growth target and has been assumed in this plan. These targets are shown in Table 4. If growth accelerates in Edgewood, the City recognizes that there may be a need to update these targets.

Table 4 City of Edgewood Growth Targets

GROWTH TARGET CATEGORY	2035
Population	13,700
Housing	6,003
Employment	3,094

Land Use Capacity

Based on a land use capacity analysis conducted by the City in 2011 and updated in 2015, 2018 and 2020 (see Appendix I), Edgewood has adequate capacity to meet assigned growth targets. Land capacity analysis is a tool for determining whether growth targets can be met within a city using existing zoning designations. The 2011 analysis incorporated deductions for public facilities and critical areas; took into account updated residential capacity for the MUR, C and TC zoning designations; and also incorporated City staff recommendations for revising the acreage information for gross developable acres in all categories of zoning designations in the City that were included in the Pierce County Buildable Lands Report. In most zoning designations, the updated gross developable acres inventory was greater than the amount estimated in the Buildable Lands Report, resulting in greater capacity than in that report. There have been some minor developments in the City since 2011, but nothing that would significantly affect the findings of the land capacity analysis. The City currently has a number of pipeline projects that are likely to be built in the next few years; these were not taken into account because they will contribute to future growth.

edgewood comprehensive plan

In 2015, the City updated the 2011 land capacity analysis to r eflect area-wide rezones done in association with the Comprehensive Plan update. Table 5 and Table 6 show findings from the updated land capacity analysis. Table 5 shows the City's net developable acres per zoning designation. Table 6 summarizes existing housing and employment capacity in comparison to the City's 2035 assigned growth targets. The City of Edgewood has adequate capacity to meet assigned growth targets. Furthermore, the City's mixed use zoning districts allowflexibility to provide more employment capacity and less residential capacity, if needed. The land capacity analysis assumed a certain percentage of new mixed use development would provide space for residential uses and a certain percentage would provide space for employment uses. The assumed percentages were within a range allowed by the City and could be adjusted.

Table 5 Estimated Net Developable Acres per Zoning Designation

ZONING DESIGNATION	NET DEVELOPABLE ACREAGE
Single Family 2 (SF-2)	665
Single Family 3 (SF-3)	~~472~~447379
Single Family 5 (SF-5)	25
Mixed Residential 1 (MR-1)	43
Mixed Residential 2 (MR-2)	24
Town Center (TC + TCDO)	~~38~~42
Commercial (C)	403
Mixed Use Residential (MUR)	75
Business Park (BP)	20
Industrial (I)	~~73~~5102

Table 6 Comparison of Growth Targets and Available Capacity

	EXISTING	2035 TARGET	AVAILABLE CAPACITY	SURPLUS
Housing Units	3,814 units	6,003 units	~~5,744589~~5715 units	~~3,555366~~83526 units
Employment	1,191 jobs	3,094 jobs	~~2,308295~~23861 jobs	~~405116~~01958 jobs

Land Use Map

The City's Official Land Use Map (Figure 3) shows the future shape of the community and how its essential components will be distributed. ~~The Land Use Map includes a Special Land Use Study Overlay. The City is planning to study the feasibility of changing land use designations in this area. The overlay consists of approximately 150~~87 ~~acres~~

~~located in the southwest Edgewood. The area is currently designated for residential uses. Existing land uses include a mix of residential, agricultural, commercial/industrial and vacant land. Factors that have led to interest in redesignation of land uses in the overlay area include: nearby industrial development, support for local job creation, and changes in the economics of small-scale farming activities practiced in the area.~~

Current Zoning

The City has eleven zoning designations. The total acreage for each of the City's zoning designations is summarized inTable 7. The purpose of each of the zoning designations is described on the following pages.

Table 7 Acreage in Current Zoning Designations

ZONING DESIGNATION	ACRES	PERCENT OF TOTAL CITY ACREAGE
Single Family 2 (SF-2)	2,016	37.5%
Single Family 3 (SF-3)	~~2,311~~2,239~~2~~,151	~~42.9~~41.6~~4~~0.0
Single Family 5 (SF-5)	46	0.8
Mixed Residential 1 (MR-1)	101	1.9
Mixed Residential 2 (MR-2)	69	1.3
Town Center (TC)	~~8~~186	~~1.~~51.6
Commercial (C)	82	1.5
Mixed Use Residential (MUR)	126	2.3
Business Park (BP)	32	0.6
Industrial (I)	~~178~~4172	~~0.3~~1.63.2
Public (P)	177	3.3
Unzoned Areas (Including Roads)	325	6

Single Family

The City has three single family zoning designations. SF-3 and SF-5 are the primary residential zoning designations. SF-2 is intended to preserve the identity of areas with patterns of large residential lots, preserve tree stands and reduce traffic volumes in east-west arterial corridors. Permitted uses in single family zoning designations include: residential uses (e.g. single family detached dwellings, modular homes, group homes, manufactured homes), civic uses (e.g. daycare, open space, religious assembly), utility uses, as well as some minor commercial uses such as lodging and funeral services.

Mixed Residential

There are two mixed residential zoning designations. The purpose of MR-1 and MR-2 is to provide for moderate residential density using a variety of urban housing types such

APPENDIX IA: 2015 UPDATE—LAND CAPACITY REVIEW

INTRODUCTION

In 2011, the City prepared a Land Capacity Review that was based on the methodology established in the Pierce County Buildable Lands Report prepared in 2007, but updated specific assumptions related to acreage and residential land capacity assumptions, including:

- Updated residential capacity for the Mixed Use Residential (MUR), Commercial (C), and Town Center (TC) zones; and
- Revised acreage information for gross developable acres in all categories.

A memo summarizing the methodology used for the 2011 Land Capacity Review and the findings of that review follows in Appendix Ib.

2035 COMPREHENSIVE PLAN UPDATE & ANNUAL COMPREHENSIVE PLAN AMENDMENTS

As part of the 2035 Comprehensive Plan Update, the City of Edgewood conducted area-wide rezones to address parcels that contained two different zoning designations (also referred as split-zone parcels) in the area along both sides of the Meridian Corridor and on the north side of 24th Street East. In order to reflect existing uses and to ensure regular zoning boundaries, some adjacent parcels were also included in this action.

In 2018 and 2020, three site-specific rezone requests were approved as part of the City's annual Comprehensive Plan amendments. This included twenty (20) tax parcels that were rezoned from Single-Family 3 to Town Center (5.16 acres) and Industrial (155.11 acres).

In order to assess the impact of the area-wide and site-specific rezones on the City's land capacity, gross acreage of the vacant or under-developed properties within the affected area was estimated using the methodology described in

Table 8 Net Change in Land Area by Zone Resulting from 2015 Area-Wide Rezones

ZONING CATEGORY	NET CHANGE (ACRES)	ZONING CATEGORY	NET CHANGE (ACRES)
Commercial (C)	+8.26	**Business Park (BP)**	+1.36
Mixed Use Residential (MUR)	+21.97	**Single Family 5 (SF-5)**	+17.04
Mixed Residential 2	-8.26	**Single Family 3 (SF-3)**	~~-40.37~~ ~~-112.24~~ -200.64
Town Center (TC)	+5.16	**Industrial (I)**	~~+66.71~~ +155.11

Source: City of Edgewood, 3 Square Blocks (2105)

1 *Gross developable acres include all vacant, underdeveloped and redevelopable lands. Vacant lands are parcels without an established structure or land use, including agricultural and resource lands. Underdeveloped land includes large parcels within residential districts that have an existing single-family residence that may be further subdivided and existing single-family residences that are located within commercial districts. The redevelopable land category applies to multi-family development and commercially zoned properties containing buildings of economic viability.*

It should be noted that, for the purpose of the analysis conducted for the area-wide rezones, the assessment of gross developable acres was made by City staff and the Pierce County Assessor-Treasurer Department was not consulted.

Appendix 1b and data from the City's Geographic Information System (GIS). Based on this review, the total net change to land in the affected zones is summarized in Table 8.

Based on these acreage amounts and the methodology established in Appendix IB: Land Capacity Review, updated residential and employment land capacity tables were prepared to reflect the area wide rezone. Table 9 and Table 10, below, summarize the impacts of the proposed area-wide rezone on residential and employment capacity, respectively. Shaded rows indicate changes to the 2011 Land Capacity Review tables.

Overall, the proposed area-wide rezones would increase residential capacity by ~~16928~~2140 units, or about three percent of the City's total residential capacity, compared to the 2011 capacity estimate. Employment capacity would increase by ~~2481,003~~1,801 jobs, or ~~12~~78 percent of the City's total employment capacity, compared to the 2011 capacity estimate.

Table 9 ~~2015~~ UPDATE: Estimated Residential Capacity: 2007 Pierce County Developable Land Inventory

ZONING CATEGORIES	GROSS DEVELOPABLE ACRES	TOTAL CONSTRAINED ACRES	NET ACRES	UNAVAILABLE FOR DEVELOPMENT	ADJUSTED NET ACRES	DWELLING UNITS
SF 2	1566.53	632.64	933.89	268.49	665.40	**1,331**
SF 3	~~1111.69~~1039.82951.42	~~448.95~~394.62369.28	~~662.74~~645.20582.14	~~190.54~~186.15170.39	~~472.20~~459.04411.75	**~~1,416~~1,3771,235**
SF 5	58.61	16.64	34.94	10.04	24.90	**125**
MR 1	100.47	40.57	59.90	17.22	42.68	**171**
MR 2	55.38	25.70	33.01	9.49	23.52	**188**
MUR	83.08	28.23	49.53	12.38	37.15	**892**
C	26.63	9.42	15.88	3.96	11.91	**571**
TC	~~48.97~~54.13	~~19.78~~24.42	~~29.19~~32.71	~~7.30~~7.65	~~21.90~~25.06	**~~105~~11,203**
					Total Residential Capacity	**~~5,744~~5,8575,715**

Source: Pierce County Buildable Lands Report, 2007. City of Edgewood, and 3 Square Blocks, 2015.

Table 10 ~~2015~~ UPDATE: Estimated Employment Capacity: 2007 Pierce County Developable Land Inventory

ZONING CATEGORIES	GROSS DEVELOPABLE ACRES	FUTURE CAPITAL FACILITIES	UNAVAILABLE FOR DEVELOPMENT	ADJUSTED GROSS ACRES	EMPLOYMENT
MUR	55.39	1.05	9.36	44.98	**871**
C	39.95	0.76	7.09	32.50	**630**
TC	~~20.98~~26.14	~~0.40~~0.50	~~4.35~~4.87	~~16.52~~20.78	**~~306~~406**
BP	23.70	0.45	2.37	21.33	**413**
I	~~13.94~~80.65169.05		~~6.97~~23.6530.79	~~6.97~~57.00138.26	**~~747~~441,542**
				Total Employment Capacity	**~~2,308~~3,0633,861**

Source: Pierce County Buildable Lands Report, 2007. City of Edgewood, and 3 Square Blocks, 2015.



04 » HOUSING

BACKGROUND INFORMATION

HOUSING GROWTH TARGETS

Edgewood's 2030 growth target was established by the Pierce County Countywide Planning Policies and adopted by Pierce County Council. For this comprehensive plan, the City extended the adopted 2030 growth target to 2035. Edgewood's 2008 population of 9,595, used for the purpose of forecasting to 2030, is essentially the same as the latest (2013) US Census population estimate for Edgewood of 9,591. The lack of growth in Edgewood over the past several years is likely largely due to the economicrecessionanditisreasonabletoassumethatthecitywillexperiencegrowth over the next 20 years in a manner consistent with the assumptions established in the Pierce County Countywide Planning Policies. Under this assumption, the adopted 2030 growth target is also an appropriate 2035 growth target and has been assumed in this plan. If growth accelerates in Edgewood, the City recognizes that there may be a need to update these targets. Edgewood's growth target is 6,003 housing units. The City currently has about 3,900 housing units and will thus need to add a little over 2,000 new units over the next twenty years. As shown in Table 16, the City has adequate land capacity to meet this target without making any changes to its current zoning designations.

Table 16 Estimated Residential Capacity by Zoning Category

ZONING CATEGORY	ESTIMATED RESIDENTIAL CAPACITY
Single Family 2 (SF-2)	1,331 new dwelling units
Single Family 3 (SF-3)	~~416~~1,383~~1~~,235
Single Family 5 (SF-5)	125
Mixed Residential 1 (MR-1)	171
Mixed Residential 2 (MR-2)	188
Mixed Use Residential (MUR)	892
Commercial (C)	571
Town Center (TC)	~~1,051~~1,203
Total Residential Capacity	~~5,744~~5,857~~5~~,715

Volume I
Introduction
Natural Environment
Land Use ◂
Community Character
Housing
Transportation
Parks, Recreation & Open Space
Utilities
Energy
Capital Facilities

GOALS AND POLICIES

See the Vision Statement on page 7.

Goal LU.I **Establish a future land use pattern that is consistent with the City's vision.**

LU.I.a *Ensure that land use policies and regulations support the City's vision.*

LU.I.b *Create a "first-mover" advantage for developers that wish to build quality projects that respect the City's vision.*

LU.I.c *Continue to use the Future Land Use Map that is adopted as part of this plan to guide land use and development regulations, and update it as needed (Figure 3).*

LU.I.d *Study the potential for new land use designations within the City on an as-needed basis, in response to changing community conditions or regulatory requirements. Consider the following as part of the study:*

- *Potential for a master plan or small area plan*
- *Potential for economic development, including recruitment of businesses that provide family-wage jobs and support for locally-owned businesses*
- *Transportation access*
- *Availability of public facilities and services*
- *Environmental constraints*
- *Compatibility with surrounding development*
- *Community input*
- *Property owner interests*
- *Consistency with City plans and policies*
- *Open space preservation, where appropriate*

~~The City is planning to study the feasibility of changing land use designations in the Special Land Use Study Overlay shown on the Future Land Use Map (Figure 3). A number of factors have led to interest in possible redesignation of land uses in the overlay area, including industrial development in the surrounding area, support for local job creation, and changes in the economics of the small-scale farming activities that are currently practiced in the area .~~

LU.I.e *Ensure that the City's sewer plan and other functional plans are supportive of the land use patterns outlined in this Element.*

Zoning regulations for allowable density and intensity are set forth in Edgewood's Municipal Code. These regulations support the land use pattern called for in the Comprehensive Plan.

SINGLE FAMILY RESIDENTIAL

LU.I.f *The Single Family Low designation is intended to preserve the identity of areas with patterns of large residential lots, preserve tree stands and reduce traffic volumes in east-west arterial corridors. Allowable uses include single family detached dwelling units and compatible uses.*

- *The maximum number of allowable dwelling units per net buildable acre (dua) in the Single Family Low designation is two dua.*

In 2015, the City updated the 2011 land capacity analysis to r eflect area-wide rezones done in association with the Comprehensive Plan update. Table 5 and Table 6 show findings from the updated land capacity analysis. Table 5 shows the City's net developable acres per zoning designation. Table 6 summarizes existing housing and employment capacity in comparison to the City's 2035 assigned growth targets. The City of Edgewood has adequate capacity to meet assigned growth targets. Furthermore, the City's mixed use zoning districts allowflexibility to provide more employment capacity and less residential capacity, if needed. The land capacity analysis assumed a certain percentage of new mixed use development would provide space for residential uses and a certain percentage would provide space for employment uses. The assumed percentages were within a range allowed by the City and could be adjusted.

Table 5 Estimated Net Developable Acres per Zoning Designation

ZONING DESIGNATION	NET DEVELOPABLE ACREAGE
Single Family 2 (SF-2)	665
Single Family 3 (SF-3)	~~472~~447379
Single Family 5 (SF-5)	25
Mixed Residential 1 (MR-1)	43
Mixed Residential 2 (MR-2)	24
Town Center (TC + TCDO)	~~38~~42
Commercial (C)	403
Mixed Use Residential (MUR)	75
Business Park (BP)	20
Industrial (I)	~~73~~5102

Table 6 Comparison of Growth Targets and Available Capacity

	EXISTING	2035 TARGET	AVAILABLE CAPACITY	SURPLUS
Housing Units	3,814 units	6,003 units	~~5,744589~~5715 units	~~3,555366~~83526 units
Employment	1,191 jobs	3,094 jobs	~~2,308295~~23861 jobs	~~405116~~01958 jobs

Land Use Map

The City's Official Land Use Map (Figure 3) shows the future shape of the community and how its essential components will be distributed. ~~The Land Use Map includes a Special Land Use Study Overlay. The City is planning to study the feasibility of changing land use designations in this area. The overlay consists of approximately 150~~87 ~~acres~~

~~located in the southwest Edgewood. The area is currently designated for residential uses. Existing land uses include a mix of residential, agricultural, commercial/industrial and vacant land. Factors that have led to interest in redesignation of land uses in the overlay area include: nearby industrial development, support for local job creation, and changes in the economics of small-scale farming activities practiced in the area.~~

Current Zoning

The City has eleven zoning designations. The total acreage for each of the City's zoning designations is summarized inTable 7. The purpose of each of the zoning designations is described on the following pages.

Table 7 Acreage in Current Zoning Designations

ZONING DESIGNATION	ACRES	PERCENT OF TOTAL CITY ACREAGE
Single Family 2 (SF-2)	2,016	37.5%
Single Family 3 (SF-3)	~~2,311~~2,239~~2~~,151	~~42.9~~41.6~~4~~0.0
Single Family 5 (SF-5)	46	0.8
Mixed Residential 1 (MR-1)	101	1.9
Mixed Residential 2 (MR-2)	69	1.3
Town Center (TC)	~~8~~186	~~1.~~51.6
Commercial (C)	82	1.5
Mixed Use Residential (MUR)	126	2.3
Business Park (BP)	32	0.6
Industrial (I)	~~178~~4172	~~0.3~~1.63.2
Public (P)	177	3.3
Unzoned Areas (Including Roads)	325	6

Single Family

The City has three single family zoning designations. SF-3 and SF-5 are the primary residential zoning designations. SF-2 is intended to preserve the identity of areas with patterns of large residential lots, preserve tree stands and reduce traffic volumes in east-west arterial corridors. Permitted uses in single family zoning designations include: residential uses (e.g. single family detached dwellings, modular homes, group homes, manufactured homes), civic uses (e.g. daycare, open space, religious assembly), utility uses, as well as some minor commercial uses such as lodging and funeral services.

Mixed Residential

There are two mixed residential zoning designations. The purpose of MR-1 and MR-2 is to provide for moderate residential density using a variety of urban housing types such

The adopted Preferred Alternative Road Network Plan for the Meridian Avenue E/SR 161 Corridor (parallel road plan) further defines future roadway functional classifications within the designated Meridian Avenue E Corridor/ Town Center area. The collector street classifications are defined and illustrated in Figure 10 and included as future roadways on the functional classification map.

Roadways Standards

The City has sought to encourage standardization of road design elements for consistency and to assure that motoring, bicycling and pedestrian public safety needs are met. Considerations include safety, convenience, aesthetics, proper drainage and economical maintenance. The standards include items such as right-of-way needs, pavement width, type and width of pedestrian and bicycle facilities and roadway and intersection radii.

The standards are intended to support the City's goals in providing adequate facilities to meet the mobility and safety needs of the community, as well as complying with storm water management, sensitive areas and other regulations. The standards are intended to assist design professionals and developers for all new and reconstructed roadways and right-of-~~way facilities,~~ both public and private, within the City. See the City of Edgewood's Public Works ~~Street~~ Standards ~~(Transportation Manual)~~ (as adopted under Edgewood Municipal Code Title 12) for more details.

Transportation Improvement Projects

Based on an evaluation of existing and forecast traffic volumes, traffic operations, safety and circulation needs, a recommended list of transportation improvement projects and programs were defined. The project list is organized into the following categories:

- Roadway and Traffic Projects—upgrading roadways and intersections through safety, capacity or operational improvements
- Meridian Corridor Projects—build a network of local roadways along the Meridian Avenue E corridor to help facilitate access and circulation along the corridor, which in turn improves mobility and safety.
- Annual Programs—includes annual citywide programs to maintain the existing system and adequately respond to citizen requests.
- Studies—includes studies to better define improvements to competitively compete for grant revenues.
- Non-Motorized Projects—includes non-motorized projects primarily focused on completing a system of walkways, including the Multimodal Loop, which adjoin the local street system.

Figure 9 Functional Classification System

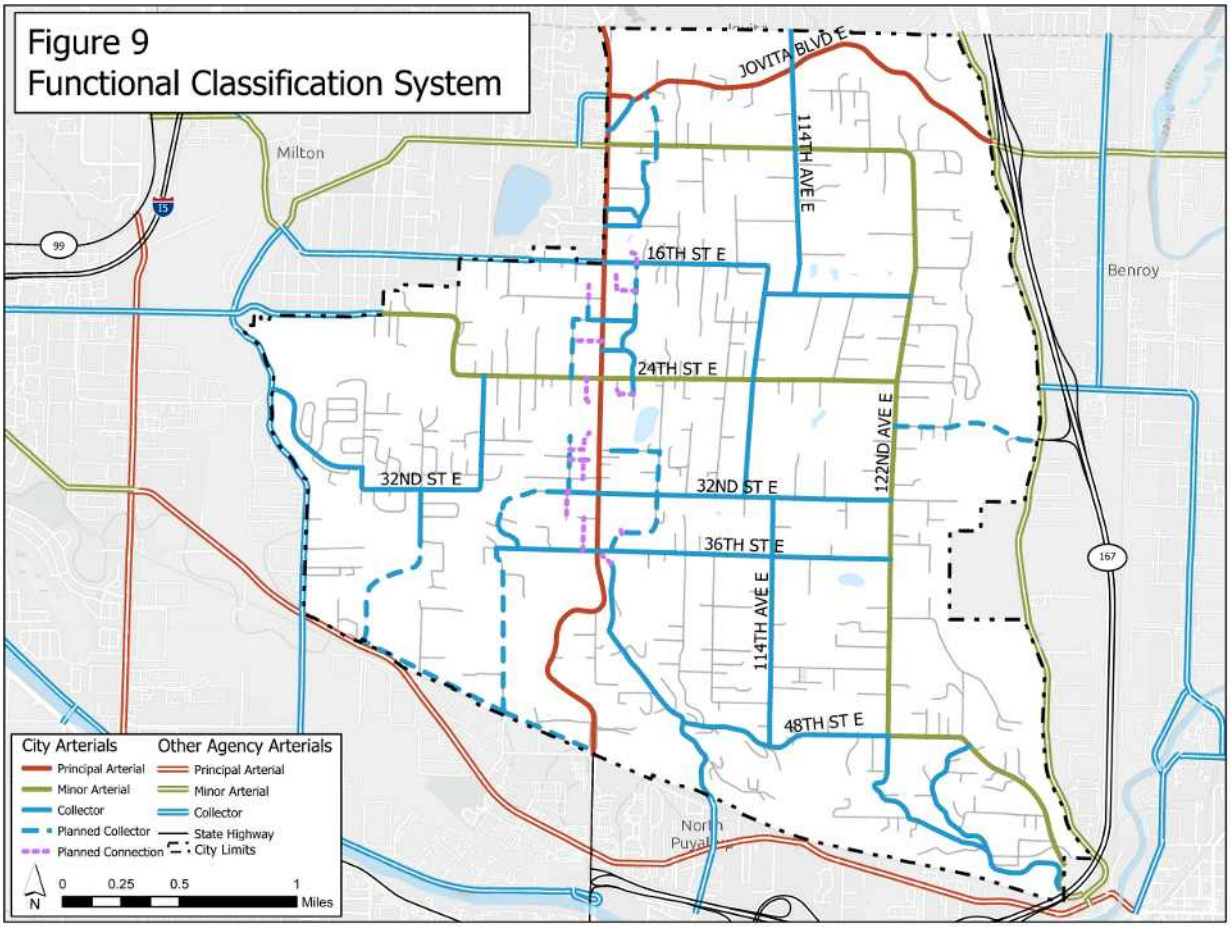


Figure 10 Meridian Corridor Collector Street Classifications

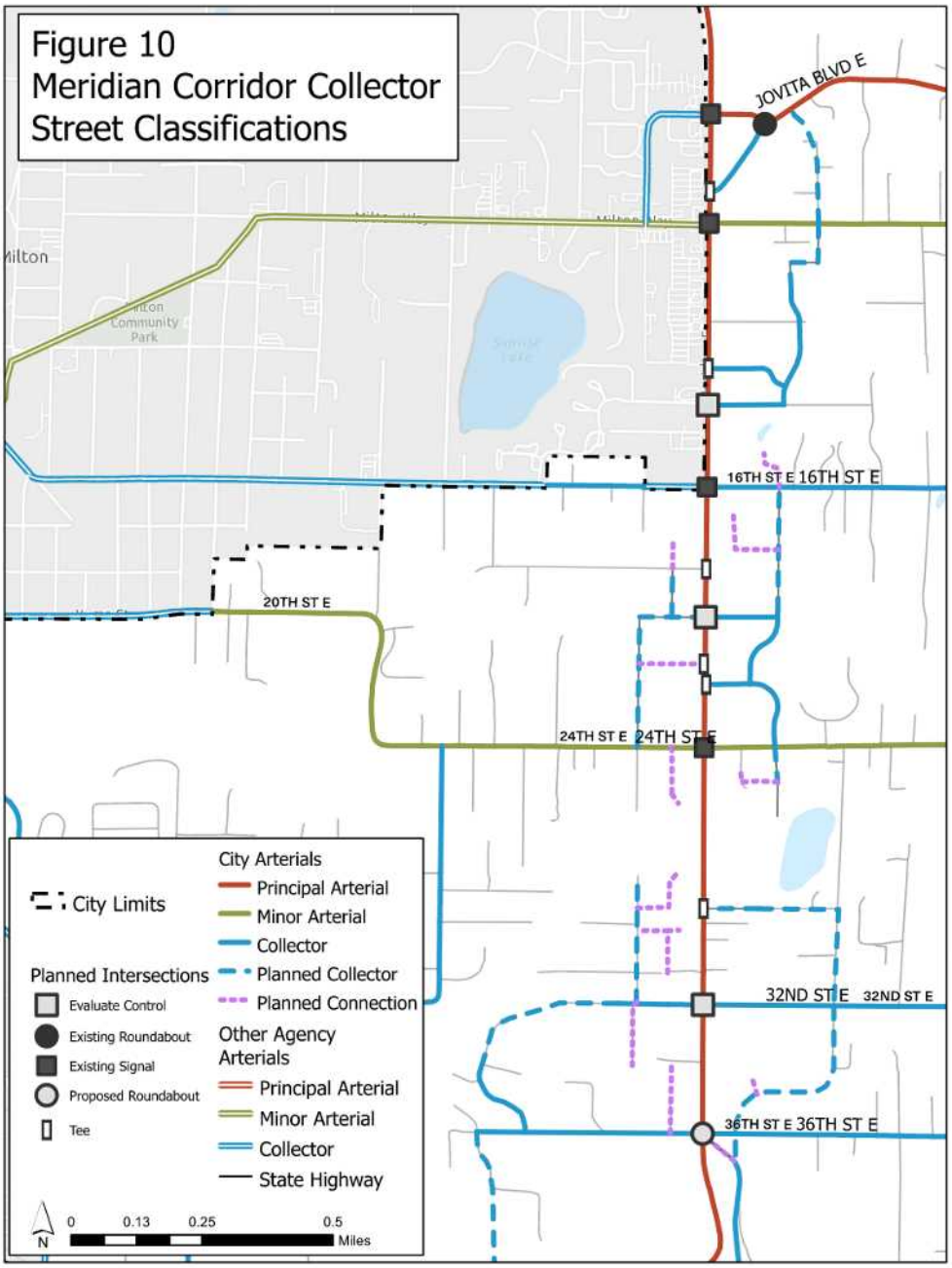


Figure 11 identifies each of the projects and their locations. Figure 12 provides detail for the Meridian Corridor projects. Table 31 also provides a brief description of each project including the project limits. A project identification number is provided for each project that is referenced in Figure 11 and Figure 12.

Planning-level cost estimates are also included for each project. The cost estimates were prepared based on typical per unit costs, functional classification and level of improvement. Adjustments to construction costs were included, as needed, to reflect any specific implementation issues, such as environmental impacts or impacts on adjacent properties.

Figure 11 Long-Term Transportation Projects

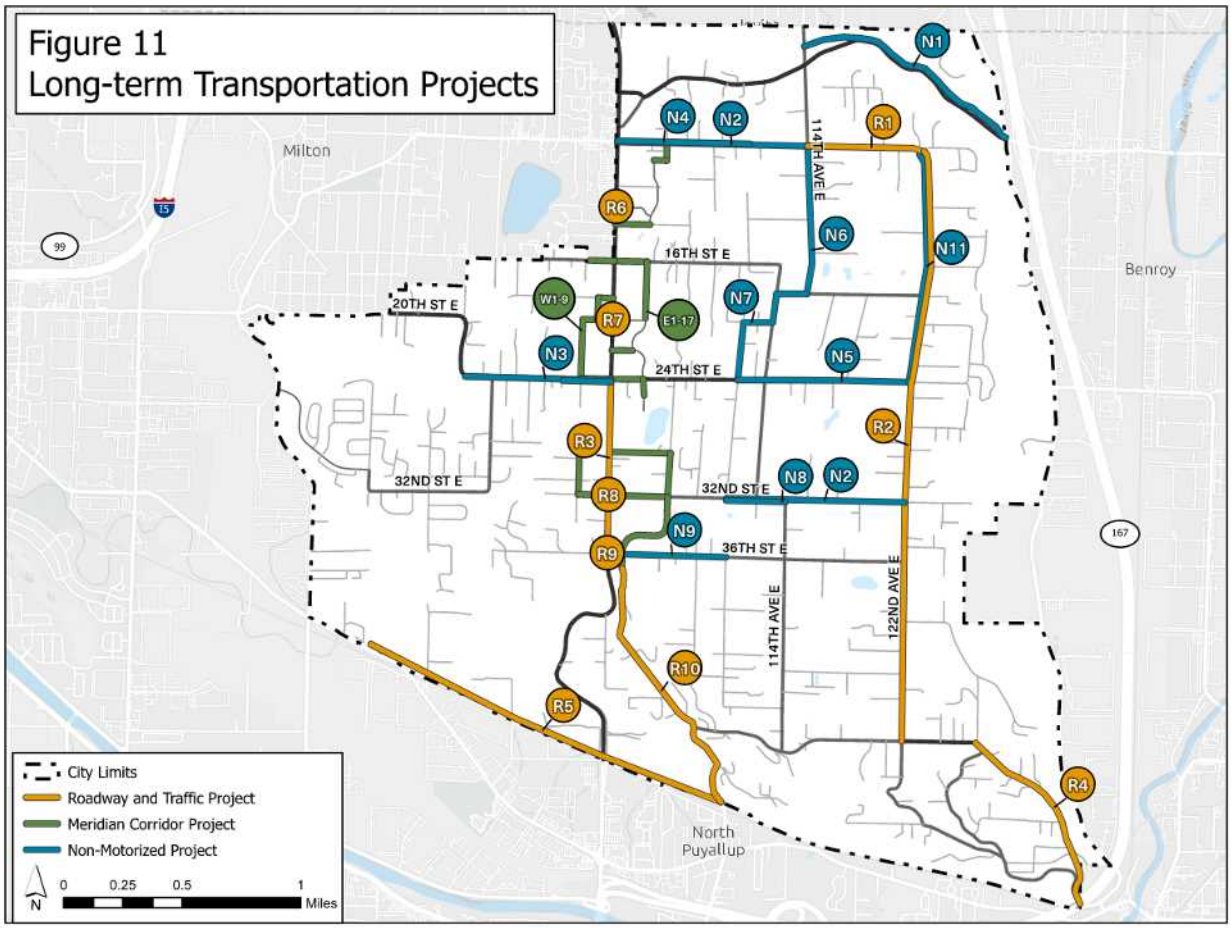


Figure 12 Meridian Corridor Projects

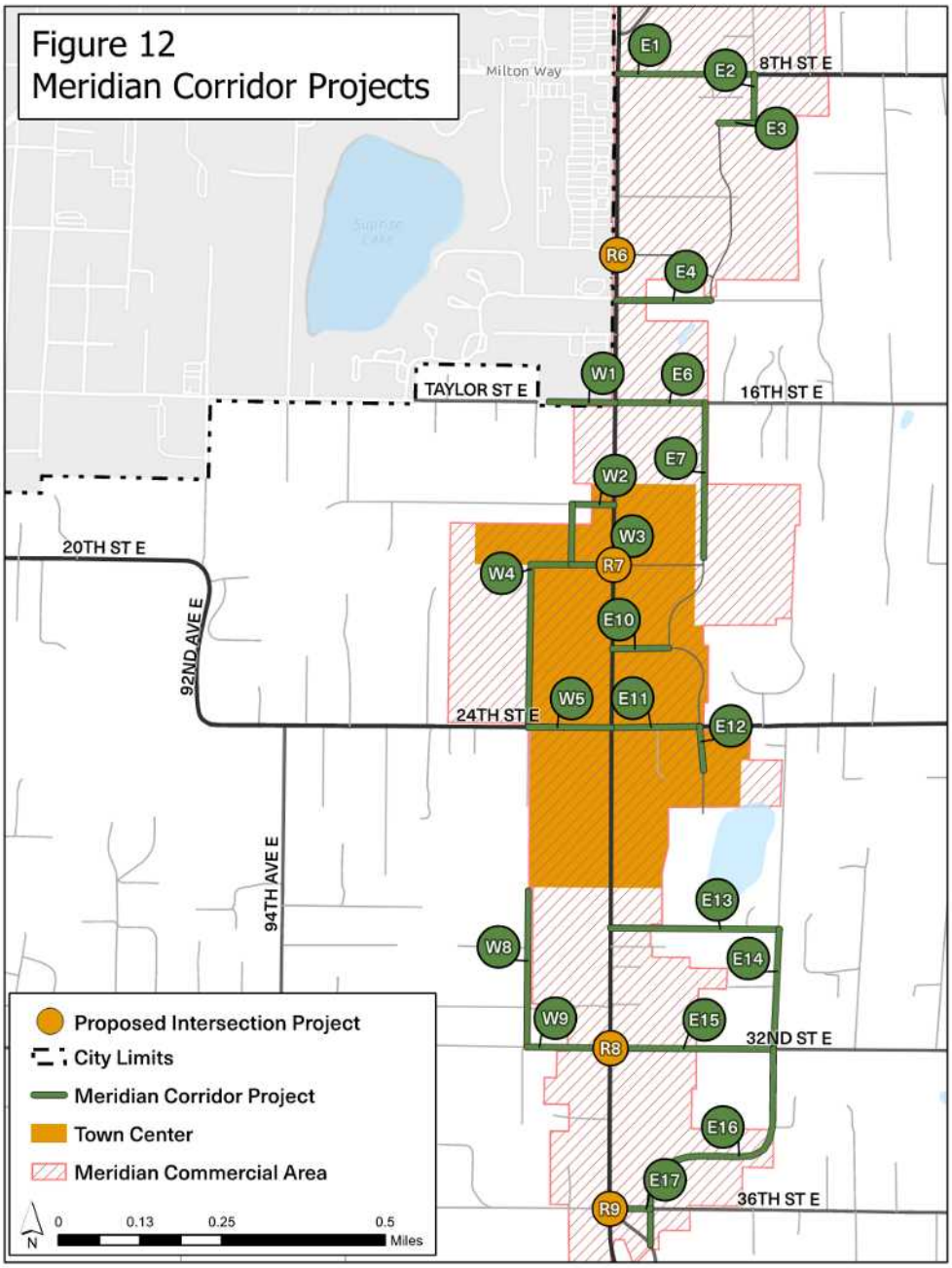


Table 31 Transportation Projects and Programs

ID	PROJECT NAME	PROJECT LIMITS	PROJECT DESCRIPTION	PROJECT COST[1]
Roadway and Traffic Projects				
R-1	8th St E Safety Improvements (Multimodal Loop)	114th Avenue E to 122nd Avenue E	Separated pedestrian walkway, illumination at 8th/114th intersection; shoulder improvements, crosswalks, a flashing beacon and reconstruction of the 8th/114th intersection	~~$1,290,000~~ TBD
R-2	122nd Ave E Safety Improvements	8th Street E to 48th Street E	Road overlay, shoulder improvements, school bus stop waiting areas, signage and pavement markings	~~$1,305,200~~ TBD
R-3	Meridian Ave E Safety Improvements	36th Street E to 24th Street E	Construct ~~3-~~4- to 5-lane cross-section with curb/gutter, sidewalks, storm drainage and bicycle facilities	~~$9,910,000~~ TBD
R-4	Edgewood Dr E Safety Improvements	48th Street E to Sumner Heights Drive	Roadway widening, curb, gutter, storm water system and pedestrian walkway	~~$1,668,050~~ $9,500,000
R-5	Railroad Frontage Road	86th Avenue E to Chrisella Road	Construct new roadway parallel to railroad tracks to eliminate need for several at-grade crossings	~~$8,715,700~~ TBD
R-6	Meridian Ave E / 12th St E	Intersection	Install ~~signal~~ access control and make ADA upgrades	~~$320,000~~ TBD
R-7	Meridian Ave E / 20th St E	Intersection	Install ~~signal~~ access control and make ADA upgrades	~~$320,000~~ TBD
R-8	Meridian Ave E / 32nd St E	Intersection	Install ~~signal~~ access control and make ADA upgrades	~~$320,000~~ TBD
R-9	Meridian Ave E / 36th St E	Intersection	Construct roundabout	~~$1,430,000~~ TBD
R-10	Chrisella Rd E Safety Improvements	36th St E to City limits	Improve pavement markings, signage, lighting, and sight distance; improve intersection with 48th Ave E and consider installation of traffic calming measures.	~~$870,000~~ $6,285,000
Meridian Corridor Projects				
E-1	8th St E	Meridian to 105th Avenue	~~Build or i~~Improve corridor to collector arterial standard	TBD[2]
E-2	104th Ave E/105th Ave E	8th Street E to ~~11th~~10th Street Ct E	Build ~~or improve~~ corridor to collector arterial standard	TBD[2]
E-3	~~11th St E / 104th~~ 105th Ave E	~~105th Avenue E to 12th Street E~~Jovita Blvd E to 8th Street E	Build or improve corridor to collector arterial standard	TBD[2]
E-4	~~12th~~13th St Ct E	Meridian to 104th Avenue	~~Build or i~~Improve corridor to collector arterial standard	TBD[2]
~~E-5~~	~~104th Ave E / 13th St E / 103rd Ave E~~	~~12th Street E to 16th Street E~~	~~Build or improve corridor to collector arterial standard~~	~~$1,290,000~~
E-6	16th St E	Meridian to 104th Avenue E	~~Build or i~~Improve corridor to collector arterial standard	$1,360,000
E-7	104th Ave E	16th Street E to ~~20th Street E~~1800 Block	Build ~~or improve~~ corridor to collector arterial standard	~~$1,760,000~~TBD[2]
~~E-8~~	~~20th St E~~	~~Meridian to 104th Avenue E~~	~~Build or improve corridor to collector arterial standard~~	~~TBD[2]~~
~~E-9~~	~~104th Ave E~~	~~20th Street E to 24th Street E~~	~~Build or improve corridor to collector arterial standard~~	~~TBD[2]~~

Continued from previous page

ID	PROJECT NAME	PROJECT LIMITS	PROJECT DESCRIPTION	PROJECT COST[1]
E-10	22nd St E	Meridian to 104th Avenue E	~~Build or i~~Improve corridor to collector arterial standard	TBD[2]
E-11	24th St E	Meridian to 104th Avenue E	~~Build or i~~Improve corridor to collector arterial standard	$1,360,000
E-12	104th Ave E	24th Street E to 103rd Ct Avenue E	Build ~~or improve~~ corridor to collector arterial standard	$940,000
E-13	29th St E	Meridian to ~~103rd~~ 106th Avenue ~~Ct~~ E	~~Build or i~~Improve corridor to collector arterial standard	~~$740,000~~TBD[2]
E-14	~~103rd~~ 106th Ave E	29th Street E to 32nd Street E	~~Build or i~~Improve corridor to collector arterial standard	~~$1,290,000~~TBD[2]
E-15	32nd St E	Meridian to ~~103rd~~ 106th Avenue E	~~Build or i~~Improve corridor to collector arterial standard	~~$740,000~~TBD[2]
E-16	~~103rd~~ 106th Ave E/ Chrisella Rd Extension	32nd Street E to ~~36th Street E~~Chrisella Rd E	Build or improve corridor to collector arterial standard	~~$1,640,000~~TBD[2]
E-17	36th St E	Meridian to ~~103rd Avenue E~~Chrisella Rd Extension	~~Build or i~~Improve corridor to collector arterial standard	~~$740,000~~TBD[2]
W-1	16th St E	101st Avenue E to Meridian	Build or improve corridor to collector arterial standard	$1,080,000
W-2	~~101st Ave E~~18th St Ct E	~~16th Street E to 20th Street E~~10000 Block to Meridian	~~Build or i~~Improve corridor to collector arterial standard	TBD[2]
W-3	20th St E	101st Avenue E to Meridian	Build or improve corridor to collector arterial standard	TBD[2]
W-4	~~20th St E~~101st Ave E / 100th Ave E~~/ 24th St E~~	~~20th~~18th Street Ct E to 24th Street E	Build or improve corridor to collector arterial standard	TBD[2]
W-5	24th St E	~~101st~~100th Avenue E to Meridian	~~Build or i~~Improve corridor to collector arterial standard	~~$1,080,000~~TBD[2]
~~W-6~~	~~101st Ave E~~	~~24th Street E to 29th Street E~~	~~Build or improve corridor to collector arterial standard~~	~~$2,310,000~~
~~W-7~~	~~29th St E~~	~~101st Avenue E to Meridian~~	~~Build or improve corridor to collector arterial standard~~	~~$1,080,000~~
W-8	~~101st~~100th Ave E	29th Street E to 32nd Street E	~~Build or i~~Improve corridor to collector arterial standard	$1,290,000
W-9	32nd St E	~~101st~~100th Avenue E to Meridian	~~Build or i~~Improve corridor to collector arterial standard	~~$1,080,000~~TBD[2]
Annual Programs				
A-1	Transportation Engineering/ Plan Support	Citywide	Annual program to maintain/update pavement management system, road standards and traffic model	~~$15,000~~$50,000/ year
A-2	Chip Seal Program	Citywide	Paving and sealing asphalt overlays and surface chip seals	$300,000/year

Continued from previous page

ID	PROJECT NAME	PROJECT LIMITS	PROJECT DESCRIPTION	PROJECT COST[1]
A-3	Pedestrian Safety Program	Citywide	Perform safety assessments and install miscellaneous signage, crosswalks, lighting and pavement marking improvements	~~$20,000~~$75,000/ year
Studies				
S-1	Meridian Ave E Preliminary Design	24th Street E to 36th Street E	Complete corridor study and preliminary design of ~~3-~~4~~-~~ to 5~~-~~lane cross-section and supporting intersection treatments	$350,000
S-2	36th St E Walkway Extension Feasibility Study	Meridian Avenue to 110th Avenue E	Conduct a study to determine project scope and costs due to surface water and environmental challenges	~~$25,000~~$50,000
S-3	Interurban Trail Phase III Connection Feasibility Study	114th Avenue E to West Valley Hwy	Topographic survey to enable design of the easiest most affordable portion of corridor, ~~tunnel design~~ and geotechnical	~~$25,000~~$100,000
Non-Motorized Projects				
N-1	Interurban Trail Phase III	114th Avenue E to West Valley Hwy	Construct multi-use pathway	~~$6,770,000~~TBD
N-2	Pedestrian Safety (Highest Priority) Low Cost Improvements	Various (8th St from 114th to Meridian); (32nd St from 110th to 122nd)	Pedestrian landing pads for school bus stops, traffic signs, bus shelters, flashing beacons, crosswalks, pavement markings and bus turnouts, sidewalk along 32nd St E between 110th Ave E and 122nd Ave E	$878,905[3]
N-3	Pedestrian Safety (High Priority) Low Cost Improvements	Various (24th St, 114th Ave, 110th Ave, 18th St); near several elementary school and junior high	Pedestrian landing pads for school bus stops, traffic signs, bus shelters, pavement markings and on-road walkways	~~$95,200~~TBD
N-4	8th St E Walkway Extension (Multimodal Loop)	Meridian Avenue to 110th Avenue E	Separated pedestrian walkway	~~$740,000~~TBD
N-5	24th St E Walkway Extension (Multimodal Loop)	110th Avenue E to 122nd Avenue E	Separated pedestrian walkway and shoulder improvements	~~$1,180,000~~TBD
N-6	114th Ave E Walkway	8th Street E to 18th Street E	Separated pedestrian walkway	~~$730,000~~TBD
N-7	110th Ave E; 20th St E; 112th Ave E; 18th Ave E Walkway	24th Street E to 114th Avenue E	Separated pedestrian walkway	~~$490,000~~TBD
N-8	32nd St E Walkway	110th Avenue E to 114th Avenue E	Separated pedestrian walkway	$150,000
N-9	36th St E Walkway Extension	Meridian Avenue E to 110th Avenue E	Extension of existing walkway	~~$370,000~~$450,000
N-10	24th St E Walkway	~~94th Avenue E~~ Northwood Elementary to Meridian Avenue E	Extension of existing walkway, shoulder improvements, planted buffer where feasible, signage and pavement markings	~~$1,150,000~~ $1,000,000
N-11	122nd Ave E Walkway	8th Street E to 24th Street E	Separated pedestrian walkway	~~$810,000~~TBD

Notes:

1. All costs in ~~2015~~2020 dollars
2. ~~To~~May be fully funded by new development
3. 2015 Pproject cost estimate includes $550,000 for a sidewalk along 32nd St E between 110th Ave E and 122nd Ave E. There is a range of potential costs for this project. A less expensive option would be a pedestrian walkway similar to the other pedestrian projects shown in the table. The estimated to cost for a pedestrian pathway along this segment is $260,000 (2015 dollars).

Table 41 Transportation Capital Improvement Projects: 2015-2035

ROADWAY AND TRAFFIC PROJECTS	PROJECT LIMITS	COST
8th Street E Safety Improvements (Multi-modal Loop)	114th Avenue E to 122nd Avenue E	~~$1,290,000~~ TBD
122nd Avenue E Safety Improvements	8th Street E to 48th Street E	~~1,305,200~~ TBD
Meridian Avenue Safety Improvements	36th Street E to 24th Street E	~~9,910,000~~ TBD
Edgewood Drive Safety Improvements	48th Street E to Sumner Heights Drive	~~1,668,050~~ $9,500,00
Meridian Avenue / 12th Street E	Intersection	~~320,000~~ TBD
Meridian Avenue / 20th Street E	Intersection	~~320,000~~ TBD
Meridian Avenue / 32nd Street E	Intersection	~~320,000~~ TBD
Meridian Avenue / 36th Street E	Intersection	~~1,430,000~~ TBD
Chrisella Rd E Safety Improvements	36th St E to City Limits	~~870,000~~ $6,285,000
Total Roadway and Traffic Projects		**~~17,433,250~~ TBD**

MERIDIAN PARALLEL ROAD SYSTEM PROJECTS	PROJECT LIMITS	COST
~~104th Avenue E/ 13th Street E/ 103rd Avenue E~~	~~12th Street E to 16th Street E~~	~~1,290,000~~
16th Street E	Meridian to 104th Avenue E	1,360,000
104th Avenue E	16th Street E to ~~20th Street E~~ 1800 Block	~~1,760,000~~ TBD
24th Street E	Meridian to 104th Avenue E	1,360,000
104th Avenue E	24th Street E to 103rd Ct Avenue E	940,000
29th Street E	Meridian to ~~103rd~~ 106th Avenue ~~Ct~~ E	~~740,000~~ TBD
~~103rd~~ 106th Avenue E	29th Street E to 32nd Street E	~~1,290,000~~ TBD
32nd Street E	Meridian to ~~103rd~~ 106th Avenue E	~~740,000~~ TBD
~~103rd~~ 106th Avenue E/Chrisella Rd Extension	32nd Street E to ~~36th Street E~~ Chrisella Rd E	~~1,640,000~~ TBD
36th Street E	Meridian to ~~103rd Avenue E~~ Chrisella Rd Extension	~~740,000~~ TBD
16th Street E	101st Avenue E to Meridian	1,080,000
24th Street E	~~101st~~ 100th Avenue E to Meridian	1,080,000
~~101st Avenue E~~	~~24th Street E to 29th Street E~~	~~2,310,000~~
~~29th Street E~~	~~101st Avenue E to Meridian~~	~~1,080,000~~
~~101st~~ 100th Avenue E	29th Street E to 32nd Street E	1,290,000
32nd Street E	~~101st~~ 100th Avenue E to Meridian	~~1,080,000~~ TBD
Total Meridian Parallel Road System Projects		**~~19,780,000~~ TBD**

Continued on next page

Continued from previous page

ANNUAL PROGRAMS	PROJECT LIMITS	COST
Transportation Engineering/Planning Support	Citywide	~~300,000~~ $50,000/ year
Chip Seal Program	Citywide	6,000,000
Pedestrian Safety Program	Citywide	~~400,000~~ $75,000/ year
Total Annual Programs		**6,700,000 TBD**

STUDIES	PROJECT LIMITS	COST
Meridian Avenue E Preliminary Design	24th Street E to 36th Street E	350,000
36th Street E Walkway Extension Feasibility Study	Meridian Avenue to 110th Avenue E	~~25,000~~ $50,000
Total Studies		**375,000 TBD**

NON-MOTORIZED PROJECTS	PROJECT LIMITS	COST
Pedestrian Safety (Highest Priority) Low Cost Improvements	Various (8th St from 114th to Meridian); (32nd St from 110th to 122nd)	878,905
Pedestrian Safety (High Priority) Low Cost Improvements	Various (24th St, 114th Ave, 110th Ave, 18th St); near several elementary school and junior high	~~95,200~~ TBD
8th Street E Walkway Extension (Multi-modal Loop)	Meridian Avenue to 110th Avenue E	~~740,000~~ TBD
24th Street E Walkway Extension (Multi-modal Loop)	110th Avenue E to 122nd Avenue E	~~1,180,000~~ TBD
114th Avenue E Walkway	8th Street E to 18th Street E	~~730,000~~ TBD
110th Avenue E; 20th Street E; 112th Avenue E; 18th Avenue E Walkway	24th Street E to 114th Avenue E	~~490,000~~ TBD
32nd Street E Walkway	110th Avenue E to 114th Avenue E	150,000
36th Street E Walkway Extension	Meridian Avenue E to 110th Avenue E	~~370,000~~ $450,000
24th Street E Walkway	~~94th Avenue E~~ Northwood Elementary to Meridian Avenue E	~~1,150,000~~ $1,000,000
122nd Avenue E Walkway	8th Street E to 24th Street E	~~810,000~~ TBD
Total Non-motorized Projects		**6,594,105 TBD**

WASTEWATER

Inventory of Existing Facilities

Wastewater facilities serving Edgewood are provided mostly through septic systems. Other wastewater services are provided by the City of Edgewood, Lakehaven Utility District, Cherrywood Manor Mobile Home Park, the City of Fife and Pierce County.

APPENDIX J

LETTERS OF CONCURRENCE FROM ADJACENT PROVIDERS

PLANNING & PUBLIC WORKS

9850 64th Street West
University Place, Washington 98467-1078

PierceCountyWa.gov/PPW

Jen Tetatzin, PE, PMP -
Director

June 5, 2024

U-116496

Department of Ecology
Water Quality Program, Northwest Regional Office
Attn: Madison Diaz
P.O. Box 330316
Shoreline, WA 98133-9716

Subject: **City of Edgewood General Sewer Plan Update - Letter of Support**

Dear Ms. Diaz:

We understand that the City of Edgewood has been updating its 2007 General Sewer Plan (GSP), working to comprehensively plan for the provision of sanitary sewer services throughout its jurisdiction. In that effort, their staff has been working together with us to develop practical infrastructure solutions that serve the needs of both of our agencies.

Edgewood does not have a current Interlocal Agreement (ILA) with Pierce County for sanitary sewer services, but several individual properties within the northwest portion of Edgewood are connected to Pierce County's sanitary sewer system. As presented in Edgewood's draft plan, they anticipate up to 0.10 MGD of AAF when fully built out, with about 40% of that demand expected by 2041 (see Table E-4). Pierce County does not have its wastewater treatment facilities in this area and currently contracts with the City of Tacoma, so any request for additional treatment capacity must be coordinated with both Pierce County and Tacoma. Currently, we expect to have adequate conveyance capacity and contracted treatment capacity to serve Edgewood's immediate needs.

Pierce County has reviewed the draft GSP update prepared for the City of Edgewood by Gray & Osborne, Inc. dated February 2024, and we support the plan as presented therein. We also understand this letter is not a guarantee of sanitary sewer service, but rather a formal starting point for our agencies to continue the work together. Upon approval of the updated GSP by the Department of Ecology, and the subsequent adoption of the updated GSP by the Edgewood City Council, we will work diligently with Edgewood to develop the necessary ILA to enable expanded and continued sanitary sewer service following the GSP.

Please let us know if you need any further information from us for your consideration.

Sincerely,

Steven L. Hartwig
Wastewater Utility Manager
Pierce County Sewer Division

SLH:wc:dw
Cors\U-116496-SLH

May 6, 2024

Department of Ecology
Water Quality Program, Northwest Regional Office
Attn: Madison Diaz
P.O. Box 330316
Shoreline, WA 98133-9716

RE: City of Edgewood General Sewer Plan Update – Letter of Support

Dear Ms. Diaz,

We understand that the City of Edgewood has been updating their 2007 General Sewer Plan (GSP), working to comprehensively plan for the provision of sanitary sewer services throughout their jurisdiction. In that effort, their staff has been working together with us to develop practical infrastructure solutions that serve the needs of both of our communities.

Edgewood's current Interlocal Agreement (ILA) with the City of Fife is to provide sewer service to Edgewood's Non-Core West Phase I Sewer Area (Basin 10), which has a stated limit of 600 Equivalent Residential Units (ERUs), which is equal to 0.138 MGD of Average Annual Flow (AAF). As presented in Edgewood's draft plan, they are anticipating to transfer additional service area basins to Fife, which is estimated up to 0.31 MGD of AAF at full build out. Fife does not have its own wastewater treatment facilities and contracts with the City of Tacoma for all treatment, so any request for additional treatment capacity must be coordinated with both Fife and Tacoma to develop the necessary contractual agreements to expand service beyond Basin 10. At this time, we expect to have adequate conveyance capacity and contracted treatment capacity to serve Edgewood's immediate needs within Basin 10.

The City of Fife has reviewed the draft GSP update prepared for the City of Edgewood by Gray & Osborne, Inc. dated February 2024, and we are in support of the plan as presented therein. We also understand this letter is not a guarantee of sanitary sewer service, but rather a formal starting point for our agencies to continue the work together.

Please let us know if you need any further information from us for your consideration in approving the Edgewood GSP.

Respectfully,

Greg Vigoren, P.E.
Public Works Director

Lakehaven
WATER & SEWER DISTRICT
31627A 1st Avenue South • P.O. Box 4249 • Federal Way, WA 98063-4249
253-941-1516 Federal Way • 253-927-2922 Tacoma • www.lakehaven.org

July 2, 2024

Department of Ecology
Water Quality Program, Northwest Regional Office
Attn: Madison Diaz
P.O. Box 330316
Shoreline, WA 98133-9716

RE: City of Edgewood General Sewer Plan Update

Dear Ms. Diaz,

Lakehaven Water and Sewer District has reviewed the City of Edgewood's recently updated General Sewer Plan (GSP) by Gray & Osborne, Inc. dated February 2024, and the efforts by the City to comprehensively plan for the provision of sanitary sewer services throughout their jurisdiction. In that effort, Lakehaven and the City have been coordinating to identify practical infrastructure solutions beyond the existing contractual agreement between the agencies.

Edgewood's current Interlocal Agreement (ILA) with Lakehaven has a stated limit of 0.692 GPD of "average day maximum flow", which for the purposes of this plan is known as Average Annual Flow (AAF). Edgewood's system is currently adequately conveyed through Lakehaven's existing collection system to the Lakota Wastewater Treatment Plant, which has a capacity of 10 MGD. This evaluation was reflected in Lakehaven's approved Wastewater System Plan.

Based on the City's updated plan, neither agency anticipates the need for additional capacity beyond the currently contracted limits prior to the City's next scheduled plan update. As presented in Edgewood's proposed plan, the City does anticipates up to 1.58 MGD of AAF when fully built out, with about 40.5% of that demand expected by 2041 (see Table E-4). This planned buildout capacity could affect capacity requirements for certain, yet to be identified, Lakehaven facilities. While the District does not guarantee sanitary sewer service beyond the current contractual limits, the City and Lakehaven have agreed to work together on the facility elements needed to meet the City's ultimate planned capacity and to develop the necessary ILA to enable expanded and continued sanitary sewer service for the planned city service area through Lakehaven facilities as described in the City's plan.

If you have any questions, you can reach me at 253-946-5401, or jbowman@lakehaven.org.

Sincerely,

John Bowman
General Manager

cc: Brian Asbury
Jia Carter
Ken Miller
Jeremy Metzler, City of Edgewood

CITY OF PUYALLUP

STEVE KIRKELIE
City Manager

April 23, 2024

Department of Ecology
Water Quality Program, Northwest Regional Office
Attn: Madison Diaz
P.O. Box 330316
Shoreline, WA 98133-9716

RE: City of Edgewood General Sewer Plan Update – Letter of Support

Dear Ms. Diaz,

We understand that the City of Edgewood has been updating their 2007 General Sewer Plan (GSP), working to comprehensively plan for the provision of sanitary sewer services throughout their jurisdiction. In that effort, their staff has been working together with us to develop practical infrastructure solutions that serve the needs of both of our agencies.

Edgewood has been participating in the development of plans and upgrades for our Water Pollution Control Plant, ensuring that adequate capacity is available for the southern slopes of Edgewood, in addition to the remaining unserved areas in the northern portions of Puyallup's Urban Growth Area. According to Edgewood's plan, they are anticipating up to 0.73 MGD of Average Annual Flow (AAF) when fully built out, with about half of that expected by 2050. In comparison, Puyallup anticipates up to 3.57 MGD of additional AAF when fully built out, with only 75% of that being developed or connected by 2050. Therefore, we expect to have more than enough capacity to serve Edgewood's needs with the improvements we would need anyway.

The City of Puyallup has reviewed the draft GSP update prepared for the City of Edgewood by Gray & Osborne, Inc. dated February 2024, and we are in support of the plan as presented therein. We also understand this letter is not a guarantee of sanitary sewer service, but rather a formal starting point for our agencies to continue the work together. Upon approval of the updated GSP by the Department of Ecology, and the subsequent adoption of the updated GSP by the Edgewood City Council, we will work diligently with Edgewood to develop the necessary Interlocal Agreement (ILA) to enable expanded and continued sanitary sewer service following the GSP.

Please let us know if you need any further information from us for your consideration at this time.

Respectfully,

Steve Kirkelie
City Manager