Water Facilities Planning Study

City of Victor

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FINAL DRAFT

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TABLE OF CONTENTS

EXECUTIVE SUMMARY E-1

CHAPTER 1 – INTRODUCTION 1-1

1.1 Purpose and Need 1-1
1.2 Report Organization 1-1
1.3 Project Description 1-2
1.4 Community Engagement 1-2
1.5 Existing Wastewater System 1-2
1.6 Operator Licensing 1-2
1.7 Financial Status of Existing Facilities 1-2
1.8 Water/Energy/Waste Audits 1-2

CHAPTER 2 – STUDY AREA 2-1

2.1 Location and Planning Boundary 2-1
2.2 Environmental Conditions 2-1
2.2.1 Physiography, Topography, Geology and Soils 2-1
2.2.2 Surface and Ground Water Hydrology 2-1
2.2.3 Fauna, Flora, and Natural Communities 2-2
2.2.4 Land Use and Development 2-2
2.2.5 Cultural Resources (Historical and Archaeological) 2-2
2.2.6 Utility Use 2-2
2.2.7 Floodplains and Wetlands 2-3
2.2.8 Wild and Scenic Rivers 2-3
2.2.9 Public Health and Water Quality 2-3
2.2.10 Prime Agricultual Farmland 2-3
2.2.11 Precipitation, Temperature, and Prevailing Winds 2-3
2.2.12 Air Quality and Noise 2-4
2.2.13 Energy Production and Consumption 2-4
2.2.14 Socioeconomic Profile 2-4

CHAPTER 3 – PROJECT PLANNING 3-1

3.1 Population Projections 3-1
3.1.1 Projected Growth Areas 3-2
3.2 Historical Flows 3-3
3.2.1 Existing ADF, AHF, ALF, MMF, and MDF 3-4
3.2.2 Existing PHF 3-5
3.3 Infiltration and Inflow (I/I) Analysis 3-6
3.4 Future Flow Projections 3-8
3.5 Wastewater Loading 3-9

3.6 Regulatory Requirements 3-11
3.6.1 Collection System Regulatory Criteria 3-13
CHAPTER 4 – COLLECTION SYSTEM EVALUATION 4-1
4.1 Lift Station Conditions 4-3
4.1.1 Lift Station #1 4-4
4.1.2 Lift Station #2 4-4
4.1.3 Lift Station #3 4-4
4.1.4 Lift Station #4 4-5
4.2 Pipeline Conditions 4-5
4.3 Model Development 4-7
4.3.1 Flow Monitoring Summary 4-9
4.3.2 Model Calibration 4-9
4.4 Existing System Capacity Evaluation 4-11
4.4.1 Existing Lift Stations 4-13
4.5 Future Model Development 4-14
4.6 2045 Flows Capacity Evaluation 4-14
4.6.1 2045 Pipelines 4-14
4.6.2 2045 Lift Stations 4-17
4.7 2075 Flows Capacity Evaluation 4-17
4.7.1 2075 Pipelines 4-18
4.7.2 2075 Lift Stations 4-20
CHAPTER 5 – WRF CONDITION AND PERFORMANCE 5-1
5.1 Teton Valley WRF Overview 5-1
5.2 WRF Evaluation 5-2
5.2.1 Effluent Compliance 5-3
5.2.2 Deficiencies 5-4
5.3 WRF Recommended Improvements 5-4
CHAPTER 6 – NEED FOR SYSTEM IMPROVEMENTS 6-1
6.1 Health, Sanitation, and Security 6-1
6.2 Aging Infrastructure 6-1
6.3 System Deficiencies 6-1
6.3.1 Existing Deficiencies 6-1
6.3.2 Twenty-Year Deficiencies 6-2
6.3.3 Fifty-Year Deficiencies 6-2
6.4 Reasonable Growth 6-2
CHAPTER 7 – COLLECTION SYSTEM ALTERNATIVES 7-1
7.1 Initial Screening of Alternatives 7-1
7.2 Lift Station #1 Improvements - Alternatives Analysis 7-3

7.3 Undersized Pipe in S 1000 W - Alternatives Analysis 7-7

CHAPTER 8 – TREATMENT AND DISPOSAL ALTERNATIVES 8-1

8.1 Description of Alternatives 8-1

8.1.1 Status Quo (Alternative 1) 8-1

8.1.2 City Lagoon Treatment and Land Application (Alternative 2) 8-2

8.1.3 City Lagoon Treatment and Surface Water Discharge (Alternative 3) 8-4

8.1.4 City Mechanical Treatment and Surface Water Discharge (Alternative 4) 8-5

8.1.5 City Mechanical Treatment and Rapid Infiltration (Alternative 5) 8-6

8.1.6 Other Disposal and Treatment Alternatives 8-8

8.2 Evaluation of Alternatives 8-9

CHAPTER 9 – CAPITAL IMPROVEMENT PLAN 9-1

9.1 Prioritization Criteria 9-1

9.2 Basis for Cost Estimates 9-1

9.3 Capital Improvement Plan 9-1

9.4 Priority 1 Projects 9-4

9.5 Project Schedule 9-4

9.6 Permit Requirements 9-4

9.7 Sustainability Considerations 9-4

9.8 Operator and Staffing Requirements 9-5

9.9 Funding Options 9-5

9.9.1 Cash Funding 9-5

9.9.2 Idaho Department of Environmental Quality (State Revolving Fund) 9-5

9.9.3 United States Army Corps of Engineers (USACE) (Section 595) 9-6

9.9.4 Idaho Bond Bank 9-6

9.9.5 Local and Private 9-6

9.10 Annual Budget Considerations 9-6

9.10.1 Annual Replacement Budgets 9-6

9.10.2 Operating Revenue/Expenses and User Rate Impacts 9-7

9.11 Annual Operations and Maintenance Costs 9-9

9.12 Environmental Impact Mitigation 9-9

9.13 Condition Assessment Recommendations 9-9

9.14 Planning Recommendations 9-10

LIST OF FIGURES

Figure ES-1: Study Area E-2

Figure ES-2: 2021 and 2022 Daily Recorded Flows E-4

Figure ES-3: Existing Collection System E-5

Figure ES-4: CIP Map E-9
Figure 2-1: Eastern Snake River Plain Aquifer 2-2
Figure 3-1: Population Projections 3-2
Figure 3-2: 2021 and 2022 Daily Recorded Flows 3-4
Figure 3-3: System Wide Unit Diurnal Curve 3-6
Figure 3-4: Average Daily Flow by Month 3-6
Figure 3-5: South LS Influent Flows vs. Daily Precipitation 3-7
Figure 3-6: Correlation Between Precipitation and South LS Flows 3-8
Figure 3-7: Historical BOD5 and TSS Influent Loads Associated with Victor 3-10
Figure 4-1: Existing Collection System 4-2
Figure 4-2: Lift Stations in Flood Plains 4-4
Figure 4-3: CCTV Pipe Inspection 4-6
Figure 4-4: Modeled Collection System 4-8
Figure 4-5: Original Model Results Compared to Observed Data 4-10
Figure 4-6: Calibrated Model Results Compared to Observed Data 4-11
Figure 4-7: Existing PHF Maximum Depth/Full Depth 4-12
Figure 4-8: 2045 MDF Maximum Depth/Full Depth 4-16
Figure 4-9: 2075 MDF Maximum Depth/Full Depth 4-19
Figure 5-1: Teton Valley Regional WRF Layout 5-1
Figure 5-2: WRF Process Flow Diagram 5-2
Figure 7-1: Lift Station 1 Force Main 7-5
Figure 7-2: Undersized Pipe in S 1000 W Alternatives 7-8
Figure 8-1: Lagoon Treatment and Land Application 8-3
Figure 8-2: Nearby Land Suitability for Land Application 8-4
Figure 8-3: Lagoon Treatment and Surface Water Discharge 8-5
Figure 8-4: Mechanical Treatment and Surface Water Discharge 8-6
Figure 8-5: Nearby Land Suitability for Rapid Infiltration 8-7
Figure 8-6: Mechanical Treatment and Rapid Infiltration Discharge 8-8
Figure 9-1: CIP Map 9-3
Figure 9-2: Historical Revenue and Expenditures 9-8

LIST OF TABLES

Table ES-1: Population Projections E-3
Table ES-2: Historical Wastewater Flows E-4
Table ES-3: Capital Improvement Plan E-8
Table 2-1: Local Climate Summary 2-4
Table 3-1: Population Projections 3-2
Table 3-2: EDU Density Per Acre 3-3

Table 3-3: Historical Wastewater Flows 3-4
Table 3-4: Top Ten Max Days 3-5
Table 3-5: Flow Projection Summary 3-8
Table 3-6: Historical BOD5 and TSS Loads Associated with Victor 3-9
Table 3-7: Teton Valley Regional WRF Influent Concentrations 3-10
Table 3-8: Load Projection Summary 3-11
Table 3-9: Teton Valley Regional WRF Permit Limits 3-11
Table 3-10: Recycled Water Classes and Some Example Uses 3-12
Table 3-11: Minimum Pipe Slopes 3-13
Table 4-1: Lift Station Inventory 4-3
Table 4-2: Gravity Pipeline Summary 4-5
Table 4-3: Force Main Inventory 4-7
Table 4-4: Model Calibration Summary 4-10
Table 4-5: Existing Modeled and Reported Pumping Rates 4-14
Table 4-6: 2045 Modeled and Reported Pumping Rates 4-17
Table 4-7: 2075 Modeled and Reported Pumping Rates 4-20
Table 7-1: Gravity Pipeline Initial Screening of Alternatives 7-2
Table 7-2: Lift Station Initial Screening of Alternatives 7-3
Table 7-3: Alternatives Pros and Cons 7-5
Table 7-4: Alternatives Cost Comparison 7-6
Table 7-5: Alternatives Environmental Impacts 7-7
Table 7-6: Alternatives Pros and Cons 7-9
Table 7-7: Alternatives Cost Comparison 7-9
Table 7-8: Alternatives Environmental Impacts 7-10
Table 8-1: Disposal and Treatment Alternatives Summary 8-9
Table 8-2: Disposal Alternatives 20-Year Life Cycle Cost Comparison 8-10
Table 8-3: Disposal and Treatment Alternatives General Impact 8-11
Table 9-1: Prioritization Criteria 9-1
Table 9-2: Capital Improvement Plan 9-2
Table 9-3: Five-Year CIP Schedule 9-4
Table 9-4: Annual Replacement Budgets 9-7
Table 9-5: Historical Revenue and Expenditures 9-7
Table 9-6: User Rate Analysis 9-9

LIST OF APPENDICES

APPENDICES

A	Figures
B	Supporting Data
C	Flow Monitoring
D	Permit
E	Growth Areas
F	Annual Replacement Budgets
G	Capital Improvement Plan

EXECUTIVE SUMMARY

The City of Victor (City) contracted with Keller Associates, Inc. (Keller) to update their wastewater facility planning study (WWFPS). This study will replace the previous study, which was completed in 2008. The WWFPS includes an evaluation of the existing collection system as well as considerations for a new wastewater treatment plant (WWTP) to serve the City. This study aims to assist in re-assessing needs and priorities, properly allocating budgets to address system deficiencies, and planning for future growth.

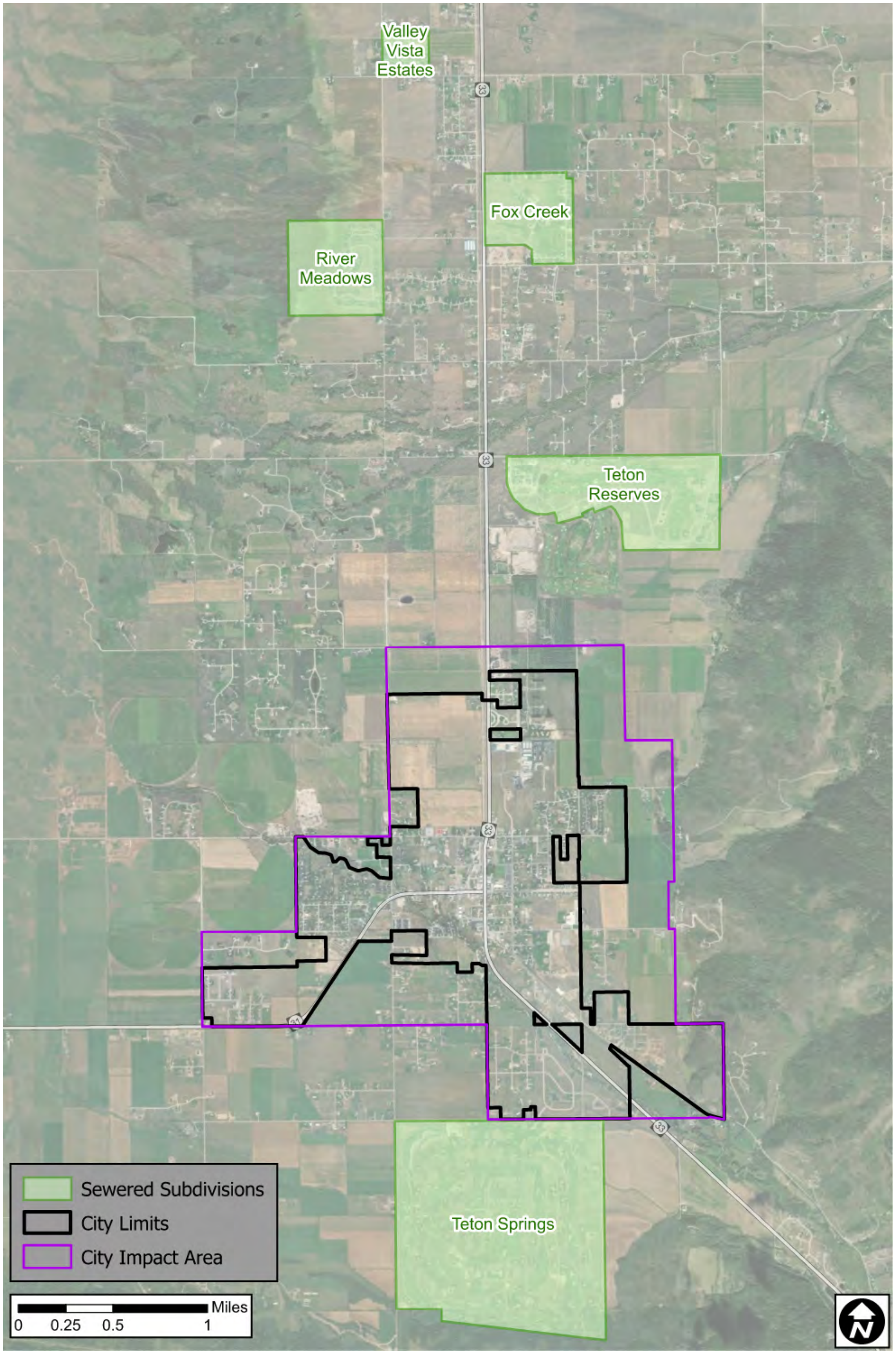
ES.1 PLANNING CRITERIA

City-defined goals, objectives, regulatory requirements, and engineering best practices formed the basis for the evaluation in this master plan. This WWFPS considered three planning periods: existing conditions (2025), 20-year conditions (2045), and 50-year conditions (2075). A 20-year planning period is typical for evaluating wastewater treatment equipment, while 50-year planning is often used for planning in a collection system due to the long useful life of collection system components. Chapter 3 provides an in-depth discussion of the planning criteria.

<u>Study Area and Land Use</u>

The existing City limits, city-adjusted area of impact, five county subdivisions that discharge to the City's system, and the corridor for the trunkline to Driggs are defined as the study area in this facility plan. The City limits consist of approximately 1,700 acres, the impact area consists of 2,700 acres including City limits, and the total study area is approximately 4,200 acres. The study area is illustrated in **Figure ES-1**.

FIGURE ES-1: STUDY AREA



Population

The City has seen a wide range of population growth, with the largest increase from 1990 to 2010, when the population multiplied more than six times. The population has remained somewhat steady in recent years, with an estimated 2023 population of 2,392. Populations were projected based on a 3.5% annual average growth rate (AAGR), which is consistent with the City's water facility planning study. As population growth typically slows over time, a 2.0% AAGR was assumed from 2045 to 2075 to project the 50-year population for collection system evaluation.

This study also considered the populations from the county subdivisions that discharge into the collection system owned and maintained by Victor. These population projections assume these developments will grow at the same AAGR as the City of Victor and no additional county subdivisions will be connected. The buildout population of the county subdivisions was set equal to the total number of lots within each development. Under these assumptions, Victor's collection population is estimated to be 7,925 in 2045 and 12,336 in 2075. The historical and projected population values are presented in **Table ES-1.**

TABLE ES-1: POPULATION PROJECTIONS

	Year	Victor Population	Victor AAGR (calculated)	Collection Population[1,3]	Treatment Population[2,3]	Data Source & Comments
Historical	1970	241	-	N/A	N/A	1970 Census Population
	1980	323	3.0%	N/A	N/A	1980 Census Population
	1990	292	-1.0%	N/A	N/A	1990 Census Population
	2000	840	11.1%	N/A	N/A	2000 Census Population
	2010	1,928	8.7%	N/A	N/A	2010 Census Population
	2015	2,009	0.8%	N/A	N/A	Idaho Department of Labor Estimate
	2020	2,157	1.4%	3,399	2,943	2020 Census Population
	2023	2,392	3.5%	3,900	3,326	3.5% Growth from 2020
Projected	2025	2,562	3.5%	4,178	3,563	3.5% Growth from 2020
	2030	3,043	3.5%	4,962	4,232	3.5% Growth from 2020
	2035	3,614	3.5%	5,853	5,026	3.5% Growth from 2020
	2045	**5,098**	**3.5%**	**7,925**	**7,090**	Projected using 3.5% AAGR (treatment planning year)
	2075	**9,233**	**2.0%**	**12,336**	**11,501**	Projected using 2.0% AAGR (collection planning year)

1) Collection population includes populations from the City of Victor and all county subdivisions discharging to the collection system.

2) Treatment population only includes populations from the City of Victor and Teton Reserve and Teton Springs county subdivisions.

3) Assumes the county subdivisions have the same AAGR as the City of Victor. Buildout populations for each county subdivision were calculated based on the total number of lots and assumes 2.93 people per household.

Wastewater Flows

Table ES-2 shows planning criteria for average day flow (ADF), average high flow (AHF), average low flow (ALF), maximum month flow (MMF), and maximum day flow (MDF). The peak hour flows (PHF) were calculated using the flow data available at Lift Station #1. The MDD to PHF factor was 1.86. The ADF has been steadily increasing with the population growth, but the gallons per capita per day (gpcd) has remained relatively constant. The system experiences higher wastewater flows during the summer than the winter, with the lowest flow typically occurring during the shoulder seasons (October-November and March-April). This is likely due to the influx of seasonal visitors as well as increased infiltration and inflow (I/I) as a result of high groundwater during the summer. The daily flows from the last two years are presented in **Figure ES-2**. Future flow projections were developed for the 20-year and 50-year planning periods.

FIGURE ES-2: 2021 AND 2022 DAILY RECORDED FLOWS

TABLE ES-2: HISTORICAL WASTEWATER FLOWS

Year	Population[1]	ADF		AHF		ALF		MMF		MDF		Peaking Factor
		MGD	gpcd	MGD	gpcd	MGD	gpcd	MGD	gpcd	MGD	gpcd	MDF/ADF
2018	3,201	0.19	60	0.25	77	0.17	52	0.28	88	0.33	102	1.70
2019	3,276	0.18	55	0.23	69	0.16	48	0.27	83	0.36	111	2.03
2020	3,399	0.21	61	0.24	71	0.18	54	0.26	75	0.30	88	1.43
2021	3,522	0.23	65	0.26	73	0.22	62	0.27	78	0.29	83	1.29
2022	3,711	0.24	65	0.26	71	0.24	65	0.28	76	0.36	97	1.49
Historical Average	-	0.21	61	0.25	72	0.19	56	0.27	80	0.33	96	1.59
Historical Max	-	0.24	65	0.26	77	0.24	65	0.28	88	0.36	111	2.03
Final Planning Criteria per Capita[2]		**-**	**61**	**-**	**72**	**-**	**56**	**-**	**88**	**-**	**111**	**-**

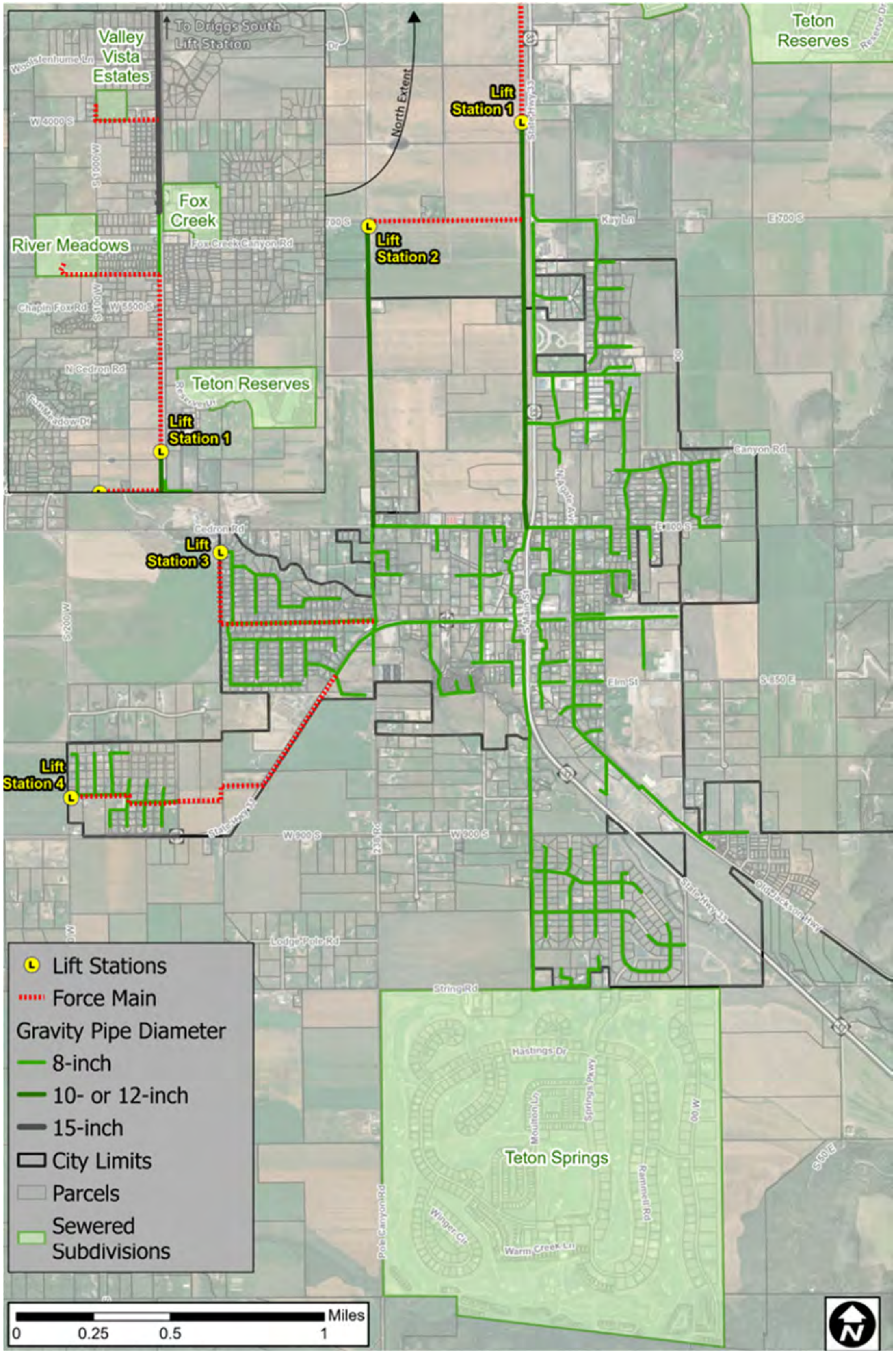
1) Based on total permanent sewered population.

2) Final planning criteria based on the 5-year average for ADF, ALF, and AHF. Based on the 5-year max for MMF and MDF.

ES.2 COLLECTION SYSTEM EVALUATION

The City of Victor owns a sanitary sewer collection system that serves residents primarily inside the City limits but also some county subdivisions located outside of the City limits. The collection system consists of four lift stations, four miles of pressure sewer pipe, and 26 miles of gravity sewer pipe. The gravity sewer consists of pipes ranging from 8 to 15 inches in diameter. North of Victor, the ownership and maintenance of the collection system transitions to the City of Driggs, which collects Victor's wastewater and conveys it to a WWTP. **Figure ES-3** below illustrates the existing collection system.

FIGURE ES-3: EXISTING COLLECTION SYSTEM



A calibrated hydraulic model was used to evaluate the collection system under existing and future flows. Note that the model was limited to main trunklines within the system because elevation information was not available throughout the entire collection system. Deficiencies were identified if the maximum depth of flow over diameter ratio (d/D) was greater than 0.75 for pipes 12-inches and smaller and greater than 0.85 for larger pipelines. This method of evaluating the collection system piping is common for identifying locations within the collection system approaching capacity so improvements can be planned, designed, and constructed before the pipelines exceed capacity. Lift stations were assumed to require increased capacity if the peak hour inflow exceeds 85% of firm pumping capacity. Similar to the collection system piping, this allows time for the City to design and implement solutions to increase the capacity before the lift stations are over capacity. The collection system was evaluated under existing (2025), 20-year (2045), and 50-year (2075) scenarios.

Below is a summary of the key model results identified under each scenario. Overall, the existing collection system requires improvements at Lift Station #1 and the Driggs South Lift Station (not owned or maintained by Victor). As the system continues to grow, some segments within the gravity collection system will require upsizing, and additional improvements will be required to increase lift station capacities.

Existing Flows:

- All trunklines are adequately sized to convey the existing peak flows without exceeding the maximum d/D criteria.
- Lift Station #1 and Driggs South Lift Station peak flows exceed 85% of the firm capacity, and improvements to increase the capacity are recommended.
- Lift Station #1 and Driggs South Lift Station force mains require upsizing due to the increased pumping capacity needed to meet the existing peak flows.

20-year flows:

- Portions of the existing 8-inch gravity pipeline along S 500 W and Highway 33 from Christopher Street to Cedron Street are undersized. Upsizing these segments of pipe is recommended.
- The existing 12-inch pipe downstream of Lift Station #1 is undersized. Upsizing these segments of pipe is recommended.
- Lift Station #2 peak flows exceed 85% of the firm capacity, and capacity improvements are recommended.

50-year flows:

- Pipe segments along S 1000 W from Center Street to Cedron Street are undersized. Upsizing these segments of pipe is recommended.
- The pipeline directly upstream of Lift Station #1 exceeds 85% d/D. Upsizing these segments of pipe is recommended.
- Lift Station #4 peak flows exceed 85% of the firm capacity, and capacity improvements are recommended.
- Lift Station #1 and Driggs South Lift Station will reach capacity again during the 50-year planning period, and additional improvements are recommended toward the end of the 50-year planning period.

Several alternatives were considered to address existing and future capacity issues, and the recommended solutions were included in the capital improvement plan.

ES.3 TREATMENT SYSTEM EVALUATION

The City of Victor does not own or operate its own WWTP. Instead, it conveys wastewater to the Teton Valley Regional WRF, owned and operated by the City of Driggs, approximately eight miles north of Victor. The Teton Valley Regional WRF has had historical permit violations, and significant improvements are required, which are in the range of $25M. This study evaluated capital and operational costs to determine if the City of Victor should continue to convey their wastewater flows to Driggs for treatment or if Victor should construct their own WWTP. The evaluation considered the following alternatives: status quo (continue discharging to Driggs), lagoon treatment and land application, lagoon treatment and surface water discharge, mechanical treatment and surface water discharge, and mechanical treatment and rapid infiltration discharge. Therefore, the lowest 20-year costs were determined to be the status quo alternative.

ES.4 CAPITAL IMPROVEMENTS PLAN

The Capital Improvement Plan (CIP) consists of a list of the recommended projects to be completed within the next 50 years; however, updates to the WWFPS should be completed every 5-7 years to update priorities and recommendations. The projects were grouped into three priorities and were categorized based on whether they were existing, 20-year, or 50-year deficiencies. The CIP is shown in **Table ES-3**, and the projects are illustrated in **Figure ES-4**. The costs shown in the CIP are planning-level estimates (Class 5 cost opinion by the Association for Advancement of Cost Engineering). Priority 1 items consist of existing deficiencies and are recommended to be implemented within the next five years. Priority 2 and 3 improvements are development-driven and should be implemented as the City grows.

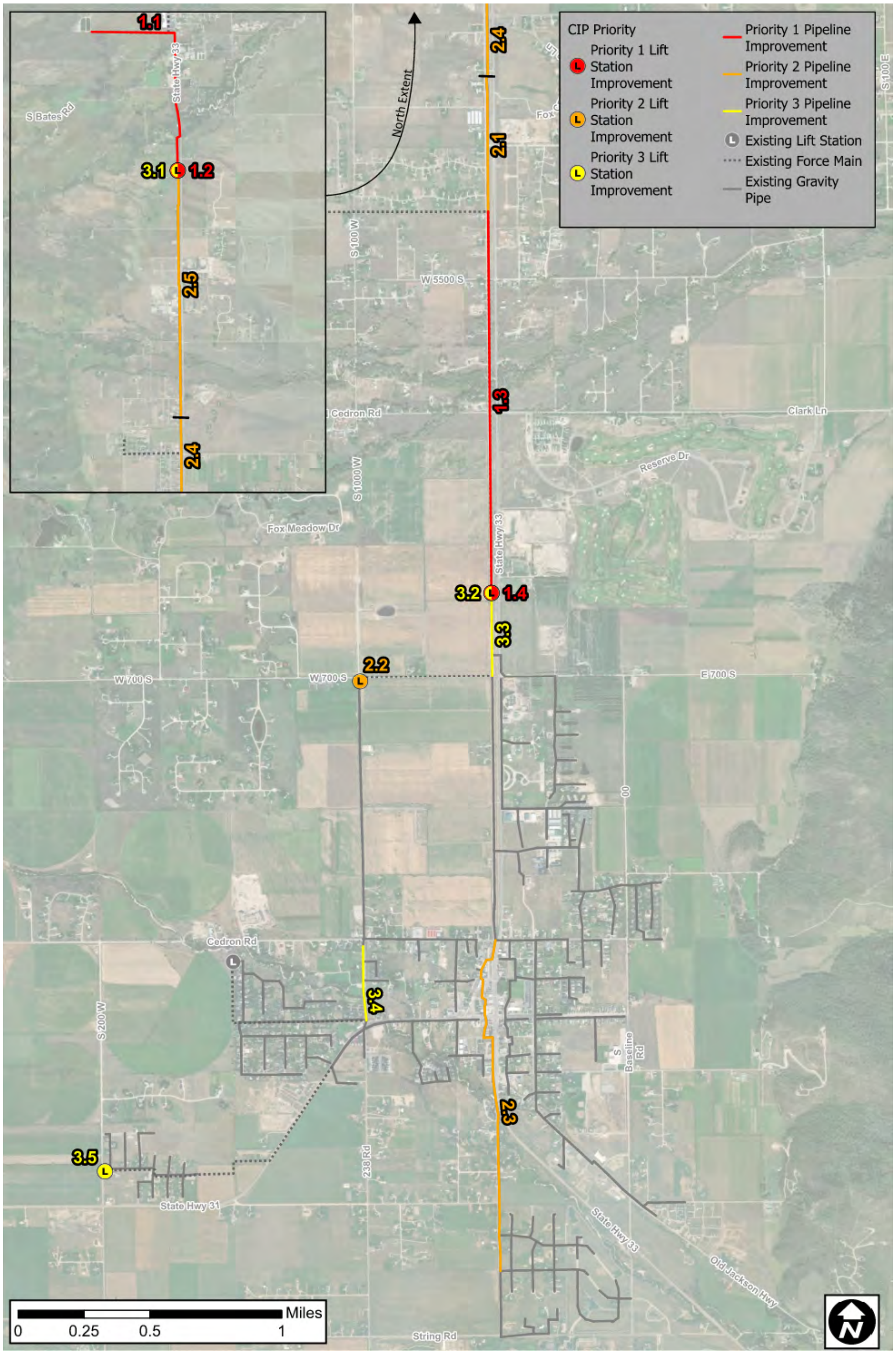
TABLE ES-3: CAPITAL IMPROVEMENT PLAN

ID#	Project Name	Project Trigger	Total Estimated Cost (2024 Dollars)	
Priority 1 Improvements (2025-2030)				
1.2	Driggs South Lift Station Force Main Upsize	Existing PHF exceeds velocity constraints	$	3,654,000
1.1	Driggs South Lift Station Upgrades	Existing PHF exceeds capacity trigger	$	2,735,000
1.4	Lift Station 1 Force Main Installation	Existing PHF exceeds velocity constraints	$	3,076,000
1.3	Lift Station 1 Upgrades	Existing PHF exceeds capacity trigger	$	2,735,000
		Total Priority 1 Improvements (rounded)	**$**	**12,200,000**
Priority 2 Improvements (2031-2045)				
2.1	Interceptor Upgrades (12" to 15")	Surcharging during 20-year MDF	$	1,326,000
2.2	Lift Station 2 Upgrades	20-Year PHD exceeds capacity trigger	$	226,000
2.3	S 500 W Pipe Upsize	Surcharging during 20-year MDF	$	4,570,000
2.4	Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$	2,920,000
2.5	Driggs - Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$	6,235,000
2.6	Lift Station Backup Provisions	Recommended resiliency improvement	$	205,000
		Total Priority 2 Improvements (rounded)	**$**	**15,482,000**
Priority 3 Improvements (2046 - 2075)				
3.1	Driggs South Lift Station and Interceptor Upgrades	50-Year PHD exceeds capacity trigger	$	391,000
3.2	Lift Station 1 Upgrades	50-Year PHD exceeds capacity trigger	$	391,000
3.3	Upstream of Lift Station 1 Upsize	Surcharging during 50-year MDF	$	889,000
3.4	S 1000 W Pipe Upsize	Surcharging during 50-year MDF	$	946,000
3.5	Lift Station 4 Upgrades	50-Year PHD exceeds capacity trigger	$	205,000
		Total Priority 3 Improvements (rounded)	**$**	**2,822,000**
		TOTAL SYSTEM IMPROVEMENTS COSTS (rounded)	**$**	**30,504,000**

Notes

The cost estimate herein is concept level information only based on our perception of current conditions at the project location and its accuracy is subject to significant variation depending upon project definition and other factors. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. This cost opinion is in **2024** dollars and does not include escalation to time of actual construction. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein."

FIGURE ES-4: CIP MAP



ES.5 SUMMARY AND CONCLUSION

Overall, the City's wastewater collection system is in good condition; however, Lift Station #1 improvements are recommended within the next five years. As with any collection system, as the City continues to grow, additional improvements to increase the capacity of the gravity collection system and lift stations will be required. The growth within the City is projected to be concentrated within the area of impact, and additional lift stations and collection system pipelines are anticipated to be minimal.

The planning elements used as the basis for the recommendations and CIP projects in this plan may evolve over time. It is recommended that the City continue to maintain current system models and review each improvement in more detail a year or two ahead of implementing individual capital improvements. Reviewing upcoming improvements ahead of time will provide the City with an opportunity to refine project scopes and budgets. A more comprehensive update of the master plan is recommended every 5-7 years to allow the City to re-assess needs and priorities, and properly allocate budgets to address system deficiencies.

CHAPTER 1 - INTRODUCTION

The City of Victor (City) contracted with Keller Associates, Inc. (Keller) to update their wastewater facility planning study (WWFPS). This study will replace the previous study, which was completed in 2008. This chapter introduces the wastewater master planning process and the purpose and need of this plan.

1.1. PURPOSE AND NEED

The City commissioned this WWFPS with the following three primary priorities: 1) evaluate the sewer collection and transmission system; 2) evaluate whether it would be advantageous for the City to build its own treatment facility rather than continuing to send its sewage to the City of Driggs; and 3) develop a capital improvement plan to address current wastewater needs and those arising from continued growth.

Master planning is an important task for a public wastewater system. It assists in re-assessing needs and priorities, properly allocating budgets to address system deficiencies, and planning for future growth. It is generally recommended to update a wastewater plan every 5-7 years, depending on the growth rate of the system. This study was partially funded by a planning grant from the Idaho Department of Environmental Quality (DEQ). The remainder of the funding came from the City.

1.2. REPORT ORGANIZATION

This study was developed to meet the DEQ wastewater facility planning checklist requirements and the Idaho Interagency facility plan general outline. The report organization consists of the following:

- Chapter 1 – Introduction
- Chapter 2 – Study Area: Identifies the project planning area and environmental resources present that may be impacted by the recommended improvements.
- Chapter 3 – Project Planning: Establishes planning time periods, historical and projected growth, historical wastewater flows and loading, the influence of inflow and infiltration (I/I), projected wastewater flows and loading, and regulatory criteria.
- Chapter 4 – Collection System Evaluation: Analysis of the existing collection system, including a conditions assessment and evaluation of the existing and future systems using a hydraulic model.
- Chapter 5 – WRF Condition and Performance: Discusses the Teton Valley Regional Water Reclamation Facility, including an analysis of effluent quality and possible capacity limitations.
- Chapter 6 – Need for System Improvements: Summarizes the need for improvements based on the evaluations.
- Chapter 7 – Collection System Alternatives: An analysis of necessary collection system alternatives to correct the identified deficiencies. Includes considerations such as environmental impacts, land requirements, potential construction problems, sustainability considerations, cost estimates, life-cycle cost analysis, and non-monetary factors.
- Chapter 8 – Treatment Alternatives: This chapter is similar to Chapter 7, except the focus is on the treatment facilities.
- Chapter 9 – Capital Improvement Plan and Proposed Projects: A summary of the recommended projects in the capital improvement plan to address the wastewater system deficiencies, a preliminary project schedule, a summary of annual costs, and financing options.

1.3. PROJECT DESCRIPTION

This planning study evaluates the existing and future collection systems. It also evaluates wastewater treatment alternatives, including constructing a new wastewater treatment plant (WWTP) owned and operated by the City of Victor. This study includes an inventory of the existing system, establishing planning/evaluation criteria, discussing the results of the existing and future system evaluations, alternatives analysis, and capital improvement plan. These components prepare the City as it continues to grow and improve its system.

1.4. COMMUNITY ENGAGEMENT

The purpose of a wastewater utility is to serve the community's needs. As such, the community's involvement in the planning process can help develop a public understanding of project needs, funding requirements, and revenue strategies. The results of the WWFPS were discussed in several public City Council meetings, and the City plans to make this WWFPS available at City Hall as part of the project's community engagement requirement. If there is significant interest, a town hall meeting could be held and made open to the public.

1.5. EXISTING WASTEWATER SYSTEM

Figure 1 in Appendix A illustrates the existing collection system, which consists of 8-inch to 12-inch gravity pipes, four lift stations, and 4-inch force mains. Wastewater is currently conveyed to the City of Driggs (Driggs) for treatment. Driggs operates the Teton Valley Regional Water Reclamation Facility (WRF). The WRF is currently not consistently meeting its effluent requirements under its National Pollutant Discharge Elimination System (NPDES) permit as discussed in Chapter 5.

1.6. OPERATOR LICENSING

The City's collection system is a Class I collection system.

The WRF and Driggs' collection system are both classified as Class I systems by DEQ; however, it is believed that this classification was made before the WRF upgrades. With the 2013 upgrades, the WRF is thought to be classified as a Class II system. One full-time employee has been assigned to the WRF. The responsible charge operator has a Class III treatment license.

1.7. FINANCIAL STATUS OF EXISTING FACILITIES

Financial information for the City of Victor is provided in Appendix F. Sewer revenue during the 2022 fiscal year was approximately $1,156,013. Total expenses from the sewer fund (including debt service) for the 2022 fiscal year were approximately $723,583.

1.8. WATER / ENERGY / WASTE AUDITS

No energy audits have been performed on the system; however, an energy audit should be conducted as part of a future project.

CHAPTER 2 - STUDY AREA

This chapter provides the project's location and defines the study area boundary. This chapter also provides a summary of environmental resources present within the study area.

2.1. LOCATION AND PLANNING BOUNDARY

The City of Victor is located in eastern Idaho, approximately three miles from the Idaho/Wyoming border. It is one of the largest cities in Teton County, Idaho. The City is a part of the Jackson, Wyoming-Idaho Metropolitan Statistical Area and situated in the Teton Valley beneath the Teton Mountains. Victor does not share an immediate border with any surrounding cities, and its closest neighbor is the City of Driggs, located eight miles to the north.

There are several unincorporated communities surrounding Victor. The existing City limits, city-adjusted area of impact, five county subdivisions that discharge to the City's system, and the corridor for the trunkline to Driggs are defined as the study area in this facility plan. The City limits, impact area, and county subdivisions are illustrated in Figure 2 in Appendix A. The City limits consist of approximately 1,700 acres, the impact area consists of 2,700 acres including City limits, and the total study area is approximately 4,200 acres.

2.2. ENVIRONMENTAL CONDITIONS

This section provides an overview of existing environmental conditions that may be impacted by the recommended improvements. This WWFPS is a planning effort and does not include infrastructure design or changes in operation and maintenance (O&M) procedures; however, it does include a plan for these changes. Since the changes in facilities and O&M procedures may result in environmental impacts, the potential effects are briefly discussed. This discussion, however, does not encompass the details an environmental information document (EID) requires.

2.2.1. Physiography, Topography, Geology, and Soils

The topography within the study area has a gradual slope from the southeast to the northwest, with elevations ranging from about 6,000 to 6,400 feet. The Teton Mountains border the study area's eastern end, and the Teton River's start is near the western end. The study area topography is illustrated in Figure 3 in Appendix A.

A standard metric for characterizing soil drainage is by hydrologic soil types outlined by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Hydrologic soil types are categorized into four groups, A through D, with Group A soils being well drained and Group D soils being poorly drained. The soils within the study area are mostly well-drained and consist of silty loam soil types. These soils are mainly classified as Group A, which means they have high infiltration rates. Figure 4 in Appendix A illustrates the hydrologic soil group located throughout the study area.

2.2.2. Surface and Groundwater Hydrology

The City of Victor is located within the Eastern Snake River Plain Aquifer Source Area. The extent of the aquifer and source area is illustrated in **Figure 2-1.**

Trail Creek, along with smaller creeks and canals, is the main waterway that flows through the study area, stretching from the northwest to the southeast of the City. The Teton River is located west of the study areas and is the largest surface water near the study area. The waterways are illustrated in Figure 5 in Appendix A.

FIGURE 2-1: EASTERN SNAKE RIVER PLAIN AQUIFIER

2.2.3. Fauna, Flora, and Natural Communities

U.S. Fish & Wildlife Service (USFWS) lists three threatened or endangered species within the study area, including the Canada Lynx, Grizzly Bear, and North American Wolverine. Threatened plant species that may be present in the study area include Ute Ladies'-tresses and Whitebark Pine.

2.2.4. Land Use and Development

The land use within the study area includes a combination of residential developments, commercial developments, ranches, and farmland. No industrial facilities are within the City limits, but a few commercial facilities, such as wineries and breweries, are connected to the municipal sewer system. The City's existing zoning is included in Figure 6 in Appendix A.

2.2.5. Cultural Resources (Historical and Archaeological)

The National Register of Historic Places lists three historic buildings and places in and near the study area. Figure 7 in Appendix A shows the location of the Victor Railroad Depot and other landmarks on the National Register of Historic Places within the Teton Valley. No archaeological sites have been recorded in the area.

2.2.6. Utility Use

Victor does not own a wastewater treatment plant, but instead, the City's wastewater is conveyed to the City of Driggs, which is approximately eight miles north of Victor. A description of the wastewater collection system is provided in Chapter 3. The City owns and operates its own potable water system, supplied by a combination of wells and spring sources.

The electricity provider for the City is Fall River Rural Electric Cooperative, located in Driggs. Silver Star Communications provides Internet and telephone services, while RAD and Teton County Transfer Station provide garbage services.

2.2.7. Floodplains and Wetlands

Floodplain information was obtained from the Federal Emergency Management Agency (FEMA) Map Service Center. The City of Victor is within the designated floodplain area of Trail Creek. The 100-year flood plain, 500-year flood plain, and regulated floodway are shown in Figure 8 in Appendix A.

The USFWS National Wetlands Inventory provides global information system (GIS) data that outlines wetlands using satellite imagery. The study area has multiple locations classified as wetlands, as shown in Figure 9 in Appendix A.

2.2.8. Wild and Scenic Rivers

According to the National Wild & Scenic Rivers Council, no wild and scenic rivers are in the planning area.

2.2.9. Public Health and Water Quality

The City has a public drinking water system that provides potable water to residents and businesses. The City possesses water rights to draw water from both its wells and Game Creek. The annual amount of water diverted from the wells should not exceed 196.2 acre-feet, and the maximum rate of water diversion from Game Creek should not surpass 3.2 cubic feet per second. The City monitors the drinking water quality to ensure public health requirements are met.

Victor is outside of the current nitrate priority areas. To safeguard the surface water quality in the surrounding area, it is recommended that best management practices be implemented during construction activities. Additionally, backflow preventers should be installed wherever necessary to prevent cross-contamination of potable water.

2.2.10. Prime Agricultural Farmland

A significant amount of land near Victor is used for agriculture and contains areas designated as “prime” farmland soils. Such designations are given to soils that are economically capable of producing sustained high yields of food, seed, forage, fiber, and oilseed crops. Of the 4,200 acres in the planning area, approximately 2,700 acres have been classified as “Prime farmland if irrigated” by the NRCS. Prime farmland locations in the study area are illustrated in Figure 10 in Appendix A.

2.2.11. Precipitation, Temperature, and Prevailing Winds

The climatological data for the area was retrieved from the Western Regional Climate Center. The closest station is in Driggs. A summary of the data from August 1904 to June 2016 is presented in **Table 2-1**. The weather station in Driggs has recorded a monthly minimum average temperature ranging from 6.1°F to 46°F and an average maximum temperature ranging from 29.3°F to 80.6°F. The total annual precipitation averaged 16.01 inches, with an average annual snowfall of 65.2 inches. Typically, the coldest month is January, and the hottest month is July.

TABLE 2-1: LOCAL CLIMATE SUMMARY

Month	Average Max. Temperature (F)	Average Min. Temperature (F)	Average Total Precipitation (in.)	Average Total SnowFall (in.)
Jan	29.3	6.1	1.43	15.1
Feb	33.7	9.1	1.08	8.6
Mar	40.2	16.4	1.11	8.7
Apr	51.5	25.5	1.28	4.5
May	61.9	33.4	1.91	1.7
Jun	70.9	39.9	1.86	0.3
Jul	80.6	46.0	1.11	0.0
Aug	79.2	43.8	1.19	0.0
Sep	70.0	36.2	1.29	0.6
Oct	57.8	27.8	1.25	2.0
Nov	41.1	17.7	1.11	8.7
Dec	31.2	8.5	1.39	15.0
Annual	**54.0**	**25.9**	**16.01**	**65.2**

2.2.12. Air Quality and Noise

The EPA has granted the Idaho DEQ authority to issue air quality permits and enforce air quality regulations. The primary aim of DEQ's air protection efforts is to ensure that federal and state health-based air quality regulations are adhered to. The Clean Air Act identified six common air pollutants, known as "criteria pollutants," which include carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. In addition, fugitive dust is closely regulated as it contributes to particulate matter. DEQ monitors and disseminates air quality information. Notably, Victor is situated outside areas of concern, Class I areas, or non-attainment areas. Also, no noise issues have been identified for the region. A map with sensitive air quality measurements is shown in Figure 11 in Appendix A.

2.2.13. Energy Production and Consumption

In the current sewer system, electricity is used to pump wastewater to Driggs for wastewater treatment. There is no electricity production from the City.

2.2.14. Socioeconomic Profile

The City of Victor had an estimated 2023 population of 2,392 people with a median age of 32.5 (Data USA). The 2020 median household income was roughly $70,923, and the median property value was $503,200. The proposed projects of this plan will raise no socioeconomic or environmental justice issues. The proposed projects will benefit all water customers and improve the overall economic vitality of the area.

CHAPTER 3 - PROJECT PLANNING

This chapter discusses the planning criteria for the planning area. It includes population projections for the study period and anticipated growth areas, and it establishes flow-based planning criteria based on historical wastewater flows of the system. The flow-based planning criteria are used to project future wastewater flows as a result of anticipated growth. The growth projections take into consideration land use, seasonal fluctuations, and anticipated growth. This section also includes an analysis of inflow and infiltration (I/I), a high-level summary of the wastewater contaminant loading characteristics, and additional evaluation criteria for the wastewater system.

3.1. POPULATION PROJECTIONS

Developing population projections is a key part of the planning process and is one of the primary inputs to evaluating the future system. While actual population growth may vary due to many factors, this study aimed to depict 20-year and 50-year populations using the available information such as historical growth rates, currently pending/planned developments, and input from City staff. The historical and projected population values are presented in **Figure 3-1** and **Table 3-1**.

Historical populations and estimates were gathered from the U.S. Census Bureau, the Idaho Department of Labor, the City's Comprehensive Plan, and the Idaho Department of Commerce. The City has seen a wide range of population growth, with the largest increase from 1990 to 2010, when the population multiplied more than six times. The population has remained somewhat steady in recent years, with an estimated 2023 population of 2,392. Populations were projected based on a 3.5% annual average growth rate (AAGR), which is consistent with the City's water facility planning study. As population growth typically slows over time, a 2.0% AAGR was assumed from 2045 to 2075 to project the 50-year population for collection system evaluation.

In addition to the City of Victor population, this study also considered the populations from the county subdivisions that discharge into the collection system owned and maintained by Victor. There is one subdivision located south of the City limits and four subdivisions located north of the City limits. As discussed in later sections, the River Meadows, Fox Creek, and Valley Vista Estates subdivisions discharge downstream of Lift Station 1 and were assumed to not contribute to a new Victor WWTP. For this reason, the population projections presented in the table include both a collection system population (all county subdivisions) and a treatment population (only Teton Springs and Teton Reserves). Population estimates from the previous five years were developed for the county subdivisions by counting the number of homes within each development based on the aerial imagery from that year. These population projections assume these developments will grow at the same AAGR as the City of Victor and no additional county subdivisions will be connected. The buildout population of the county subdivisions was set equal to the total number of lots within each development.

In addition to the resident population, the City also experiences an influx of visitors seasonally. The variations in seasonal populations are accounted for in the per capita flow rates established in the following sections. Specific seasonal population estimates were not included in this study.

TABLE 3-1: POPULATION PROJECTIONS

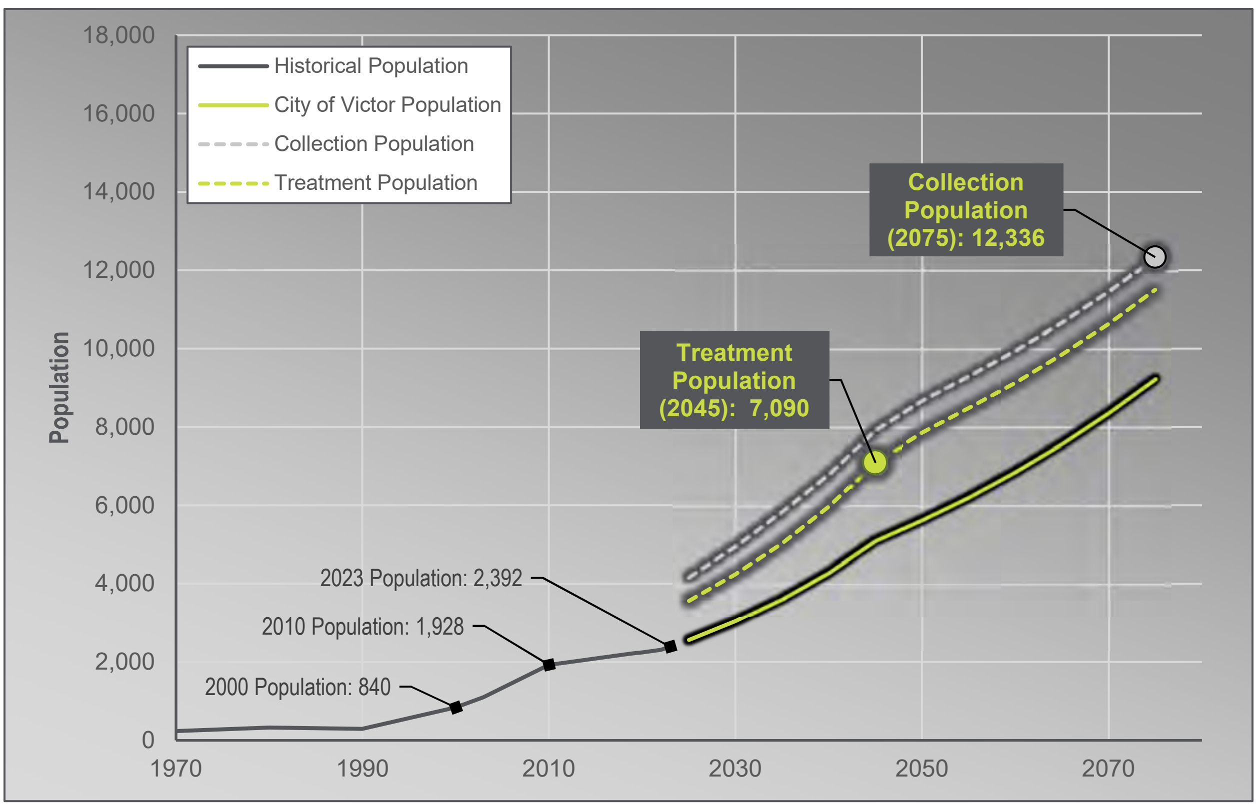
	Year	Victor Population	Victor AAGR (calculated)	Collection Population[1,3]	Treatment Population[2,3]	Data Source & Comments
Historical	1970	241	-	N/A	N/A	1970 Census Population
	1980	323	3.0%	N/A	N/A	1980 Census Population
	1990	292	-1.0%	N/A	N/A	1990 Census Population
	2000	840	11.1%	N/A	N/A	2000 Census Population
	2010	1,928	8.7%	N/A	N/A	2010 Census Population
	2015	2,009	0.8%	N/A	N/A	Idaho Department of Labor Estimate
	2020	2,157	1.4%	3,399	2,943	2020 Census Population
	2023	2,392	3.5%	3,900	3,326	3.5% Growth from 2020
Projected	2025	2,562	3.5%	4,178	3,563	3.5% Growth from 2020
	2030	3,043	3.5%	4,962	4,232	3.5% Growth from 2020
	2035	3,614	3.5%	5,853	5,026	3.5% Growth from 2020
	2045	**5,098**	**3.5%**	**7,925**	**7,090**	Projected using 3.5% AAGR (treatment planning year)
	2075	**9,233**	**2.0%**	**12,336**	**11,501**	Projected using 2.0% AAGR (collection planning year)

1) Collection population includes populations from the City of Victor and all county subdivisions discharging to the collection system.

2) Treatment population only includes populations from the City of Victor and Teton Reserve and Teton Springs county subdivisions.

3) Assumes the county subdivisions have the same AAGR as the City of Victor. Buildout populations for each county subdivision were calculated based on the total number of lots and assumes 2.93 people per household.

FIGURE 3-1: POPULATION PROJECTIONS



3.1.1. Projected Growth Areas

Identifying where growth is expected to occur is necessary to properly allocate future wastewater flows to the collection system model and size future infrastructure. The growth locations were assigned based on several assumptions. First, growth was spread throughout existing subdivisions that were not currently built out. The additional population within these subdivisions was developed by counting empty parcels inside established subdivisions in recent aerial imagery. Second, new growth areas were established based on future land use categories and allowable densities in the 2021 Comprehensive Plan. The future land use categories are depicted in Figure 6 in Appendix A. The densities for each land use category were assumed to be the average of the allowable range, as shown in **Table 3-2**. It should be noted that the EDUs per acre were assigned assuming 70% of the gross areas are developable. The remainder of the area will likely consist of right-of-way or open space requirements. Note that the same number of people per household (2.93) was used as described in the population projections.

The 2045 collection population was reached by assuming the existing subdivisions would be entirely filled in and an additional 420 gross acres would be developed and partially filled in based on the land use type. It was also assumed that the county subdivisions that contribute to the collection system would be almost entirely filled by 2045. The remaining growth to the 2075 collection population was based on reaching the assumed density for each growth area and the remaining infill from the county subdivisions. Figures 16 and 17 in Appendix A illustrate 2045 and 2075 growth areas.

TABLE 3-2: EDU DENSITY PER ACRE

Comprehensive Plan Use	Max EDU Density (EDUs/Acres)	Min EDU Density (EDUs/Acres)	Assumed EDU Density (EDUs/Acres)
Downtown Core	24	14	19
Downtown Neighborhoods	16	8	12
Surrounding Neighborhoods	10	4	7
Edge Neighborhoods	4	1	2.5
Employment	4	1	2.5
Open Space/ Greenways	0	0	0

3.2. HISTORICAL FLOWS

Daily flows from the Driggs South Lift Station (LS) were used to develop the planning flows as the flows through this lift station include the City of Victor and the county subdivisions between Victor and Driggs. The historical data was used to develop planning criteria for assigning existing and future flow conditions. The flow scenarios assessed in this planning study include the following:

- **Average Day Flow (ADF):** The average annual daily flow for an entire year.
- **Average High Flow (AHF):** Average daily flow for periods where there is historically minimal precipitation. It is assumed to be from June through September for this study. See Section 3.3 for additional discussion regarding seasonal fluctuations.
- **Average Low Flow (ALF):** Average daily flow for periods where there has historically been more precipitation. It is assumed to be from December through March for this study. See Section 3.3 for additional discussion regarding seasonal fluctuations.
- **Maximum Month Flow (MMF):** The average daily flow from the month with the largest flows.
- **Maximum Day Flow (MDF):** The total daily flow from the maximum day during a year.
- **Peak Hour Flow (PHF):** The maximum hourly flow rate the system may experience.

3.2.1. Existing ADF, AHF, ALF, MMF, and MDF

The planning criteria for ADF, AHF, ALF, MMF, and MDF are presented in **Table 3-3**, and a summary of the daily flows is included in Appendix B. The table summarizes the flows from Driggs South LS from the previous five years. The daily flows from the last two years are presented in **Figure 3-2**.

The ADF has been steadily increasing with the population growth, but the gallons per capita per day (gpcd) has remained relatively constant. The system experiences higher wastewater flows during the summer than the winter, with the lowest flow typically occurring during the shoulder seasons (October-November and March-April). This is likely due to the influx of seasonal visitors in the summer and winter months, as well as increased I/I during the summer. The MMF for four out of the five years occurred during July. Additional discussion regarding seasonal fluctuations is included in Section 3.3.

FIGURE 3-2: 2021 AND 2022 DAILY RECORDED FLOWS

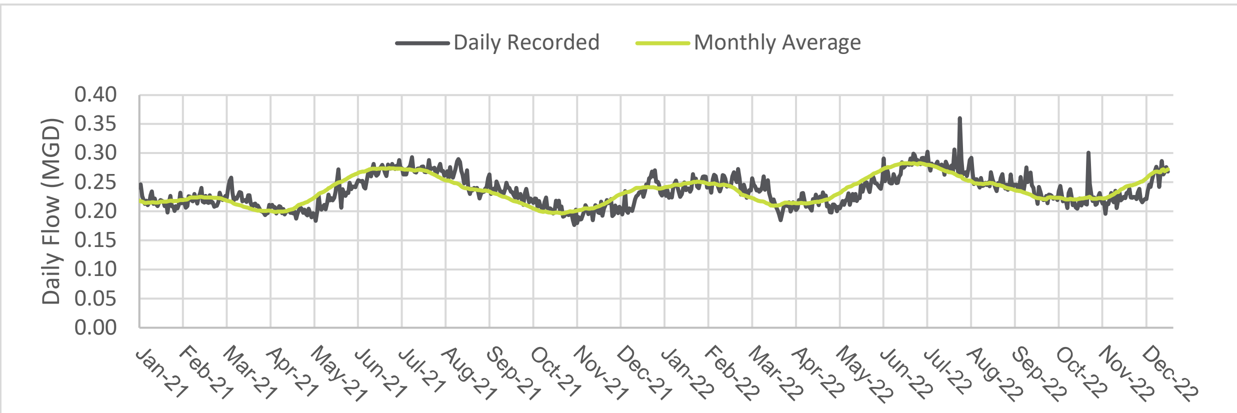


TABLE 3-3: HISTORICAL WASTEWATER FLOWS

Year	Population[1]	ADF		AHF		ALF		MMF		MDF		Peaking Factor
		MGD	gpcd	MGD	gpcd	MGD	gpcd	MGD	gpcd	MGD	gpcd	MDF/ADF
2018	3,201	0.19	60	0.25	77	0.17	52	0.28	88	0.33	102	1.70
2019	3,276	0.18	55	0.23	69	0.16	48	0.27	83	0.36	111	2.03
2020	3,399	0.21	61	0.24	71	0.18	54	0.26	75	0.30	88	1.43
2021	3,522	0.23	65	0.26	73	0.22	62	0.27	78	0.29	83	1.29
2022	3,711	0.24	65	0.26	71	0.24	65	0.28	76	0.36	97	1.49
Historical Average	-	0.21	61	0.25	72	0.19	56	0.27	80	0.33	96	1.59
Historical Max	-	0.24	65	0.26	77	0.24	65	0.28	88	0.36	111	2.03
Final Planning Criteria per Capita[2]		**-**	**61**	**-**	**72**	**-**	**56**	**-**	**88**	**-**	**111**	**-**

1) Based on total permanent sewered population.

2) Final planning criteria based on the 5-year average for ADF, ALF, and AHF. Based on the 5-year max for MMF and MDF.

The ten highest flow days are summarized in **Table 3-4**. The top maximum flow days were examined to see if the daily flow value was representative of actual system flows or if other factors, such as abnormal discharges, flow meter errors, or other anomalies may have resulted in excessively high flows. There did not appear to be anomalies in the top flow days. The MDF of 0.36 MGD occurred two times in separate years, and the next highest flows were not much lower than the maximum day. The MDFs were compared to the population each corresponding year to generate a per capita flow rate. The highest per capita flow rate occurred in 2019 and was 111 gpcd.

TABLE 3-4: TOP TEN MAXIMUM FLOW DAYS

Top 10 Highest Flow Occurences				
Rank	Date	Influent (MGD)	Flow Per Capita (gpcd)[1]	Precipitation (in)[2]
1	Thursday, June 6, 2019	0.36	111	0.00
2	Saturday, August 6, 2022	0.36	97	0.46
3	Thursday, June 21, 2018	0.33	102	0.00
4	Saturday, June 23, 2018	0.32	101	0.00
5	Monday, June 18, 2018	0.32	101	0.28
6	Friday, June 22, 2018	0.32	100	0.00
7	Thursday, June 28, 2018	0.32	99	0.00
8	Sunday, June 24, 2018	0.32	99	0.04
9	Friday, June 29, 2018	0.32	98	0.00
10	Sunday, July 7, 2019	0.31	96	0.00

1) Based on permanent population from the corresponding year.

2) Precipitation data from Rexburg, ID located approximately 40 miles to the northwest.

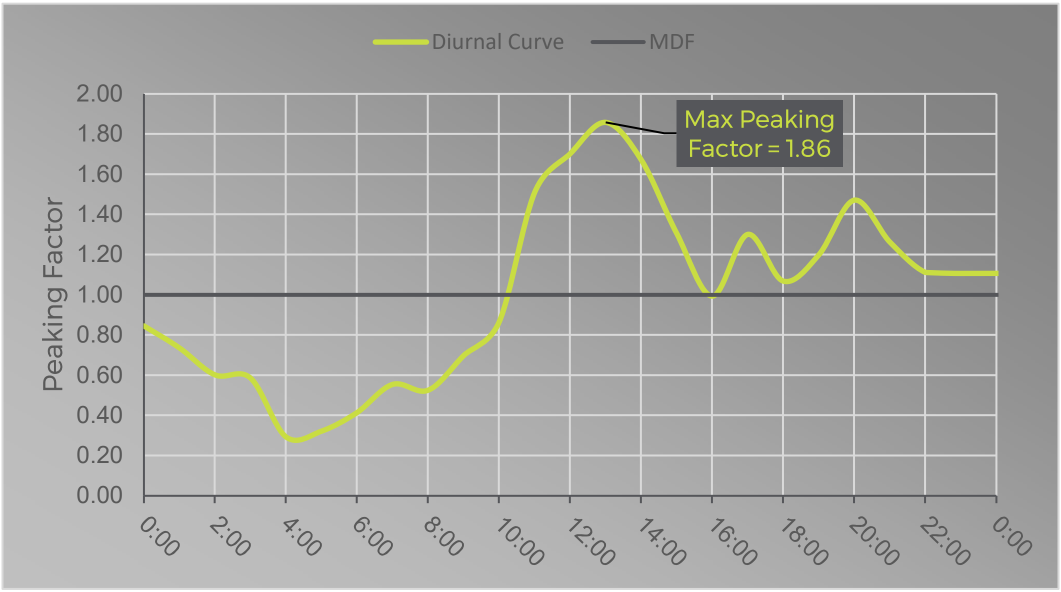
3.2.2. Existing PHF

The PHF was calculated using the SCADA data from Lift Station 1. Lift Station 1 is located north of the City limits and collects all of the system flows with the exception of three county subdivisions north of City limits. Lift Station 1 has a flow meter on the discharge side of the pumps and records wetwell depth and pump outflow in 1-minute increments. Because the flow meter is on the discharge side of the pump rather than on the incoming pipe, the exact inflow into the influent wetwell had to be approximated. The pumps turn on and off based on the levels within the wetwell. The average volume pumped per cycle was calculated, and the time between pump starts was used to approximate the inflow to the wetwell.

Diurnal curves were developed for the highest flow days (June 4-7, 2019; August 4-7, 2022; and August 1-3, 2022). Several of the top flow days were from June 2018; however, the SCADA was unavailable during this time. Flows from June 6 show an abnormal spike in flows that can likely be attributed to a large precipitation event or another abnormal discharge to the sewer system and were not deemed representative of typical system flows. The final unit curve was selected from August 6, 2022, as it had the highest representative peaking factor of the three date ranges. Supporting details and data used in developing the PHF is included in Appendix B.

The systemwide PHF was calculated to be 0.86 MGD, which is a 1.86 peaking factor from MDF to PHF (or a 3.2 peaking factor from PHF to ADF). The unit diurnal curve is illustrated in **Figure 3-3.**

FIGURE 3-3: SYSTEM WIDE UNIT DIURNAL CURVE

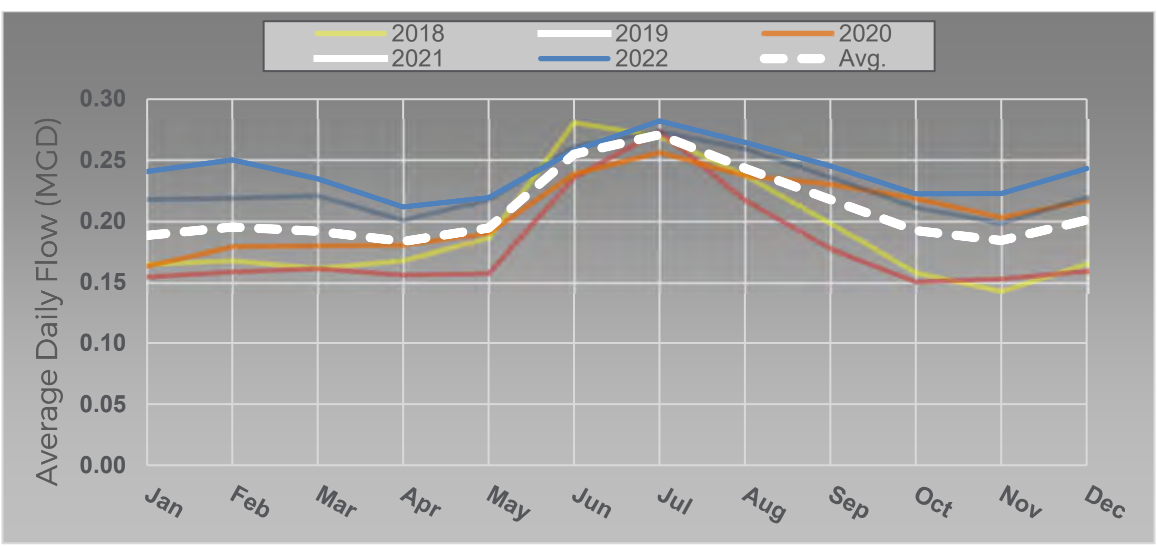


3.3. INFILTRATION AND INFLOW (I/I) ANALYSIS

Infiltration and inflow (I/I) is stormwater or groundwater that enters the sanitary sewer system and can come from a variety of sources, such as storm sewers connected to the sanitary sewer, storm inflow through manhole lids, and groundwater infiltration into cracked/broken pipelines, services, or manholes. I/I impacts in Idaho are often minimal due to its dry climate; however, there are instances where significant I/I may exist due to other reasons, such as high groundwater, surface water irrigation influences, or nearby rivers or streams.

As shown in **Figure 3-4**, the wastewater system typically sees the highest flows in the summer months and the lowest flows in early spring and fall. The five-year average flows in July are approximately 1.5 times higher than those in November, indicating the presence of seasonal I/I.

FIGURE 3-4: AVERAGE DAILY FLOW BY MONTH



Precipitation data was compared to the daily flows at the South LS to see if there was a significant amount of stormwater inflow. Precipitation data was taken from a weather station in Driggs, approximately eight miles north of Victor. **Figure 3-5** plots the daily influent flow at the South LS (black) and the total daily precipitation depths (green) over the last five years. Although there are a couple of spikes in the South LS flows during a precipitation event, overall, most precipitation events have minimal impact on the daily flows.

FIGURE 3-5: SOUTH LS INFLUENT FLOWS VS. DAILY PRECIPITATION

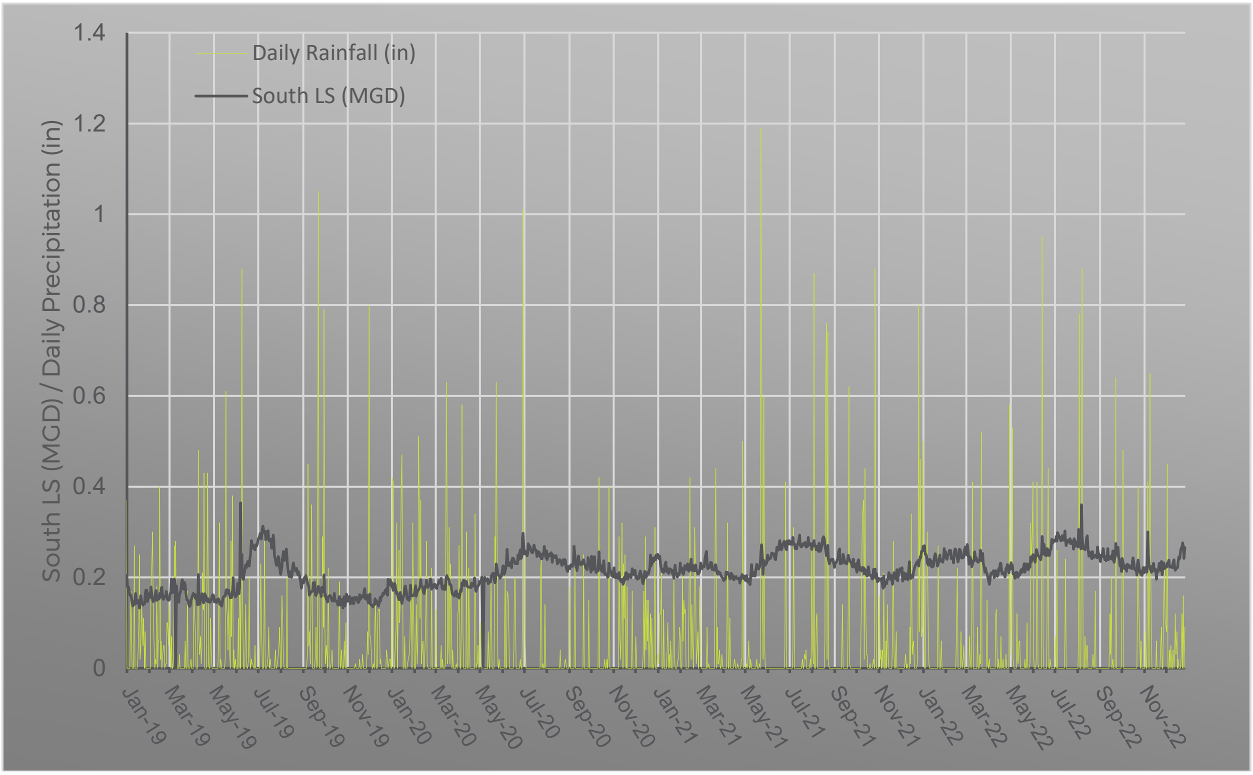
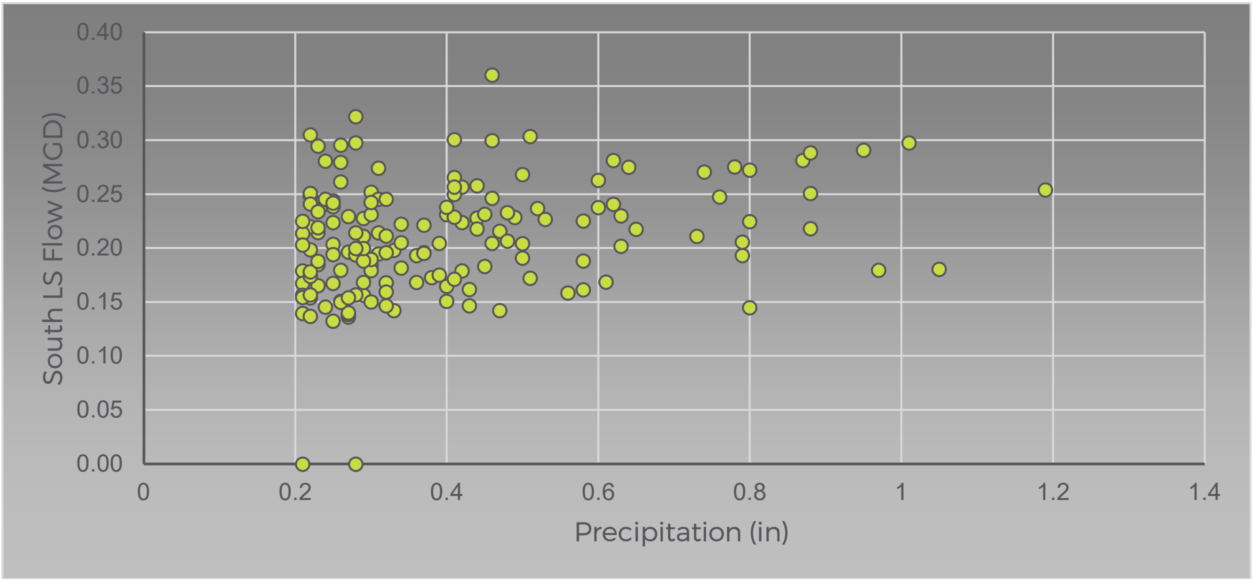


Figure 3-6 illustrates a plot of precipitation events exceeding 0.2 inches on the horizontal axis and the daily South LS flows on the vertical axis. Typically, a system experiencing high inflow will show an increasing linear correlation between precipitation and flow rate, with higher flows corresponding to higher precipitation events. However, the data presented in **Figure 3-6** does not follow a linear pattern. Therefore, the stormwater inflow does not appear to contribute significantly to the City's flows. The increase in flows during the summer is likely due to high groundwater infiltrating into the collection system.

FIGURE 3-6: CORRELATION BETWEEN PRECIPITATION AND SOUTH LS FLOWS



3.4. FUTURE FLOW PROJECTIONS

The planning criteria in were used to project the future flows during the planning period. The flow per capita per day values were multiplied by the projected populations in to calculate the flow rates for the planning periods. These flows will be utilized to evaluate the existing system and alternatives to address system deficiencies.

The table specified flow projections for the collection system and treatment system separately. This is because some county subdivisions would not discharge to a new treatment plant in Victor if constructed. The treatment flow projections only include flows from the City of Victor, Teton Springs, and Teton Reserve subdivisions. The collection system flows include the same flows as the treatment system plus flows from Fox Creek, River Meadows, and Valley Vista Estates.

TABLE 3-5: FLOW PROJECTION SUMMARY

Scenario	Population	ADF (MGD)	AHF (MGD)	ALF (MGD)	MMF (MGD)	MDF (MGD)	PHF (MGD)
Treatment Projections							
2025	3,563	0.22	0.26	0.20	0.31	0.40	0.74
2030	4,232	0.26	0.31	0.24	0.37	0.47	0.88
2035	5,026	0.31	0.36	0.28	0.44	0.56	1.04
2040	5,969	0.37	0.43	0.34	0.52	0.66	1.23
2045	**7,090**	**0.43**	**0.51**	**0.40**	**0.62**	**0.79**	**1.47**
Collection Projections							
2025	4,178	0.26	0.30	0.24	0.37	0.47	0.86
2030	4,962	0.30	0.36	0.28	0.43	0.55	1.03
2035	5,853	0.36	0.42	0.33	0.51	0.65	1.21
2040	6,804	0.42	0.49	0.38	0.60	0.76	1.41
2045	7,925	0.48	0.57	0.45	0.69	0.88	1.64
2075	**12,336**	**0.75**	**0.89**	**0.70**	**1.08**	**1.37**	**2.55**

3.5. WASTEWATER LOADING

The wastewater flow within the City's system is a mixture of residential and commercial discharge contributions. There are no major industries in the area; however, the City has a number of breweries that discharge to the wastewater system. A description of the wastewater quality and characteristics is provided in this section. Similar to the flow analysis, a load analysis (concentration multiplied by flow) for the average day and maximum month loads are useful for the planning study and are defined below.

- **Average Day Load (ADL)**: The average daily load for the calendar year.
- **Maximum Month Load (MML):** Represents the highest calendar monthly average daily load into the system.

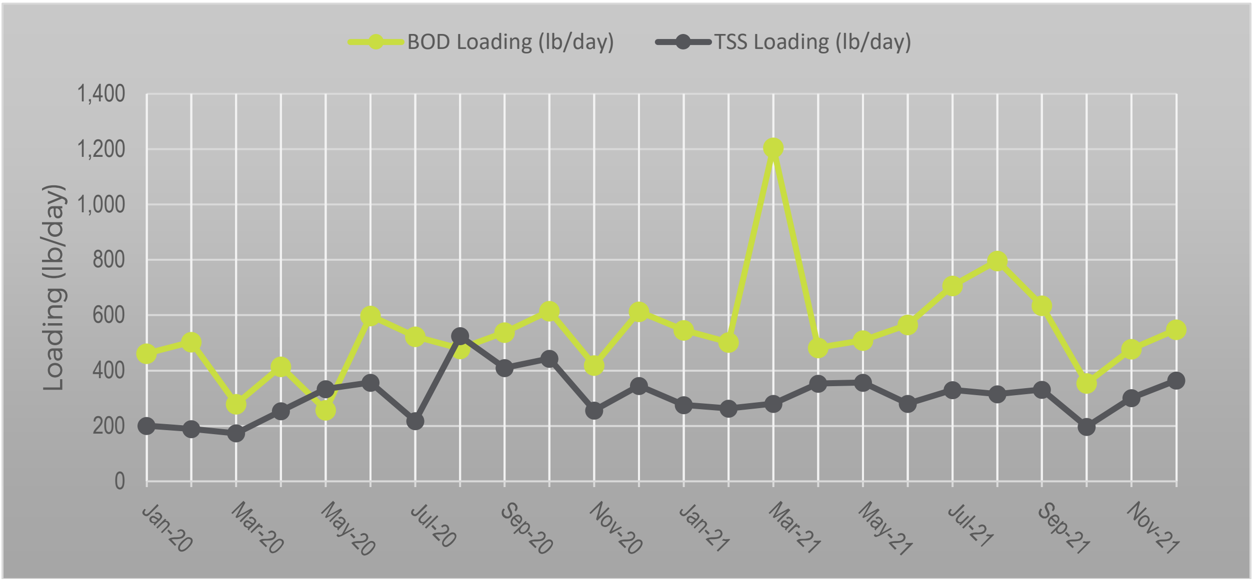
The City of Victor does not conduct its own wastewater sampling; therefore, it was assumed the wastewater strength recorded at the Teton Valley Regional WRF represents the strength of Victor's wastewater. The City of Driggs measures the influent five-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) twice a month. The BOD_5 and TSS sample results from 2018 to 2021 were reviewed as a part of this study, and the ADL and MMF from those years are presented in **Table 3-6**, and the historical monthly loads for 2020 and 2021 associated with Victor are shown in . The planning unit loads in pounds per capita per day (ppcd) are also shown in **Table 3-6**.

TABLE 3-6: HISTORICAL BOD5 AND TSS LOADS ASSOCIATED WITH VICTOR

Parameter	2018	2019	2020	2021	Planning Criteria
Population[1]	3,201	3,276	3,399	3,522	-
BOD_5 ppd					
ADL	336	405	475	611	-
MML	534	524	615	1,206	-
BOD_5 ppcd					
ADL	0.105	0.124	0.140	0.173	0.173
MML	0.167	0.160	0.181	0.342	0.342
TSS ppd					
ADL	221	261	309	304	-
MML	342	796	525	365	-
TSS ppcd					
ADL	0.069	0.080	0.091	0.086	0.091
MML	0.107	0.243	0.155	0.104	0.243

1) Includes county subdivisions since historical loading was gathered from Driggs treatment plant.

FIGURE 3- 7: HISTORICAL BOD5 & TSS INFLUENT LOADS ASSOCIATED WITH VICTOR



The projected influent concentrations (including total Kjeldahl nitrogen (TKN)) for the Teton Valley Regional WRF from the recent City of Driggs facility planning study are shown in **Table 3-7**.

TABLE 3-7: TETON VALLEY REGIONAL WRF INFLUENT CONCENTRATIONS

Parameter	Concentration (mg/L)
BOD_5	400
TSS	250
TKN	45

The TKN load shown in **Table 3-8** was calculated assuming a constant concentration of 45 mg/L and the monthly flows from Victor. A summary of the projected contaminant loads is shown in **Table 3-8.**

TABLE 3-8: LOAD PROJECTION SUMMARY

Parameter	Planning Unit Loads (PPCD)	Projected Loading (PPD)[1]	
Year	-	2025	2045
Population	-	3,563	7,090
5-Day Biochemical Oxygen Demand (BOD) (lb/day)			
ADL	0.173	618	1,230
MML	0.342	1,220	2,427
Total Suspended Solids (TSS) (lb/day)			
ADL	0.091	324	644
MML	0.243	866	1,723
Total Kjeldahl Nitrogen (TKN) (lb/day)[2]			
ADL	0.025	89	178
MML	0.049	176	351

1) Based on treatment system populations.

2) TKN MML based on same MML/ADL peaking factor for BOD.

3.6. REGULATORY REQUIREMENTS

The Teton Valley Regional WRF discharges treated effluent under NPDES Permit No. ID0020141 into an unnamed drainage ditch, which is a tributary of Woods Creek and the Teton River. The current effluent limits under the permit are summarized in **Table 3-9**.

TABLE 3-9: TETON VALLEY REGIONAL WRF PERMIT LIMITS

Parameter	Average Monthly	Average Weekly	Maximum Daily
BOD_5	45 mg/L 65% removal (min)	65 mg/L -	- -
TSS	45 mg/L 65% removal (min)	65 mg/L -	- -
E. Coli Bacteria	126 # 100mL (geometric mean)	-	406 # / 100 mL (instantaneous)
pH	6.5 - 9.0 at all times		
Total Chlorine Removal	12.4 µg/L	-	17.6 µg/L
Total Ammonia (final)	0.84 mg/L	-	1.68 mg/L

The permit went into effect on January 1, 2011, with an expiration date of December 31, 2015; however, the permit has been administratively extended. According to the NPDES Fact Sheet, neither the unnamed ditch nor Woods Creek are designated for specific beneficial uses in the Idaho Water Quality. However, all waters of the State of Idaho are protected for industrial and agricultural water supply, wildlife habitats, and aesthetics. There is currently no total maximum daily load (TMDL) for this segment.

If the City of Victor were to construct its own WWTP, the permit limits would be anticipated to be similar to the existing Teton Valley Regional WRF permit. In addition to BOD_5, TSS, and E. Coli, the permit would likely have a limit on total ammonia. Additionally, within the general wastewater industry, a class of 'emerging contaminants' has been discussed with increasing frequency as the attention of regulators has turned from nutrient pollutants to other constituents. It is not anticipated that limitations will be imposed for these contaminants as part of the new Idaho Pollutant Discharge Elimination System (IPDES) Permit, as DEQ has indicated that requirements in Idaho will initially be based on EPA guidance which is not scheduled to be released until late 2024 at the earliest and will likely take some time after its release to implement. However, the potential for permit implications is possible. Among these emerging contaminants are 'forever chemicals', such as per- and polyfluoroalkyl substances (PFAS) and pharmaceuticals and personal care products (PPCPs).

The City of Victor could also consider land application of the WWTP effluent. **Table 3-10** provides typical treatment requirements for the different classes of recycled water and some allowable uses, such as land application for agricultural use. Classes A-D are shown in the table; Class E is not shown as it has the fewest uses.

TABLE 3-10: RECYCLED WATER CLASSES AND SOME EXAMPLE USES

	Class A	Class B	Class C	Class D
Typical Treatment Requirements				
Oxidized	X	X	X	X
Coagulated and Clarified	X	X	-	-
Filtered	X	X	-	-
Disinfected	X	X	X	X
BOD_5, mg/L	5 - 10	-	-	-
Total Nitrogen, mg/L	10 (or stricter) - 30	10 (or stricter) - agronomic rate	agronomic rate	agronomic rate
Turbidity, NTU	0.2 - 5	5 - 10	-	-
pH	6.0 - 9.0	-	-	-
Total Coliform, no./100 mL	2.2 - 23	2.2 - 23	23 - 230	230 – 2,300
Virus	5-log reduction	-	-	-
Allowable Uses				
Fodder, fiber, or processed food crops	X	X	X	X
Pasture: not producing milk for human consumption	X	X	X	X
Pasture: producing milk for human consumption	X	X	X	-
All edible food crops	X	X	-	-
Golf courses	X	X	-	-
Parks: non-use periods	X	X	-	-
Parks: use periods	X	-	-	-
Home irrigation	X	-	-	-
Groundwater recharge	X	-	-	-

The City is also interested in using rapid infiltration as a disposal method. With rapid infiltration, the effluent would be directed into highly permeable soil; therefore, it is likely that the Ground Water Quality Rule (IDAPA 58.01.11) would govern any rapid infiltration disposal. In accordance with Idaho's Recycled Water Rules (IDAPA 58.01.17), there would also be a 30-day average suspended solids concentration limit of 100 mg/L and total nitrogen (as nitrogen (N)) concentration limit of 20 mg/L.

3.6.1. Collection System Regulatory Criteria

In addition to the planning criteria, this study also considers regulatory requirements relating to the collection system which may influence the capital improvement projects. A summary of the regulatory requirements which were used as evaluation criteria in this study are summarized below.

- Minimum Pipes Slopes (IDAPA 58.420.02.d): Ten State Standards are a widely used guidance document for wastewater systems and recommend a minimum velocity of 2.0 feet per second (fps) in gravity pipes when flowing full to reduce the likelihood of build-up in the pipeline. The minimum slopes for pipes 8-inch to 42-inch diameter pipes are summarized in **Table 3-11.**

TABLE 3-11: MINIMUM PIPE SLOPES

Pipe Diameter (in)	10 State Standards Minimum Slope (%)
8	0.4
10	0.28
12	0.22
15	0.15
18	0.12
21	0.1
24	0.08
30	0.058
36	0.046
42	0.037

- Minimum mainline diameter of 8-inches (IDAPA 58.430.02.a)
- Lift station electrical and mechanical equipment should remain protected from physical damage from the 100-year flood (IDAPA 58.440.01.a)
- Back-up power or emergency storage at lift stations (IDAPA 58.440.07.b)
- Lift stations should have pumping capacity to meet the peak hour flows with one unit out of service (IDAPA 58.440.02.c.i)
  - Peak hour inflow should be no more than 85% of firm pumping capacity. If it exceeds 85% of the firm pumping capacity, this will trigger improvements.
- Force main velocities should not be lower than 2 fps at their design flow rate (IDAPA 58.440.10.a) and no more than 8 fps
  - New force main should be sized with minimum velocities of 3 fps and maximum velocity of 5 fps
- Gravity collection pipes 12-inches and smaller should have a max depth over full depth (d/D) of less than 0.75 during peak hour demand. Gravity pipes larger than 12-inches should have a max d/D of less than 0.85.

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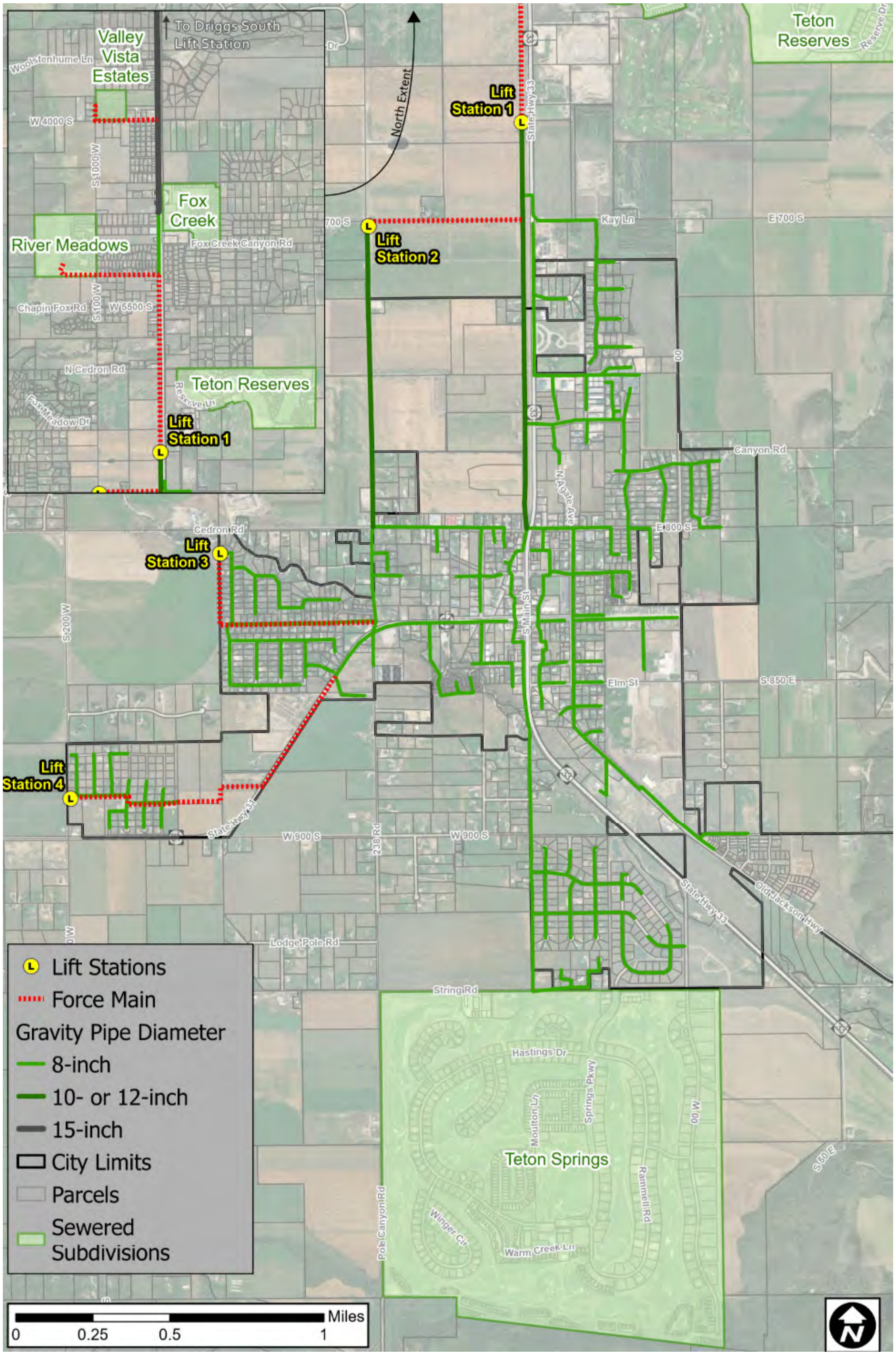
CHAPTER 4 - COLLECTION SYSTEM EVALUATION

This chapter provides an evaluation of the City of Victor's existing collection system, including an inventory of existing facilities and an analysis of the existing collection system capacity under existing and projected flows. This chapter discusses the model development process and identifies capacity deficiencies in the existing, 20-year, and 50-year flow projections. A summary of the deficiencies identified in this chapter is provided in Chapter 6 (Section 6.3). Alternatives to correct the deficiencies are provided in Chapter 7. A phased capital improvement plan is provided in Chapter 9.

The City of Victor owns a sanitary sewer collection system that serves primarily inside the City limits but also some county subdivisions located outside of the City limits. The City does not operate its own wastewater treatment plant. Instead, it conveys sanitary sewer to the Teton Valley Regional WRF, owned and operated by the City of Driggs, approximately eight miles north of Victor. The collection system consists of four lift stations, four miles of pressure sewer pipe, and 26 miles of gravity sewer pipe. **Figure 4-1** below illustrates the existing collection system; a full-size version is provided in Figure 1 in Appendix A.

FIGURE 4-1: EXISTING COLLECTION SYSTEM



4.1. LIFT STATION CONDITIONS

Lift stations were not visited as a part of the planning study; therefore, the descriptions provided below were gathered based on available record drawings, the previous facility plan, O&M manuals, and reported information from the City operators. A summary of the lift station characteristics is provided in **Table 4-1**, and a more detailed description of each lift station's history is included in the following sections. It should be noted that the Driggs South Lift Station is not operated by the City of Victor and is not included in the table below.

TABLE 4-1: LIFT STATION INVENTORY

Attribute	Lift Station #1	Lift Station #2	Lift Station #3	Lift Station #4
Pump Type	Submersible	Submersible	Submersible	Submersible
Number of Pumps	2	2	2	2
Variable Frequency Drive	Yes	No	No	No
Year Constructed[2]	2011	2023	2003	2005
Motor Size (HP)	50	10	7.5	7.5
Firm Capacity (gpm)	700	325	300	100
Design Head (ft)	131	59	60	115
Wetwell Diameter (ft)	10.0	10.0	8.0	8.0
Wetwell Depth (ft)[3]	11.6	20.0	13.5	18.3
Lead Pump On (ft)	3.5	5.5	2.5	5.67
Lead Pump Off (ft)	1.3	3.0	1.0	1.67
Depth to Inlet Pipe Invert (ft)	7.4	9.2	8.9	11.0
Level Indicator Type	Pressure Transducer	Pressure Transducer	Pressure Transducer	Pressure Transducer
Flow Meter (Y/N)	Yes	Yes	No	Yes
Pressure Gauge (Y/N)	No	No	No	No
Back-up Power	Yes	Yes	Yes	Yes
Transfer Switch	Portable	Portable	Portable	Portable
Odor/H2S Control	No	No	No	No
Room for Expansion[1] (Y/N)	No	No	No	No
Force Main Diameter (in)	8	6	4	4
Force Main Length (ft)	7,600	2,870	3,900	5,900

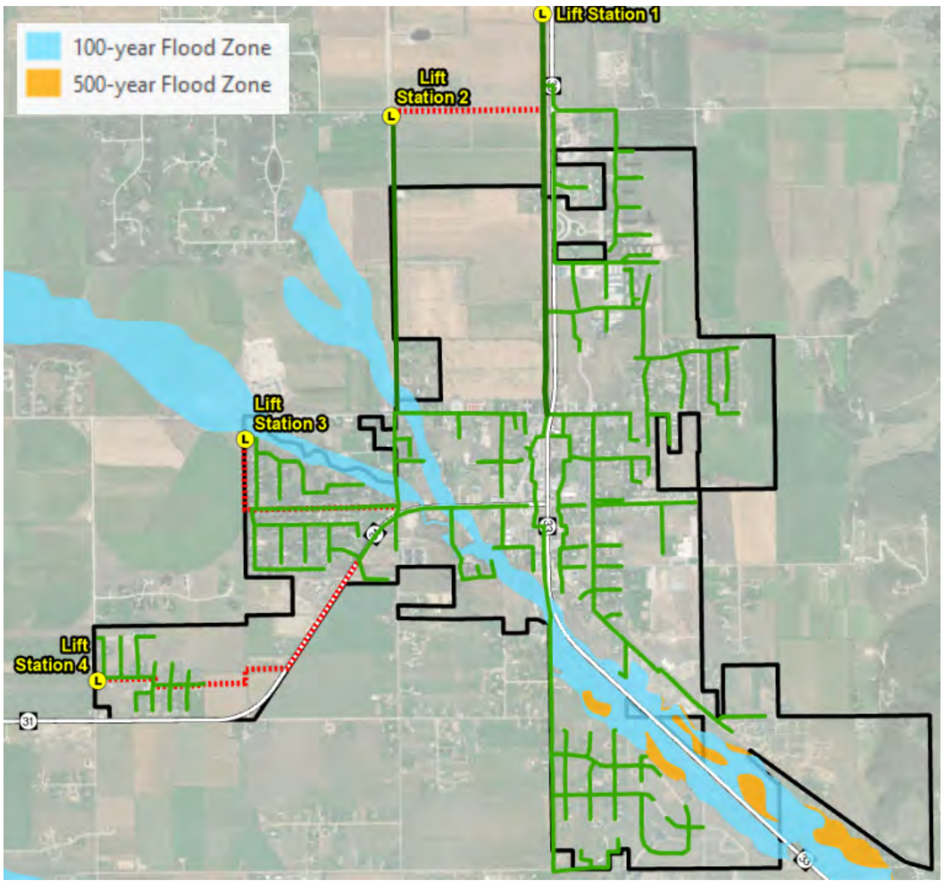
1) Provisions were made during construction to allow for easier future upsizing/expansion such as room for additional pumps or oversized electical equipment.

2) Lift Station 1 was originally constructed in 1999 but the pumps, discharge valves and piping, and electrical/controls equipment was replaced in 2011.

As noted previously, the Trail Creek floodplain runs through the City. There are some components of the collection system that are within the 100-year flood plain, including some segments of gravity pipe and manholes. During a flood event, excess inflow may enter the collection system and exceed the conveyance and downstream lift station capacities. It is recommended that manholes located at or near the 100-year floodplain be sealed to reduce the potential for excess inflow. As illustrated in **Figure 4-2** Lift Station #3 is located directly adjacent to the 100-year floodplain but appears to be outside of it. During a flood event, this lift station should be examined for excess inflow or damage.

Each of the lift stations is configured for connection to a portable generator. The City currently has one portable generator which would be used to operate the lift stations during power outages. Additional portable generators would be rented if needed during an extended power outage. Response times to set up and connected the portable generator during high flow periods may exceed the amount of time it takes for the lift stations to overflow. It is recommended to purchase additional portable generators or install permanent onsite generators with an automatic transfer switch to the critical lift stations. Lift Station 1 pumps the entirety of wastewater flows from Victor and is therefore the highest priority of the four lift stations. Permanent onsite backup power for Lift Station 2 is also recommended as it conveys flows from approximately half of the City.

FIGURE 4-2: LIFT STATIONS IN FLOOD PLAINS



4.1.1. LIFT STATION #1

Lift Station #1 is the City's largest lift station and is located north of the City limits along Highway 33. It collects wastewater from the entire City and Teton Reserves, and pumps wastewater north through an 8-inch forcemain to a gravity pipeline that flows toward Driggs. Lift Station #1 was constructed at the same time as the rest of the collection system but was upgraded in 2011. The upgrades increased the capacity of the lift station by upsizing the pumps and mechanical equipment.

4.1.2. LIFT STATION #2

Lift Station #2, located just southeast of the intersection of W 7000 S and S 1000 W, was recently replaced and relocated in 2023. The City had historical issues with surcharging, deteriorating components, outdated electrical equipment and controls, and degrading pump performance at this lift station. The lift station moved approximately one mile north of its previous location, and an additional gravity pipeline from the old location was installed to convey flows to the new location. The project also consisted of constructing a new forcemain that now discharges into the existing gravity system at W 7000 S.

4.1.3. LIFT STATION #3

Lift Station #3 is located in the Brookside Subdivision and only serves approximately 200 connections (once the subdivision is built out). The lift station was installed in 2003 and pumps to a gravity sewer to the east, which flows into Lift Station #2. Note that no pump curves are available for this lift station, and pump testing was not completed; however, the reported design flow and head do not appear to match the actual conditions. The estimated head required at the design point of 300 gpm is more than five times higher than the reported design point. This likely means the pumps are operating at a lower flow rate than the reported design point. Pump testing to confirm the actual pumping rates is recommended at this lift station. Additionally, this lift station is over 20 years old, and a condition assessment is recommended to identify aging or deteriorated infrastructure. Replacement or rehabilitation of existing equipment may be required to continue operating appropriately.

4.1.4. LIFT STATION #4

Lift Station #4 is located in the Settlement Subdivision and only serves approximately 100 connections (once the subdivision is built out). The lift station was installed in 2005 and pumps to a gravity sewer to the east, which flows into Lift Station #2. Lift Station #4 is approaching 20 years old, and a conditions assessment is recommended to identify aging or deteriorating infrastructure. Replacement or rehabilitation of existing equipment may be required to continue operating appropriately.

4.2. PIPELINE CONDITIONS

The City's gravity pipelines mostly consist of 8-inch PVC pipes, accounting for about 78% of the system. The majority of the collection system was installed at the same time in the late 1990s. A summary of pipeline size and materials is shown in **Table 4-2.**

TABLE 4-2: GRAVITY PIPELINE SUMMARY

Diameter	Length (ft)[1]	% of System
8-inch	112,000	83%
10-inch	5,200	3.8%
12-inch	11,000	8.1%
15-inch	7,000	5.2%
Total	**135,200**	**100%**

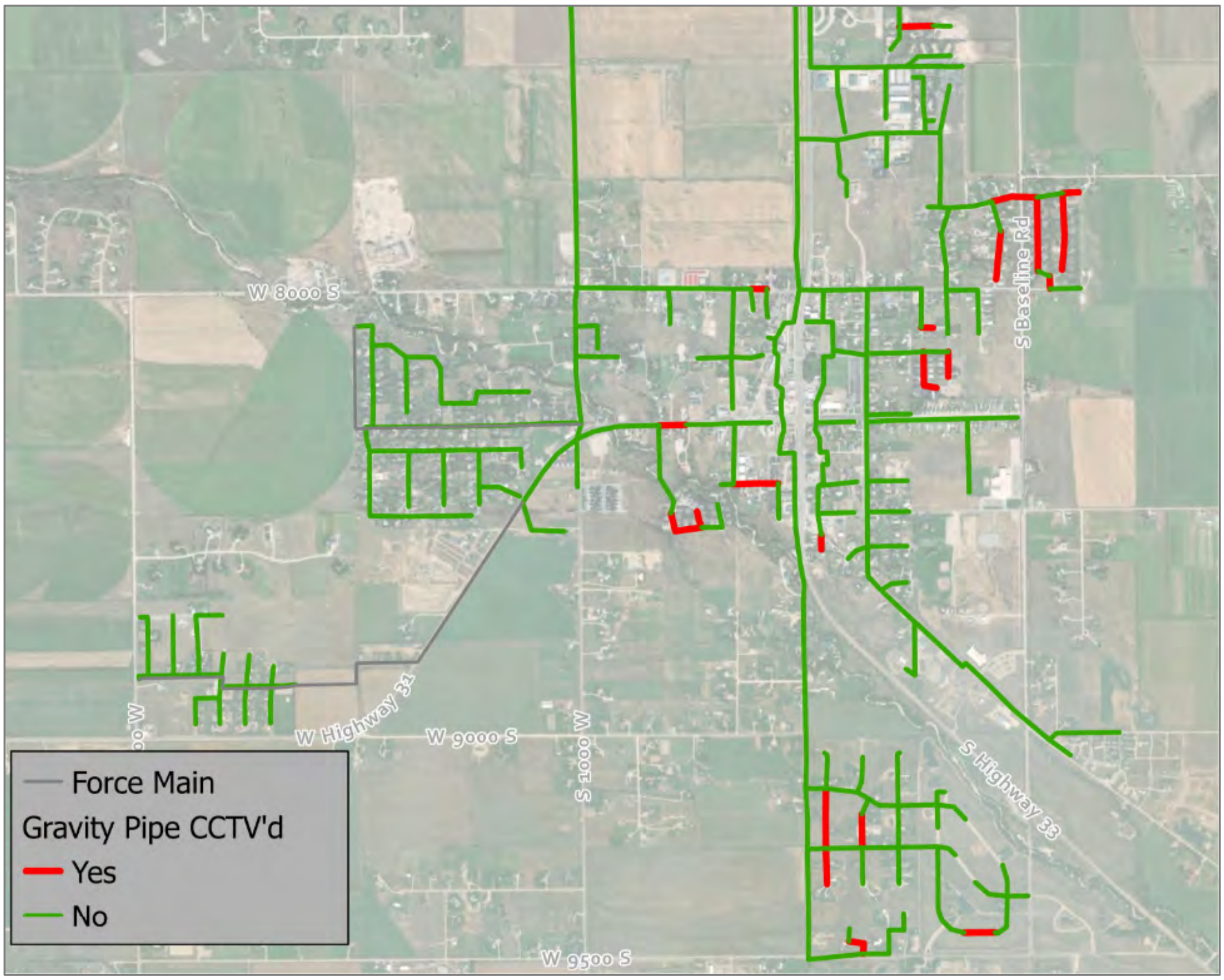
1) Based on lengths calculated in GIS.

The City has completed some closed circuit television (CCTV) inspections of its gravity pipes. CCTV inspection can identify pipes in poor condition that need replacement. CCTV inspection is also a way to identify sources of I/I. CCTV records were provided by the City and reviewed as a part of this master plan. However, only 8,800 feet of the system have been inspected with CCTV, which accounts for only 6% of the

City's gravity pipelines. It should also be noted that the review of CCTV footage was not completed by a certified Pipeline Assessment Certification Program (PACP). The descriptions and recommendations from this evaluation are based on general observations.

Most of the City's CCTV records were from 2021, with some dating back as far as 2018. The inspected pipelines appeared to be in satisfactory condition with no severe issues. **Figure 4-3** illustrates the location of the CCTV-inspected pipelines; a larger version is shown in Figure 14 in Appendix A. Note that no pipes outside of the extent shown in the figure have been inspected. Certain pipe sections displayed an accumulation of rocks and dirt, yet this did not substantially affect the flow capacity of the system. Segments along West Dogwood Street exhibited minor cracks at service lines and fittings. While these imperfections may potentially get worse over time, they do not appear to have led to significant I/I within the system. A table summarizing the Pipe IDs, length, location, and general conditions can be found in Appendix B.

FIGURE 4-3: CCTV PIPE INSPECTION



Minimum pipe slopes were established in Chapter 3 and are based on the Ten State Standards recommendation of maintaining a flow velocity of at least 2.0 fps, which reduces the accumulation of sediment and debris. Pipe segments constructed at sub-minimum slopes may result in increased cleaning requirements and more frequent blockages. According to the record drawings, the majority of the system appears to be installed at greater than minimum slopes.

Sewer force mains should convey flows at a velocity between 2 and 8 fps. The minimum velocity of 2 fps encourages scouring within the pipe to reduce the build-up of sediment. Velocities exceeding 8 fps result in excessive headloss (increased power costs), increased likelihood of water hammer, and high transient pressure surges (may damage piping and valves). The City's force mains vary in size from 4-inches to 8-inches. A summary of the diameter, length, and velocity at their firm pumping capacity is summarized in **Table 4-3**. Lift Stations #1, #2, and #4 are well within the recommended velocities and improvements are not necessary. Lift Station #3 velocities would be approaching 8 fps at the reported design point of 300 gpm. As mentioned previously, the reported head for the pump does not match actual conditions, and the velocity may be much lower than shown in the table. No modifications to force mains based on the existing conditions are recommended; however, a pump test of Lift Station #3 would give the City confidence in the actual firm capacity.

TABLE 4-3: FORCE MAIN INVENTORY

Lift Station	Force Main Size (in)	Force Main Length (ft)	Reported Capacity (gpm)	Pipe Velocity (fps)
Lift Station #1	8	7,600	700	4.5
Lift Station #2	6	2,870	325	3.7
Lift Station #3	4	3,900	300	7.7
Lift Station #4	4	5,900	100	2.6

4.3. MODEL DEVELOPMENT

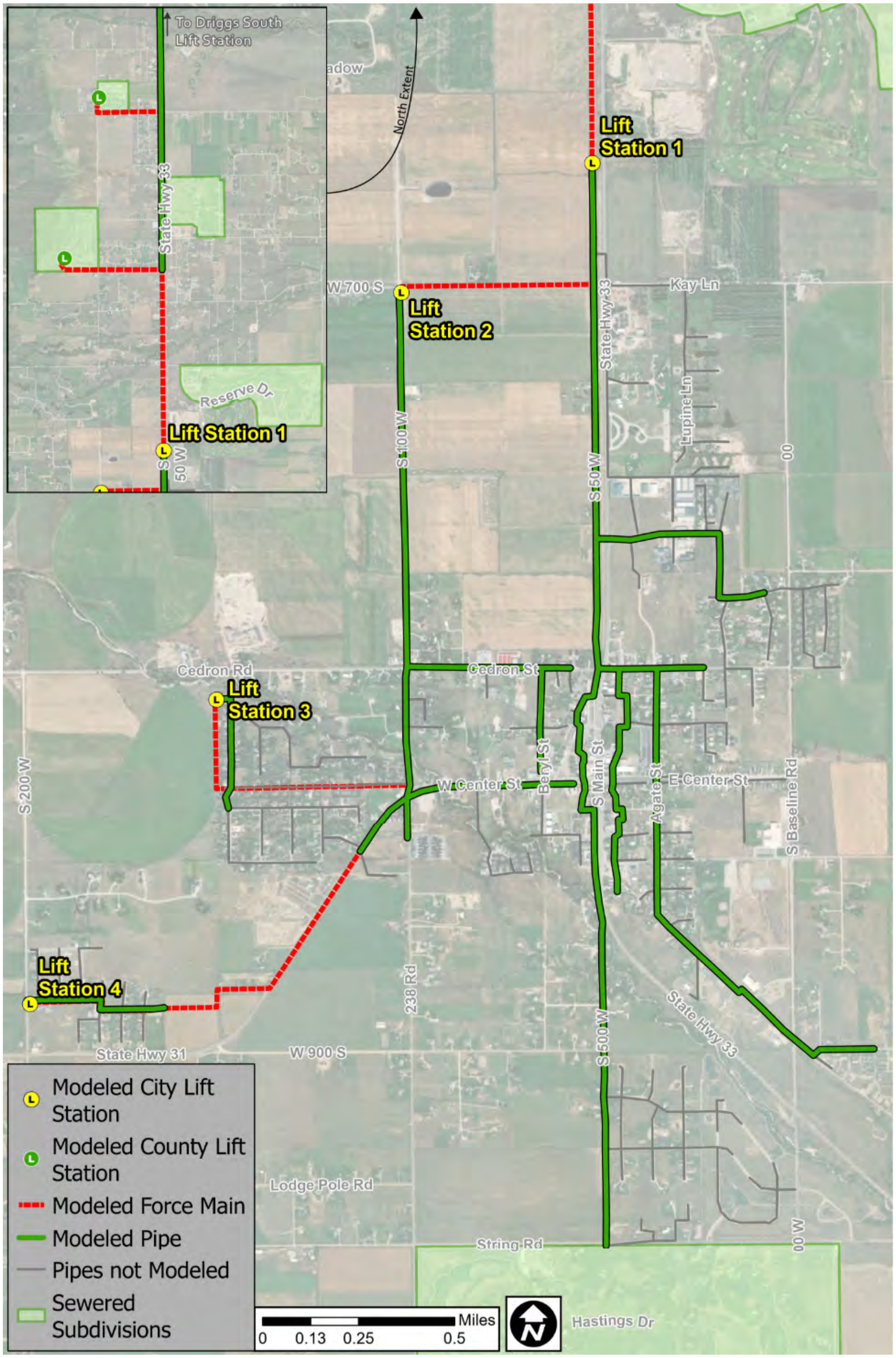
An accurate computer model of the wastewater system is an important planning tool and provides the basis for identifying existing and future collection system deficiencies. PCSWMM Version 7.5 was selected as the modeling software for this project. PCSWMM is a fully dynamic model and is commonly used to evaluate complex hydraulic flow patterns. The City did not have an existing hydraulic model; therefore, this model was developed using a variety of inputs as described below. The modeled collection system is illustrated **Figure 4-4.**

- Pipes and Manholes: The record drawings provided by the City served as the foundation for creating pipeline attributes in the model. In particular, the plans from the original collection system installation and the 2008 Victor Wastewater Facilities Planning Study spreadsheet model contained the majority of the information input into the model. Other developments that extended the sewer system were included in the model. The pipelines were reviewed for suspicious attributes such as adverse slopes, connectivity, smaller downstream pipes, and vertical datum discrepancies. A survey of approximately 40 manholes was completed as part of this study to correct questionable elevations, vertical datum discrepancies, adverse grades, and questionable diameters. It should be noted that the original collection system plans had a vertical datum discrepancy of over 100 feet. The elevations were adjusted globally (so relative pipe slopes were retained) to match the updated survey information.

- Lift Stations: The lift station attributes, including wetwell dimensions, pump characteristics (flow and head), elevations, and operational settings, were based on record drawings, the previous wastewater facility plan, and reported settings provided by the City. Pump curves were unavailable for Lift Station #3 and Lift Station #4 and were, therefore, modeled as a design point at their reported flow rate.

- Wastewater Flow Allocation: Wastewater flows must be distributed to the hydraulic model. In this hydraulic model, sewer basins encompassing areas flowing to specific manholes were delineated and given a specific flow rate based on the number of EDUs within their respective sewer basins. The number of EDUs in each sewer basin was based on the number of EDUs provided by the City's sewer billing records. The number of EDUs was then multiplied by the assumed number of people per EDU and the planning criteria (in gpcd) established in Chapter 3. Figure 15 in Appendix C documents how flows were assigned to the trunkline model.

FIGURE 4-4: MODELED COLLECTION SYSTEM



It is important to note that one of the basic assumptions of the hydraulic model is that all pipelines are free from physical obstructions such as roots and accumulated debris. Such maintenance issues, which certainly exist, must be discovered and addressed through consistent maintenance efforts. The modeled capacities discussed in this chapter represent the capacities assuming the wastewater collection lines are in good working order.

4.3.1. FLOW MONITORING SUMMARY

Flow monitoring for this study was conducted for approximately four weeks in the summer of 2023, from August 31 to September 28. Flow monitors were installed at four locations throughout the collection system. The flow monitoring plan and processed data are included in Appendix C.

For this planning study, flow monitoring refers to temporarily installing a sensor in a sewer pipe to measure wastewater flows. Specifically, the sensors measure the water depth in the pipe and the velocity of the wastewater flows to calculate the flow through the pipe. The flow monitors were programmed to record data points every five minutes to capture fluctuations in system flows. It should be noted that while flow monitoring is an effective way of measuring sewer flows, there is the potential for error in the output data. Malfunctioning equipment and debris accumulation on the sensor are some of the most common errors encountered during the flow monitoring process. The flow data was checked at a minimum of once per week in an attempt to identify poor data quality and address issues if possible.

The flow monitoring data was processed, and the data quality was reviewed. Scatter graphs were developed by plotting velocity on the x-axis and depth on the y-axis. This is a common way to evaluate the data quality and identify potential issues. The theoretical Manning Equation was also plotted on the scatter graph to indicate if the observed data matches the theoretical values. Tightly clustered data points along the Manning curve indicate good quality data. A brief description of the flow monitoring results is provided below:

- Site 1 – This flow meter was installed near the intersection of Aspen Street and N Agate Avenue and captures most of the area east of Highway 33. The average flows were around 25 gpm, and flows show a clear diurnal pattern, which is relatively consistent each day. The sensor was recalibrated on September 7; however, there were no major concerns with the data gathered at this site.
- Site 2 – This flow meter was installed just south of the intersection of Cedron Road and N Main Street. The average flows were around 22 gpm, and flows show a clear diurnal pattern, which is relatively consistent each day. The data points are tightly clustered and follow the Manning curve, indicating good data quality.
- Site 3 – This flow meter was installed near the intersection of W 9000 S and S 500 W and gathered flows from the Teton Spring subdivision and the subdivisions in City limits south of W 9000 S. The average flows were around 11 gpm, and flows show a clear diurnal pattern, which is relatively consistent each day.
- Site 4 – This flow meter was installed near the intersection of W 8000 S and S 1000 W upstream of Lift Station #2 (before it was relocated). The average flow was around 26 gpm and is located downstream of Lift Station #3 and Lift Station #4. Data from the first four days was not good, and no data was recorded in the following 11 days. Data resumed recording on September 14, at which point flows showed a clear diurnal pattern that was relatively consistent on each of the remaining days.

4.3.2. MODEL CALIBRATION

The model calibration results are summarized below in **Table 4-4**, and additional details are included in Appendix C. Each of the flow monitors was calibrated to within plus 10% or minus 5% of the total daily volume and peak hour flows. This means the model was calibrated well and represents the system flow allocation measured during the flow monitoring period.

TABLE 4-4: MODEL CALIBRATION SUMMARY

Location	Observed Daily Flow Volume (gal)	Modeled Daily Flow Volume (gal)	Percent Difference[1]	Observed Peak Flow (gpm)	Modeled Peak Flow (gpm)	Percent Difference[1]
Flow Monitor Site 1	39,390	38,977	-1.0%	47	47	0.0%
Flow Monitor Site 2	36,261	36,435	0.5%	60	65	8.4%
Flow Monitor Site 3	20,747	21,606	4.1%	45	45	0.4%
Flow Monitor Site 4	35,825	38,042	6.2%	88	92	4.7%

1) Green values indicate they are within +10% or -5%.

Calibrating the hydraulic model is a critical step in building confidence in the output model results. The goal of the calibration process is to adjust the model inputs to match the observed data points from the flow monitoring. The peak day from the flow monitoring period was observed to be September 22, 2023; therefore, this day was used as the calibration day.

Diurnal curves were developed for the four flow monitor sites based on the observed flows. These diurnal curves were assigned to the junctions in their respective basins to simulate the flow changes throughout the day. The base flows were adjusted globally up or down from the initial flow allocation based on the water meters, so the average flows matched the system flows observed on the calibration day. The model was then exercised, and the output results were compared to the observed data from the monitoring period. The base flows, diurnal patterns, and other model inputs were adjusted with each model run until the outputs matched the observed data. The model flows were targeted to be within -5% or +10% of the observed flows to be considered calibrated. Examples of the original model results compared to the calibrated model results are illustrated in **Figures 4-5** and **4-6**. Model results are in blue, and observed flow monitoring is in green.

FIGURE 4-5: ORIGINAL MODEL RESULTS COMPARED TO OBSERVED DATA

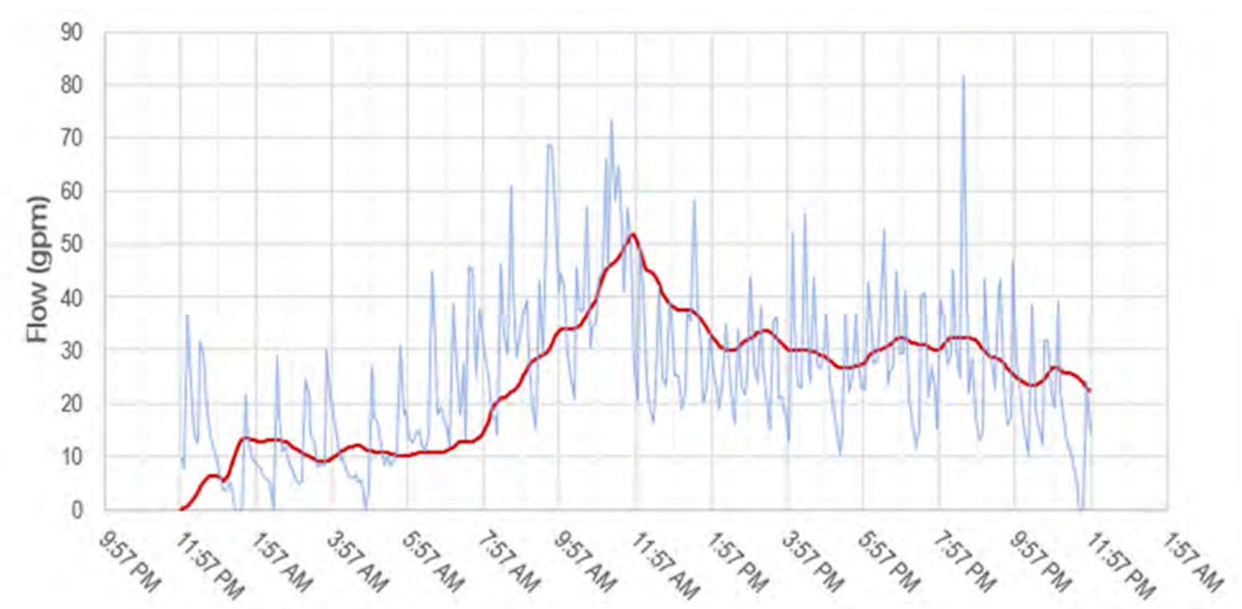
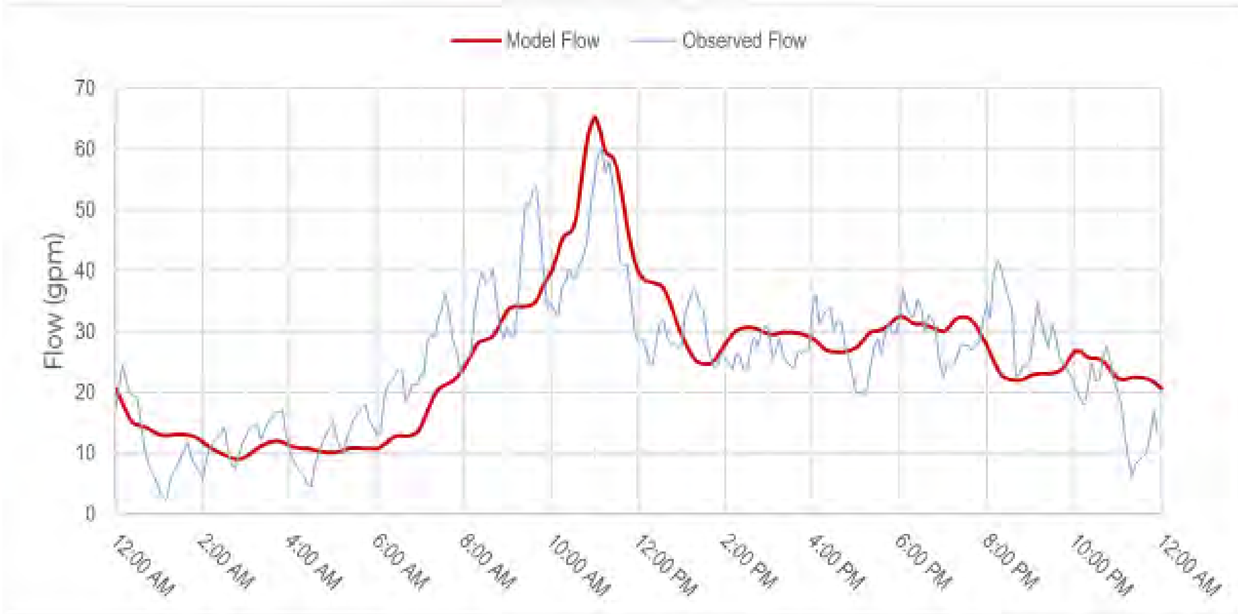


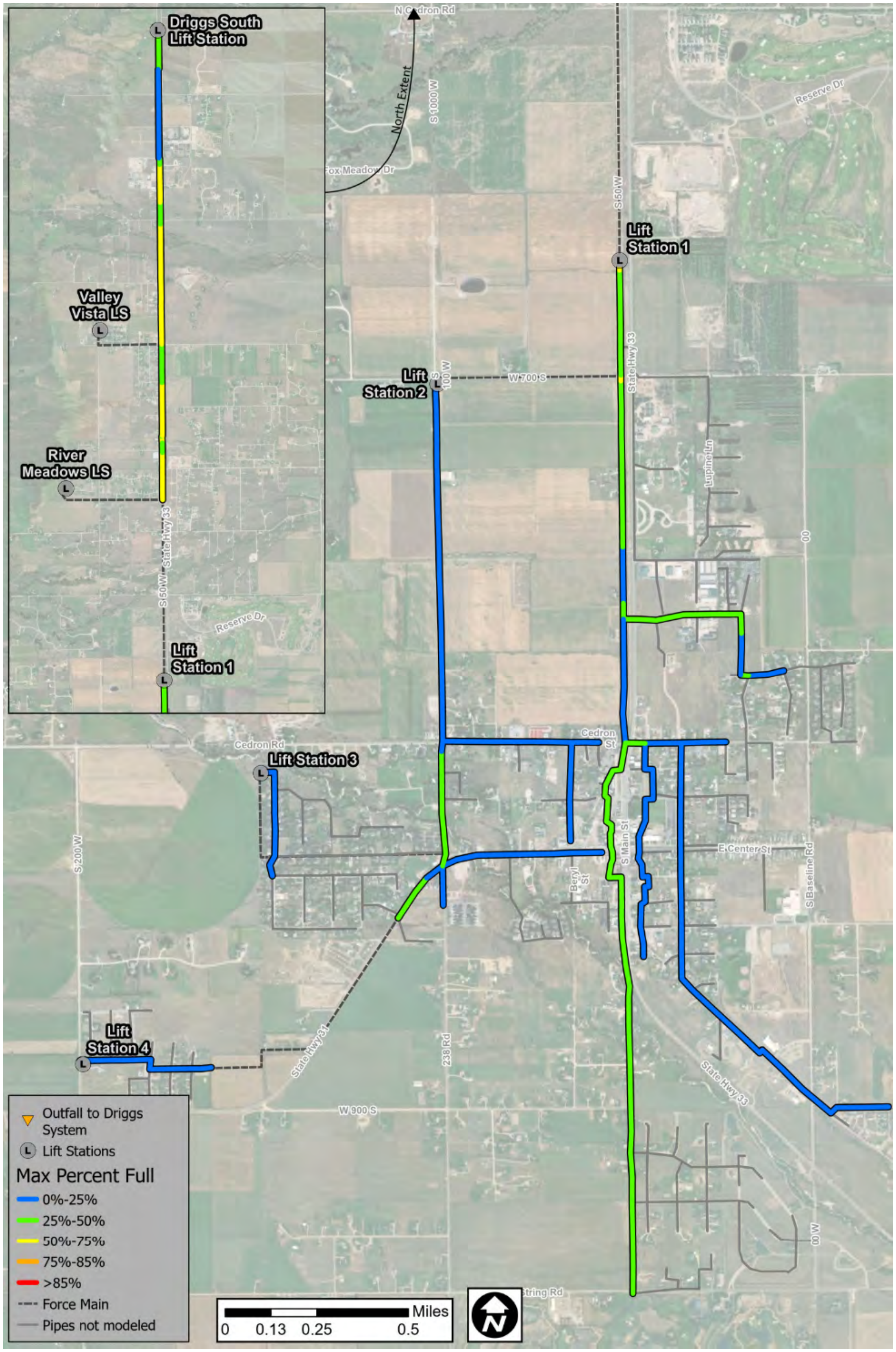
FIGURE 4-6: CALIBRATED MODEL RESULTS COMPARED TO OBSERVED DATA



4.4. EXISTING SYSTEM CAPACITY EVALUATION

The capacity of the collection system was assessed by reviewing how full the gravity pipes are during peak hour flows. **Figure 4-7** illustrates the maximum depth divided by full depth (d/D) under the existing MDF scenario for the collection system pipes. A larger version of the figure is provided in Appendix A. The planning criteria established in Chapter 3 recommend gravity pipes 12 inches and under to be less than 75% full and gravity pipes larger than 12 inches to be less than 85% full. As shown in the figure, the entire system is currently under 75% of pipe capacity, indicating no existing capacity bottlenecks. The trunkline downstream of Lift Station #1 to Driggs is between 50% and 75% full in several locations. Therefore, it is approaching capacity, but improvements are not required based on the existing flows.

FIGURE 4-7: EXISTING PHF MAXIMUM DEPTH/FULL DEPTH



4.4.1. Existing Lift Stations

The lift stations were checked for capacity deficiencies by comparing the firm capacity to their peak modeled inflow. As established in Chapter 3, lift station improvements were triggered if the peak inflows exceeded 85% of firm capacity. This provides the City with additional time to implement improvements before the lift station is over capacity. Increasing the pumping capacity of Driggs South Lift Station to meet the 20-year flow projections will result in forcemain velocities over 8 fps. For this reason, it is recommended to implement forcemain improvements in conjunction with Driggs South Lift Station upgrades.

Note that specific details regarding the improvements at the Driggs South Lift Station are not included in this master plan because the City of Victor does not own or maintain the lift station. Alternatives and improvements should be addressed in the City of Driggs wastewater master plan. The results are shown here because the cost of improvements may be shared by both the City of Victor and the City of Driggs. It should also be noted that the increased capacity of Lift Station #1 does not result in additional deficiencies beyond the associated forcemain improvements. The gravity trunkline between Victor and Driggs is less than 75% full under the existing MDF with Lift Station #1 upsized.

Table 4-5 summarizes the peak inflows and reported pump information. Note the capacity at the Driggs South Lift Station was also included to identify potential issues downstream of Victor's system. The model indicates Victor's lift stations have sufficient capacity, with the exception of Lift Station #1. Additionally, the Driggs South Lift Station is approaching capacity. Additional discussion regarding the model results is provided below.

- The peak inflows to Lift Station #1 exceed 85% of firm capacity. Flow projections within the next 5 years indicate the peak hour inflow would exceed the firm capacity. If peak inflows exceed the pumping capacity, there is a higher likelihood of sanitary sewer overflows (SSOs) due to the pumps not being able to convey peak flows. It is recommended to increase the capacity of Lift Station #1 to meet the 20-year projected flows.
- Increasing the pumping capacity of Lift Station #1 to meet the 20-year flow projections will result in forcemain velocities over 8 fps. For this reason, improvements to the forcemain are recommended in conjunction with the Lift Station #1 upgrades. Alternatives considered to increase the capacity of Lift Station #1 and the forcemain are discussed in Chapter 7.
- Lift Stations #2, #3, and #4 have sufficient capacity under existing flows, and no immediate improvements are required.
- The peak inflows into the South Lift Station exceed 85% of firm capacity. The City of Driggs reported historical capacity issues at this lift station, which support the model results. Improvements are recommended at the Driggs South Lift Station to increase the capacity to meet the 20-year projected flows. The City of Driggs staff reported Lift Station #1 must operate at a reduced capacity to prevent overflowing the South Lift Station.
- Increasing the pumping capacity of Driggs South Lift Station to meet the 20-year flow projections will result in forcemain velocities over 8 fps. For this reason, it is recommended to implement forcemain improvements in conjunction with Driggs South Lift Station upgrades.

Note that specific details regarding the improvements at the Driggs South Lift Station are not included in this master plan because the City of Victor does not own or maintain the lift station. Alternatives and improvements should be addressed in the City of Driggs wastewater master plan. The results are shown here because the cost of improvements may be shared by both the City of Victor and the City of Driggs. It should also be noted that the increased capacity of Lift Station #1 does not result in additional deficiencies beyond the associated forcemain improvements. The gravity trunkline between Victor and Driggs is less than 75% full under the existing MDF with Lift Station #1 upsized.

TABLE 4-5: EXISTING MODELED & REPORTED PUMPING RATES

Lift Station	Firm Capacity (gpm)	Constrained Peak Hour Inflow (gpm)	85% of Firm Capacity > Peak Inflow	Capacity Remaining (gpm)	Estimated EDUs Remaining[1]
Lift Station #1	700	650	Over Capacity	0	0
Lift Station #2	325	140	Yes	185	442
Lift Station #3	300	35	Yes	265	633
Lift Station #4	100	9	Yes	91	217
Driggs South Lift Station[2,3]	600	590	Over Capacity	0	0

1) Based on PHF of 0.42 gpm per EDU.

2) Lift station not owned or maintained by the City of Victor but the majority of the flow into this lift station consists of City of Victor wastewater.

3) Capacity of the South Lift Station was calculated based on pump drawdown tests completed in Spring 2024.

4.5. FUTURE MODEL DEVELOPMENT

The model was expanded to evaluate the collection system under the 2045 and 2075 planning periods with additional flows from growth areas established in Section 3.1. The estimated additional population for each growth area was used in conjunction with the planning criteria (gallons per capita per day) to calculate the total flow for each growth area. These flows were assigned to manholes within the existing collection system based on topography and where the future connections will likely drain. Extensions of existing trunklines to serve future developments were considered and added as necessary to reach the proposed growth areas. In general, the majority of the projected growth was located within or directly adjacent to City limits, and existing sewer infrastructure was located nearby. Appendix E provides detailed growth areas, including land uses, estimated population increases, and where the growth area flows were assigned in the model.

4.6. 2045 FLOWS CAPACITY EVALUATION

Similar to the existing system evaluation, the pipeline and lift stations were evaluated under the MDF scenario for the projected 2045 flows. The model was used to evaluate the system in its existing condition and with improvements recommended from the previous section being completed. Evaluating the system under both conditions identifies new deficiencies as a result of growth, as well as the impacts of correcting the existing deficiencies. The following improvements were assumed to be completed because they were previously identified.

- Lift Station #1 was upsized so that 85% of the firm capacity is equal to the 2045 peak hour flows. The forcemain was also assumed to be increased in size.
- Driggs South Lift Station was upsized so that 85% of the firm capacity is equal to the 2045 peak hour flows. The forcemain was also assumed to be increased in size.

4.6.1. 2045 PIPELINES

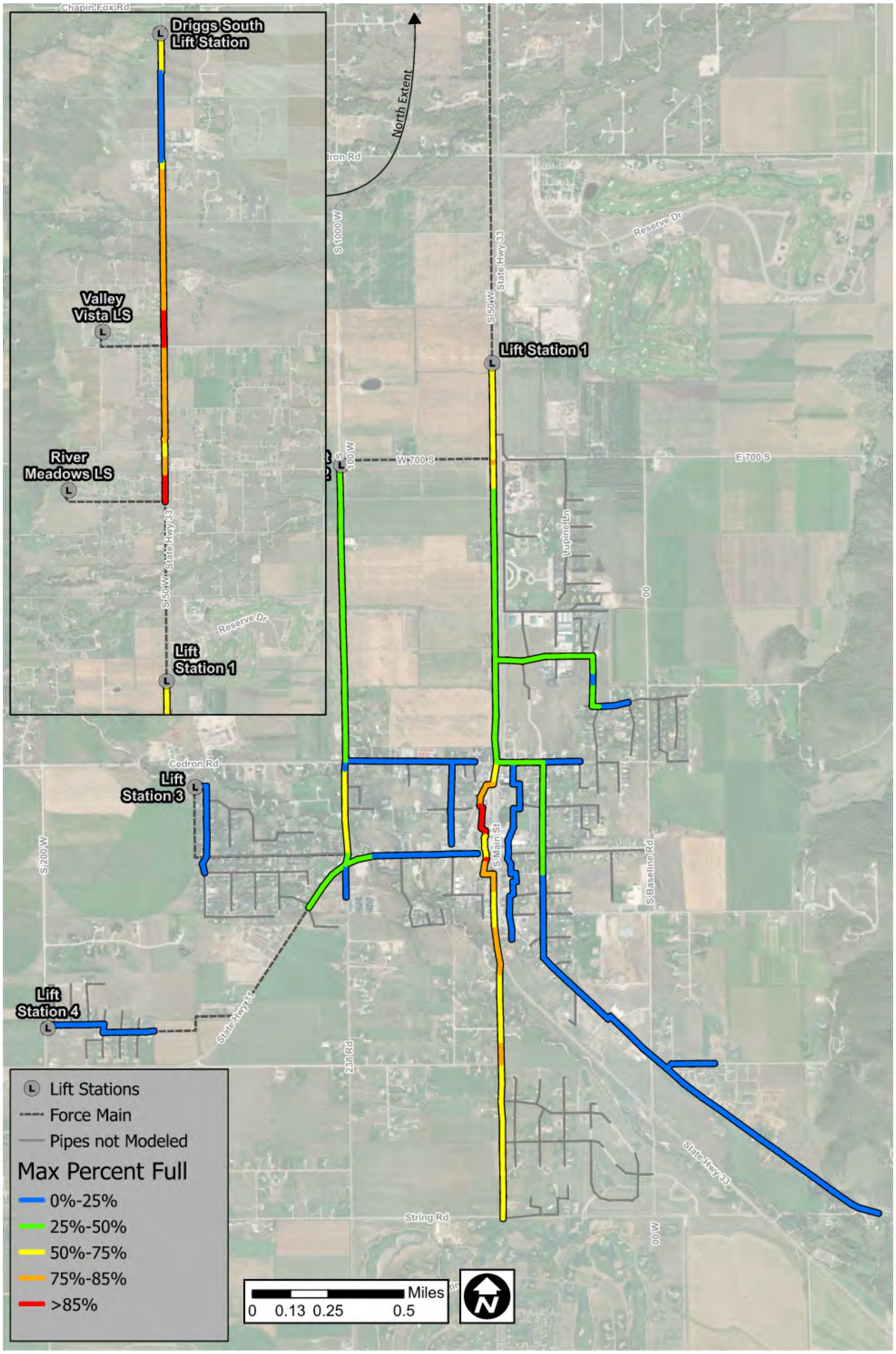
The future capacity of the collection system was assessed by reviewing how full the gravity pipes are during peak hour flows. **Figure 4-8** illustrates the d/D under the 2045 MDF scenario for the collection system pipes. A larger version of the figure is provided in Appendix A.

As shown in the figure, the majority of the system is under 75% of pipe capacity, but portions are over 75% of pipe capacity and several locations are surcharged. The areas that are over 75% are summarized below.

- Pipeline along S 500 W from Christopher Street to the intersection of Cedron Road and Highway 33 has several pipelines above 75% d/D with some even over 85% d/D. The 2045 growth projections assumed infill within the Teton Springs and Christopher Street Subdivisions, which leads to the high d/D and surcharging in this pipeline. It is recommended to upsize these pipes as flows approach the 20-year projected flows.

- The section of 12-inch pipe downstream of Lift Station #1 from Elk Thistle Drive to just north of Peak View Estates Road is mostly surcharged. The increase in d/D is a result of the higher system flows as well as the increased Lift Station #1 capacity after improvements in the previous section have been made. It is recommended to upsize these pipes as flows approach the 20-year projected flows.
- The remainder of the pipe downstream of Lift Station #1 has several pipelines approaching 85% d/D and some right at 85% d/D. These pipes will need to be upsized toward the end of the 20-year planning period.

FIGURE 4-8: 2045 PHF MAXIMUM DEPTH/FULL DEPTH



4.6.2. 2045 LIFT STATIONS

The 2045 peak inflow into the lift stations was compared to the firm capacity, and the results are presented in **Table 4-6**. The table shows a “constrained” flow as well as an “unconstrained” flow. The unconstrained flow shows the resulting peak flows if upstream bottlenecks are alleviated. In most cases, there is no difference between the two columns, but at the Driggs South Lift Station, once the gravity trunkline is upsized so it flows freely, the table shows an increase in flows.

The only new deficiency is that Lift Station #2 is approaching capacity as growth occurs within its basin. The peak inflows do not exceed the capacity; however, the trigger to begin planning upgrades is hit and, therefore, will be included in the recommended improvements.

Lift Station #1 and Driggs South Lift Station were assumed to be upsized, so their firm capacity was equal to 85% of the 20-year flow projections. As shown in the table, the lift stations are right at capacity based on the model results, and improvements will be needed between 2045 and 2075.

TABLE 4-6: 2045 MODELED & REPORTED PUMPING RATES

Lift Station	Firm Capacity (gpm)	Constrained[5] Peak Hour Inflow (gpm)	Unconstrained[6] Peak Hour Inflow (gpm)	85% of Firm Capacity > Peak Inflow	Capacity Remaining (gpm)	Estimated EDUs Remaining[1,2]
Lift Station #1 (Upsized)	1,340	1,134	1,134	Yes	206	492
Lift Station #2	325	291	291	Over Capacity	0	0
Lift Station #3	300	49	49	Yes	251	599
Lift Station #4	100	56	56	Yes	44	105
Driggs South Lift Station[3,4] (Upsized)	1,450	980	1,225	Yes	225	537

1) Sufficient capacity based on firm capacity compared with unconstrained peak hour inflow

2) Based on PHF of 0.42 gpm per EDU.

3) Lift station not owned or maintained by the City of Victor but the majority of the flow into this lift station consists of City of Victor wastewater.

4) Capacity of the South Lift Station was calculated based on pump drawdown tests completed in Spring 2024.

5) Assumes no improvements have been made

6) Assumes upstream bottlenecks have been addressed

4.7. 2075 FLOWS CAPACITY EVALUATION

A model scenario reflecting 50-year growth projections (2075) was developed to better plan for collection system piping and sizing. The typical useful life of a collection system pipe may range from 50 to 100 years or more. Therefore, improvements should be made to meet at least 50-year projections and avoid replacing infrastructure before it nears the end of its useful life. Similar to the existing system evaluation and 2045 evaluation, the pipeline and lift stations were evaluated under the MDF scenarios for the projected 2075 flows.

The system assumed that improvements recommended in the previous scenarios (existing and 2045) were completed. This section identifies new deficiencies as a result of growth, as well as the impacts of correcting the previously identified deficiencies. The following improvements were assumed to be completed because they were previously identified.

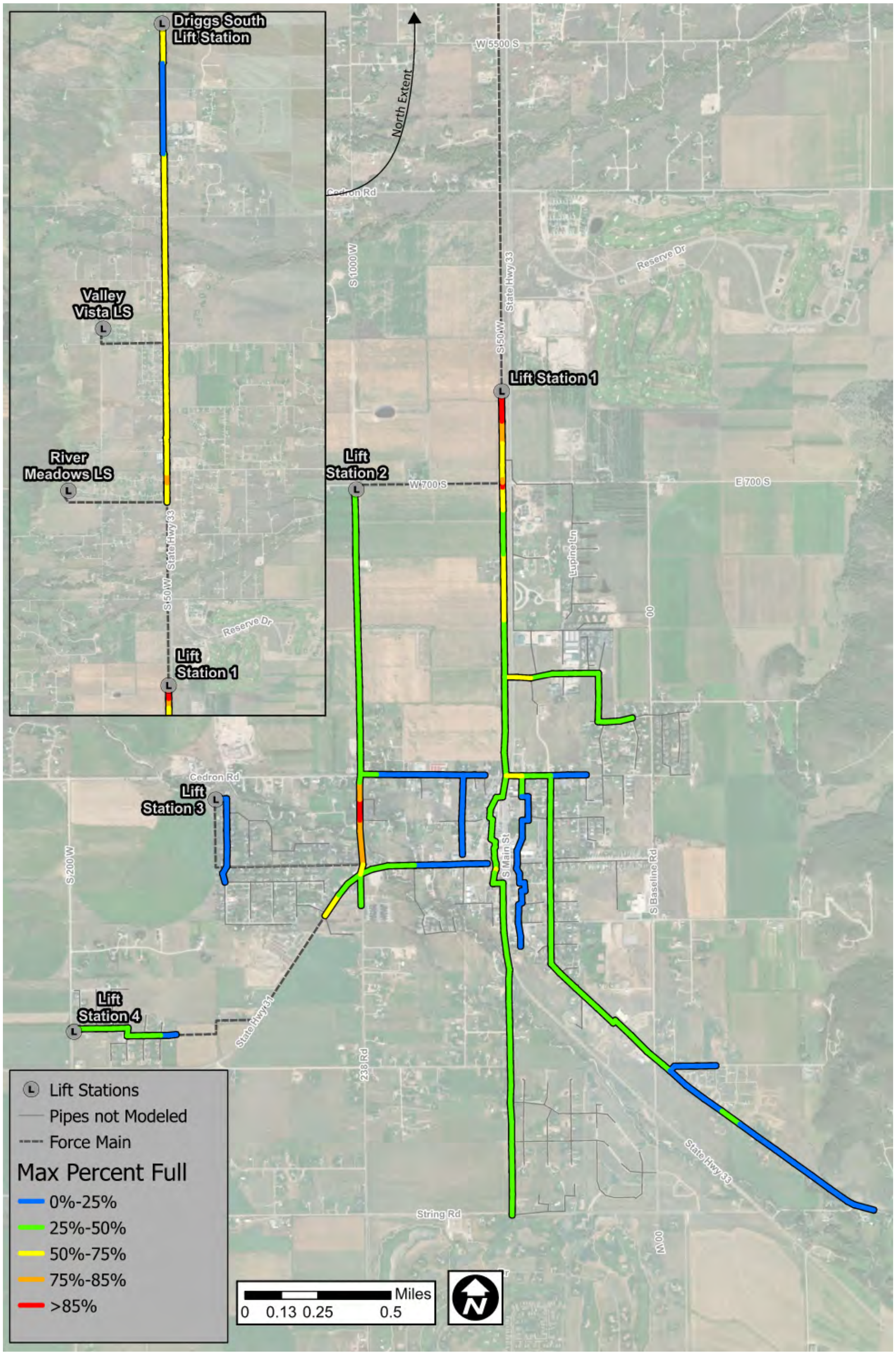
- Lift Station #1, Lift Station #2, and Driggs South Lift Station were assumed to be upsized, so 85% of their firm capacity is equal to the 2075 peak hour flows
- The existing gravity pipeline within S 500 W and S Main Street from Christopher Street to Cedron Road was upsized.
- The trunkline downstream of Lift Station #1 to Driggs South Lift Station was upsized.

4.7.1. 2075 PIPELINES

Figure 4-9 illustrates the maximum depth divided by full depth (d/D) during the 2075 MDF scenario for the collection system pipes. A larger version of the figure is provided in Appendix A. As shown in the figure, there are several new deficiencies as a result of the increased flows. The deficiencies are described below.

- The pipe segments along S 1000 W between W Center Street and Cedron Street are over 75% full, and some segments are over 85% full. Alternatives to increase the capacity or relieve the surcharging are evaluated in Chapter 7.
- The pipelines directly upstream of Lift Station #1 are over 75% capacity with some even over 85% capacity in the 2075 MDF scenario. It is recommended to upsize those pipes as flows approach 50-year projected flows.

FIGURE 4-9: 2075 PHF MAXIMUM DEPTH/FULL DEPTH



4.7.2. 2075 LIFT STATIONS

The updated peak inflow into the lift stations was compared to the firm capacity, and the results are presented in **Table 4-7**. The increase in flows from the 50-year flow projections creates a capacity issue for Lift Station #4. It is recommended to upsize the lift station's pumps as flows approach the 50-year projected flows. Upsizing Lift Station #4 to meet the 50-year flows does not result in other downstream capacity issues.

TABLE 4-7: 2075 MODELED & REPORTED PUMPING RATES

Lift Station	Firm Capacity[1] (gpm)	Constrained[5] Peak Hour Inflow (gpm)	Unconstrained[6] Peak Hour Inflow (gpm)	85% of Firm Capacity > Peak Inflow	Capacity Remaining (gpm)	Estimated EDUs Remaining[2,3]
Lift Station #1 (Upsized)	1,590	1,450	1,589	Yes	1	2
Lift Station #2 (Upsized)	565	520	564	Yes	1	2
Lift Station #3	300	49	49	Yes	251	599
Lift Station #4	100	118	118	Over Capacity	0	0
Driggs South Lift Station[2,3] (Upsized)	1,750	1,008	1,746	Yes	4	10

1) Sufficient capacity based on firm capacity compared with unconstrained peak hour inflow
2) Based on PHF of 0.42 gpm per EDU.
3) Lift station not owned or maintained by the City of Victor but the majority of the flow into this lift station consists of City of Victor wastewater.
4) Capacity of the South Lift Station was calculated based on pump drawdown tests completed in Spring 2024.
5) Assumes no improvements have been made
6) Assumes upstream bottlenecks have been addressed

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CHAPTER 5 – WRF CONDITION AND PERFORMANCE

5.1. TETON VALLEY WRF OVERVIEW

The City of Driggs operates the Teton Valley Regional WRF. The WRF is located on Bates Road, approximately one mile west of Driggs' Main Street. The WRF treats wastewater from Driggs, Victor, and some areas of Teton County. Effluent from the WRF is permitted to discharge into an unnamed drainage ditch (Appendix D). The drainage ditch is a tributary of Woods Creek, which is a tributary of the Teton River.

The WRF was constructed in 1962 as a lagoon treatment system. In 1989, chlorine disinfection was added; in 1999, the east lagoon was divided and aeration was added; and in 2009, baffle curtains, new surface aerators, and a new headworks, including screens were added.

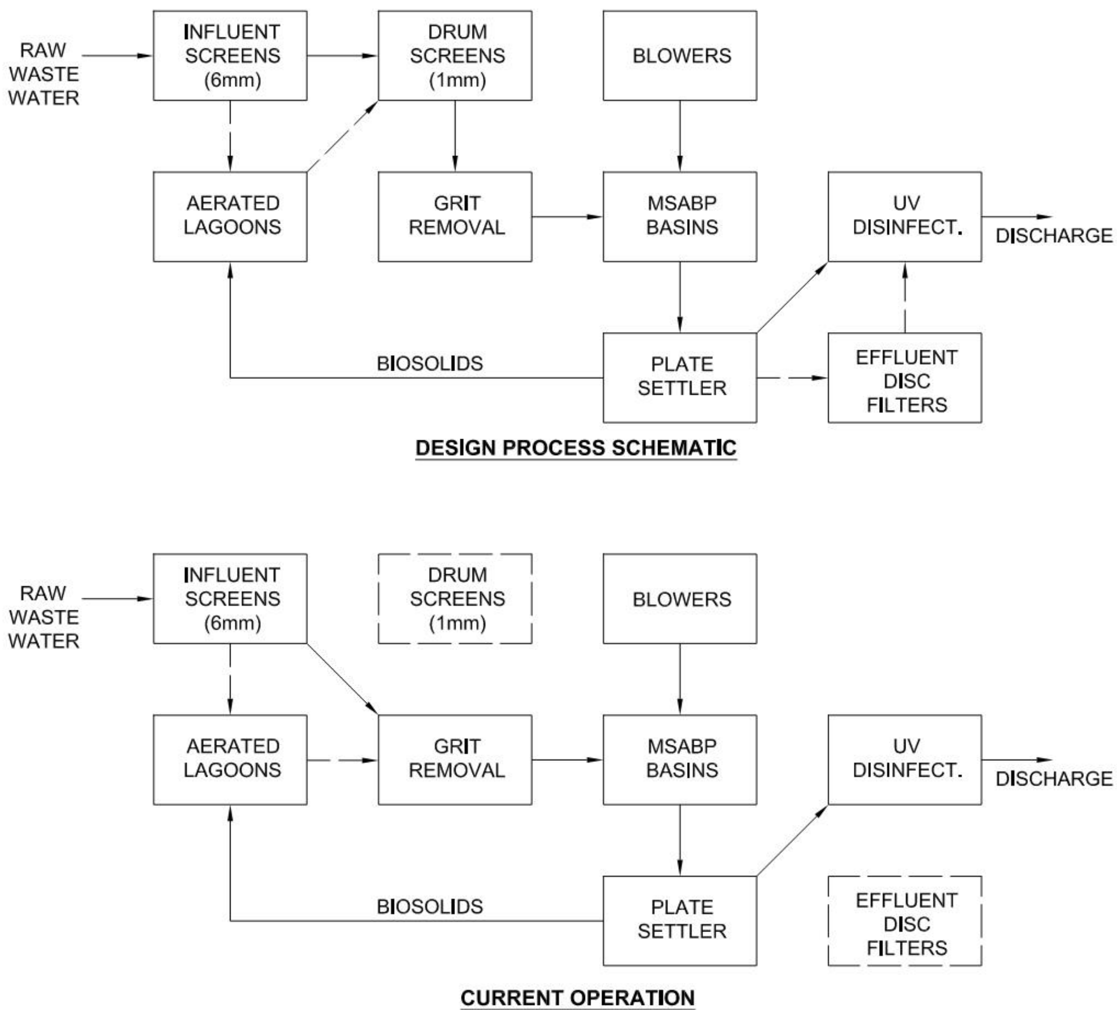
The most recent improvements occurred in 2013, which included a conversion from a lagoon treatment system to a mechanical treatment plant. The 2013 upgrades included a new Multi-Stage Activated Biological Process (MSABP), tertiary filtration, and ultraviolet (UV) disinfection. The MSABP was not anticipated to produce many biosolids. Any solids produced in the MSABP are pumped to the aerated lagoons for storage. The aerated lagoons were also repurposed for peak flow equalization. **Figure 5-1** shows the current plant layout.

FIGURE 5-1: TETON VALLEY REGIONAL WRF LAYOUT

5.2. WRF EVALUATION

The Draft City of Driggs Wastewater Facilities Planning Study (Forsgren Associates, Inc., 2021) and Facilities Planning Study Addendum (Forsgren Associates, Inc., 2022) evaluated the existing Teton Valley Regional WRF. This chapter summarizes the findings from those reports. A process flow diagram of the WRF is provided in **Figure 5-2**, based on the draft planning study.

FIGURE 5-2: WRF PROCESS FLOW DIAGRAM



Raw wastewater is measured in a Parshall flume and then enters the Influent Screen Building. There are two step screens with 6-mm openings. Each screen has a rated capacity of 2 MGD. Following the screening, the wastewater flows to a lift station, which pumps the water to the Grit Removal / Intermediate Screening / Blower Building. The lift station can also overflow or be pumped to the lagoons. There are three pumps in the lift station, each with a rated capacity of 1 MGD. The pumped flow is screened again by two drum screens with 1-mm openings. This second set of screens was added to protect the MSABP process from fouling by inert materials. Each of these screens has a rated capacity of 3 MGD. Grit is removed using a single vortex grit removal system following the drum screens. The rated capacity of the grit removal system is 3 MGD.

Following the preliminary treatment (screening and grit removal), the wastewater enters the MSABP process basins. There are two MSABP trains, each with 12 cells per train. The basin volume in each train is 0.453 million gallons. The MSABP utilizes rope-style media for an attached growth system. Diffusers at the bottom of the basin provide aeration for the treatment. Three turbo blowers in the Grit Removal / Intermediate Screening / Blower Building provide air to the diffusers. One of the blowers is dedicated to each train with a shared standby blower. Each blower has a rated capacity of 625 cubic feet per minute (CFM). The blower room includes space for a future fourth blower.

Solids that slough off the MSABP system were designed to be removed in a single plate settler. The plate settler tank includes a flash mix and a flocculation section for additional solids removal, presumably to target phosphorus. The rated capacity of the plate settler is 2.65 MGD.

Tertiary filtration is provided to polish the effluent further. The tertiary filter is a stainless steel disc filter. The rated capacity of the filter is 2.3 MGD. The filter has clogged too often and is no longer typically used. The effluent is disinfected using UV light. There are two banks of horizontal, low-pressure UV lamps in one channel. The rated capacity of the channel is 2 MGD. There is no second channel, so the UV channel cannot be taken down for maintenance. The tertiary filter and UV disinfection are located in the Effluent Filter / UV Disinfection Building.

The drains from the buildings and WRF bathroom, as well as the solids removed by the plate settler and the filter, are pumped by a drain pump station to the lagoons. There are two pumps in this pump station, each rated at 150 gallons per minute (gpm).

High flows bypassed at the influent lift station are sent to the lagoons. The lagoons are also used for storage during plant shutdowns. Lagoon Cell 1 has a capacity of 7.7 million gallons, and Lagoon Cell 2 has a reported capacity of 8.3 million gallons. Water can be returned to the main treatment from the lagoons using the return pump station. There is one pump in the return pump station. It has a rated capacity of 300 gpm. Aeration is provided to the lagoons by diffusers and blowers. The lagoon blowers are located in the Influent Screen Building.

5.2.1. EFFLUENT COMPLIANCE

The reports document any compliance issues reported from 2015 to 2020. A large number of exceedances were noted for effluent ammonia throughout the period. Additional exceedances were noted for effluent BOD_5 (in 2017 and 2020), effluent TSS (percent removal during the summer months in 2017 and 2018 when the influent TSS concentrations were low), and E. coli (four monthly and one daily exceedance).

The report discussed several theories for the ammonia exceedances. The following were found during their investigation:

- During sampling events, elevated total metals were identified in the wastewater. Elevated metal concentrations can have a toxic effect on the nitrifying organisms responsible for ammonia removal. Further investigation was recommended to confirm that metals cause the ammonia exceedances.
- The report found that sufficient alkalinity was available for complete nitrification.
- Although low temperatures had an impact, effluent compliance was not achieved at higher temperatures, so temperatures may not be the primary issue.
- There did not appear to be a statistically significant trend in higher hydraulic retention time (HRT), leading to lower effluent ammonia concentrations. This seems to indicate that peak flows may not be causing washout or affecting the ammonia concentrations.

Due to violations, the EPA settled with the City of Driggs on May 22, 2018, with a penalty of $13,500, and entered into a compliance order that required the City of Driggs to complete modifications and corrective actions to the WRF within two years. On October 22, 2022, the U.S. Department of Justice filed a lawsuit against the City of Driggs for failure to comply with the Clean Water Act. As part of the lawsuit, the City of Driggs faces more than $160 million in fines.

5.2.2. DEFICIENCIES

The reports summarize the following as the primary deficiencies at the WRF:

- Difficulty of the Current System to Nitrify: The current treatment system for the WRF does not consistently nitrify, which results in the WRF effluent not meeting discharge ammonia requirements.
- Lack of Biosolids Wasting: The current treatment process does not include means to waste and dispose of excess biosolids, which may contribute to nitrification issues.
- Insufficient Loading Design: The influent loads exceed the current design capacity. The influent loading is only anticipated to increase during the planning period.
- Equipment Failures: Various pieces of equipment have failed or need to be removed from use for extended periods.
- Equalization from Lagoons: The use of the lagoons may be concentrating heavy metals.
- Return MSABP to Plug Flow Configuration: Holes were cut in the MSABP chambers in consultation with the manufacturer. This would result in short-circuiting. (The addendum reported that the flow path is back to the original plug flow configuration).
- Lack of Redundancy in Clarifier Process: There is only one plate settler and one disc filter. This does not meet DEQ requirements for redundancy.

Some additional deficiencies were noted in the report. These included the following:

- One additional step screen is needed to handle the future flows. There is no room in the building for this screen, so a new building is needed.
- The influent pumps will need to be replaced with larger pumps for the future flows.
- A third MSABP basin and an additional MSABP blower is needed for the future flows.
- The disk filter does not have the capacity for the future flows.
- The UV disinfection system needs to be expanded.

5.3. WRF RECOMMENDED IMPROVEMENTS

The draft report looked at several different alternatives to address the WRF deficiencies. Continuing with the MSABP was not desirable to the City of Driggs. The main components of improvements were as follows:

- Construct a new headworks building. The building will include three-step screens.
- Convert the lagoons to equalization and split the high flows so that a steady influent is still sent to the treatment process.
- Replace the influent pumps with larger pumps or build a second Influent Pump Station with one 1 MGD pump.

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- Convert the MSABP basins to Activated Sludge basins. Construct two circular clarifiers and a RAS/WAS Pumping Facility.
- Construct a third train of either Activated Sludge basins or an SBR. Install a blower for this third train.
- Take the disc filter offline.
- Expand the UV disinfection system for future flows.
- Construct a biosolids storage tank and dewatering system, including a dewatering building.
- Build an Effluent Pump Station, approximately 18,000 linear feet of 18-inch piping, and an outfall structure to discharge the effluent into the Teton River.

The total cost for the project was estimated at $25,502,000. In addition to improvements, the reports mentioned additional staffing and sampling requirements.

CHAPTER 6 - NEED FOR SYSTEM IMPROVEMENTS

This chapter summarizes the deficiencies discussed in previous chapters. It also provides a general discussion of the need for improvements, such as compliance with regulations, replacing aging infrastructure, or providing capacity for future growth.

6.1. HEALTH, SANITATION, AND SECURITY

Idaho's Wastewater Rules (IDAPA 58.01.16) and Recycled Water Rules (IDAPA 58.01.17) provide primary procedures and requirements for issuing and maintaining permits for wastewater treatment and reuse facilities. Also, monitoring groundwater and soil conditions is necessary to assess the influence of land application on local soil and groundwater quality. Presently, the City of Victor does not have an independent wastewater facility or land application process. Yet, if that alternative were implemented, the City would be obligated to obtain a reuse permit and ensure its adherence to regulatory requirements.

Choosing a different recycled water alternative, such as Rapid Infiltration or Class A/B recycled water, would mandate meeting more difficult treatment standards. Achieving compliance would entail implementing new treatment procedures. If the City selects Rapid Infiltration as the disposal method, adherence to the Ground Water Quality Rule (IDAPA 58.01.11) would likely be required.

There have not been any overflows at Victor's lift stations. Overflows are a public health and sanitation concern as they involve events when untreated or undertreated effluent overflows onto the ground or is discharged to surface water. The City works to maintain and operate the collection system to minimize the chance of overflows. The lift stations currently meet capacity requirements, and the City strives to keep them in good working condition.

6.2. AGING INFRASTRUCTURE

As stated previously, the City of Victor does not own nor operate a wastewater treatment plant. The majority of the City's collection system piping consists of PVC material. Extended sewer mains and new developments have occurred since the construction of the original collection system. The collection system primarily consists of PVC pipe. Lift Stations #1 was installed at the same time as the majority of the collection system. Lift Station #3 was also constructed at the same time but was later abandoned and relocated to the Brookside Hollow Subdivision. Lift Station #4 was built in 2002 and 2003, and Lift Station #2 was recently abandoned and relocated in 2022.

6.3. SYSTEM DEFICIENCIES

The majority of the collection system pipes are under 75% of capacity for both 2045 and 2075 peak flows, but several sections reach capacity during the planning period. The majority of the lift stations in the collection system are also expected to experience pump capacity issues throughout the planning period.

6.3.1. Existing Deficiencies

- Lift Station 1 is currently at capacity. The lift station's forcemain will also exceed its capacity after its pumps are upsized. Alternatives to increase the force main's capacity are evaluated in Chapter 7.
- Driggs South Lift Station is currently over capacity. The lift station's forcemain also exceeds its capacity once improvements are made to the lift station. The City of Driggs Wastewater Collection Planning Study is currently in progress and further improvement alternatives will be considered. The City should work with the City of Driggs to consider improvement options.

- The City currently has only one portable generator to operate the lift stations during power outages. During high flow periods the City staff may have an inability to keep up with flows to avoid overflows. It is recommended to add additional portable or onsite generators as well as any corresponding electrical changes required to utilize the generators.

6.3.2. 20-Year Deficiencies

- The pipeline along S 500 W from Christopher Street to the intersection of Cedron Road and Highway 33 has several pipelines above 75% d/D, several over 85% d/D, and some segments that are surcharged. It is recommended that the pipeline be upsized as flows approach the 20-year projected flows.
- As previously discussed, Lift Station #1 is under capacity. Upsizing the pumps and forcemain to convey required flows leads to higher flows downstream. The increased flows cause pipelines downstream of Lift Station #1 to reach capacity. It is recommended to upsize these pipes in conjunction with the Lift Station #1 improvements.
- Lift Station #2 is over capacity during 2045 peak flows. The lift station pumps will need to be upsized to increase capacity and convey peak flows.

6.3.3. 50-Year Deficiencies

- The pipe segments along S 1000 W between W Center Street and Cedron Street are over 75% d/D, and some segments are over 85% d/D. Alternatives to increase the capacity or relieve the surcharging are evaluated in Chapter 7.
- The pipelines directly upstream of Lift Station #1 become surcharged under the 2075 MDF scenario. It is recommended to upsize the pipe as flows approach the 50-year projected.
- Lift Station #4 is over capacity during 2075 peak flows. The lift station pumps will need to be upsized to increase capacity and convey peak flows.
- Lift Station #1 and Driggs South Lift Station will meet their updated design flows as flows approach 2075 flows, and will once again need to be upsized.

Proposed capital improvements, a recommended priority order, and project triggers are included in the Capital Improvement Plan in Table 9-1.

6.4. REASONABLE GROWTH

Wastewater facility improvements are needed to stay ahead of potential increased population and new construction. Chapter 3 of this report discusses population growth projections, including customers served and the wastewater flows associated with this growth. This plan develops a 20-year capital improvement plan for the treatment components of the system and a 50-year build-out plan for the collection system components of the system.

CHAPTER 7 - COLLECTION SYSTEM ALTERNATIVES

Several deficiencies were identified within the collection system and are primarily a result of the projected increase in wastewater flows from a growing community. Several improvement alternatives were considered to correct the identified deficiencies and included factors such as feasibility, environmental impacts, operational impacts, as well as capital and annual costs. An evaluation of the alternatives and their impacts assists the City in identifying preferred alternatives to correct deficiencies. The preferred alternatives selected in this chapter are included in the capital improvement plan in Chapter 9.

7.1. INITIAL SCREENING OF ALTERNATIVES

The two deficiencies for which multiple improvements are considered in this chapter are listed below. These two areas were the only deficiencies that had multiple feasible improvement alternatives. Additional information regarding the initial screening of alternatives for all the identified deficiencies is provided in the following paragraphs.

- Undersized Lift Station #1
- Undersized pipe along S 1000 W from Brooktrout Drive to Cedron Road

In general, improvements to correct gravity pipeline deficiencies could consist of upsizing existing pipes, re-directing flows, parallel pipelines, flow reduction efforts, or other site-specific improvements. Improvements to correct lift station deficiencies could consist of upsizing existing pumps, upsizing forcemains, parallel forcemains, parallel wetwells with new pumps, relocating lift stations, abandoning lift stations, or other site-specific options.

The feasibility of potential gravity pipeline improvements was considered for the identified deficiencies, and the results of the initial screening are provided in **Table 7-1**.

Multiple feasible alternatives were not often identified, with the exception of the undersized pipe in S 1000 W. The most feasible alternative for the remainder of the deficiencies is to upsize the pipe within its existing alignment. Construction of a parallel gravity pipeline may be considered for any of the deficiencies and would likely have similar costs to upsizing the existing pipe. However, potential drawbacks to this alternative could include the need for a larger or new easement, additional pipeline to maintain, and utility conflicts.

The benefits of parallel pipeline construction could reduce the need for bypass pumping, provide the opportunity to improve the alignment, or provide a more constructible option to the existing alignment. In general, a parallel pipeline is not recommended unless replacing the existing alignment would result in more complex construction or if it would provide other benefits to the City. The benefits and drawbacks of adjusting the pipe alignment or constructing a parallel pipeline should be considered in the pre-design phase of the project.

For the sake of this master plan, upsizing the pipe within its existing alignment was deemed the preferred alternative unless otherwise noted.

TABLE 7-1: GRAVITY PIPELINE INITIAL SCREENING OF ALTERNATIVES

Deficiency	Upsize Pipe Alternative	Re-direct Flow Alternative	Parallel Pipeline Alternative	Flow Reduction Alternative
Undersized Pipe in S 500 W and Main Street	Yes, preferred alternative	No locations where re-directing flows can be done without creating new deficiencies	Constructing parallel pipelines would likely have similar costs to upsizing existing pipes and could be considered in the pre-design phase.	Excessive I/I is not an issue in Victor and per capita flows are within a reasonable value. Significant flow reduction is not anticipated.
Undersized Pipe upstream of Lift Station #1	Yes, preferred alternative	No locations where flows can be re-directed	Constructing parallel pipelines would have similar costs to upsizing existing pipes and could be considered in the pre-design phase.	
Undersized Pipe in S 1000 W	Yes, a potential alternative	Yes, a potential alternative	Constructing parallel pipelines would have similar costs to upsizing existing pipes and could be considered in the pre-design phase.	
Undersized Trunkline between Victor and Driggs	Yes, a potential alternative	No locations where flows can be re-directed	Constructing parallel pipelines would have similar costs to upsizing existing pipes and could be considered in the pre-design phase.	

The feasibility of potential lift station improvements was considered for the identified deficiencies, and the results of the initial screening are provided in **Table 7-2**. For Lift Stations #2 and #4, the required capacity increase can most easily be achieved by installing larger pumps. The condition of the lift stations should be considered during the pre-design phase of the project to identify if additional improvements to the wetwell, electrical, controls, valves, and discharge piping are required. From a capacity standpoint, the wetwell and force main are sized appropriately to operate with the proposed pump upsizing.

Alternatives at Lift Station #1 will require larger pumps and additional force main capacity. This could be achieved by several of the alternatives shown and evaluated below.

The Driggs South Lift Station should consider several alternatives to correct the deficiency; however, the analysis is not included in this report because the City of Victor does not own or maintain this lift station.

TABLE 7-2: LIFT STATION INITIAL SCREENING OF ALTERNATIVES

Deficiency	Upsize Pumps Alternative	Force Main Improvements Alternative	Relocate or Abandon Lift Station Alternative	Parallel Wetwell with New Pumps Alternative
Undersized Lift Station #1	Yes, but it also requires force main improvements	Required if pumps are upsized	Bypassing this lift station and gravity flow is not possible based on topography. All wastewater from Victor drains to this location, so it cannot be relocated.	Yes, it is a feasible alternative and should be considered in the pre-design phase.
Undersized Lift Station #2	Yes, preferred alternative	Significantly higher cost than upsizing pumps.	The lift station was recently relocated to this location to increase the size of the basin and capture additional future flows.	Not required, upsizing existing pumps can be done within the existing wetwell
Undersized Lift Station #4	Yes, preferred alternative	Significantly higher cost than upsizing pumps.	Bypassing this lift station and gravity flow is not possible based on topography.	Not required, upsizing existing pumps can be done within the existing wetwell
Undersized Driggs South Lift Station	Alternatives to improve this lift station should be evaluated in the City of Driggs WWFPS. Improvement alternatives beyond upsizing pumps and forcemain are not included in this report.			

7.2. LIFT STATION #1 IMPROVEMENTS – ALTERNATIVES ANALYSIS

Lift Station #1 requires an increase in capacity to convey peak flows within the next couple of years. This section documents the potential improvements which could be implemented to increase the capacity. The design criteria for this alternatives analysis were for the firm capacity of the lift station to equal 85% of the 2045 peak hour flows (PHF) and for the force main improvements to be sized for the 50-year PHF. The improvements required consist of two parts: increased pumping capacity and increased conveyance capacity in the force main.

Sometimes, increasing pumping capacity can be as simple as enlarging the force main because this reduces headloss for the pump. However, it is important to evaluate pump efficiency and cavitation risk if this option is selected. In this case, upsizing the force main does not provide enough capacity to meet the design criteria and, therefore, replacing the pumps is required. The design capacity is almost two times higher than the existing firm capacity and can be achieved by several pumping configurations. Provisions for low and high flow conditions should be considered when selecting the size and number of pumps. The specific details regarding the number of pumps, size of pumps, reuse of existing components (such as the wetwell, valve vault, valves, etc.), and wetwell sizing should be determined during the pre-design of the project. This section simply assumes the total firm capacity meets the design criteria; assumptions for what infrastructure is replaced or reused are provided in the project description in Chapter 9.

With the increased pumping capacity in the lift station, additional capacity in the force main is required. If the force main were not upsized, velocities would be over 8 fps, which creates a higher risk for high surge pressures, which could damage the pipe, valves, and pumps. Also, pumping flows at that high velocity results in excessive headloss, and the power costs would be significantly increased. For these reasons, alternatives were considered to increase the conveyance capacity and are summarized in the bullets below and **Figure 7-1.**

- No Action Alternative – This alternative is not a feasible alternative because if no action was taken, the lift station would be undersized, and there would likely be sanitary sewer overflows (SSOs). For this reason, additional consideration of this alternative is not provided.
- Alternative 1 – This alternative consists of upsizing 7,500 feet of the existing 8-inch force main to a 12-inch force main. A 12-inch force main results in velocities of about 4 fps during 2045 flows and 5 fps under 2075 flows. The primary benefit of this alternative is the ability to implement trenchless construction technologies such as pipe bursting. The existing alignment will also be used, and therefore, the potential for utility conflicts is low. The drawback to this alternative is that there is no redundancy built into the system. If the force main is damaged or needs to be taken offline, provisions for bypass pumping will need to be made.
- Alternative 2 – This alternative consists of installing 7,500 feet of parallel 12-inch force main adjacent to the existing pipe. A 12-inch is recommended because it provides more redundancy than installing another parallel 8-inch pipe. If only a parallel 8-inch pipe was installed, the flow would need to be pumped through both pipes and, therefore, does not improve the redundancy. Under this alternative, the new 12-inch pipe would likely be used the majority of the time, but if it is damaged or needs to be taken offline, the existing 8-inch pipe can be used temporarily to eliminate the need for bypass pumping. The lift station controls should also be configured so that both the 8-inch and 12-inch pipes can be used if there is an abnormal increase in flows that exceed the firm capacity. There are minimal drawbacks to this alternative and it has relatively similar construction costs to Alternative 1.

Table 7-3 summarizes the pros and cons of each alternative. **Table 7-4** summarizes comparative capital costs for each alternative. Life-cycle costs were not developed because the resulting infrastructure is relatively similar for both alternatives and would have similar power, staffing, and maintenance costs.

FIGURE 7-1: LIFT STATION 1 FORCE MAIN

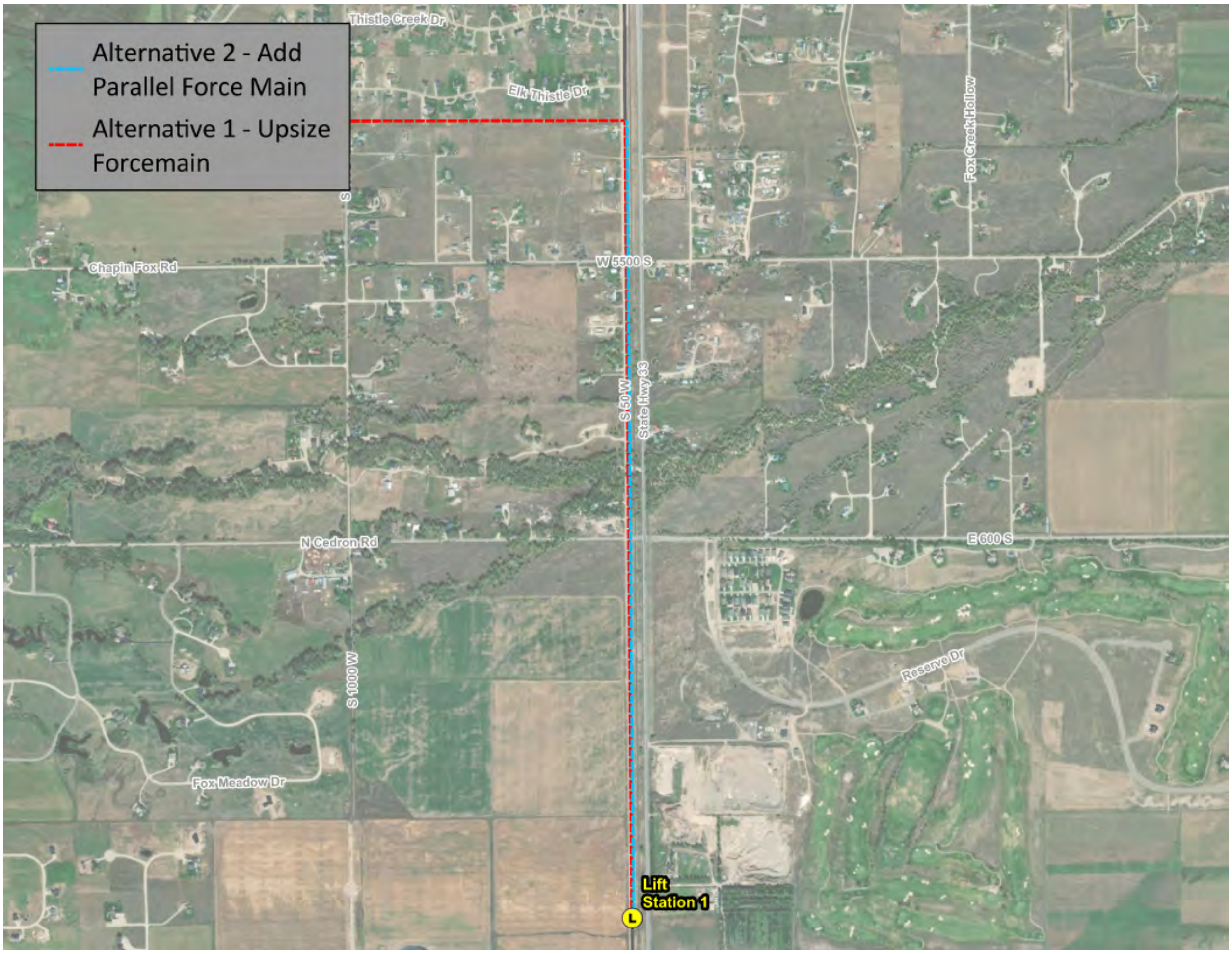


TABLE 7-3: ALTERNATIVES PROS AND CONS

Alternative	Pros	Cons
Alternative 1 – Upsize to 12-inch pipe	-Trenchless construction technology -Low likelihood of utility conflicts	-Bypass pumping required during construction -No redundancy if the force main fails or needs to be repaired -Higher construction costs
Alternative 2 – Install parallel 12-inch pipe	-Improved redundancy and resiliency -Provides surplus of capacity -Lower construction costs	-Open cut construction is required

TABLE 7-4: ALTERNATIVES COST COMPARISON

Item	Alt 1: Upsize Force Main	Alt 2: Additional Force Main
Roadway Restoration	-	$13,000
Native Surface Repair	$3,000	$75,000
12" HDPE Pipe Burst	$2,295,000	-
Pressure Sewer Pipe - 12" PVC	-	$1,301,000
Lift Station Valves and Controls	$20,000	$50,000
Bypass Pumping	$25,000	-
Jack and Bore	-	$200,000
Construction Subtotal	$2,343,000	$1,639,000
General Conditions (10%)	$235,000	$164,000
Subtotal	$2,578,000	$1,803,000
Contractor OH&P (15%)	$387,000	$271,000
Subtotal	$2,965,000	$2,074,000
Contingency (30%)	$890,000	$623,000
Total Construction Cost	**$3,855,000**	**$2,697,000**
Design, Legal, and Construction Services (25%)	$964,000	$675,000
Total Project Cost	**$4,819,000**	**$3,372,000**

Alternative 1 would have higher capital cost and less of an improvement to capacity. In this case, because the pipeline is located outside of the pavement and only requires native surface repair, pipe bursting is not a more effective solution than open-cut construction. The new pipe would follow the existing alignment within the existing right-of-way, so additional land requirements would not be necessary. During construction, bypass pumping would be required, but open trench construction could potentially be avoided with the use of pipe bursting.

Alternative 2 has a lower capital cost and would result in greater improvement in capacity. The new pipe would follow parallel to the alignment within the existing right-of-way, so additional land requirements are not anticipated. It would also act as a form of redundancy as two force mains would be present. Because of the addition of a second force main, no bypass pumping would be needed as the existing line could remain active during construction.

Additional factors such as environmental impacts, construction challenges, and sustainability impacts were also considered for both alternatives. Neither alternative is anticipated to have a permanent environmental impact and the construction challenges are relatively similar between either alternative. The primary difference is that bypass pumping would be required for Alternative 1 while the pipeline is upsized as opposed to Alternative 2, which can be constructed without taking the existing 8-inch force main offline for a significant amount of time. Overall, the sustainability of Alternative 2 is superior due to the improved resiliency and lower consequence of failure. **Table 7-5** summarizes additional impacts considered for each alternative.

TABLE 7-5: ALTERNATIVES ENVIRONMENTAL IMPACTS

Category	Alternative 1 – Upsize to 12-inch	Alternative 2 – Install Parallel 12-inch
Land Use / Land Requirements	-Constructed within existing pipe alignment in the right-of-way	-Sufficient space in the existing right-of-way to be constructed adjacent to the existing pipeline
Floodplains	-Construction would pass through a mapped 100-year floodplain	-Construction would pass through a mapped 100-year floodplain
Wetlands	-Construction through several Riverine areas	-Construction through several Riverine areas
Endangered Species	-No impact anticipated	-No impact anticipated
Cultural Resources	-No impact anticipated	-No impact anticipated
Surface or Groundwater Quality	-Crosses Fox Creek, pipe bursting would be recommended to minimize the impact	-Crosses Fox Creek, boring or directional drilling recommended to minimize impact
Potential Construction Problems	-Shallow groundwater, creek crossing, and bypass pumping required for extended period of time	-Shallow groundwater, creek crossing
System Classification	-No change	-No change
Sustainability Considerations	- Trenchless technology to reduce dust, ground disturbance, and other temporary construction impacts. - Does not improve the resiliency of the system. Provisions for bypass pumping in the event of pipe failure are required	- Construction can be completed without bypass pumping - Improves overall resiliency of the system.

Ultimately, it is recommended the City implement Alternative 2 because it increases the capacity of the force mains beyond the 50-year flows, is a lower cost than Alternative 1, and would avoid the need for bypass pumping during construction or an emergency repair event. This alternative also significantly improves the resiliency of the wastewater system and better prepares the City in the event of a pipeline failure.

7.3. UNDERSIZED PIPE IN S 1000 W – ALTERNATIVES ANALYSIS

Peak flows in 2075 exceed the capacity of portions of the 8-inch trunkline within S 1000 W from Highway 31 to W 8000 S. Specifically, the section of pipe from Brooktrout Road to Cedron Road. Two alternatives were considered and are described below and illustrated in **Figure 7-2.**

- No Action – This alternative would consist of not implementing either of the alternatives described below. This is an appropriate alternative in the meantime until flows within Lift Station #3 and #4 basins are higher. This pipeline is not surcharged under the existing nor 20-year flow projections. Once flows reach the 50-year projections, either Alternative 1 or Alternative 2 should be implemented. The pros and cons of the no action alternative are not included because the improvements will be required eventually.

- Alternative 1 – This alternative consists of upsizing the existing 8-inch gravity pipe to a 10-inch gravity pipe. A 10-inch gravity pipe will flow at approximately 50-60% full during the 50-year MDF scenario. This leaves some capacity for additional growth beyond the 50-year projection. The portion of the pipe upsized would only be from Brooktrout Road to just south of Cedron Road, where it would connect to the existing 10-inch pipe.
- Alternative 2 – This alternative consists of changing the discharge location of Lift Station #3 to near the intersection of Cedron Road and S 1000 W. This would reduce the amount of flow in the section of trunkline with capacity issues and resolve the deficiency.

Table 7-6 summarizes the pros and cons of each alternative, and **Table 7-7** summarizes the comparative costs for each alternative. Note that life-cycle costs were not developed because the resulting infrastructure is relatively similar for both alternatives and would have similar power, staffing, and maintenance costs.

FIGURE 7-2: UNDERSIZED PIPE IN S 1000 W ALTERNATIVES

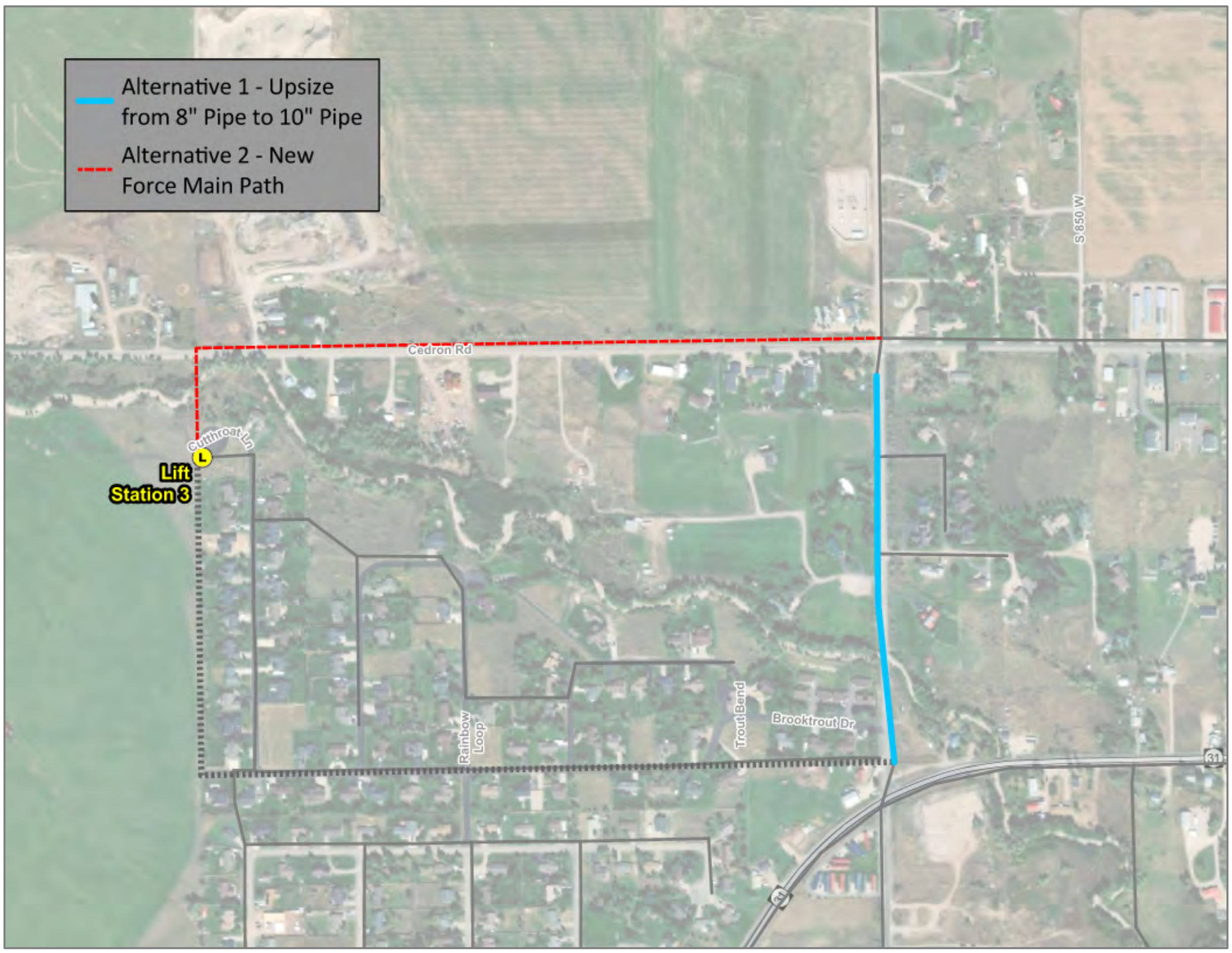


TABLE 7-6: ALTERNATIVES PROS AND CONS

Alternative	Pros	Cons
Alternative 1 – Upsize to 10-inch pipe	-Within existing right-of-way -Lower likelihood of utility conflicts -Lower construction cost	-Bypass pumping required during construction -Service reconnects needed
Alternative 2 – Reroute Force Main	-No bypass pumping is required -Smaller trench required	-Jack and bore under creek required -Higher construction cost -New easement likely required

TABLE 7-7: ALTERNATIVES COST COMPARISON

Item	Alt 1: Upsize Pipe	Alt 2: Reroute Force Main
Roadway Restoration	$85,000	$130,000
Native Surface Repair	-	$4,000
Gravity Sewer Pipe - 10" PVC	$158,000	-
10" HDPE Pipe Burst	$113,000	-
Pressure Sewer Pipe - 4" PVC	-	$224,000
Sanitary Sewer Manhole	$37,000	-
Connect to Existing Manhole	-	$2,000
Bypass Pumping	$25,000	-
Jack and Bore	-	$100,000
Construction Subtotal	$418,000	$460,000
General Conditions (10%)	$42,000	$46,000
Subtotal	$460,000	$506,000
Contractor OH&P (15%)	$69,000	$76,000
Subtotal	$529,000	$582,000
Contingency (30%)	$159,000	$175,000
Total Construction Cost	**$688,000**	**$757,000**
Design, Legal, and Construction Services (25%)	$172,000	$190,000
Total Project Cost	**$860,000**	**$947,000**

Alternative 1 would have a slightly lower capital cost and would increase the capacity of the existing pipe. The new pipe would follow the existing alignment within the existing right-of-way, so additional land requirements would not be necessary. Because the line would be replacing the existing pipe, bypass pumping would be required during construction, and services connected to the existing pipe would need to be reconnected. The existing pipe crosses Trail Creek, so pipe bursting would be recommended to avoid open cut construction.

Alternative 2 has slightly higher capital costs, and it corrects the surcharged pipes under the 50-year flows, but no additional capacity is available. The pipes are flowing at approximately 75% full when Lift Station #3 flows are re-routed. The new force main would follow a new alignment, and a new easement would likely be necessary until it reaches the right-of-way in S 8000 W. The benefit to this alternative is that force mains do not need to be installed as deep as gravity sewer pipes, and the pipe would only be a 4-inch diameter pipe; therefore, it would not require as big of a trench for construction. This alignment also crosses Trail Creek and would likely require directional drilling or boring under Trail Creek. Bypass pumping would not be needed under this alternative because the lift station could stay in operation until the new line was connected.

Additional factors such as environmental impacts, construction challenges, and sustainability impacts were also considered for both alternatives. Neither alternative is anticipated to have a permanent environmental impact, and the construction problems are relatively similar between either alternative. The primary difference is that bypass pumping would be required for Alternative 1 while the pipeline is upsized as opposed to Alternative 2, which can be constructed without impacting the existing sewer system for a significant amount of time. Overall, the sustainability of the two alternatives is similar with neither option having significant advantages. **Table 7-8** summarizes additional impacts considered for each alternative.

TABLE 7-8: ALTERNATIVES ENVIRONMENTAL IMPACTS

Category	Alternative 1 – Upsize to 10-inch pipe	Alternative 2 – Reroute Force Main
Land Use / Land Requirements	-Constructed within existing pipe alignment in the right-of-way	-Constructed in new alignment, a new easement would likely be needed
Floodplains	-Construction would pass through a mapped 100-year floodplain	-Construction would pass through a mapped 100-year floodplain
Wetlands	-Construction through mapped Riverine areas	-Construction through mapped Riverine areas
Endangered Species	-No impact anticipated	-No impact anticipated
Cultural Resources	-No impact anticipated	-No impact anticipated
Surface or Groundwater Quality	-Crosses Trail Creek, pipe bursting would be recommended to minimize the impact	-Crosses Trail Creek, boring or directional drilling recommended to minimize impact
Potential Construction Problems	-Bypass pumping required during construction -Creek crossing	-Creek crossing
System Classification	-No change	-No change
Sustainability Considerations	- Trenchless technology could be utilized to reduce dust, ground disturbance, and other temporary construction impacts.	- Construction can be completed without bypass pumping

Ultimately, it is recommended the City implement Alternative 1 because it provides additional capacity beyond 50-year flows, has lower costs than Alternative 2, and would not require any new easements.

CHAPTER 8 - TREATMENT AND DISPOSAL ALTERNATIVES

The objective of this chapter is to outline and evaluate the treatment and disposal options for the City of Victor. This includes an evaluation comparing the alternatives to the status quo of continuing to send the wastewater to the City of Driggs for treatment and disposal.

8.1. DESCRIPTION OF ALTERNATIVES

Several alternatives were considered to address Victor's current situation. The selected alternatives were evaluated based on the following objectives:

- Finding practical and cost-effective solutions.
- Establishing facilities capable of consistently meeting permit limits.
- Maximizing the utilization of existing facilities.
- Identifying solutions that can be phased in to reduce debt and minimize user rate increases.

This chapter analyzes the advantages, disadvantages, and comparative costs of these alternatives. In addition to the capital costs, annual operation and maintenance (O&M) costs are compared to provide a comprehensive view of the alternative costs.

8.1.1. Status Quo (Alternative 1)

Under this alternative, no significant changes would be made – wastewater would continue to be collected in Victor and conveyed to Driggs for treatment. Victor's current obligations to Driggs loan repayment of the collection pipeline between the two cities, as well as operations and maintenance costs at the treatment plant. These costs are accounted for in the life-cycle costs comparison.

Improvements are planned for the Teton Valley Regional WRF to more consistently meet permit limits. Currently, the WRF faces several deficiencies, as detailed in Chapter 5. The U.S. Department of Justice is also suing the City of Driggs for violations of the Clean Water Act associated with the WRF discharge. The City of Driggs recently completed a facility planning study that showed the cost of WRF improvements to comply with their discharge permit, estimated at a total cost of $25.5M (2023 Driggs Wastewater Facility Planning Study). The exact nature of the cost-sharing agreement between the two cities is unclear at this time; however, it is likely that it will be a flow-based split. Victor currently contributes to approximately 45% of the annual flow at the existing treatment plant, and therefore, it was assumed that Victor would be responsible for this amount of the treatment plant improvements (approximately $11.5M). This alternative assumes Victor will continue to make loan payments on the existing debt plus a percentage of the new loan costs for the improvements at the Teton Valley WRF.

Additionally, increased O&M costs are anticipated to be paid by Victor. Driggs reported an increase of approximately $400,000 to operate the new WWTP, and it was assumed Victor would pay for this based on its percentage of flows (45%). Additional O&M costs were calculated based on Victor's fiscal year (FY) 2022 expense report, and costs were grouped together into one of the following categories: electricity, chemicals, disposal, parts, personnel, miscellaneous, and payments to Driggs.

In addition to the improvements at the Teton Valley Regional WRF, costs for future improvements to the collection system between Victor and Driggs were also included. Based on the hydraulic model results presented in Chapter 4, improvements are required at Lift Station #1, the force main downstream of Lift Station #1, the existing 12-inch and 15-inch collection pipelines, the Driggs South Lift Station, and the force main downstream of the Driggs South Lift Station. Some of these are existing deficiencies, and some are needed based on the projected 20-year flows.

There are several considerations that will impact how much of the collection system costs will be incurred by the City of Victor. First, the costs for the gravity collection piping and improvements at and downstream of the Driggs South Lift Station may be shared between the two cities because Victor does not own or maintain these facilities. Second, there is the potential to reuse existing infrastructure. The costs presented in this section assume that both Lift Station #1 and the Driggs South Lift Station are completely replaced. This was assumed because the proposed increase in pumping capacity is almost two times the existing capacity, which means existing components (such as piping, valves, electrical equipment, etc.) are likely too small to be reused; however, the wetwell and valve vault may be salvaged. This should be evaluated during the pre-design phase of the project as potential cost-saving measures.

Additionally, the costs for the larger gravity pipeline may be significantly reduced if the original 12-inch pipeline, (which was capped as a part of the 2011 Interceptor Project), can be reused. If flows can be split between the 12-inch and 15-inch pipeline, there would be sufficient capacity to convey the 20-year flows. However, there are still some sections where only the original 12-inch pipeline exists and would need to be upsized. For the reasons listed above, the actual costs of this alternative are difficult to quantify and are therefore presented as a range in Section 8.2.

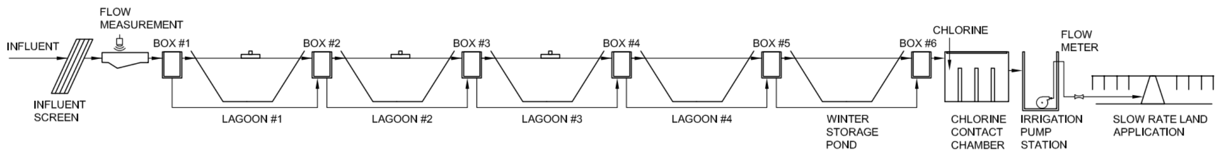
8.1.2. City Lagoon Treatment and Land Application (Alternative 2)

The City could construct a wastewater treatment system and land apply (irrigate) farm fields with the treated effluent. Although several different treatment technologies could achieve the land application effluent requirements, a partially mixed aerated lagoon system was chosen for this alternative due to its ease of construction and operation. The wastewater treatment effluent requirements are Class C or D, as shown in Table 3-10 in Chapter 3. Land application of treated effluent provides many benefits to crops, including water and nutrients. Surface soils and crops also provide additional treatment for the water. The main concern with agricultural land application is the protection of groundwater. This typically translates to irrigating at agronomic rates to match the net irrigation requirements of the crops, although nitrogen and phosphorus application rates are also typically monitored. Allowable agronomic irrigation rates are based on historical precipitation deficit values from ETIdaho -- Evapotranspiration and Net Irrigation Requirements for Idaho.

This alternative would include an influent screen, four treatment lagoons, a winter storage pond, and chlorine disinfection. To remain below the nitrogen loading limit for the land application system, nitrogen concentrations may be limited to 40 mg/L for the current population and 34 mg/L for the 2045 flows. The lagoons are anticipated to remove some nitrogen, so a separate nitrogen removal treatment process or additional land application area are not expected.

An irrigation lift station would pump the treated effluent to the land application fields. Sludge that deposits in the lagoons would periodically be removed, dewatered, and disposed of in a landfill by a contractor. Both the collection system and treatment plant would be classified as Class I. A schematic of the treatment process is shown in **Figure 8-1**.

FIGURE 8-1: LAGOON TREATMENT AND LAND APPLICATION



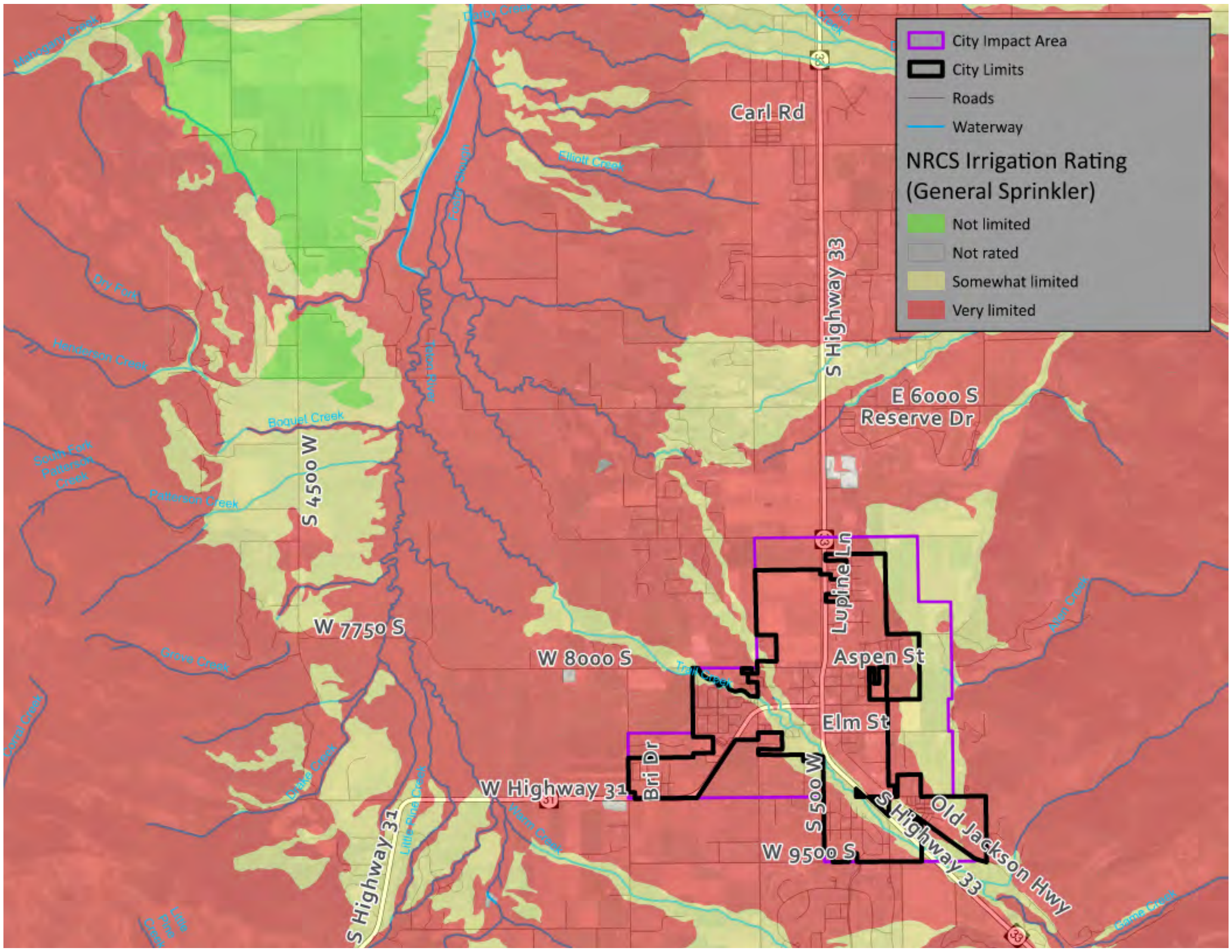
Alfalfa is one of the most commonly used crops for reuse water. If alfalfa were planted, the water application could occur during the growing season at approximately 30.0 inches per acre per year, assuming 80% irrigation efficiency. The minimum estimated farmland needed for the 2045 average day flow would be 270 acres. Typical nitrogen uptake from alfalfa is approximately 250 pounds per acre.

This alternative would also require storage during the winter (non-growing season) when water cannot be land applied. Based on the 2045 average day flow, the total storage necessary during the non-growing season is approximately 120 million gallons (370 acre-feet). Assuming a pond water depth of 8 feet, the storage may require approximately 50 additional acres. Thus, with buffers included, the total acreage needed for the lagoon treatment ponds, land application area, and storage pond for this alternative is a minimum of approximately 370 acres. The cost for the City to acquire this much area for the treatment and disposal of wastewater under this alternative is significant, but another option could be to enter into a long-term agreement with a landowner for the land application area. It should be noted that if the farmland used for effluent land application is privately owned, the City would need to have special control over when the effluent is used and that it be used in conformance with reuse permit requirements (e.g., no ponding or runoff, application at rates not to exceed irrigation water requirements, etc.). Because this is an option, the costs presented in Section 8.2 are provided as a range to account for if a lease agreement is implemented rather than purchasing the land.

In addition to the total acreage, several other considerations exist for selecting a land application site. These include topography, groundwater levels, groundwater pollutant concentrations, general soil conditions, climate, land use, well locations, and distance to water bodies. DEQ has published guidance for general setbacks or buffers for agricultural land application (Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater, DEQ 2007).

A preliminary assessment of the feasibility of land application in the area was done based on soil suitability ratings from the USDA NRCS Soil Data Explorer. **Figure 8-2** shows the NRCS rating map for wastewater disposal by land application. Most of the area immediately within and surrounding the study area is somewhat or very limited, indicating that land application may not be feasible. While the NRCS ratings show that land application may not be feasible, additional investigation of a specific area may show different results, and land application may be an option.

FIGURE 8-2: NEARBY LAND SUITABILITY FOR LAND APPLICATION



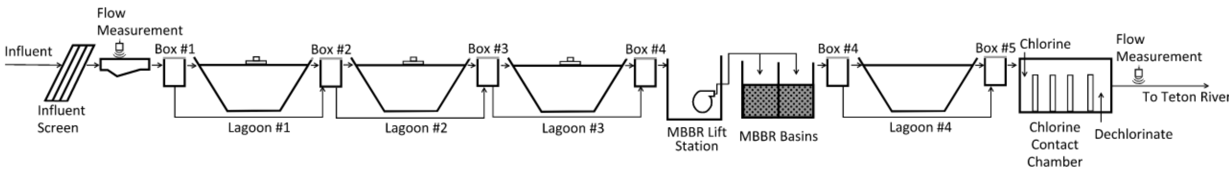
8.1.3. City Lagoon Treatment and Surface Water Discharge (Alternative 3)

Additional treatment is added to the previous alternative to meet the surface water discharge requirements described in Chapter 3. This extra treatment is primarily focused on ammonia and total residual chlorine removal. Although there are different technologies available, for this alternative, it was assumed that a moving bed bioreactor (MBBR) would be added to focus on ammonia removal and that a sodium bisulfite dosing system would be added to remove residual chlorine. An MBBR typically uses plastic media to provide surface area for growing nitrifying organisms. The media is usually aerated and mixed using blowers and coarse/medium bubble diffusers. Organisms that scour off the media will settle in the downstream polishing lagoon.

Under this alternative, the aeration in the previous alternative would be needed to ensure continued organic carbon removal (typically measured by five-day biochemical oxygen demand BOD_5) before the ammonia treatment. A finer influent screen would be used before the aerated lagoons, as stringy material can clog the MBBR media. A pump station would be added between Lagoons 3 and 4 to pump the water to the MBBR basins for treatment. Following the ammonia removal in the MBBR, the wastewater would flow by gravity to Lagoon No. 4.

Floating covers are recommended for Lagoon 4 to prevent algae growth. The diagram and general layout of this alternative are shown in **Figure 8-3**.

FIGURE 8-3: LAGOON TREATMENT AND SURFACE WATER DISCHARGE



8.1.4. City Mechanical Treatment and Surface Water Discharge (Alternative 4)

The City could utilize a mechanical treatment plant to produce a higher-quality effluent for surface water discharge as an alternative to lagoon treatment, which was the previous alternative. A mechanical treatment plant would have a smaller footprint and provide more reliable treatment. This alternative included an oxidation ditch (a mechanical secondary treatment system) followed by ultraviolet light (UV) disinfection to meet the surface water discharge requirements outlined in Chapter 3.

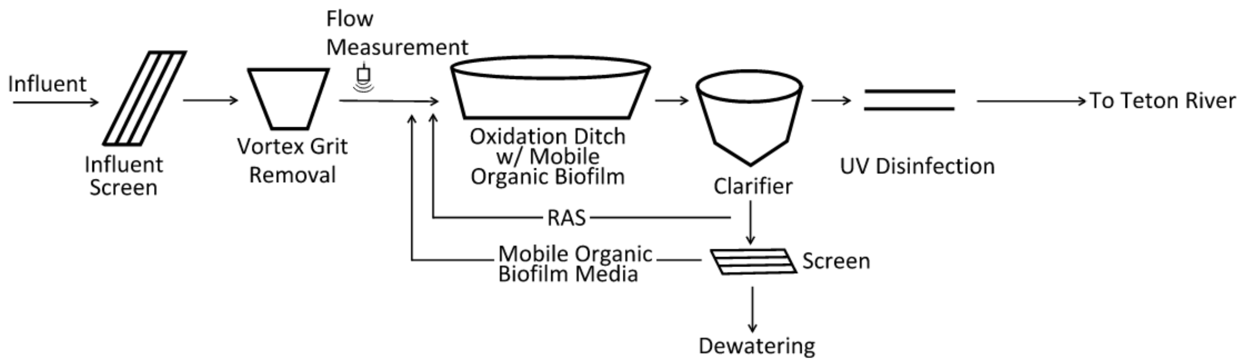
Although there are other mechanical treatment options, an oxidation ditch was chosen for its ease of operation. The oxidation ditch process uses activated sludge (a concentrated mixture of microorganisms) to remove biodegradable organics and nitrogen to comply with effluent requirements. The incoming wastewater is mixed with activated sludge that is settled and returned from secondary clarifiers (return activated sludge (RAS)). Aeration is added to some sections of the oxidation ditch. Dissolved oxygen (DO) would be used to ensure adequate DO is present and initiate automatic process control. The City of Rigby recently upgraded its oxidation ditch with a mobile organic biofilm for increased ammonia removal (pictures to the right). Media, a screen, and a pump station were added to incorporate this system. A similar system is included in this alternative to ensure ammonia removal.

A grit removal system is included following screening to protect the new equipment from the wear of small grit particles and meet IDAPA 58.01.16 requirements for mechanical wastewater treatment plants. This alternative included a single vortex grit chamber with a grit classifier. The vortex chamber is designed to separate grit from the water using a hydraulically induced vortex. A pump removes the grit from the bottom of the chamber and transports the material to a grit classifier, where the grit is dewatered and deposited in a dumpster.

UV disinfection can be used as the effluent from the oxidation ditch is of higher quality than from the lagoons. With UV disinfection, dechlorination is unnecessary, so the chemical requirements for this alternative are lower than those for the previous alternative.

More biosolids would be produced with a mechanical treatment system than with a lagoon system. Regular removal of the biosolids would be required to ensure continued treatment. Although there are other options, a screw press dewatering system was included with this alternative for comparison purposes. The sludge is pumped from the secondary clarifiers to the screw press, mixed with a polymer, and dewatered by compression as it advances up the screw. The pressate (water that is removed from the biosolids) is sent to the influent screen. Although further treatment could be applied to the biosolids, for comparison purposes with the other alternatives, no further biosolids treatment was included. It was assumed that the biosolids would be disposed of at the Teton County Landfill. A schematic of the alternative is included in **Figure 8-4.**

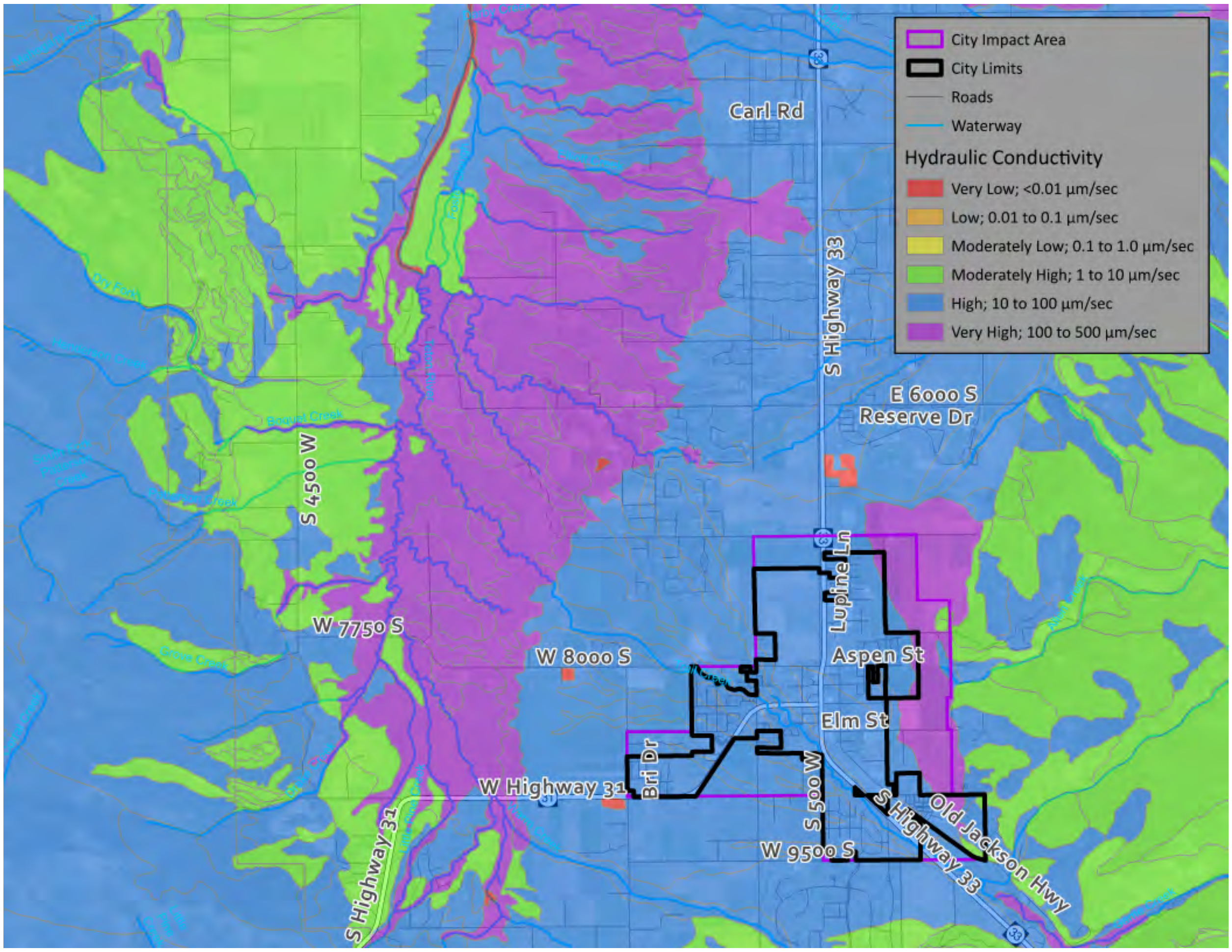
FIGURE 8-4: MECHANICAL TREATMENT AND SURFACE WATER DISCHARGE



8.1.5. City Mechanical Treatment and Rapid Infiltration (Alternative 5)

Rapid infiltration (RI) basins might be used to discharge the treated effluent. With RI basins, the water is allowed to infiltrate into the ground to the aquifer. The location selection for the RI basins is based on the anticipated hydraulic conductivity rates, the perceived adequacy of the location, and the space available. Hydraulic conductivity rates for local soils near the planning area were reviewed using the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Soil Survey and are displayed in **Figure 8-5.** The actual location of the RI basins was not defined as a part of the study. However, the hydraulic conductivity within the adjacent area of the study area shows relatively high infiltration rates.

FIGURE 8-5: NEARBY LAND SUITABILITY FOR RAPID INFILTRATION

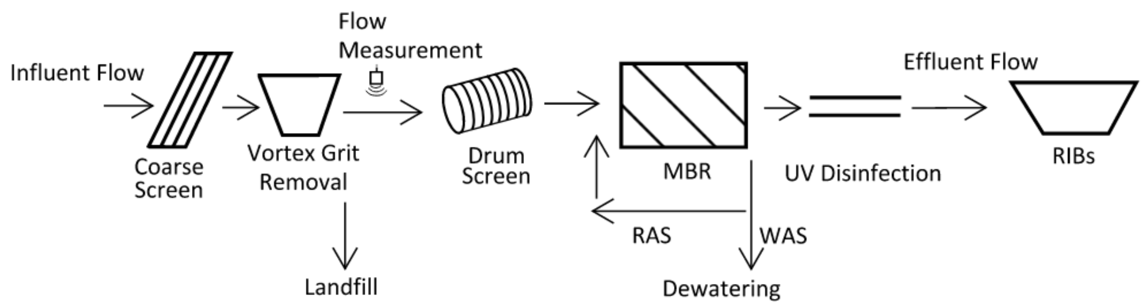


As discussed in Chapter 3, the Ground Water Quality Rule likely would govern any RI basin discharge. Therefore, a membrane bioreactor (MBR) was included for this alternative to perform biological treatment and filtration to meet the more stringent effluent limits. An MBR also has a much smaller footprint than all of the treatment alternatives including the oxidation ditch; however, finer screening is needed with an MBR to protect the membranes. The effluent quality with this alternative is very high and can be used for discharge into RI basins.

MBR combines an activated sludge reactor with solids removal via membrane filtration, eliminating the need for secondary clarifiers. In an MBR, the solids are separated from the water by passing the water through a thin, porous membrane at low pressure instead of using gravity clarification. The membranes are typically submerged in the activated sludge reactor but can also be in a separate stand-alone reactor. Because they do not rely on gravity clarification, an MBR can operate at a higher mixed liquor suspended solids (MLSS) concentration, which decreases the footprint.

Following MBR treatment, the filtered effluent would be disinfected with UV. Similar to the previous alternative (Alternative 4), biosolids would be dewatered without further treatment for comparison purposes. A schematic of Alternative 5 is shown in **Figure 8-6.**

FIGURE 8-6: MECHANICAL TREATMENT AND RAPID INFILTRATION DISCHARGE



To size the RI basins, a value of 20 feet per year for soil infiltration was chosen as the soil and groundwater investigation indicated a moderate value for the available water capacity of the soils. However, additional soil investigation (such as double-ring infiltration testing or large-scale infiltration testing) is recommended to verify this assumption. Preliminary sizing of RI basins estimated an area of 30 acres would be needed to treat the 2045 average day flow. The initial sizing was based on EPA's Land Treatment of Municipal Wastewater Effluents – Process Design Manual published in 2006 (U.S. Environmental Protection Agency, 2006). With the treatment plant, RI basins, and buffers, the anticipated required area for the system is 50 acres.

Additional investigations would be required to determine if RI basins would be an acceptable disposal method. A Well Location Acceptability Analysis will determine the proximity of groundwater wells to the proposed RI basins and the potential for hydraulic influence. An updated site investigation by a hydrogeologist will also be needed. Due to the large amount of water in the RI basins, the effects of groundwater mounding and transport of percolate within an aquifer should also be considered. Therefore, soil, groundwater, infiltration, and mounding tests should be performed before the design and include pilot testing. Results from this study will dictate the size of the RI basins and level of effluent quality to avoid impacts to groundwater.

IDAPA 58.01.11 governs the effects on groundwater. A reuse permit for RI basins would be required, and a groundwater monitoring well network will help monitor whether the RI basin system is impacting groundwater. Should this alternative be preferred, it is recommended that a geologic, hydrogeologic, and hydrologic investigation take place as soon as possible.

8.1.6. Other Disposal and Treatment Alternatives

Some additional disposal alternatives were considered, but due to the limitations discussed below, they were not included for further analysis.

<u>Summer Land Application / Winter Surface Water Discharge</u>

This disposal option would eliminate the necessity of winter storage; however, due to the lower surface water flows in the winter, the treatment required for discharge to the river in the winter is more stringent than in the summer. Therefore, the total cost for this hybrid alternative would be higher than any of the other alternatives evaluated as it would include both higher treatment and the same land application costs.

City Reuse

Using the treated wastewater for residential use as reclaimed water was not evaluated due to the high level of treatment required, as shown in Table 3-10 in Chapter 3. This level of treatment would not be feasible for the City due to the high capital and operating costs.

8.2. EVALUATION OF ALTERNATIVES

This section evaluates the alternatives, including the advantages, disadvantages, and comparative costs. **Table 8-1** shows each discharge alternative's principal advantages and disadvantages.

TABLE 8-1: DISPOSAL AND TREATMENT ALTERNATIVES SUMMARY

Alternative	Alt 1: Status Quo	Alt 2: Lagoons & Land App	Alt 3: Lagoons & Surface Discharge	Alt 4: Mechanical & Surface Discharge	Alt 5: Mechanical & RI
Pros	Less responsibility for potential violations	Simple treatment operation and less stringent permit requirements	Relatively simple treatment operation compared to Alts. 4 and 5	Higher water quality than all but Alt. 5.	Highest water quality
	Less O&M tasks for the City	No permit for surface water disposal	Less land requirement than Alt. 1	Smallest land required	No permit for surface water disposal
	No permitting	Crop production benefits	No farming or winter storage	Independent of Driggs System	Independent of Driggs System
	Anticipated lowest costs	Independent of Driggs System	Independent of Driggs System		
Cons	Less control over treatment & potential violations	Largest land needed and the land that is available may not be suitable for farming	Potential risk and delays with obtaining a surface water discharge permit	More complex treatment operation than Alts. 2 and 3.	Soil and groundwater conditions for rapid infiltration are questionable
	More collection system improvements than other alternatives	Need to be involved with farming	More stringent effluent limits; may become more stringent over time	Potential risk and delays with obtaining a surface water discharge permit	More complex treatment operation than Alts. 2 and 3.
	Less control over user rates				Highest costs over 20 years

The cost estimates are a Class 5 cost opinion, as defined by the Association for the Advancement of Cost Engineering. They include estimated construction costs with markups of 10% for general conditions, a contingency of 30%, 15% contractor overhead and profit (OH&P), and general and administrative services (including design engineering, construction observation, loan support, legal services, etc.) of 25% based on total construction cost. In addition to project capital costs, annual O&M costs are compared to give a more complete picture of the total alternative costs.

A 20-year life-cycle cost analysis is offered for most alternatives, utilizing a real discount rate (inflation-adjusted) of 2%. Equipment is assumed to have a 20-year useful life; thus, no depreciation or salvage value is included in comparing the alternatives. The estimates use an average rate of $0.05 per kWh for power costs plus $7.19 per kW demand (according to Fall River Electric rates for a large general services account) and a fully loaded rate (salary, benefits, etc.) of $75,000.

A preliminary cost comparison of the discharge alternatives is summarized in **Table 8-2**. The detailed estimates are provided in Appendix B. Alternative 1 will have the lowest project costs in the immediate future; however, depending on the collection system improvements and cost-sharing with Driggs, it may have a 20-year life-cycle cost comparable to Alternatives 2, 3, and 4.

TABLE 8-2: DISPOSAL ALTERNATIVES 20-YEAR LIFE CYCLE COST COMPARISON

Item	Alt. 1: Status Quo	Alt. 2: Lagoon and Land Application	Alt. 3: Lagoon and Surface Discharge	Alt. 4: Mechanical and Surface Discharge	Alt. 5: Mechanical and Rapid Infiltration
Treatment Costs	$0	$11.3M	$9.6M	$10.9M	$18.1M
Collection Costs[1]	$4.9M – $11.0M	$3.5M	$3.5M	$3.5M	$3.5M
Additional Project Costs[2]	$5.2M – $11.7M	$15.6M	$13.8M	$15.3M	$22.8M
Total Project Cost[2]	$10.1 – $22.7M	$30.4M	$26.9M	$29.7M	$44.4M
Property Cost[3]	$0	$2.0M – $14.8M	$2.0M	$400k	$2.0M
Costs to Driggs[4]	$13.5M	$2.1M	$2.1M	$2.1M	$2.1M
Total Project and Land Cost	$23.5 – $36.5M	$34.1M–$46.9M	$31.1M	$32.5M	$48.1M
Annual O&M[5]	$870k	$840k	$880k	$890k	$1.0M
20-year Life Cycle[6]	**$41M – $54M**	**$51M – $64M**	**$49M**	**$50M**	**$69M**

1) The low range for Alternative 1 assumes only costs for Victor owned infrastructure are paid. The high end assumes all of the costs (including on the Driggs ownership side) are paid by Victor.
2) Includes additional costs for mobilization (10%), contingency (30%), contractor overhead and profit (25%), and design, legal, and construction services (25%).
3) The low range for Alternative 2 assumes the application area is leased and no costs are incurred. The high range assumes the land application area is purchased by the City.
4) Cost to Driggs for all alternatives includes the current debt (as of June 2024) for the interceptor project. Alternative 1 includes additional costs for Victor's anticipated portion of the treatment plant upgrades at Driggs.
5) Includes electricity, chemicals, disposal, replacement parts, personnel, and miscellaneous costs (office, phone, etc.) The value shown is equal to the average annual cost over a 20-year period.
6) Assumes a 2% discount rate.

In addition to the costs, a screening of potential environmental impacts was conducted. A summary of the potential environmental impacts is provided in **Table 8-3.**

TABLE 8-3: DISPOSAL AND TREATMENT ALTERNATIVES GENERAL IMPACT

Category	Alt 1: Status Quo	Alt 2: Lagoons & Land App	Alt 3: Lagoons & Surface Discharge	Alt 4: Mechanical & Surface Discharge	Alt 5: Mechanical & RI
Land Use / Land Requirements	None Known	Would require approximately 100-370 acres depending on if the land is leased or not	Would require approximately 50 acres	Would require approximately 10 acre	Would require approximately 50 acres
Floodplains	None Known	None Known	None Known	None Known	None Known
Wetlands	None Known	None Known	None Known	None Known	None Known
Endangered Species	None Known	None Known	None Known	None Known	None Known
Cultural Resources	None Known	None Known	None Known	None Known	None Known
Surface or Groundwater Quality	Negative impact on surface water quality if permit violation	Negative impact on groundwater if proper application rates are not achieved	Negative impact on surface water quality if permit violation	Negative impact on surface water quality if permit violation	Negative impact on groundwater if permit violation
Potential Construction Problems	None Known	Land acquisition may be difficult	None Known	None Known	None Known
System Classification	No change to Victor's system	Likely become a Class I treatment system	Likely become a Class II treatment system	Likely become a Class II treatment system	Likely become a Class II treatment system
Sustainability Considerations	Regional wastewater treatment	Reuses water for irrigation rather than using surface water or groundwater	Less energy than Alternative 5	Less energy than Alternative 5	Potential groundwater recharge benefits

Treatment and Disposal Recommendation

Due to the high capital cost of the City-only options, the recommended alternative is to **stay with the status quo of sending the wastewater to the City of Driggs (Alternative 1)**. If the City cannot successfully work with the City of Driggs, the second alternative would be to construct its own treatment plant and land apply the effluent during the summer (Alternative 2).

There is very little construction cost difference between the land application alternative and the surface water discharge alternatives; however, the land application alternative's operation, maintenance, and treatment plant classification are lower than the surface water discharge alternatives. It also carries less risk in obtaining and complying with the discharge permit. However, the amount of land needed for Alternative 2 is large.

CHAPTER 9 - CAPITAL IMPROVEMENT PLAN

The alternatives evaluated in Chapters 7 and 8 helped the City select the improvements to correct collection system bottlenecks and undersized lift stations within the system, as well as consider different treatment options. There are several other recommended improvements that are straightforward and do not require an alternative evaluation. This chapter summarizes all recommended improvements, provides cost estimates for each improvement, provides an approximate timeline for their implementation, and establishes annual replacement budgets for existing infrastructure in the wastewater system. The complete list of improvement projects and accompanying schedule is called the Capital Improvement Plan (CIP). Information on financing options and rate implications is also discussed.

9.1. PRIORITIZATION CRITERIA

As discussed in the previous chapters, the recommended improvements to the wastewater system include upsizing pipes, upsizing pumps, and adding additional force mains. The improvements have been prioritized, as outlined in **Table 9-1**. Priorities are from highest (1) to lowest (3). Additional sewer mains to collect new connections were assumed to be constructed by development as new areas are incorporated into the system and are not reflected as capital improvement projects.

TABLE 9-1: PRIORITIZATION CRITERIA

Priority	Description
1	- Address capacity deficiencies under existing flows
2	- Address capacity deficiencies under 20-year flows
3	- Address capacity deficiencies under 50-year flows

9.2. BASIS FOR COST ESTIMATES

Capital costs developed for the recommended improvements are Class 5 estimates as defined by the Association for the Advancement of Cost Engineering (AACE). Actual construction costs may differ from the estimates presented, depending on specific design requirements and the economic climate when a project is bid. The cost estimates presented are planning level estimates and reflect typical accuracy levels for planning work. The range of accuracy for a class 5 cost estimate is broad, with a range of -20% to -50% on the low end and +30% to +100% on the high end, but these are typical accuracies for planning work. As a result, the final project costs will likely vary from the estimates presented in this document.

The costs are based on quotes from suppliers, similar recent wastewater system improvement projects that the City has completed, Keller's perception of current conditions at the project location, and additional design/administration considerations such as permitting, geotechnical investigation, or other project-specific costs. The total estimated probable project costs include construction costs, contractor markups, 30% contingency (which is typical of a planning-level estimate), and design/administration costs. Cost estimates should be refined during the preliminary and final design phases of each project.

9.3. CAPITAL IMPROVEMENT PLAN

The summary of recommended CIP improvements, their estimated costs, and triggers are provided in Table 9-2. Individual cost sheets with additional details are included in Appendix G. **Figure 9-1** shows the locations of the CIP projects, and a full-size figure can be found in Appendix A. Some of the additional details include a description of the need for the project, project objectives, and design considerations.

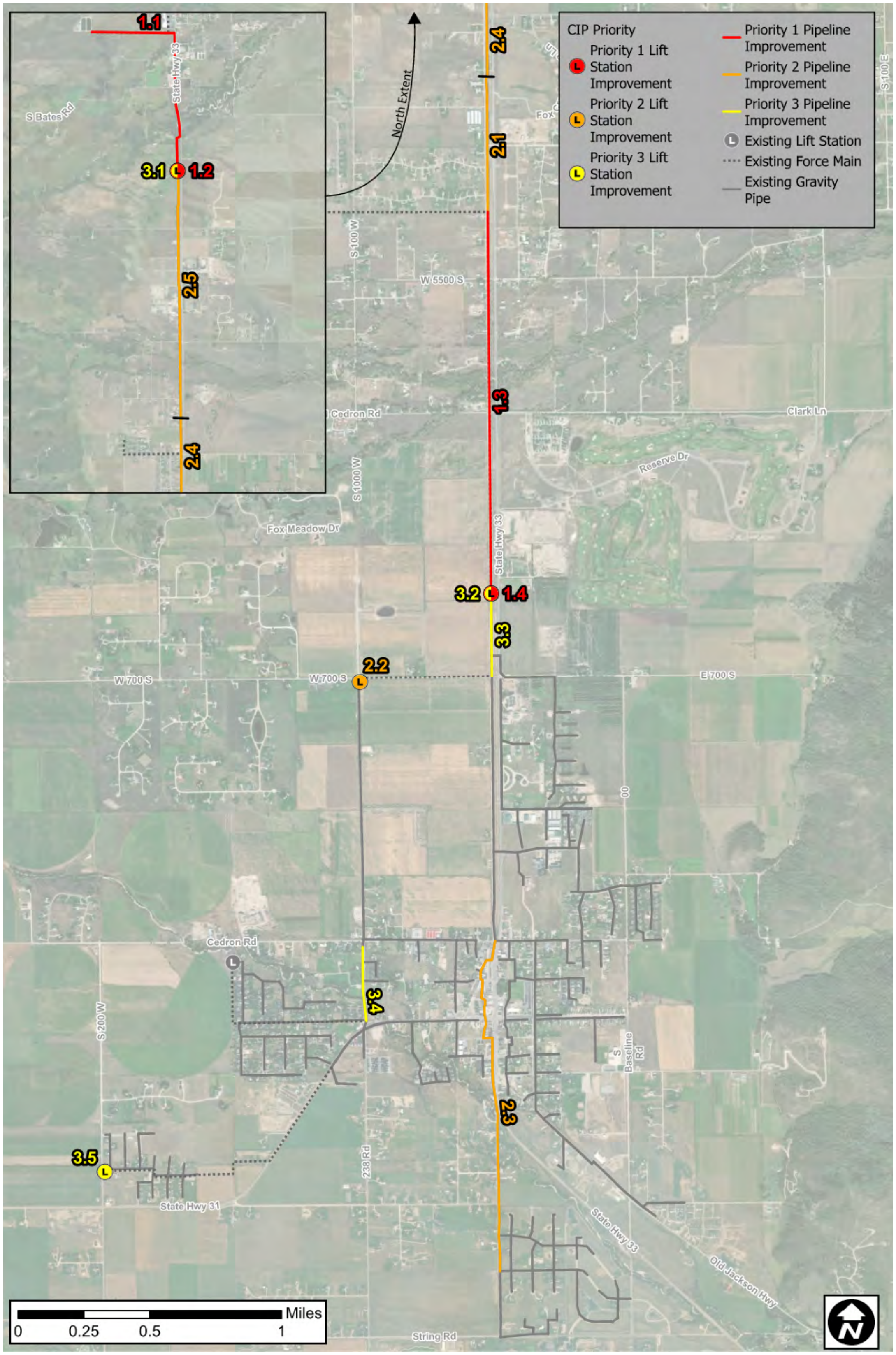
TABLE 9-2: CAPITAL IMPROVEMENT PLAN

ID#	Project Name	Project Trigger	Total Estimated Cost (2024 Dollars)
Priority 1 Improvements (2025-2030)			
1.2	Driggs South Lift Station Force Main Upsize	Existing PHF exceeds velocity constraints	$ 3,654,000
1.1	Driggs South Lift Station Upgrades	Existing PHF exceeds capacity trigger	$ 2,735,000
1.4	Lift Station 1 Force Main Installation	Existing PHF exceeds velocity constraints	$ 3,076,000
1.3	Lift Station 1 Upgrades	Existing PHF exceeds capacity trigger	$ 2,735,000
		Total Priority 1 Improvements (rounded)	**$ 12,200,000**
Priority 2 Improvements (2031-2045)			
2.1	Interceptor Upgrades (12" to 15")	Surcharging during 20-year MDF	$ 1,326,000
2.2	Lift Station 2 Upgrades	20-Year PHD exceeds capacity trigger	$ 226,000
2.3	S 500 W Pipe Upsize	Surcharging during 20-year MDF	$ 4,570,000
2.4	Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$ 2,920,000
2.5	Driggs - Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$ 6,235,000
2.6	Lift Station Backup Provisions	Recommended resiliency improvement	$ 205,000
		Total Priority 2 Improvements (rounded)	**$ 15,482,000**
Priority 3 Improvements (2046 - 2075)			
3.1	Driggs South Lift Station and Interceptor Upgrades	50-Year PHD exceeds capacity trigger	$ 391,000
3.2	Lift Station 1 Upgrades	50-Year PHD exceeds capacity trigger	$ 391,000
3.3	Upstream of Lift Station 1 Upsize	Surcharging during 50-year MDF	$ 889,000
3.4	S 1000 W Pipe Upsize	Surcharging during 50-year MDF	$ 946,000
3.5	Lift Station 4 Upgrades	50-Year PHD exceeds capacity trigger	$ 205,000
		Total Priority 3 Improvements (rounded)	**$ 2,822,000**
		TOTAL SYSTEM IMPROVEMENTS COSTS (rounded)	**$ 30,504,000**

Notes

The cost estimate herein is concept level information only based on our perception of current conditions at the project location and its accuracy is subject to significant variation depending upon project definition and other factors. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. This cost opinion is in **2024** dollars and does not include escalation to time of actual construction. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein."

FIGURE 9-1: CIP MAP



9.4. PRIORITY 1 PROJECTS

Priority 1 CIP projects are planned to be completed within the next 0-5 years. These projects address existing capacity issues as well as infrastructure that has reached the end of its useful life. The Priority 1 project is summarized as follows. See Appendix G for details regarding the remaining priority 2-3 projects.

- **1.1 – Driggs South Lift Station Force Main Upsize:** With the lift station's upsized pumps, the existing force mains would exceed capacity. The project would upsize the existing force main from 8" to 12". The lift station and its force main are owned by the City of Driggs but conveys the City of Victor's wastewater to the Driggs Wastewater Treatment Plant. The City of Driggs is currently completing its Wastewater Collection Study, and further alternatives will be assessed to fix the capacity issue. It is also anticipated that cost-sharing between the two cities will be utilized to complete the project
- **1.2 – Driggs South Lift Station Upgrades:** Existing flows exceed the lift stations' pumping capacity. The project would upsize the existing pumps to increase capacity. As previously discussed, the lift station and its force main are owned by the City of Driggs but conveys the City of Victor's wastewater to the Driggs Wastewater Treatment Plant. It is anticipated cost sharing between the two cities would be done to complete the project.
- **1.3 – Lift Station 1 Force Main Upsize:** With the lift station's upsized pumps, the existing force mains would exceed capacity. The project would include the addition of a 12" parallel force main.
- **1.4 – Lift Station 1 Upgrades:** Lift Station #1's current pumps are at capacity. The project would upsize the existing pumps to convey 20-year projected flows.

9.5. PROJECT SCHEDULE

A 5-year CIP schedule was developed for implementing Priority 1 projects and is provided in **Table 9-3**. Timing for the projects is driven by correcting existing deficiencies to reduce the likelihood of sanitary sewer overflows (SSOs). The CIP schedule also includes considerations for annual replacement budgets to provide the City with a target budget for wastewater system improvements and replacement for the next 5 years. Details regarding the annual replacement budgets are provided in Section 9.10.

TABLE 9-3: 5-YEAR CIP SCHEDULE

ID#	Project Name	Cost	Opinion of Probable Costs (2024 Dollars)				
			2025	2026	2027	2028	2029
Priority 1 Improvements							
1.1	Driggs South Lift Station Force Main Upsize	$ 3,654,000	$ 731,000	$ 2,923,000			
1.2	Driggs South Lift Station Upgrades	$ 2,735,000	$ 547,000	$ 2,188,000			
1.3	Lift Station 1 Force Main Installation	$ 3,076,000		$ 615,000	$ 2,461,000		
1.4	Lift Station 1 Upgrades	$ 2,735,000		$ 547,000	$ 2,188,000		
Total (rounded)		**$ 12,200,000**	**$ 1,278,000**	**$ 6,273,000**	**$ 4,649,000**	**$ -**	**$ -**

9.6. PERMIT REQUIREMENTS

Approval for facilities that are not simple sewer line extensions will require Department of Environmental Quality (DEQ) approvals for the preliminary engineering report (PER) and final plans and specifications. Simple sewer line projects could be submitted to DEQ for approval or be approved by a Qualified Licensed Professional Engineer (QLPE). Priority 1 includes upsizing Lift Station #1 force main. The project will require the crossing of Fox Creek, which may require environmental permitting.

9.7. SUSTAINABILITY CONSIDERATIONS

This section discusses the Sustainability (Green) Infrastructure efforts specific to this study and the DEQ grant.

- Update the ongoing CIP and budget. This study updates the City's CIP, project budgets, and establishes a schedule for the Priority 1 CIP projects, as documented in this chapter and the associated appendices. Planning for future projects years and even decades in advance allows the City to save for projects over significant amounts of time and allocate funds in appropriate manners, lessening the financial burden to users.

- Update the rate study. Current rates should be assessed to confirm the sufficiency of maintaining and operating the existing wastewater system as outlined in Section 9.10.2. User rate impacts are discussed for fully funding the Priority 1 improvements based on obtaining loans for the full Priority 1 CIP budget under the Annual Budget Considerations section of this chapter.

- Professional energy audit. It is recommended that the City complete an Energy Audit. An energy audit can help find energy inefficiencies within the system and look for ways to address those issues.

- Trenchless Technologies. This method of pipeline installation for wastewater systems is more challenging due to ductile iron fittings. However, trenchless technology such as jacking and boring or directional drilling are commonly used when sewer lines cross canals, railroads, and major roads. Several CIP projects recommended in this study cross features such as these. In these instances, boring has been noted/recommended on the individual CIP cost sheets in Appendix G.

- Variable frequency drives (VFDs) and Efficient Motors. It is recommended that new pumps be equipped with VFDs and energy-efficient motors that meet National Electrical Manufacturers Association (NEMA) Premium specifications.

- City SCADA system. The City's existing wastewater lift stations are connected to the City's SCADA system. It is recommended any new facilities also connect to the SCADA system. The SCADA system is used to manage and optimize infrastructure operations.

9.8. OPERATOR AND STAFFING REQUIREMENTS

Currently, the City of Victor's collection system is a Class I collection system. There is no anticipated need for additional license classes upon the completion of the improvements in the CIP.

9.9. FUNDING OPTIONS

Many of the CIP projects will be funded by development as growth occurs and new facilities are needed to meet increasing demands. Methods of funding are available should the City choose to investigate, including the following:

9.9.1. Cash Funding

The City could consider raising rates to cash fund the improvements. This would require the least total cash outlay; however, the rates would be higher than if they were spread out over a long-term loan, which could be a significant hardship.

9.9.2. Idaho Department of Environmental Quality (State Revolving Fund)

The State Revolving Fund (SRF) program is funded by a combination of repayment of loans previously made by DEQ and grant money supplied by the Environmental Protection Agency (EPA). Owners of public wastewater systems can apply for SRF funds annually through a competitive application process. Applications are ranked by state officials based on need, sustainability, water quality improvements, and other criteria. Davis-Bacon Wage Act and American Iron and Steel Requirements apply. Applicants may qualify for principal forgiveness or other subsidy programs. DEQ is required to commit a significant percentage of available loan funds to sustainable, energy-efficient, and "green" infrastructure improvements. Consequently, elements that meet the "green" infrastructure qualifications may receive priority for funding. Authorization to indebt the City is required through either a judicial confirmation or voter approval.

9.9.3. United States Army Corps of Engineers (USACE) (Section 595)

The USACE can sometimes offer funding for wastewater-related infrastructure projects to supplement funding from DEQ or USDA-RD. Funding availability depends on an appropriation from Congress and varies from year to year. Costs are typically shared with a 25 percent local match required.

9.9.4. Idaho Bond Bank

The Idaho Bond Bank is a state level entity that lends money to local governments within the state, with the goal of providing funds for their infrastructure needs and access to the capital markets at competitive interest rates. Under the Idaho Bond Bank program (IBBA), a municipality obtains a loan from the Bond Bank secured by either the municipality's bond or a loan agreement with the Bond Bank. The Bond Bank pools several loans to municipalities into one bond issue. The municipalities then repay the loan, and those repayments are used to repay the revenue bonds. The Bond Bank can obtain better credit ratings, more attractive interest rates, and lower underwriting costs than municipalities could achieve individually within the municipal bond market. The Bond Bank is able to pledge certain state funds as additional security for its bonds, further reducing interest costs. Additionally, the Idaho Bond Bank Authority can open doors to municipalities that were previously barred from the capital markets due to the prohibitive costs of financing or challenging credit situations.

9.9.5. Local and Private

In addition to federal and state funding programs, there are local and private funding sources available to communities to fund. Some of these include a local improvement district (LID), the municipal bond market with voter approval or judicial confirmation, a business improvement district (BID), an urban renewal district, connection fees, development agreements with developers, and others.

9.10. ANNUAL BUDGET CONSIDERATIONS

This section documents recommended annual replacement budgets for the existing system infrastructure as it ages, as well as user rate impacts for fully funding the Priority 1 projects.

9.10.1. Annual Replacement Budgets

In addition to the CIP projects, the City should prepare for the replacement of existing infrastructure as it ages. Appendix F includes breakdowns of the annual replacement budgets and assumptions. Annual replacement budgets were estimated for the following system components:

- Gravity Pipelines
- Force Mains
- Manholes
- Lift Stations

The annual cost of each component was estimated by dividing the total component replacement cost by the approximate useful life of the component. Both short- and long-lived assets were included. Short-lived assets are typically defined as having a useful life of 20 years or less, and typically include mechanical and electrical components such as pumps, motors, and controls. Long-lived assets are defined as having a useful life of greater than 20 years, and typically include structural components (wet wells, vaults, manholes) and pipelines.

A summary of the annual replacement budget is provided in **Table 9-4**. Appendix F includes breakdowns of how each cost was estimated.

As shown, the total annual replacement budget is approximately $975,000. To mitigate potential rate increases necessary to fully fund the replacement budget, replacement budgets can be phased in over time. It is recommended to start by funding the short-lived assets and gradually increase funding of the long-lived assets. It should be noted that very few municipalities are able to fully fund annual replacement budgets. Fully funding the annual replacement program is not likely practical at this time and the budgets proposed in the table are only a general guideline for how much would be needed to replace the infrastructure completely based on their typical useful life. In practice, the City's annual replacement program will likely be implemented as capital improvement projects as failed pipes are identified by the CCTV program or by responding to problem areas. The City should also consider completing collection system piping projects in coordination with other roadway, stormwater, or potable water projects to reduce the costs.

TABLE 9-4: ANNUAL REPLACEMENT BUDGETS

Short-Lived Assets	Long-Lived Assets	Total
$59,000	$916,000	$975,000

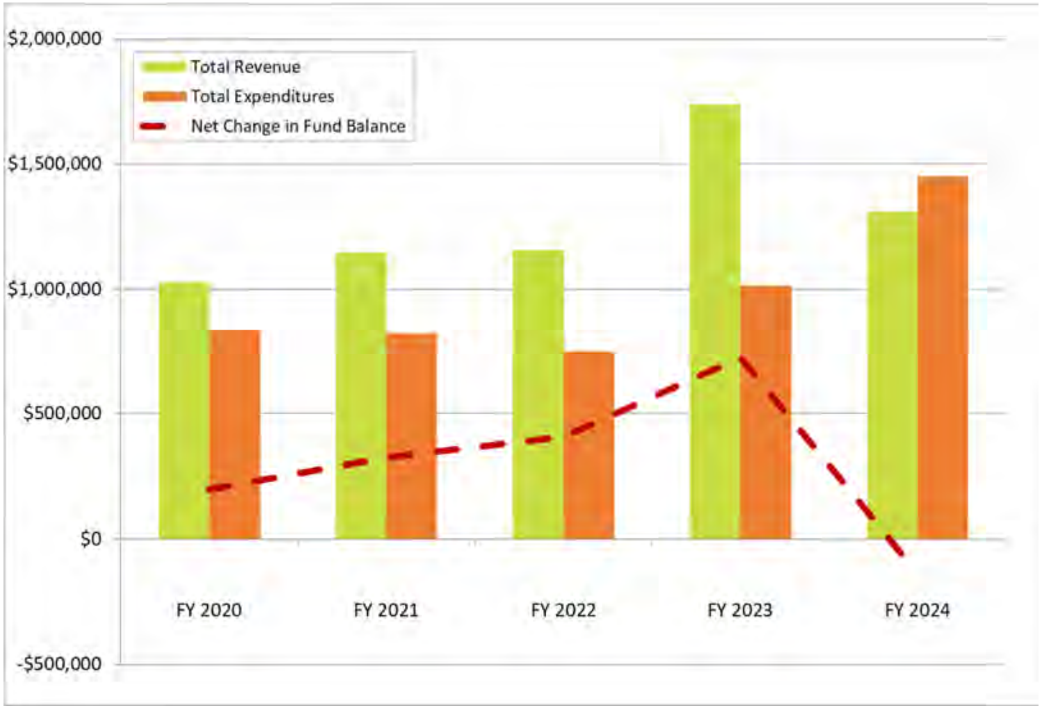
9.10.2. Operating Revenues/Expenses and User Rate Impacts

The City provided financial audits for the 2020 through 2023 fiscal years as well as the 2024 revenues and expenditures budget. Through the provided financial information, existing annual operating expenses and revenues were calculated, leading to the determination of the change in fund balance for each fiscal year. As can be seen in Table 9-5, the City has experienced a positive change in fund balance (total revenues minus total expenditures) with the exception of the 2024 budget amounts. The negative fund balance indicates that the City may need to take action to be in sound financial standing. With the current fund balance, no surplus is available to help fund projects, so that financing would be required. See **Figure 9-2** for a visual representation of the financial information.

TABLE 9-5: HISTORICAL REVENUE & EXPENDITURES

	Historic	Historic	Historic	Historic	Baseline
Fiscal Year	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Typical Monthly User Rate (Residential)	**$61.04**	**$61.04**	**$61.04**	**$61.04**	**$61.04**
Revenues					
Charges for Services	$ 940,551	$ 1,143,545	$ 1,156,014	$ 1,309,265	$ 1,208,162
Miscellaneous	$ 70,000	$ 1,728	$ 765	$ 428,333	$ 103,754
Investment Return	$ 17,028	$ -	$ -	$ -	$ -
Total Revenues	**$ 1,027,579**	**$ 1,145,273**	**$ 1,156,779**	**$ 1,737,598**	**$ 1,311,916**
Expenditures					
Personnel	$ 263,398	$ 252,403	$ 239,428	$ 327,450	$ 348,659
Goods and Services	$ 148,428	$ 151,807	$ 200,537	$ 294,586	$ 260,855
Debt Service	$ 205,648	$ 205,648	$ 205,648	$ 205,648	$ 447,792
City of Driggs	$ 213,960	$ 212,102	$ 105,303	$ 184,953	$ 393,000
Total Expenditures	**$ 831,434**	**$ 821,960**	**$ 750,916**	**$ 1,012,637**	**$ 1,450,306**
Change in Fund Balance	**$ 196,145**	**$ 323,313**	**$ 405,863**	**$ 724,961**	**$ (138,390)**
Ending Fund Balance					**$ (138,390)**

FIGURE 9-2: HISTORICAL REVENUE & EXPENDITURES



The City could choose to debt finance the existing system Priority 1 improvement identified previously in **Table 9-2**. This would include the Driggs South Lift Station improvements and force main and Lift Station #1 improvements and force main. Based on typical DEQ SRF loan terms, **Table 9-6** details the impact on wastewater utility user rates, which results in a base user rate increase of about $30.42 to offset the annual loan payment. This increase equates to a total monthly rate of $61.04. This is about a 55% user rate base increase. It is worth noting this rate does not account for cost-sharing with the City of Driggs. Cost sharing would lessen the rate impact, but the majority of the flows at the Driggs South Lift Station are from Victor and, therefore, may bear a larger portion of the costs.

The specific cost-sharing details will need to be negotiated between the two cities. The rate also includes $3.24 a month for a short-lived assets reserve. The Priority 1 CIP projects improve existing facilities and have a minimal change to the O&M costs. Additional information about user costs can be found in Appendix G. This was a very simple rate analysis that did not consider several factors that a full rate study would consider.

The City should complete a more detailed rate study and model to assess future rate increases. The rate study, at a minimum, should evaluate fully funding short-lived asset replacement needs, long-term infrastructure replacement, more clearly define operating revenues and expenses, and integrate planned CIP projects. Following the rate study and model, the City may need to make an additional adjustment to this proposed raise and planned raises.

TABLE 9-6: USER RATE ANALYSIS

Sewer Rate Evaluation	Existing System Priority 1 Improvements
Loan Evaluation	
Existing Sewer Bill (per month)	$61.04
Priority 1 Project Costs	$12,200,000
Grants	$0.00
Funding Source/s	DEQ
Loan Principle	$12,200,000
Interest Rate	2%
Term (yrs)	30
Annual Payment	$554,136
Monthly User Rate Increase	$30.42
Short-Lived Assets	
Annual Short-Lived Assets Reserve	$59,000
Monthly Short-Lived Assets Reserve	$4,917
Monthly User Rate for Short-Lived Assets Reserve	$3.24
Additional O&M	
Total Annual O&M	$0.00
Monthly User Rate for O&M	$0.00
Total New Monthly Sewer Bill	**$94.70**

1. Additional O&M is negligible as the Priority 1 improvement projects are improvements to existing facilities.
2. Priority 1 projects include projects that will likely be cost shared with the City of Driggs

9.11. ANNUAL OPERATIONS AND MAINTENANCE COSTS

Priority 1, 2, and 3 projects consist primarily of improvements to existing facilities, and, therefore, no additional infrastructure must be maintained. Upsizing the recommended lift station pumps will lead to a slightly higher electrical cost, but overall changes in O&M cost are anticipated to be minimal. Organizational and staffing requirements are also expected to remain unchanged.

9.12. ENVIRONMENTAL IMPACT MITIGATION

The recommended CIP improvements are located within or directly adjacent to the footprint of existing system facilities. For this reason, improvements are not expected to have any adverse environmental impact. Improvements should have an overall positive environmental impact because improvements ensure the system can better handle future flows, lessening the chance of SSOs.

9.13. CONDITION ASSESSMENT RECOMMENDATIONS

As discussed in previous sections, the majority of the Victor collection system was installed in 1998. The collection system is made of primarily PVC pipe, which has a useful life of 50-years or more. The piping is well within its useful life; therefore, replacement is not expected in the near future. To assess when pipe replacement will be needed, CCTV should be utilized. As previously discussed, only 6% of the system has been inspected. It is recommended the City target inspecting 10% of the system each year or 13,500 feet of the collection system. It is recommended that the inspection be done by a certified Pipeline Assessment

Certification Program (PACP). Utilizing the CCTV inspections will help the City decide when pipe replacement is needed and target the areas that need it the most.

9.14. PLANNING RECOMMENDATIONS

The planning elements used as the basis for the recommendations and CIP projects in this plan may evolve over time, and it is recommended that the City continue to maintain current models of the system and review each improvement in more detail a year or two ahead of implementing individual capital improvements. By reviewing upcoming improvements ahead of time, it will provide the City an opportunity to refine project scopes and budgets. A more comprehensive update of the master plan is recommended every 5 years to allow the City to re-assess needs, priorities, and properly allocate budgets to address system deficiencies. The GIS mapping should continuously be updated to reflect new developments and improvements to the system.

APPENDIX A

Figures

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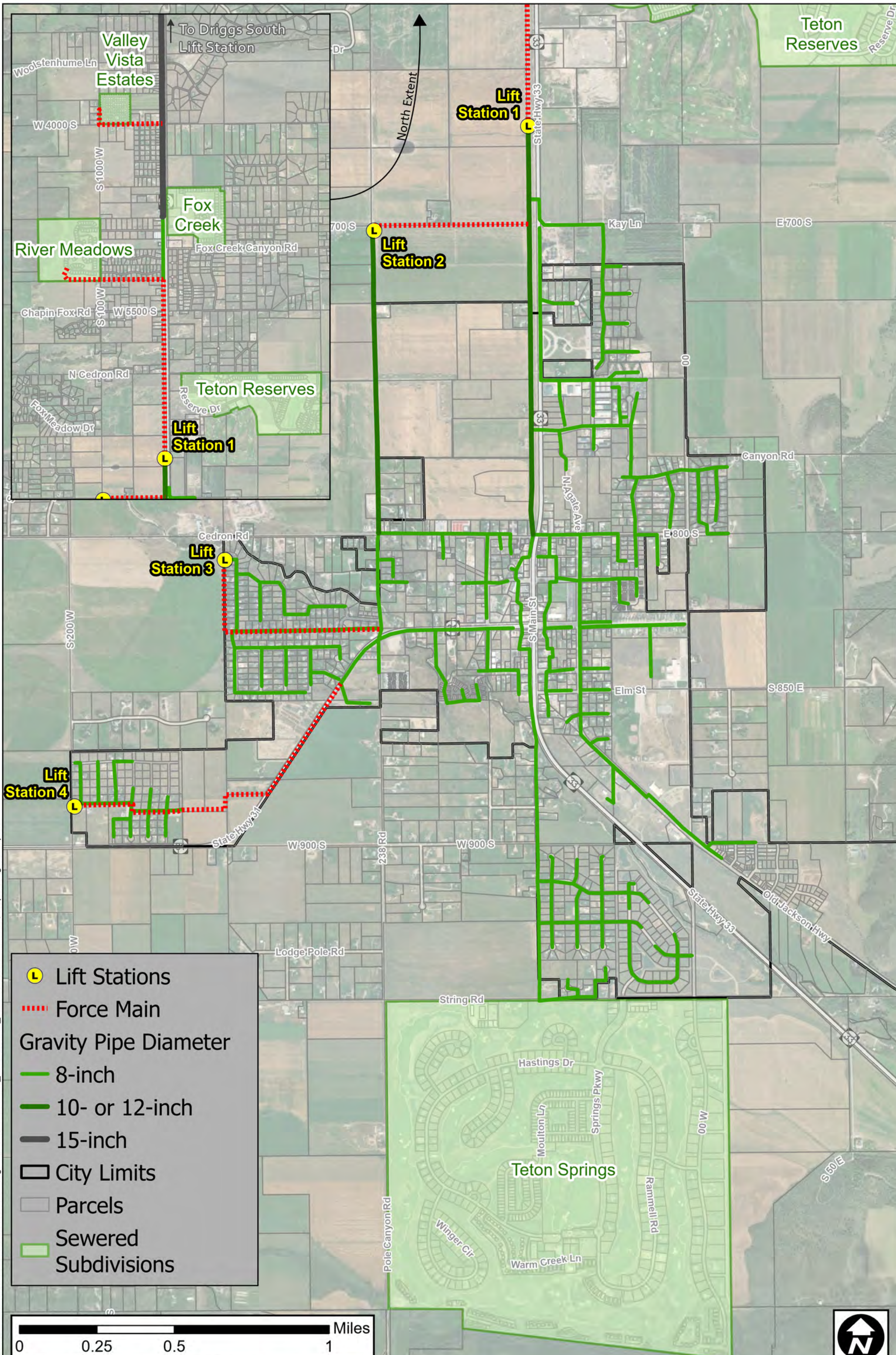

Document Path: J:\222168 Victor On-Call Engr\TO-002 WWFPS\b_PLAN\zGIS_APRXs\Victor WWFPS, Report Figures.aprx

Figure 1

City of Victor

Existing Collection System

Wastewater Facility Planning Study

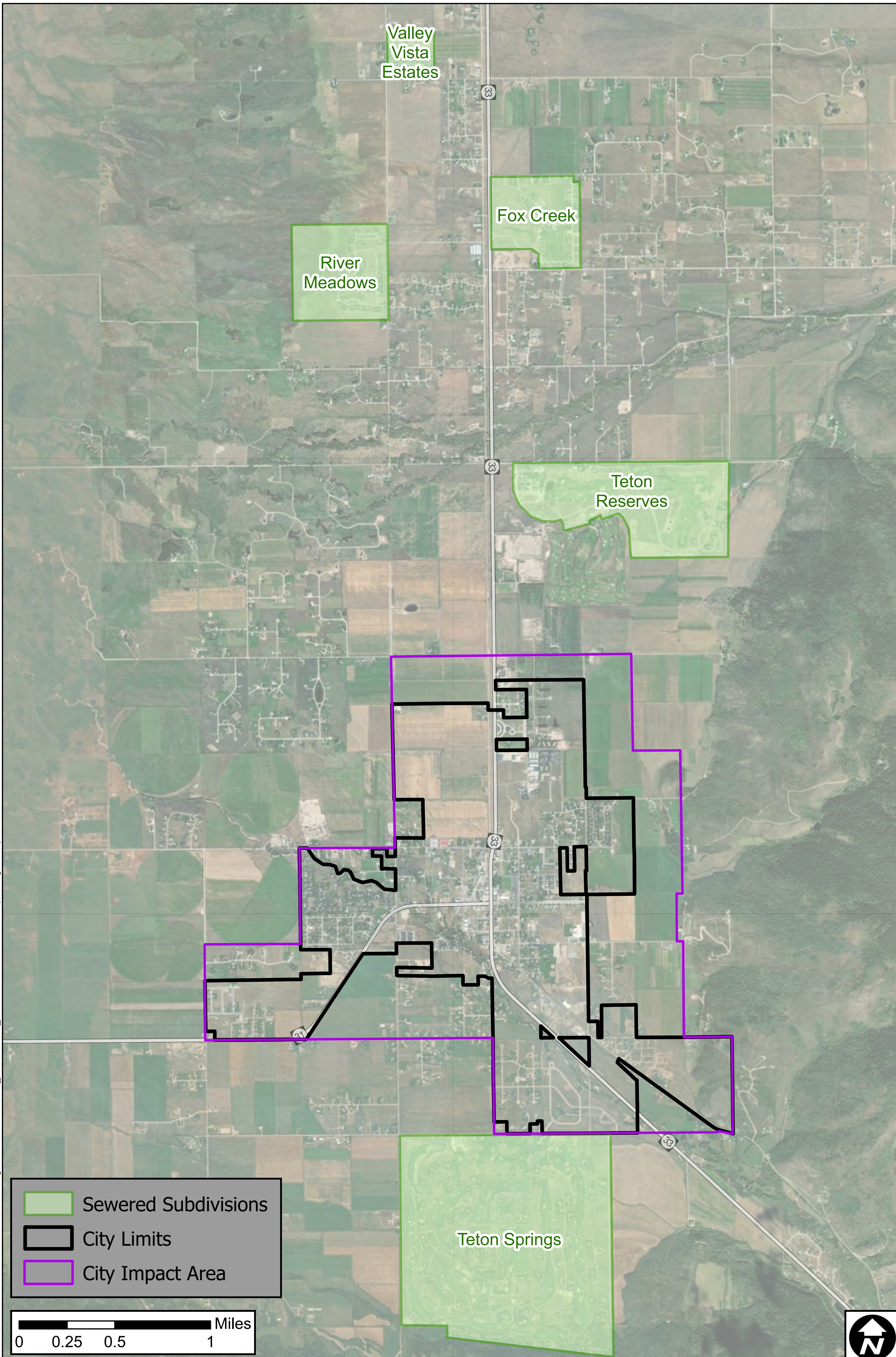

Figure 2

City of Victor

Study Area

WW Facility Planning Study

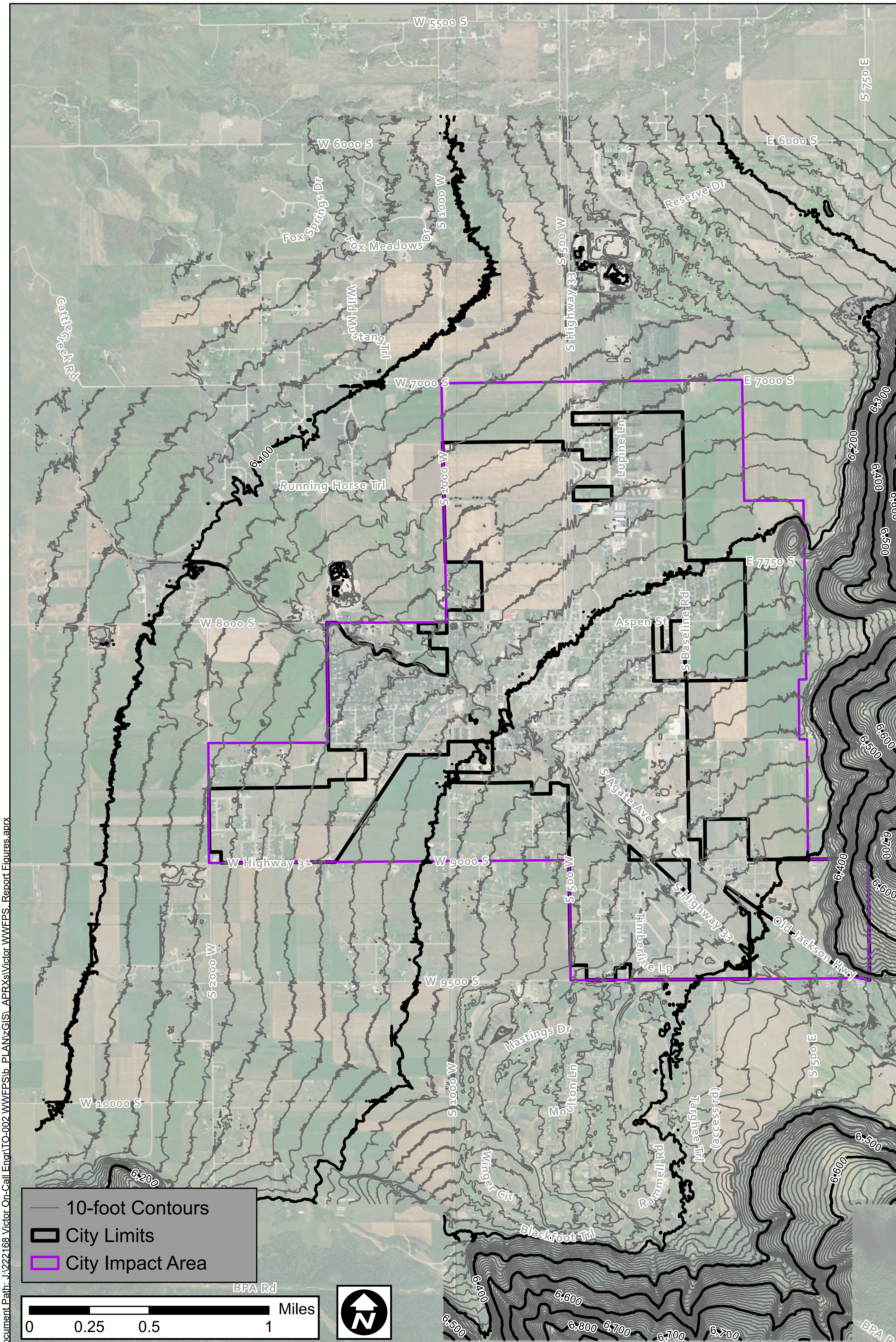

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Figure 3

City of Victor

Topography

WW Facility Planning Study

CITY of VICTOR Since 1889 "A Town to Come Home to"

KELLER ASSOCIATES

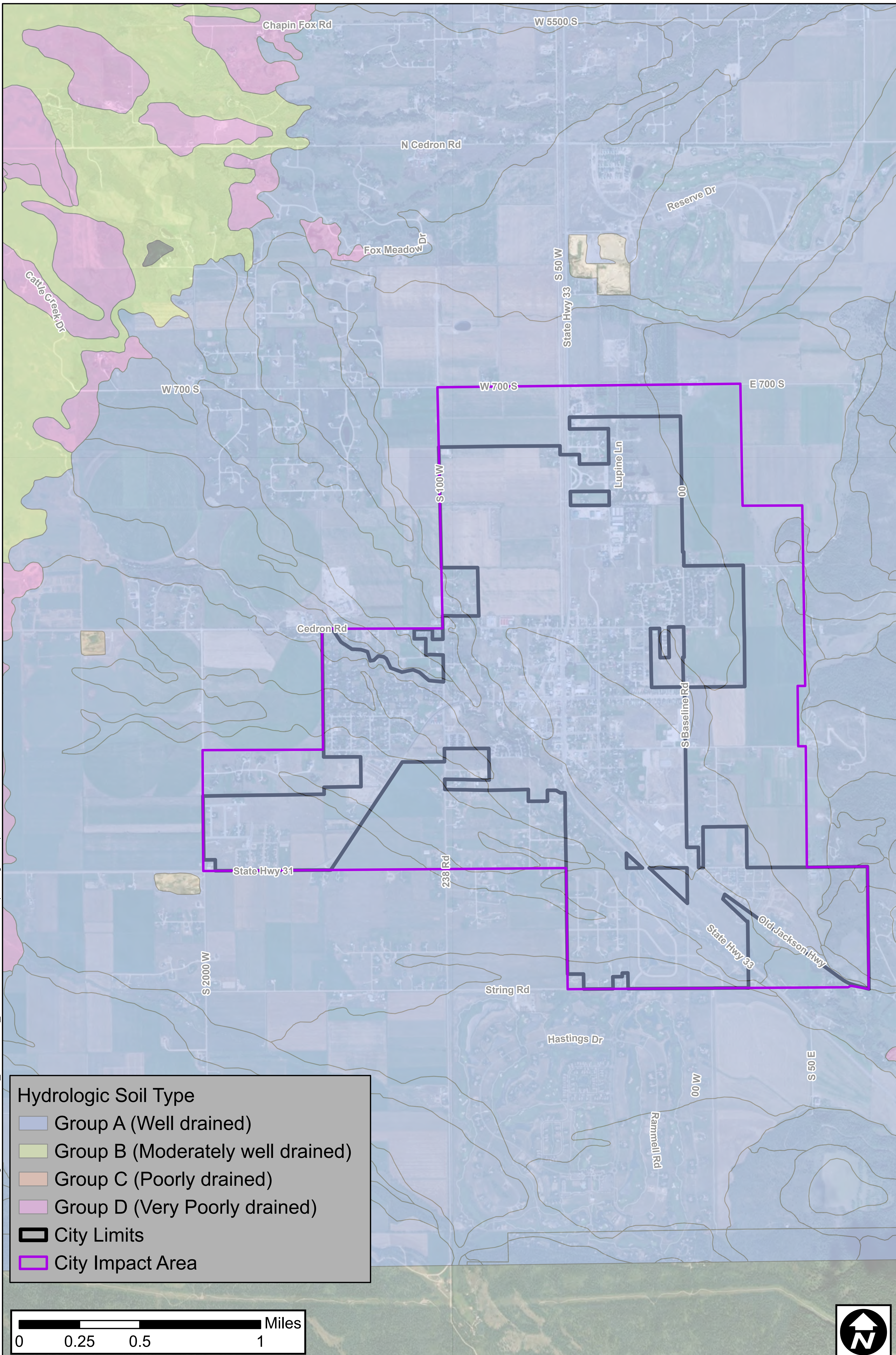

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Figure 4

City of Victor

Hydrologic Soil Type

WW Facility Planning Study

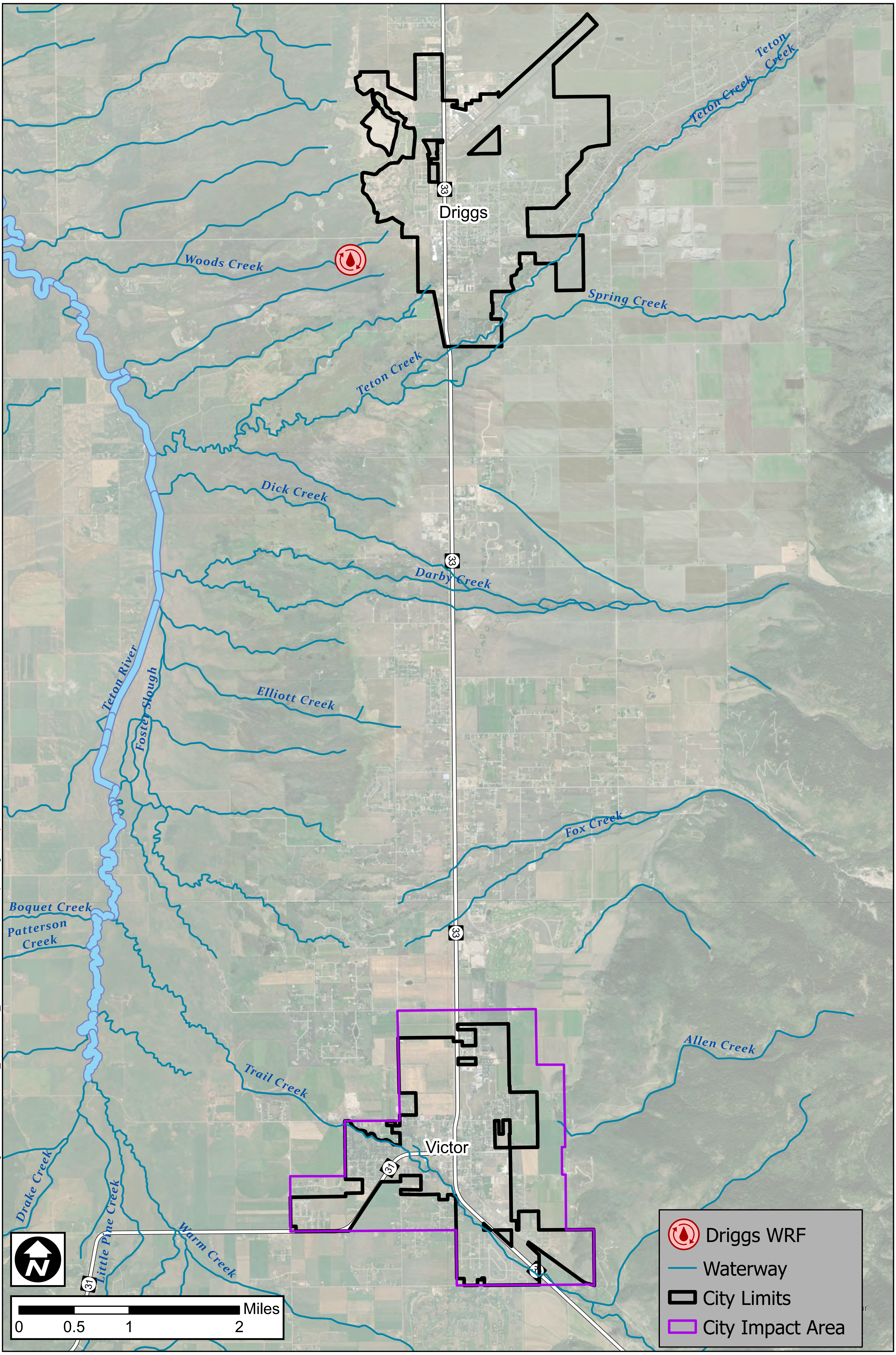
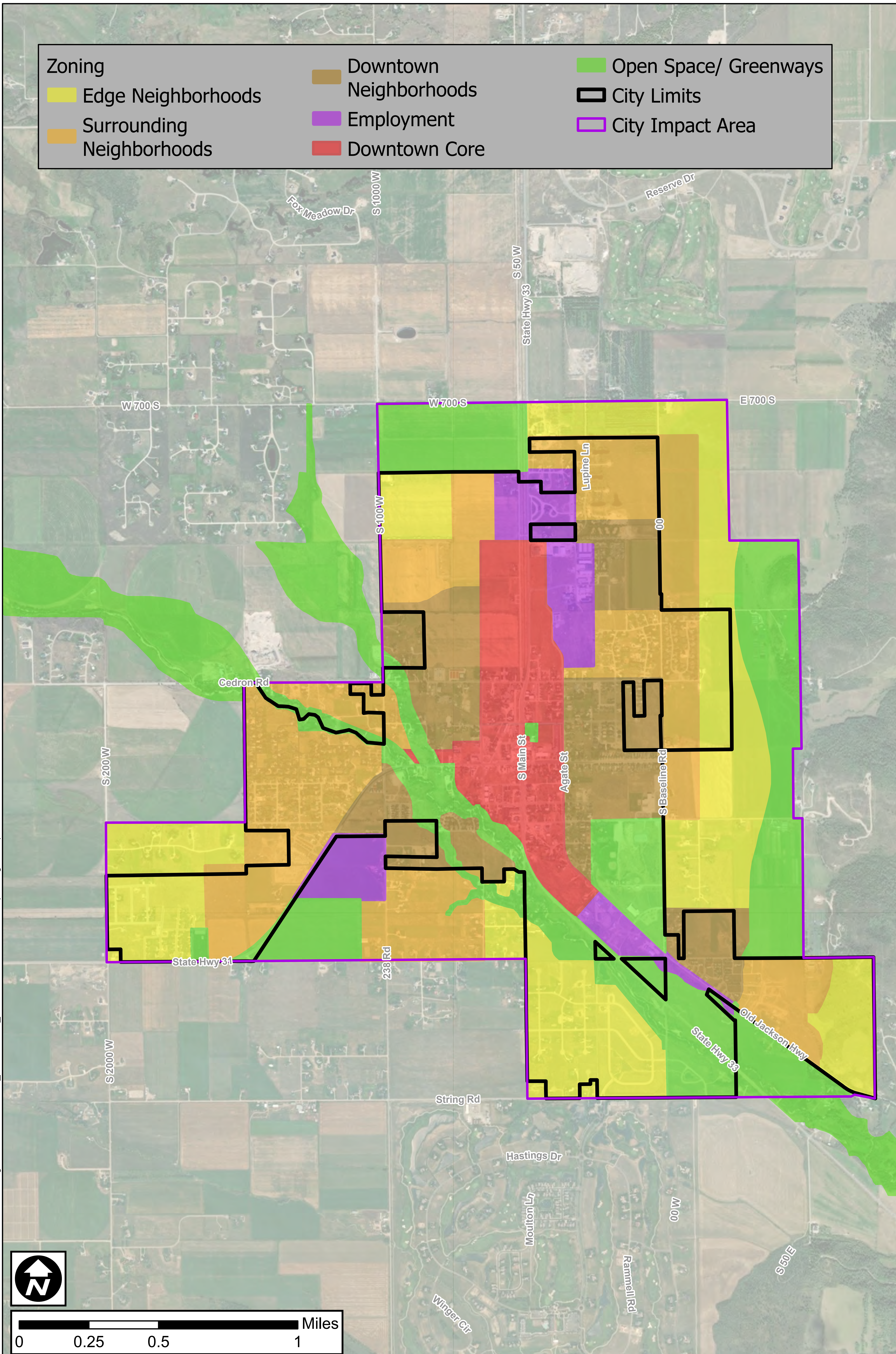


Figure 5

City of Victor

Surface Water

WW Facility Planning Study



Document Path: J:\222168 Victor On-Call Engr\TO-002 WWFPS\b_PLAN\zGIS_APRXs\Victor WWFPS, Report Figures.aprx

Figure 6

City of Victor

Victor Zoning

WW Facility Planning Study

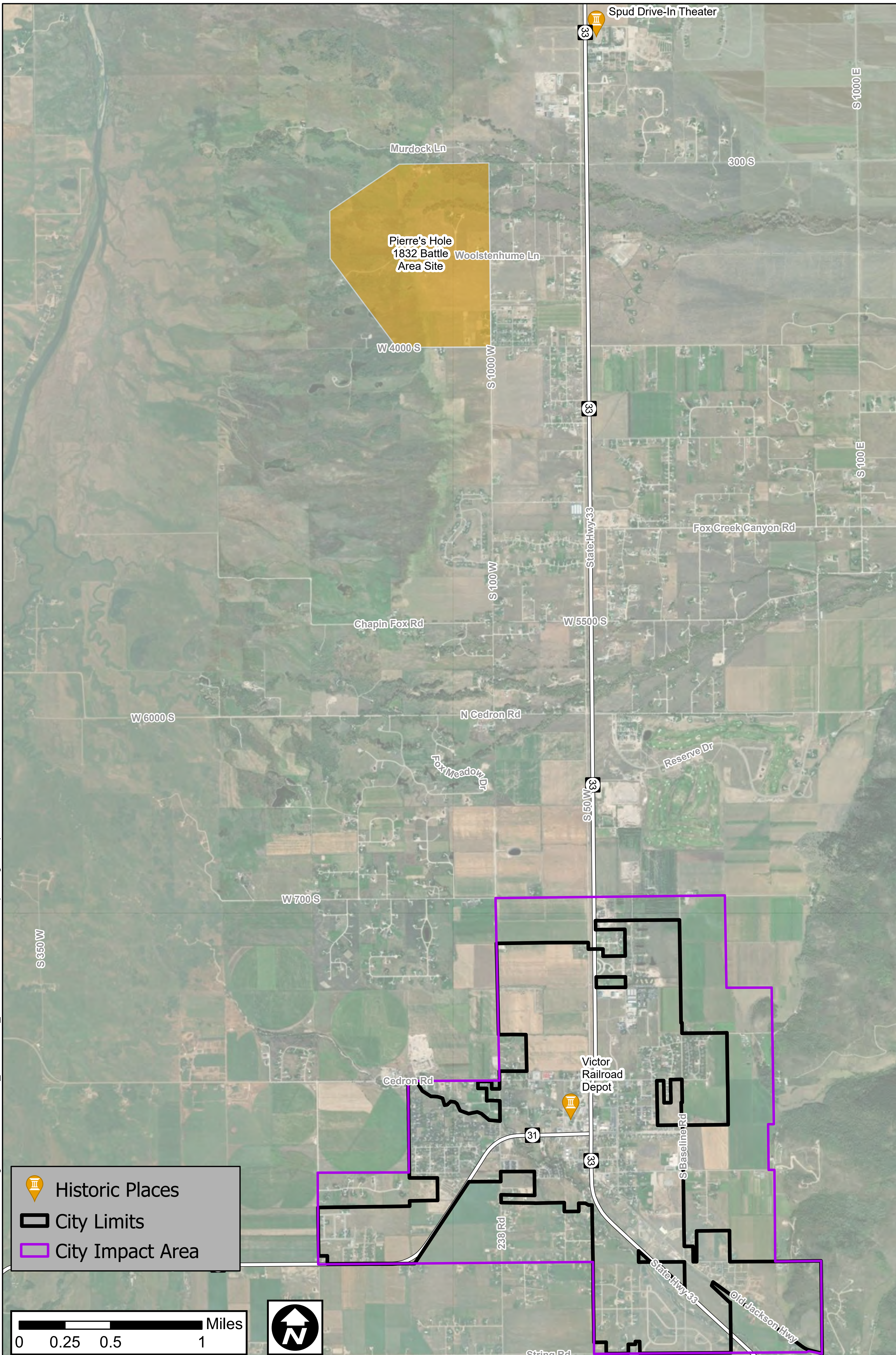


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Figure 7

City of Victor

Cultural Resources

WW Facility Planning Study

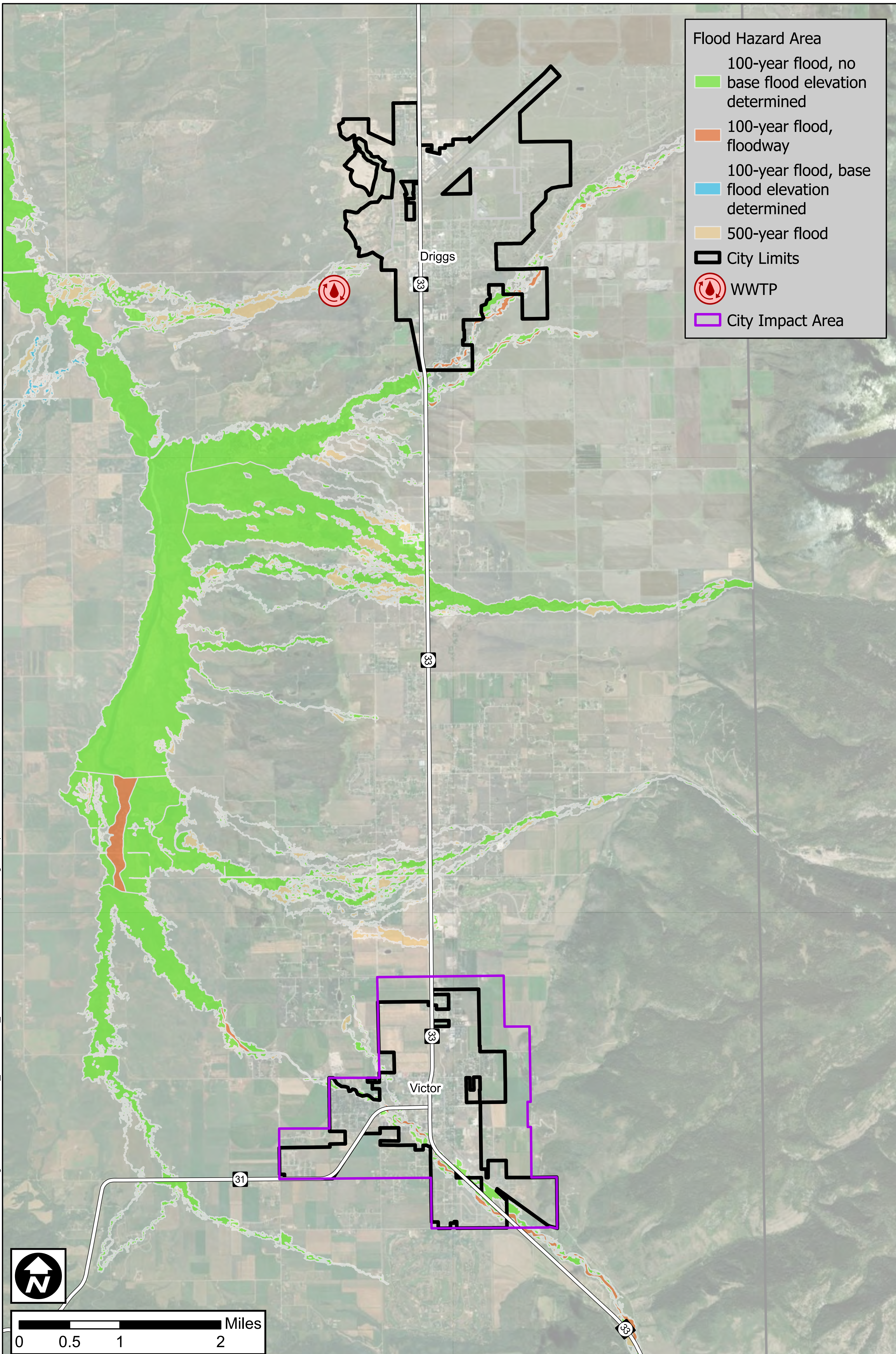

Figure 8

City of Victor

Floodplains

WW Facility Planning Study

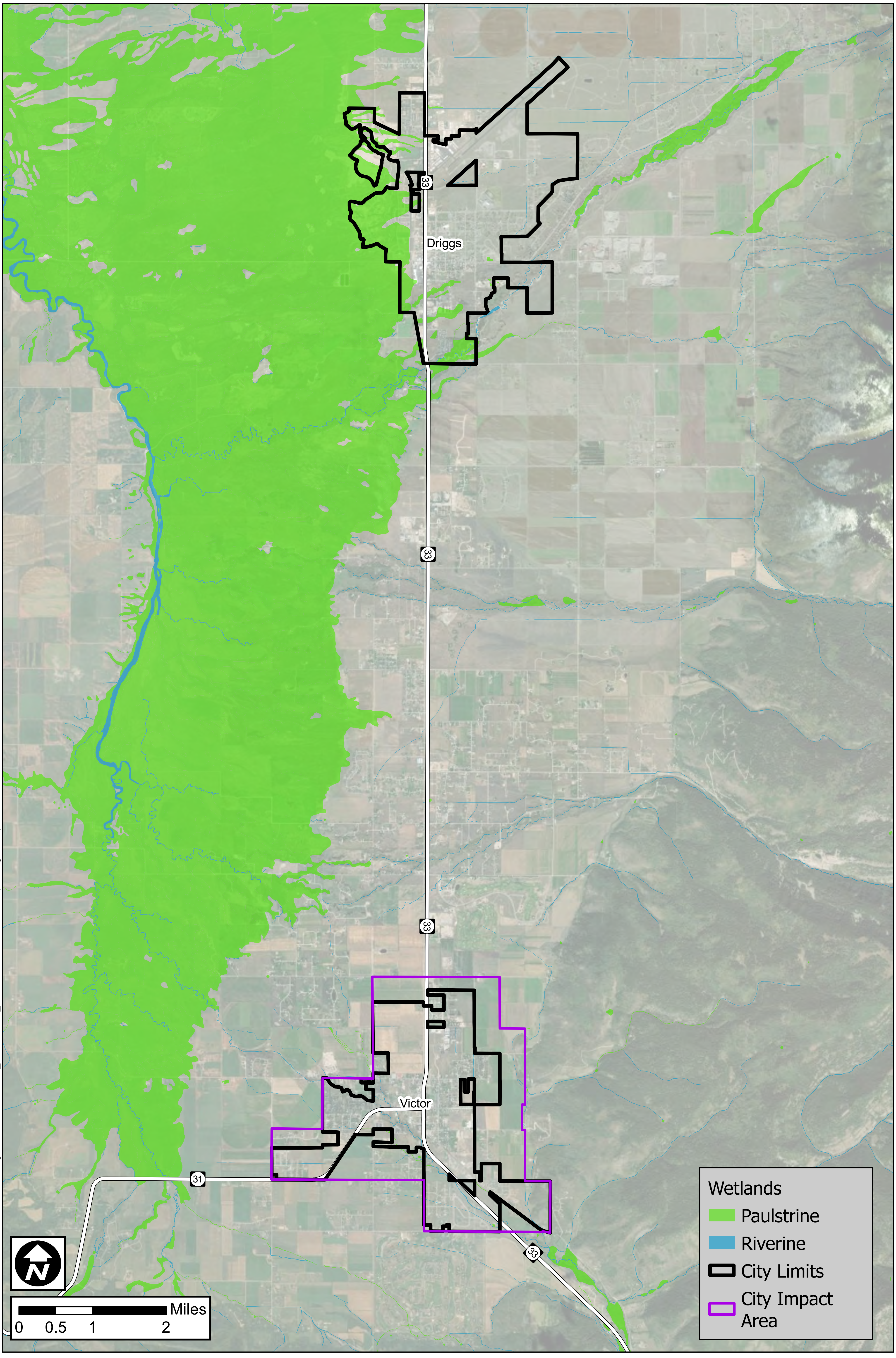

Figure 9

City of Victor

Wetlands

WW Facility Planning Study

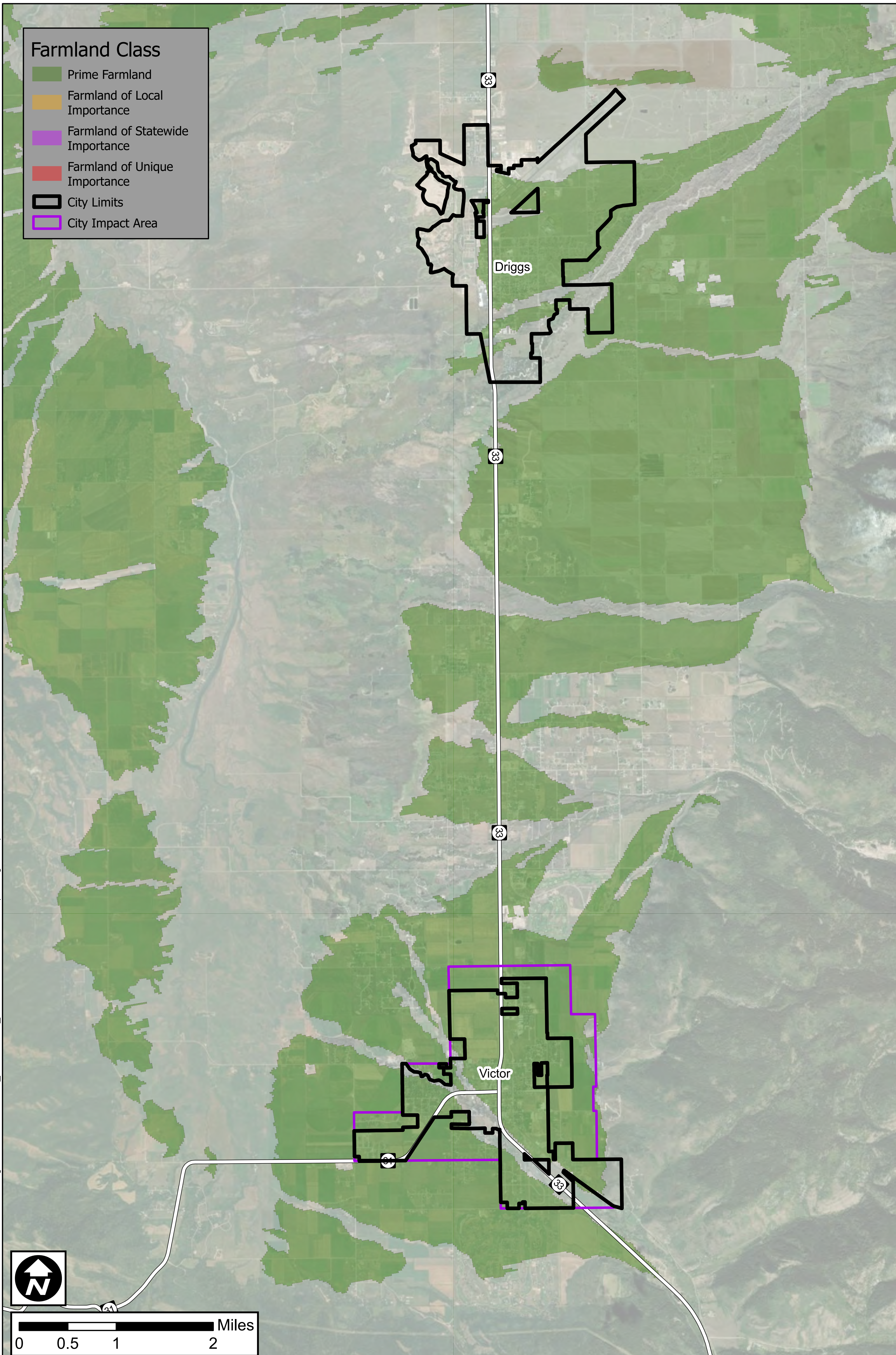

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Figure 10

City of Victor

Prime Farmland

WW Facility Planning Study

CITY of VICTOR

KELLER ASSOCIATES

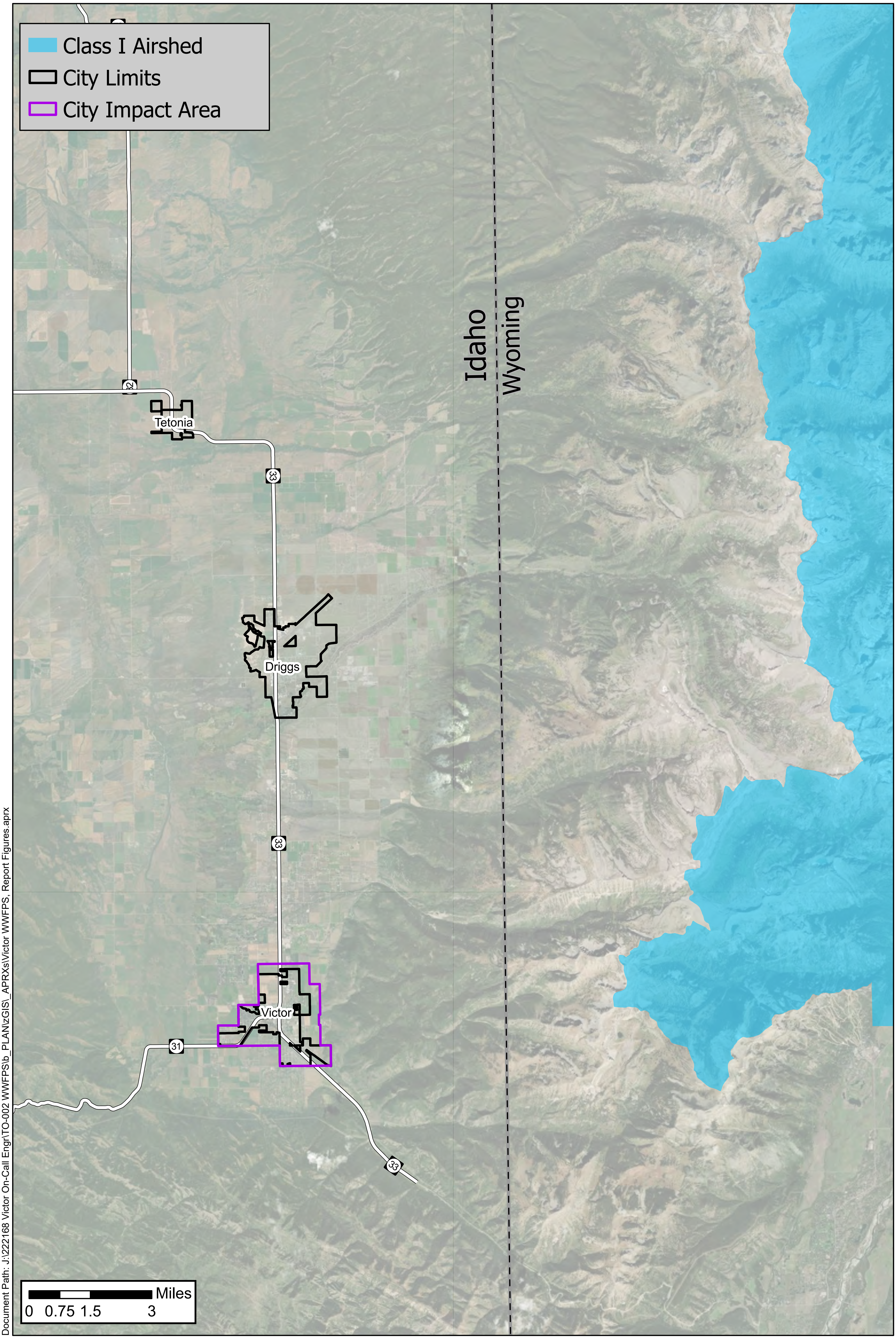

Figure 11

City of Victor

Air Quality

WW Facility Planning Area

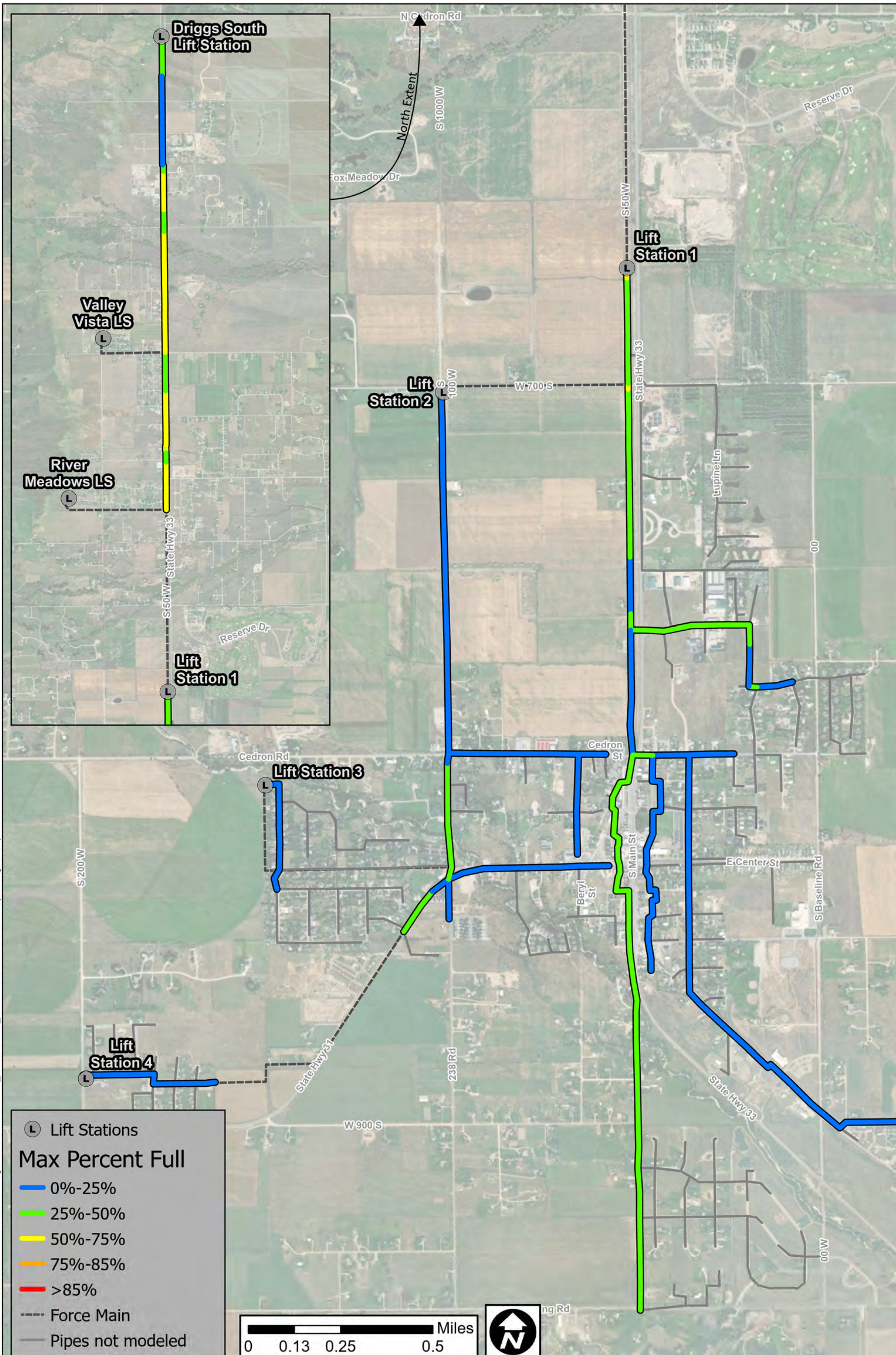

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Figure 12

City of Victor

Existing MDF Max Depth/Full Depth

Wastewater Facility Planning Study

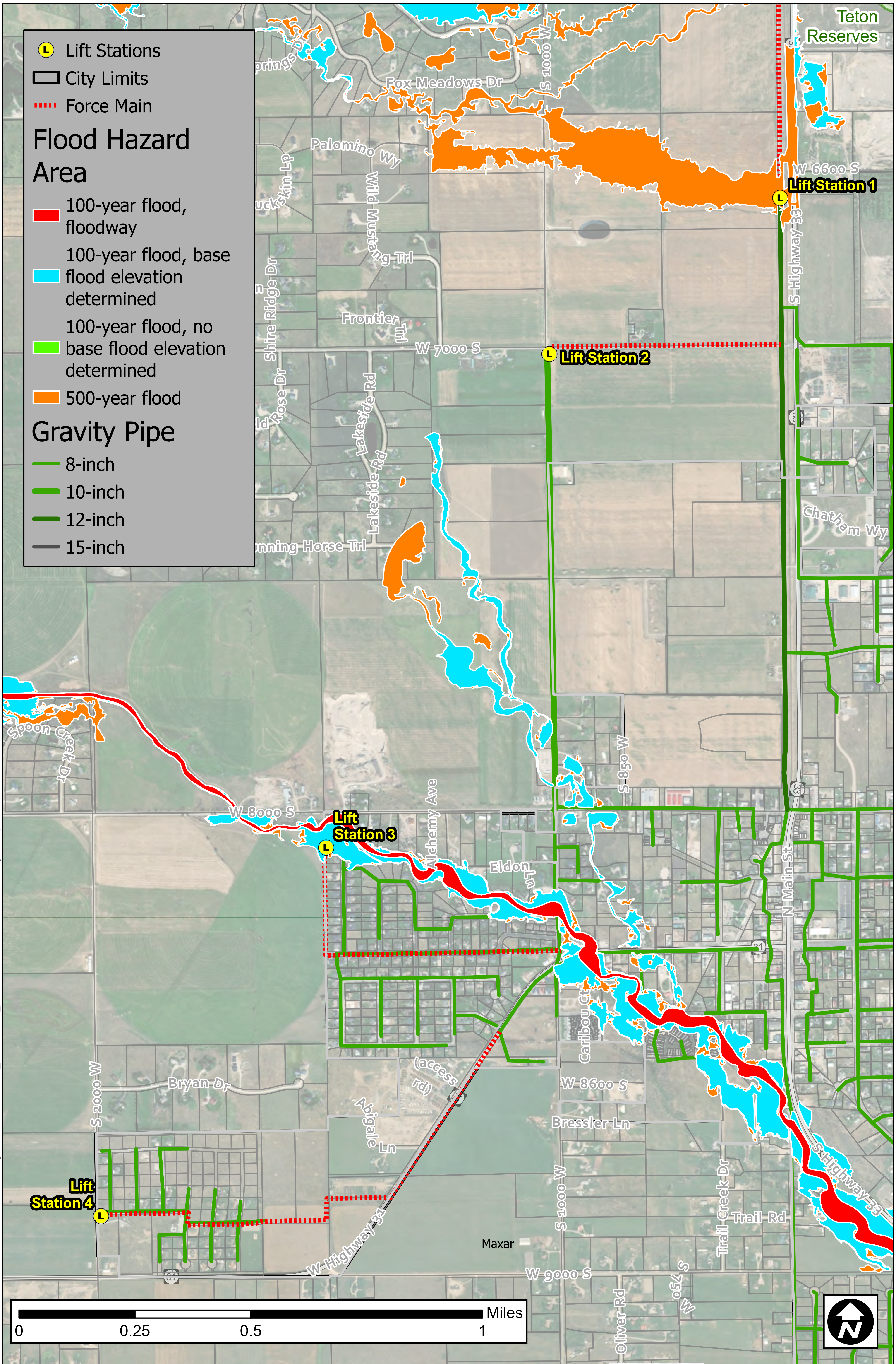

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Figure 13

City of Victor

Lift Stations in Floodplains

Wastewater Facility Planning Study

CITY of VICTOR — A Town to Come Home to

KELLER ASSOCIATES

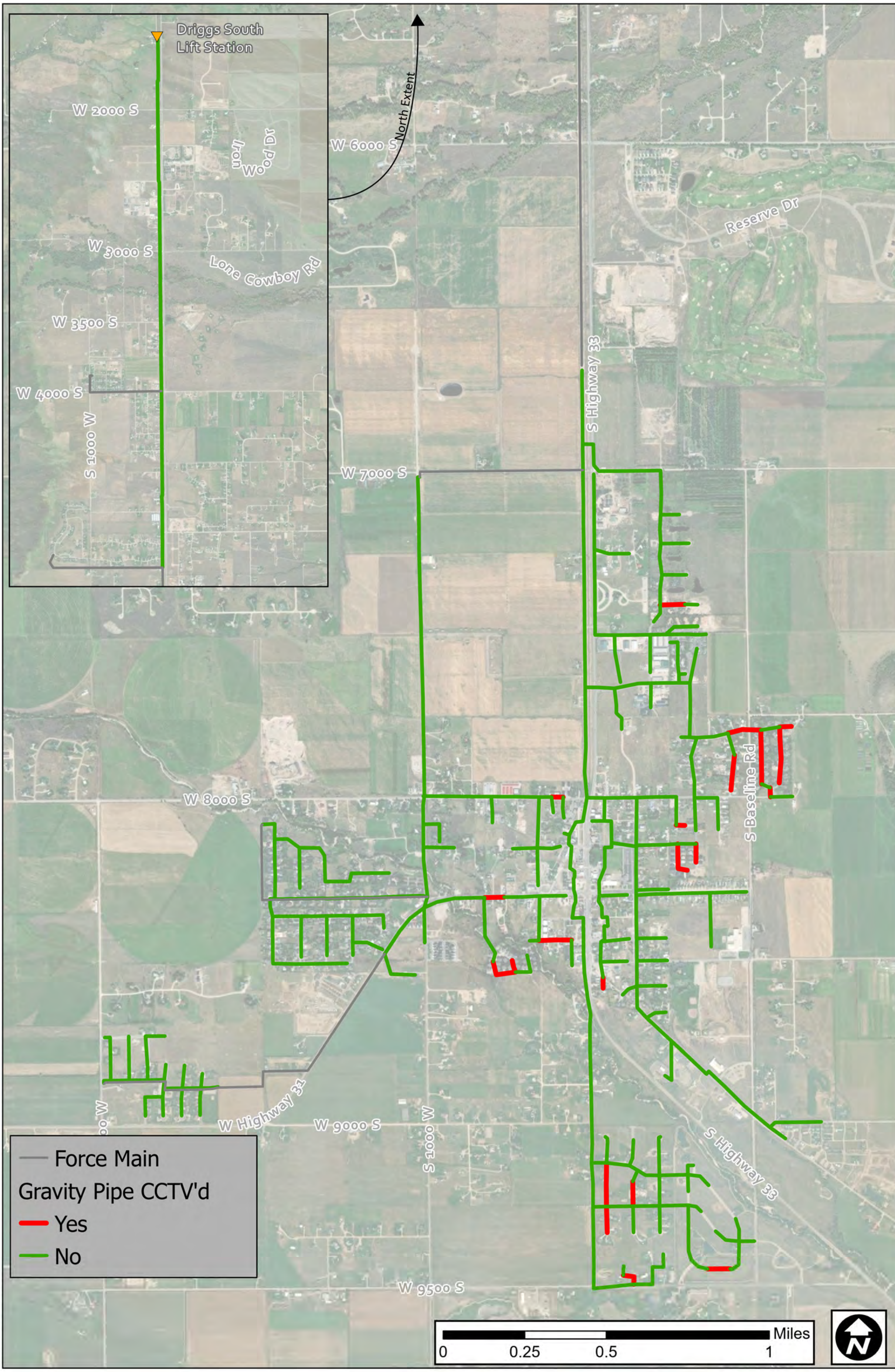

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Figure 14

City of Victor

CCTV Pipe Inspection

Wastewater Facility Planning Study

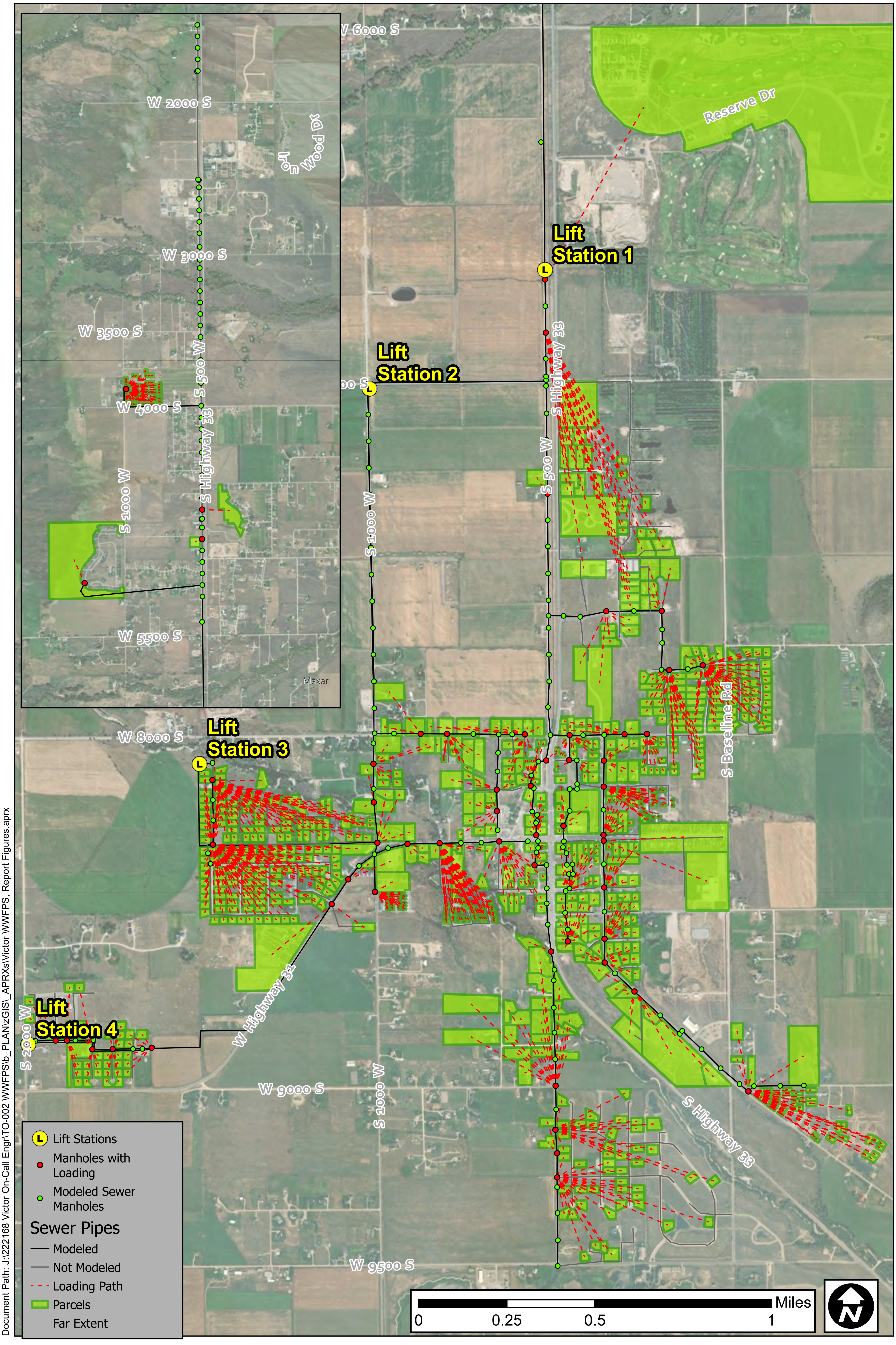

Figure 15

City of Victor

Flow Allocation

Wastewater Facility Planning Study

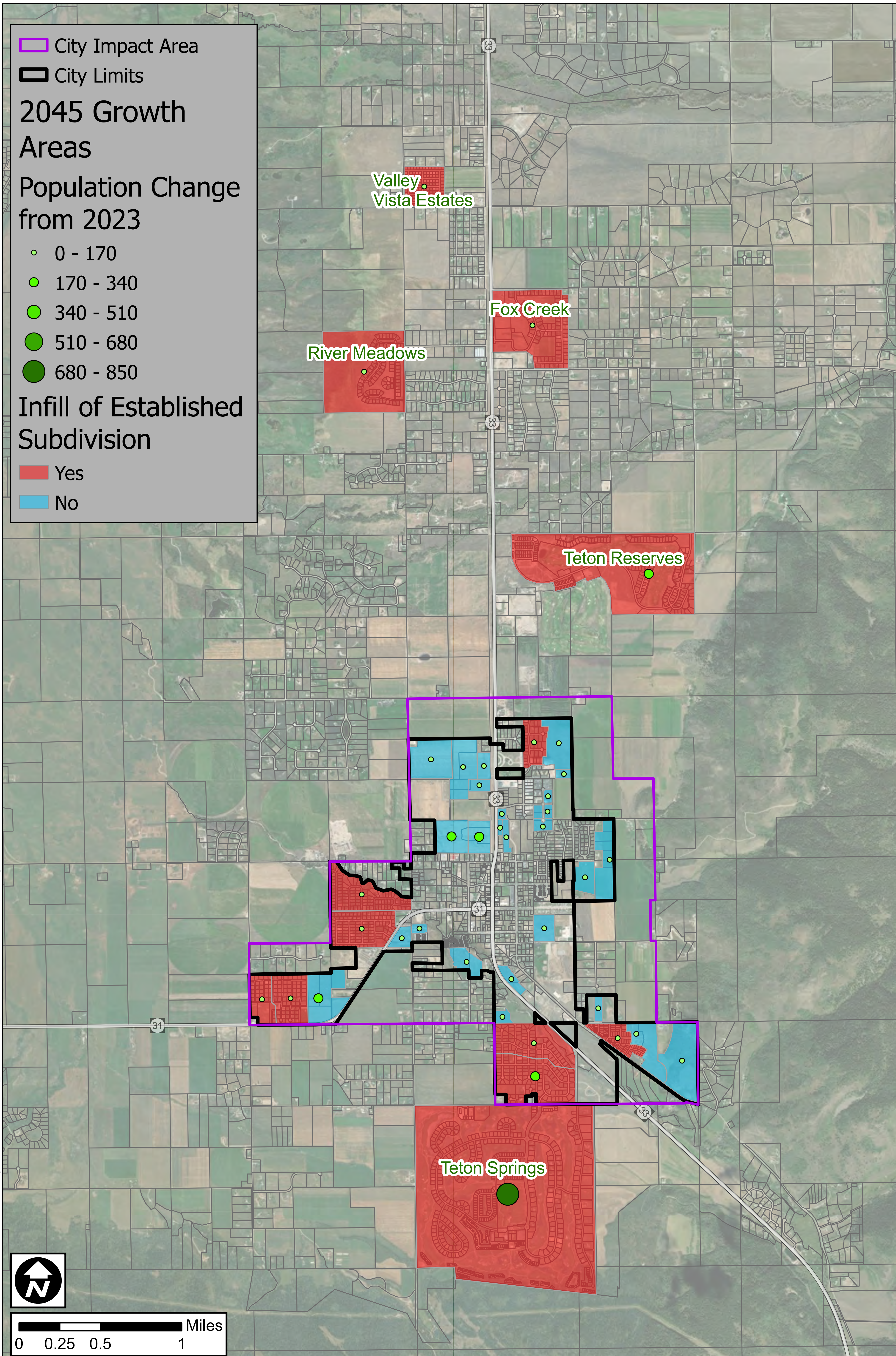

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Figure 16

City of Victor

2045 Growth Areas

WW Facility Planning Study

KELLER ASSOCIATES

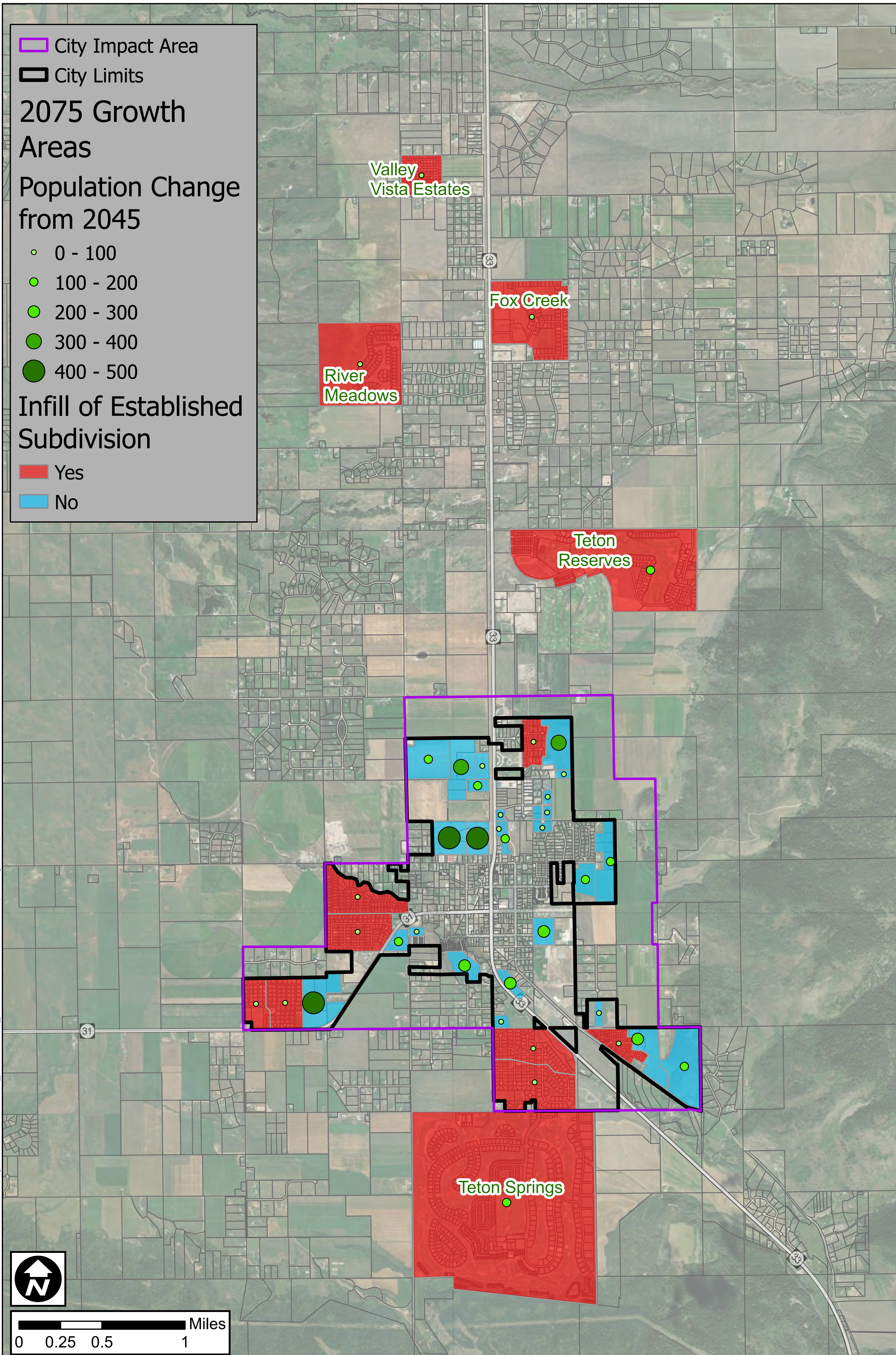

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Figure 17

City of Victor

2075 Growth Areas

WW Facility Planning Study

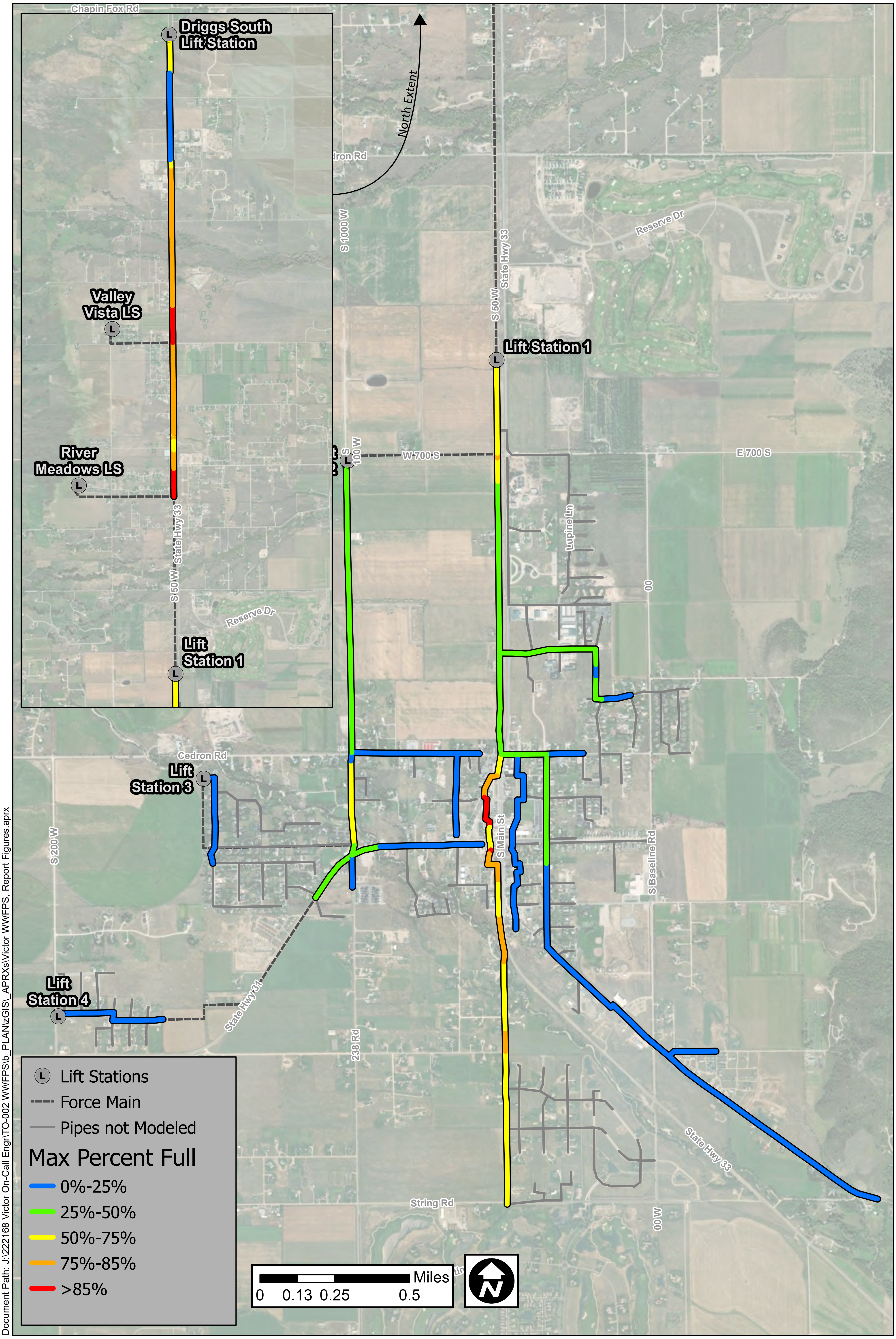

Figure 18

City of Victor

2045 MDF Max Depth/Full Depth

Wastewater Facility Planning Study

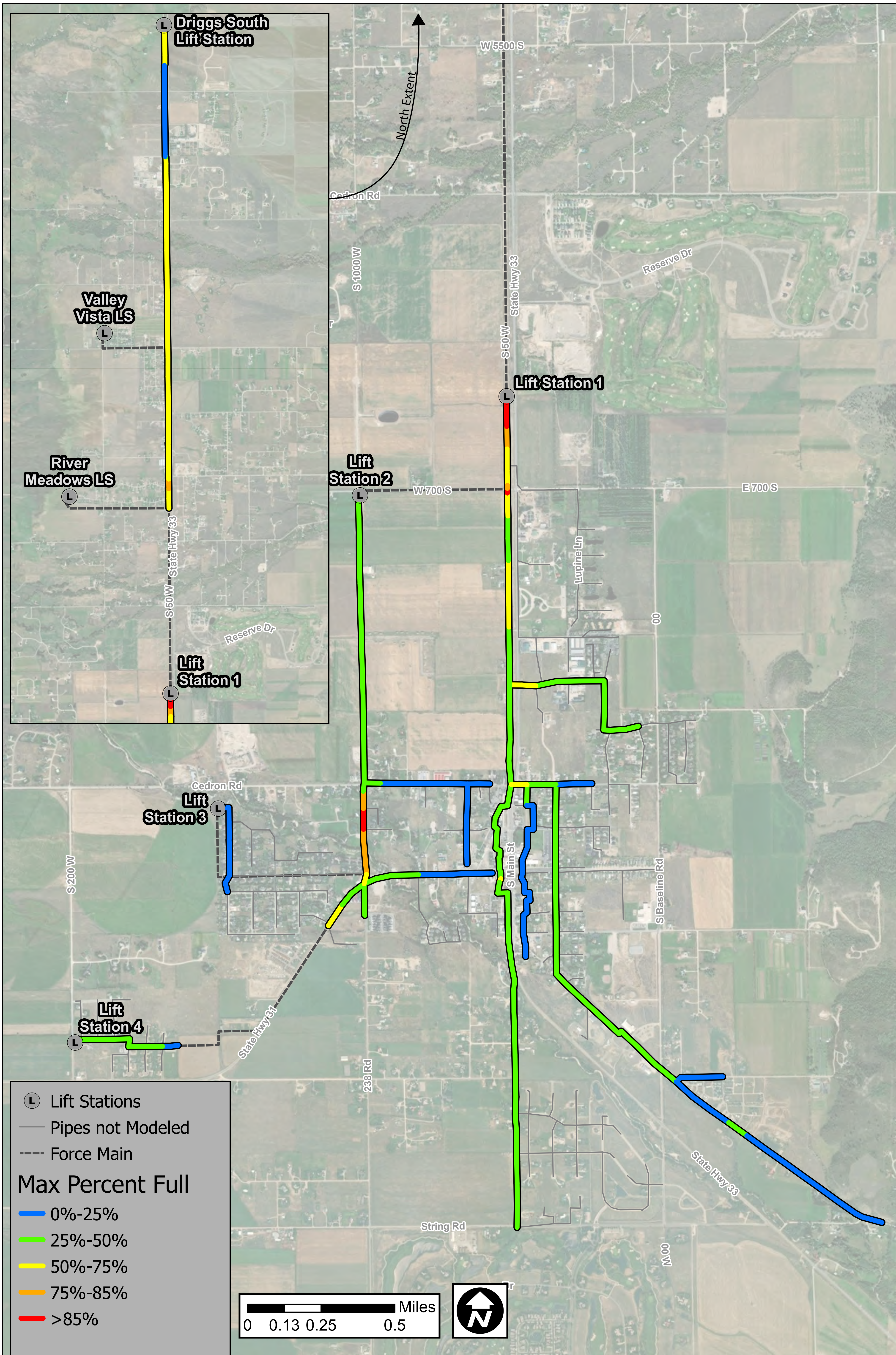

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Figure 19

City of Victor

2075 MDF Max Depth/Full Depth

Wastewater Facility Planning Study

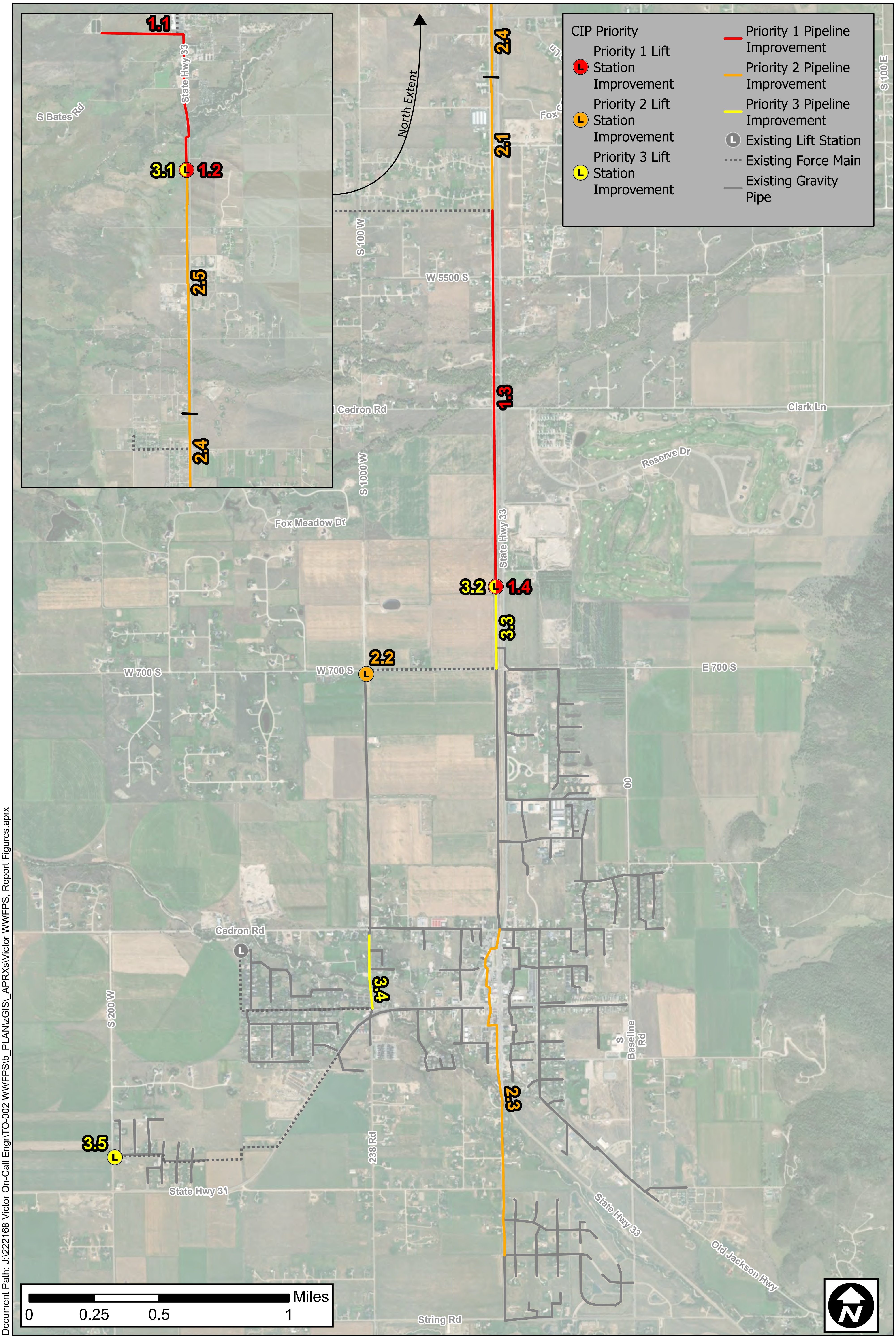

Figure 20

City of Victor

CIP Map

Wastewater Facility Planning Study

APPENDIX B

Supporting Data

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Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
1/1/2018	0.182
1/2/2018	0.178
1/3/2018	0.158
1/4/2018	0.183
1/5/2018	0.185
1/6/2018	0.144
1/7/2018	0.165
1/8/2018	0.146
1/9/2018	0.143
1/10/2018	0.155
1/11/2018	0.153
1/12/2018	0.165
1/13/2018	0.156
1/14/2018	0.170
1/15/2018	0.167
1/16/2018	0.158
1/17/2018	0.156
1/18/2018	0.158
1/19/2018	0.159
1/20/2018	0.161
1/21/2018	0.169
1/22/2018	0.169
1/23/2018	0.157
1/24/2018	0.158
1/25/2018	0.171
1/26/2018	0.172
1/27/2018	0.179
1/28/2018	0.181
1/29/2018	0.174
1/30/2018	0.166
1/31/2018	0.172
2/1/2018	0.163
2/2/2018	0.173
2/3/2018	0.209
2/4/2018	0.194
2/5/2018	0.189
2/6/2018	0.168
2/7/2018	0.167
2/8/2018	0.174
2/9/2018	0.176
2/10/2018	0.187
2/11/2018	0.203
2/12/2018	0.171
2/13/2018	0.152
2/14/2018	0.150
2/15/2018	0.145
2/16/2018	0.153
2/17/2018	0.149
2/18/2018	0.159
2/20/2018	0.151
2/21/2018	0.153
2/22/2018	0.159
2/23/2018	0.160
2/24/2018	0.161
2/25/2018	0.172
2/26/2018	0.171
2/27/2018	0.165
2/28/2018	0.171
3/1/2018	0.167
3/2/2018	0.160
3/3/2018	0.157
3/4/2018	0.159
3/5/2018	0.157
3/6/2018	0.153
3/7/2018	0.158
3/8/2018	0.152
3/9/2018	0.163
3/10/2018	0.175
3/11/2018	0.188
3/12/2018	0.188
3/13/2018	0.165
3/14/2018	0.164
3/15/2018	0.167
3/16/2018	0.158
3/17/2018	0.156
3/18/2018	0.164
3/19/2018	0.155
3/20/2018	0.153
3/21/2018	0.152
3/22/2018	0.173
3/23/2018	0.216
3/24/2018	0.164
3/25/2018	0.154
3/26/2018	0.152
3/27/2018	0.152
3/28/2018	0.150
3/29/2018	0.154
3/30/2018	0.145
3/31/2018	0.150
4/1/2018	0.179
4/2/2018	0.165
4/3/2018	0.157
4/4/2018	0.149
4/5/2018	0.159
4/6/2018	0.165
4/7/2018	0.161
4/8/2018	0.161
4/9/2018	0.158

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
2/19/2018	0.162
4/11/2018	0.175
4/12/2018	0.211
4/13/2018	0.180
4/14/2018	0.150
4/15/2018	0.145
4/16/2018	0.155
4/17/2018	0.154
4/18/2018	0.162
4/19/2018	0.172
4/20/2018	0.173
4/21/2018	0.165
4/22/2018	0.177
4/23/2018	0.191
4/24/2018	0.175
4/25/2018	0.164
4/26/2018	0.173
4/27/2018	0.172
4/28/2018	0.163
4/29/2018	0.176
4/30/2018	0.199
5/1/2018	0.193
5/2/2018	0.179
5/3/2018	0.182
5/4/2018	0.176
5/5/2018	0.187
5/6/2018	0.189
5/7/2018	0.181
5/8/2018	0.188
5/9/2018	0.189
5/10/2018	0.187
5/11/2018	0.177
5/12/2018	0.189
5/13/2018	0.193
5/14/2018	0.176
5/15/2018	0.172
5/16/2018	0.173
5/17/2018	0.172
5/18/2018	0.180
5/19/2018	0.193
5/20/2018	0.192
5/21/2018	0.183
5/22/2018	0.175
5/23/2018	0.204
5/24/2018	0.180
5/25/2018	0.178
5/26/2018	0.174
5/27/2018	0.188
5/28/2018	0.198

Date	Flow (MGD)
4/10/2018	0.160
5/31/2018	0.204
6/1/2018	0.206
6/2/2018	0.216
6/3/2018	0.227
6/4/2018	0.228
6/5/2018	0.226
6/6/2018	0.226
6/7/2018	0.239
6/8/2018	0.248
6/9/2018	0.253
6/10/2018	0.270
6/11/2018	0.265
6/12/2018	0.270
6/13/2018	0.282
6/14/2018	0.289
6/15/2018	0.291
6/16/2018	0.300
6/17/2018	0.305
6/18/2018	0.322
6/19/2018	0.304
6/20/2018	0.296
6/21/2018	0.326
6/22/2018	0.321
6/23/2018	0.324
6/24/2018	0.317
6/25/2018	0.303
6/26/2018	0.312
6/27/2018	0.311
6/28/2018	0.318
6/29/2018	0.315
6/30/2018	0.309
7/1/2018	0.302
7/2/2018	0.297
7/3/2018	0.297
7/4/2018	0.300
7/5/2018	0.303
7/6/2018	0.302
7/7/2018	0.301
7/8/2018	0.292
7/9/2018	0.280
7/10/2018	0.281
7/11/2018	0.298
7/12/2018	0.296
7/13/2018	0.295
7/14/2018	0.276
7/15/2018	0.267
7/16/2018	0.271
7/17/2018	0.256

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
5/29/2018	0.209
5/30/2018	0.208
7/20/2018	0.241
7/21/2018	0.237
7/22/2018	0.255
7/23/2018	0.262
7/24/2018	0.267
7/25/2018	0.255
7/26/2018	0.241
7/27/2018	0.230
7/28/2018	0.223
7/29/2018	0.245
7/30/2018	0.246
7/31/2018	0.232
8/1/2018	0.236
8/2/2018	0.251
8/3/2018	0.260
8/4/2018	0.263
8/5/2018	0.263
8/6/2018	0.248
8/7/2018	0.247
8/8/2018	0.236
8/9/2018	0.241
8/10/2018	0.218
8/11/2018	0.232
8/12/2018	0.249
8/13/2018	0.246
8/14/2018	0.244
8/15/2018	0.249
8/16/2018	0.250
8/17/2018	0.239
8/18/2018	0.233
8/19/2018	0.246
8/20/2018	0.238
8/21/2018	0.240
8/22/2018	0.239
8/23/2018	0.231
8/24/2018	0.237
8/25/2018	0.225
8/26/2018	0.224
8/27/2018	0.237
8/28/2018	0.228
8/29/2018	0.228
8/30/2018	0.197
8/31/2018	0.199
9/1/2018	0.212
9/2/2018	0.221
9/3/2018	0.210
9/4/2018	0.192

Date	Flow (MGD)
7/18/2018	0.249
7/19/2018	0.247
9/8/2018	0.185
9/9/2018	0.208
9/10/2018	0.198
9/11/2018	0.188
9/12/2018	0.180
9/13/2018	0.183
9/14/2018	0.187
9/15/2018	0.190
9/16/2018	0.215
9/17/2018	0.189
9/18/2018	0.195
9/19/2018	0.174
9/20/2018	0.184
9/21/2018	0.181
9/22/2018	0.214
9/23/2018	0.241
9/24/2018	0.227
9/25/2018	0.219
9/26/2018	0.212
9/27/2018	0.195
9/28/2018	0.199
9/29/2018	0.200
9/30/2018	0.201
10/1/2018	0.188
10/2/2018	0.193
10/3/2018	0.200
10/4/2018	0.175
10/5/2018	0.184
10/6/2018	0.169
10/7/2018	0.171
10/8/2018	0.176
10/9/2018	0.168
10/10/2018	0.172
10/11/2018	0.167
10/12/2018	0.166
10/13/2018	0.179
10/14/2018	0.188
10/15/2018	0.154
10/16/2018	0.139
10/17/2018	0.142
10/18/2018	0.145
10/19/2018	0.145
10/20/2018	0.150
10/21/2018	0.155
10/22/2018	0.140
10/23/2018	0.142
10/24/2018	0.136

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
9/5/2018	0.187	10/25/2018	0.137
9/6/2018	0.175	10/26/2018	0.131
9/7/2018	0.182	10/27/2018	0.133
10/28/2018	0.142	12/17/2018	0.162
10/29/2018	0.142	12/18/2018	0.155
10/30/2018	0.139	12/19/2018	0.144
10/31/2018	0.133	12/20/2018	0.154
11/1/2018	0.157	12/21/2018	0.151
11/2/2018	0.157	12/22/2018	0.164
11/3/2018	0.152	12/23/2018	0.174
11/4/2018	0.148	12/24/2018	0.173
11/5/2018	0.144	12/25/2018	0.178
11/6/2018	0.140	12/26/2018	0.187
11/7/2018	0.142	12/27/2018	0.188
11/8/2018	0.139	12/28/2018	0.191
11/9/2018	0.133	12/29/2018	0.195
11/10/2018	0.137	12/30/2018	0.206
11/11/2018	0.149	12/31/2018	0.196
11/12/2018	0.137	1/1/2019	0.197
11/13/2018	0.139	1/2/2019	0.180
11/14/2018	0.137	1/3/2019	0.179
11/15/2018	0.136	1/4/2019	0.170
11/16/2018	0.133	1/5/2019	0.161
11/17/2018	0.137	1/6/2019	0.161
11/18/2018	0.166	1/7/2019	0.155
11/19/2018	0.146	1/8/2019	0.145
11/20/2018	0.140	1/9/2019	0.137
11/21/2018	0.140	1/10/2019	0.147
11/22/2018	0.166	1/11/2019	0.140
11/23/2018	0.146	1/12/2019	0.148
11/24/2018	0.140	1/13/2019	0.165
11/25/2018	0.151	1/14/2019	0.143
11/26/2018	0.135	1/15/2019	0.146
11/27/2018	0.129	1/16/2019	0.149
11/28/2018	0.139	1/17/2019	0.147
11/29/2018	0.134	1/18/2019	0.132
11/30/2018	0.139	1/19/2019	0.148
12/1/2018	0.160	1/20/2019	0.160
12/2/2018	0.169	1/21/2019	0.146
12/3/2018	0.150	1/22/2019	0.143
12/4/2018	0.149	1/23/2019	0.139
12/5/2018	0.155	1/24/2019	0.143
12/6/2018	0.164	1/25/2019	0.142
12/7/2018	0.159	1/26/2019	0.163
12/8/2018	0.159	1/27/2019	0.172
12/9/2018	0.169	1/28/2019	0.172
12/10/2018	0.156	1/29/2019	0.146
12/11/2018	0.155	1/30/2019	0.151
12/12/2018	0.143	1/31/2019	0.164

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
12/13/2018	0.150	2/1/2019	0.164
12/14/2018	0.142	2/2/2019	0.156
12/15/2018	0.157	2/3/2019	0.179
12/16/2018	0.177	2/4/2019	0.167
2/5/2019	0.150	3/27/2019	0.140
2/6/2019	0.147	3/28/2019	0.136
2/7/2019	0.150	3/29/2019	0.138
2/8/2019	0.151	3/30/2019	0.150
2/9/2019	0.166	3/31/2019	0.153
2/10/2019	0.171	4/1/2019	0.160
2/11/2019	0.149	4/2/2019	0.165
2/12/2019	0.158	4/3/2019	0.164
2/13/2019	0.156	4/4/2019	0.163
2/14/2019	0.152	4/5/2019	0.154
2/15/2019	0.165	4/6/2019	0.161
2/16/2019	0.157	4/7/2019	0.154
2/17/2019	0.177	4/8/2019	0.140
2/18/2019	0.178	4/9/2019	0.207
2/19/2019	0.154	4/10/2019	0.153
2/20/2019	0.152	4/11/2019	0.141
2/21/2019	0.158	4/12/2019	0.150
2/22/2019	0.158	4/13/2019	0.153
2/23/2019	0.160	4/14/2019	0.164
2/24/2019	0.169	4/15/2019	0.157
2/25/2019	0.154	4/16/2019	0.144
2/26/2019	0.151	4/17/2019	0.162
2/27/2019	0.150	4/18/2019	0.164
2/28/2019	0.151	4/19/2019	0.160
3/1/2019	0.162	4/20/2019	0.149
3/2/2019	0.168	4/21/2019	0.155
3/3/2019	0.197	4/22/2019	0.147
3/4/2019	0.167	4/23/2019	0.153
3/5/2019	0.167	4/24/2019	0.145
3/6/2019	0.173	4/25/2019	0.146
3/7/2019	0.197	4/26/2019	0.146
3/8/2019	0.188	4/27/2019	0.152
3/9/2019	0.000	4/28/2019	0.158
3/10/2019	0.181	4/29/2019	0.162
3/11/2019	0.161	4/30/2019	0.160
3/12/2019	0.163	5/1/2019	0.146
3/13/2019	0.146	5/2/2019	0.147
3/14/2019	0.162	5/3/2019	0.151
3/15/2019	0.165	5/4/2019	0.145
3/16/2019	0.171	5/5/2019	0.148
3/17/2019	0.189	5/6/2019	0.152
3/18/2019	0.195	5/7/2019	0.153
3/19/2019	0.178	5/8/2019	0.147
3/20/2019	0.174	5/9/2019	0.140
3/21/2019	0.189	5/10/2019	0.146

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

KELLER ASSOCIATES

Daily Flows at the South LS

Date	Flow (MGD)
3/22/2019	0.183
3/23/2019	0.167
3/24/2019	0.151
3/25/2019	0.150
3/26/2019	0.150
5/16/2019	0.158
5/17/2019	0.169
5/18/2019	0.173
5/19/2019	0.169
5/20/2019	0.164
5/21/2019	0.172
5/22/2019	0.161
5/23/2019	0.155
5/24/2019	0.157
5/25/2019	0.156
5/26/2019	0.173
5/27/2019	0.199
5/28/2019	0.171
5/29/2019	0.161
5/30/2019	0.157
5/31/2019	0.160
6/1/2019	0.161
6/2/2019	0.187
6/3/2019	0.168
6/4/2019	0.164
6/5/2019	0.179
6/6/2019	0.365
6/7/2019	0.217
6/8/2019	0.251
6/9/2019	0.198
6/10/2019	0.195
6/11/2019	0.207
6/12/2019	0.215
6/13/2019	0.228
6/14/2019	0.221
6/15/2019	0.228
6/16/2019	0.235
6/17/2019	0.236
6/18/2019	0.225
6/19/2019	0.239
6/20/2019	0.252
6/21/2019	0.281
6/22/2019	0.273
6/23/2019	0.271
6/24/2019	0.263
6/25/2019	0.265
6/26/2019	0.261
6/27/2019	0.272
6/28/2019	0.269

Date	Flow (MGD)
5/11/2019	0.137
5/12/2019	0.143
5/13/2019	0.155
5/14/2019	0.157
5/15/2019	0.159
7/5/2019	0.285
7/6/2019	0.307
7/7/2019	0.313
7/8/2019	0.304
7/9/2019	0.298
7/10/2019	0.302
7/11/2019	0.283
7/12/2019	0.296
7/13/2019	0.297
7/14/2019	0.303
7/15/2019	0.284
7/16/2019	0.281
7/17/2019	0.280
7/18/2019	0.284
7/19/2019	0.265
7/20/2019	0.264
7/21/2019	0.293
7/22/2019	0.283
7/23/2019	0.247
7/24/2019	0.240
7/25/2019	0.229
7/26/2019	0.227
7/27/2019	0.235
7/28/2019	0.246
7/29/2019	0.242
7/30/2019	0.221
7/31/2019	0.207
8/1/2019	0.213
8/2/2019	0.221
8/3/2019	0.242
8/4/2019	0.257
8/5/2019	0.242
8/6/2019	0.237
8/7/2019	0.242
8/8/2019	0.263
8/9/2019	0.244
8/10/2019	0.223
8/11/2019	0.209
8/12/2019	0.202
8/13/2019	0.213
8/14/2019	0.212
8/15/2019	0.200
8/16/2019	0.206
8/17/2019	0.225

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
6/29/2019	0.273
6/30/2019	0.281
7/1/2019	0.286
7/2/2019	0.289
7/3/2019	0.297
7/4/2019	0.295
8/24/2019	0.206
8/25/2019	0.213
8/26/2019	0.205
8/27/2019	0.196
8/28/2019	0.189
8/29/2019	0.176
8/30/2019	0.189
8/31/2019	0.195
9/1/2019	0.188
9/2/2019	0.200
9/3/2019	0.199
9/4/2019	0.204
9/5/2019	0.197
9/6/2019	0.189
9/7/2019	0.183
9/8/2019	0.181
9/9/2019	0.161
9/10/2019	0.165
9/11/2019	0.168
9/12/2019	0.168
9/13/2019	0.170
9/14/2019	0.188
9/15/2019	0.188
9/16/2019	0.189
9/17/2019	0.161
9/18/2019	0.160
9/19/2019	0.166
9/20/2019	0.174
9/21/2019	0.180
9/22/2019	0.177
9/23/2019	0.167
9/24/2019	0.166
9/25/2019	0.158
9/26/2019	0.178
9/27/2019	0.168
9/28/2019	0.170
9/29/2019	0.206
9/30/2019	0.159
10/1/2019	0.163
10/2/2019	0.152
10/3/2019	0.153
10/4/2019	0.146
10/5/2019	0.157

Date	Flow (MGD)
8/18/2019	0.232
8/19/2019	0.220
8/20/2019	0.220
8/21/2019	0.214
8/22/2019	0.220
8/23/2019	0.211
10/13/2019	0.165
10/14/2019	0.151
10/15/2019	0.147
10/16/2019	0.148
10/17/2019	0.145
10/18/2019	0.139
10/19/2019	0.148
10/20/2019	0.158
10/21/2019	0.139
10/22/2019	0.145
10/23/2019	0.147
10/24/2019	0.152
10/25/2019	0.133
10/26/2019	0.147
10/27/2019	0.158
10/28/2019	0.138
10/29/2019	0.154
10/30/2019	0.163
10/31/2019	0.147
11/1/2019	0.149
11/2/2019	0.151
11/3/2019	0.158
11/4/2019	0.142
11/5/2019	0.150
11/6/2019	0.151
11/7/2019	0.155
11/8/2019	0.142
11/9/2019	0.142
11/10/2019	0.156
11/11/2019	0.151
11/12/2019	0.157
11/13/2019	0.156
11/14/2019	0.147
11/15/2019	0.144
11/16/2019	0.147
11/17/2019	0.162
11/18/2019	0.152
11/19/2019	0.155
11/20/2019	0.160
11/21/2019	0.157
11/22/2019	0.157
11/23/2019	0.170
11/24/2019	0.175

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
10/6/2019	0.159
10/7/2019	0.160
10/8/2019	0.159
10/9/2019	0.154
10/10/2019	0.148
10/11/2019	0.149
10/12/2019	0.148
12/2/2019	0.141
12/3/2019	0.139
12/4/2019	0.138
12/5/2019	0.135
12/6/2019	0.140
12/7/2019	0.140
12/8/2019	0.153
12/9/2019	0.142
12/10/2019	0.149
12/11/2019	0.145
12/12/2019	0.144
12/13/2019	0.137
12/14/2019	0.145
12/15/2019	0.156
12/16/2019	0.148
12/17/2019	0.158
12/18/2019	0.159
12/19/2019	0.165
12/20/2019	0.163
12/21/2019	0.164
12/22/2019	0.172
12/23/2019	0.168
12/24/2019	0.175
12/25/2019	0.160
12/26/2019	0.196
12/27/2019	0.185
12/28/2019	0.193
12/29/2019	0.195
12/30/2019	0.182
12/31/2019	0.189
1/1/2020	0.179
1/2/2020	0.171
1/3/2020	0.173
1/4/2020	0.187
1/5/2020	0.184
1/6/2020	0.165
1/7/2020	0.168
1/8/2020	0.163
1/9/2020	0.155
1/10/2020	0.151
1/11/2020	0.161
1/12/2020	0.167

Date	Flow (MGD)
11/25/2019	0.153
11/26/2019	0.151
11/27/2019	0.158
11/28/2019	0.161
11/29/2019	0.144
11/30/2019	0.145
12/1/2019	0.164
1/21/2020	0.155
1/22/2020	0.151
1/23/2020	0.156
1/24/2020	0.149
1/25/2020	0.165
1/26/2020	0.183
1/27/2020	0.160
1/28/2020	0.159
1/29/2020	0.160
1/30/2020	0.161
1/31/2020	0.160
2/1/2020	0.175
2/2/2020	0.182
2/3/2020	0.159
2/4/2020	0.169
2/5/2020	0.172
2/6/2020	0.172
2/7/2020	0.175
2/8/2020	0.182
2/9/2020	0.195
2/10/2020	0.181
2/11/2020	0.180
2/12/2020	0.171
2/13/2020	0.167
2/14/2020	0.164
2/15/2020	0.180
2/16/2020	0.180
2/17/2020	0.194
2/18/2020	0.179
2/19/2020	0.178
2/20/2020	0.182
2/21/2020	0.181
2/22/2020	0.197
2/23/2020	0.195
2/24/2020	0.174
2/25/2020	0.179
2/26/2020	0.178
2/27/2020	0.184
2/28/2020	0.184
2/29/2020	0.184
3/1/2020	0.177
3/2/2020	0.175

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
1/13/2020	0.151
1/14/2020	0.142
1/15/2020	0.150
1/16/2020	0.157
1/17/2020	0.161
1/18/2020	0.179
1/19/2020	0.181
1/20/2020	0.169
3/11/2020	0.177
3/12/2020	0.182
3/13/2020	0.173
3/14/2020	0.173
3/15/2020	0.202
3/16/2020	0.205
3/17/2020	0.200
3/18/2020	0.198
3/19/2020	0.195
3/20/2020	0.184
3/21/2020	0.185
3/22/2020	0.181
3/23/2020	0.165
3/24/2020	0.162
3/25/2020	0.163
3/26/2020	0.159
3/27/2020	0.165
3/28/2020	0.168
3/29/2020	0.171
3/30/2020	0.158
3/31/2020	0.164
4/1/2020	0.163
4/2/2020	0.154
4/3/2020	0.165
4/4/2020	0.174
4/5/2020	0.169
4/6/2020	0.188
4/7/2020	0.185
4/8/2020	0.194
4/9/2020	0.182
4/10/2020	0.190
4/11/2020	0.192
4/12/2020	0.190
4/13/2020	0.181
4/14/2020	0.179
4/15/2020	0.178
4/16/2020	0.179
4/17/2020	0.178
4/18/2020	0.178
4/19/2020	0.188
4/20/2020	0.181

Date	Flow (MGD)
3/3/2020	0.182
3/4/2020	0.187
3/5/2020	0.192
3/6/2020	0.194
3/7/2020	0.187
3/8/2020	0.198
3/9/2020	0.179
3/10/2020	0.174
4/30/2020	0.191
5/1/2020	0.192
5/2/2020	0.193
5/3/2020	0.201
5/4/2020	0.101
5/5/2020	0.002
5/6/2020	0.193
5/7/2020	0.200
5/8/2020	0.194
5/9/2020	0.192
5/10/2020	0.195
5/11/2020	0.197
5/12/2020	0.186
5/13/2020	0.191
5/14/2020	0.190
5/15/2020	0.190
5/16/2020	0.203
5/17/2020	0.205
5/18/2020	0.209
5/19/2020	0.209
5/20/2020	0.196
5/21/2020	0.188
5/22/2020	0.197
5/23/2020	0.230
5/24/2020	0.219
5/25/2020	0.208
5/26/2020	0.205
5/27/2020	0.204
5/28/2020	0.198
5/29/2020	0.203
5/30/2020	0.202
5/31/2020	0.211
6/1/2020	0.225
6/2/2020	0.225
6/3/2020	0.207
6/4/2020	0.215
6/5/2020	0.221
6/6/2020	0.237
6/7/2020	0.262
6/8/2020	0.226
6/9/2020	0.231

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
4/21/2020	0.182	6/10/2020	0.225
4/22/2020	0.182	6/11/2020	0.231
4/23/2020	0.199	6/12/2020	0.235
4/24/2020	0.182	6/13/2020	0.222
4/25/2020	0.169	6/14/2020	0.241
4/26/2020	0.177	6/15/2020	0.243
4/27/2020	0.179	6/16/2020	0.240
4/28/2020	0.181	6/17/2020	0.235
4/29/2020	0.184	6/18/2020	0.231
6/19/2020	0.231	8/8/2020	0.233
6/20/2020	0.233	8/9/2020	0.249
6/21/2020	0.230	8/10/2020	0.247
6/22/2020	0.249	8/11/2020	0.244
6/23/2020	0.240	8/12/2020	0.247
6/24/2020	0.254	8/13/2020	0.248
6/25/2020	0.261	8/14/2020	0.241
6/26/2020	0.242	8/15/2020	0.230
6/27/2020	0.247	8/16/2020	0.237
6/28/2020	0.287	8/17/2020	0.233
6/29/2020	0.298	8/18/2020	0.239
6/30/2020	0.252	8/19/2020	0.234
7/1/2020	0.253	8/20/2020	0.237
7/2/2020	0.258	8/21/2020	0.227
7/3/2020	0.253	8/22/2020	0.229
7/4/2020	0.247	8/23/2020	0.239
7/5/2020	0.252	8/24/2020	0.230
7/6/2020	0.275	8/25/2020	0.240
7/7/2020	0.271	8/26/2020	0.239
7/8/2020	0.269	8/27/2020	0.223
7/9/2020	0.263	8/28/2020	0.216
7/10/2020	0.257	8/29/2020	0.213
7/11/2020	0.255	8/30/2020	0.224
7/12/2020	0.254	8/31/2020	0.224
7/13/2020	0.263	9/1/2020	0.220
7/14/2020	0.271	9/2/2020	0.226
7/15/2020	0.261	9/3/2020	0.229
7/16/2020	0.261	9/4/2020	0.224
7/17/2020	0.258	9/5/2020	0.225
7/18/2020	0.246	9/6/2020	0.230
7/19/2020	0.257	9/7/2020	0.268
7/20/2020	0.249	9/8/2020	0.248
7/21/2020	0.256	9/9/2020	0.237
7/22/2020	0.246	9/10/2020	0.224
7/23/2020	0.251	9/11/2020	0.215
7/24/2020	0.241	9/12/2020	0.229
7/25/2020	0.241	9/13/2020	0.247
7/26/2020	0.253	9/14/2020	0.232
7/27/2020	0.251	9/15/2020	0.230
7/28/2020	0.268	9/16/2020	0.228

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
7/29/2020	0.254	9/17/2020	0.234
7/30/2020	0.243	9/18/2020	0.229
7/31/2020	0.259	9/19/2020	0.235
8/1/2020	0.239	9/20/2020	0.239
8/2/2020	0.246	9/21/2020	0.231
8/3/2020	0.251	9/22/2020	0.228
8/4/2020	0.247	9/23/2020	0.221
8/5/2020	0.251	9/24/2020	0.222
8/6/2020	0.254	9/25/2020	0.217
8/7/2020	0.253	9/26/2020	0.244
9/27/2020	0.237	11/16/2020	0.194
9/28/2020	0.226	11/17/2020	0.211
9/29/2020	0.226	11/18/2020	0.210
9/30/2020	0.212	11/19/2020	0.205
10/1/2020	0.247	11/20/2020	0.196
10/2/2020	0.222	11/21/2020	0.206
10/3/2020	0.217	11/22/2020	0.206
10/4/2020	0.241	11/23/2020	0.207
10/5/2020	0.246	11/24/2020	0.200
10/6/2020	0.221	11/25/2020	0.206
10/7/2020	0.211	11/26/2020	0.220
10/8/2020	0.219	11/27/2020	0.208
10/9/2020	0.215	11/28/2020	0.206
10/10/2020	0.214	11/29/2020	0.216
10/11/2020	0.257	11/30/2020	0.215
10/12/2020	0.231	12/1/2020	0.200
10/13/2020	0.227	12/2/2020	0.199
10/14/2020	0.216	12/3/2020	0.196
10/15/2020	0.225	12/4/2020	0.202
10/16/2020	0.212	12/5/2020	0.198
10/17/2020	0.217	12/6/2020	0.209
10/18/2020	0.237	12/7/2020	0.214
10/19/2020	0.207	12/8/2020	0.210
10/20/2020	0.207	12/9/2020	0.201
10/21/2020	0.206	12/10/2020	0.189
10/22/2020	0.209	12/11/2020	0.186
10/23/2020	0.200	12/12/2020	0.195
10/24/2020	0.202	12/13/2020	0.214
10/25/2020	0.231	12/14/2020	0.200
10/26/2020	0.214	12/15/2020	0.200
10/27/2020	0.210	12/16/2020	0.204
10/28/2020	0.214	12/17/2020	0.212
10/29/2020	0.203	12/18/2020	0.207
10/30/2020	0.203	12/19/2020	0.211
10/31/2020	0.201	12/20/2020	0.223
11/1/2020	0.221	12/21/2020	0.250
11/2/2020	0.200	12/22/2020	0.225
11/3/2020	0.200	12/23/2020	0.231
11/4/2020	0.208	12/24/2020	0.242

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
11/5/2020	0.202	12/25/2020	0.234
11/6/2020	0.198	12/26/2020	0.239
11/7/2020	0.202	12/27/2020	0.246
11/8/2020	0.211	12/28/2020	0.239
11/9/2020	0.196	12/29/2020	0.250
11/10/2020	0.191	12/30/2020	0.243
11/11/2020	0.190	12/31/2020	0.251
11/12/2020	0.196	1/1/2021	0.245
11/13/2020	0.184	1/2/2021	0.241
11/14/2020	0.188	1/3/2021	0.246
11/15/2020	0.200	1/4/2021	0.226
1/5/2021	0.220	2/24/2021	0.208
1/6/2021	0.213	2/25/2021	0.209
1/7/2021	0.218	2/26/2021	0.209
1/8/2021	0.211	2/27/2021	0.216
1/9/2021	0.215	2/28/2021	0.232
1/10/2021	0.228	3/1/2021	0.223
1/11/2021	0.234	3/2/2021	0.219
1/12/2021	0.213	3/3/2021	0.223
1/13/2021	0.222	3/4/2021	0.226
1/14/2021	0.212	3/5/2021	0.223
1/15/2021	0.209	3/6/2021	0.241
1/16/2021	0.216	3/7/2021	0.252
1/17/2021	0.219	3/8/2021	0.258
1/18/2021	0.218	3/9/2021	0.232
1/19/2021	0.216	3/10/2021	0.219
1/20/2021	0.209	3/11/2021	0.223
1/21/2021	0.215	3/12/2021	0.221
1/22/2021	0.198	3/13/2021	0.227
1/23/2021	0.214	3/14/2021	0.233
1/24/2021	0.227	3/15/2021	0.232
1/25/2021	0.209	3/16/2021	0.217
1/26/2021	0.208	3/17/2021	0.219
1/27/2021	0.201	3/18/2021	0.220
1/28/2021	0.209	3/19/2021	0.216
1/29/2021	0.205	3/20/2021	0.228
1/30/2021	0.210	3/21/2021	0.228
1/31/2021	0.232	3/22/2021	0.214
2/1/2021	0.214	3/23/2021	0.207
2/2/2021	0.220	3/24/2021	0.212
2/3/2021	0.214	3/25/2021	0.213
2/4/2021	0.206	3/26/2021	0.209
2/5/2021	0.209	3/27/2021	0.210
2/6/2021	0.226	3/28/2021	0.205
2/7/2021	0.225	3/29/2021	0.201
2/8/2021	0.219	3/30/2021	0.199
2/9/2021	0.217	3/31/2021	0.198
2/10/2021	0.230	4/1/2021	0.193
2/11/2021	0.223	4/2/2021	0.196

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
2/12/2021	0.213
2/13/2021	0.224
2/14/2021	0.231
2/15/2021	0.240
2/16/2021	0.217
2/17/2021	0.215
2/18/2021	0.226
2/19/2021	0.216
2/20/2021	0.214
2/21/2021	0.227
2/22/2021	0.215
2/23/2021	0.215
4/15/2021	0.194
4/16/2021	0.200
4/17/2021	0.200
4/18/2021	0.202
4/19/2021	0.197
4/20/2021	0.198
4/21/2021	0.196
4/22/2021	0.200
4/23/2021	0.188
4/24/2021	0.196
4/25/2021	0.202
4/26/2021	0.207
4/27/2021	0.204
4/28/2021	0.197
4/29/2021	0.203
4/30/2021	0.195
5/1/2021	0.193
5/2/2021	0.204
5/3/2021	0.196
5/4/2021	0.190
5/5/2021	0.197
5/6/2021	0.193
5/7/2021	0.184
5/8/2021	0.201
5/9/2021	0.228
5/10/2021	0.205
5/11/2021	0.203
5/12/2021	0.208
5/13/2021	0.211
5/14/2021	0.203
5/15/2021	0.215
5/16/2021	0.229
5/17/2021	0.219
5/18/2021	0.223
5/19/2021	0.219
5/20/2021	0.223
5/21/2021	0.233

Date	Flow (MGD)
4/3/2021	0.197
4/4/2021	0.211
4/5/2021	0.207
4/6/2021	0.211
4/7/2021	0.207
4/8/2021	0.207
4/9/2021	0.196
4/10/2021	0.204
4/11/2021	0.209
4/12/2021	0.208
4/13/2021	0.197
4/14/2021	0.204
6/4/2021	0.242
6/5/2021	0.247
6/6/2021	0.253
6/7/2021	0.252
6/8/2021	0.251
6/9/2021	0.252
6/10/2021	0.242
6/11/2021	0.239
6/12/2021	0.251
6/13/2021	0.266
6/14/2021	0.263
6/15/2021	0.260
6/16/2021	0.273
6/17/2021	0.281
6/18/2021	0.265
6/19/2021	0.261
6/20/2021	0.264
6/21/2021	0.273
6/22/2021	0.276
6/23/2021	0.280
6/24/2021	0.274
6/25/2021	0.266
6/26/2021	0.261
6/27/2021	0.280
6/28/2021	0.276
6/29/2021	0.273
6/30/2021	0.281
7/1/2021	0.277
7/2/2021	0.273
7/3/2021	0.278
7/4/2021	0.273
7/5/2021	0.288
7/6/2021	0.274
7/7/2021	0.274
7/8/2021	0.264
7/9/2021	0.263
7/10/2021	0.263

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
5/22/2021	0.254	7/11/2021	0.273
5/23/2021	0.272	7/12/2021	0.275
5/24/2021	0.238	7/13/2021	0.280
5/25/2021	0.206	7/14/2021	0.293
5/26/2021	0.238	7/15/2021	0.272
5/27/2021	0.230	7/16/2021	0.268
5/28/2021	0.227	7/17/2021	0.267
5/29/2021	0.232	7/18/2021	0.273
5/30/2021	0.232	7/19/2021	0.274
5/31/2021	0.249	7/20/2021	0.272
6/1/2021	0.238	7/21/2021	0.277
6/2/2021	0.243	7/22/2021	0.277
6/3/2021	0.243	7/23/2021	0.267
7/24/2021	0.267	9/12/2021	0.251
7/25/2021	0.269	9/13/2021	0.244
7/26/2021	0.288	9/14/2021	0.238
7/27/2021	0.272	9/15/2021	0.231
7/28/2021	0.274	9/16/2021	0.234
7/29/2021	0.273	9/17/2021	0.230
7/30/2021	0.275	9/18/2021	0.238
7/31/2021	0.261	9/19/2021	0.249
8/1/2021	0.268	9/20/2021	0.241
8/2/2021	0.274	9/21/2021	0.240
8/3/2021	0.281	9/22/2021	0.234
8/4/2021	0.269	9/23/2021	0.233
8/5/2021	0.270	9/24/2021	0.229
8/6/2021	0.261	9/25/2021	0.224
8/7/2021	0.264	9/26/2021	0.240
8/8/2021	0.269	9/27/2021	0.223
8/9/2021	0.257	9/28/2021	0.227
8/10/2021	0.276	9/29/2021	0.230
8/11/2021	0.261	9/30/2021	0.218
8/12/2021	0.258	10/1/2021	0.211
8/13/2021	0.265	10/2/2021	0.232
8/14/2021	0.273	10/3/2021	0.239
8/15/2021	0.286	10/4/2021	0.228
8/16/2021	0.289	10/5/2021	0.215
8/17/2021	0.285	10/6/2021	0.222
8/18/2021	0.269	10/7/2021	0.219
8/19/2021	0.263	10/8/2021	0.214
8/20/2021	0.248	10/9/2021	0.222
8/21/2021	0.254	10/10/2021	0.222
8/22/2021	0.271	10/11/2021	0.208
8/23/2021	0.239	10/12/2021	0.218
8/24/2021	0.230	10/13/2021	0.209
8/25/2021	0.239	10/14/2021	0.205
8/26/2021	0.236	10/15/2021	0.203
8/27/2021	0.240	10/16/2021	0.216
8/28/2021	0.239	10/17/2021	0.224

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
8/29/2021	0.240
8/30/2021	0.233
8/31/2021	0.222
9/1/2021	0.231
9/2/2021	0.233
9/3/2021	0.234
9/4/2021	0.239
9/5/2021	0.241
9/6/2021	0.257
9/7/2021	0.263
9/8/2021	0.230
9/9/2021	0.234
9/10/2021	0.239
9/11/2021	0.231
11/1/2021	0.195
11/2/2021	0.194
11/3/2021	0.195
11/4/2021	0.198
11/5/2021	0.184
11/6/2021	0.177
11/7/2021	0.203
11/8/2021	0.180
11/9/2021	0.190
11/10/2021	0.186
11/11/2021	0.186
11/12/2021	0.194
11/13/2021	0.200
11/14/2021	0.211
11/15/2021	0.205
11/16/2021	0.195
11/17/2021	0.202
11/18/2021	0.204
11/19/2021	0.184
11/20/2021	0.200
11/21/2021	0.211
11/22/2021	0.208
11/23/2021	0.198
11/24/2021	0.197
11/25/2021	0.217
11/26/2021	0.192
11/27/2021	0.205
11/28/2021	0.210
11/29/2021	0.219
11/30/2021	0.214
12/1/2021	0.217
12/2/2021	0.221
12/3/2021	0.192
12/4/2021	0.195
12/5/2021	0.210

Date	Flow (MGD)
10/18/2021	0.205
10/19/2021	0.205
10/20/2021	0.205
10/21/2021	0.202
10/22/2021	0.196
10/23/2021	0.198
10/24/2021	0.218
10/25/2021	0.208
10/26/2021	0.218
10/27/2021	0.199
10/28/2021	0.208
10/29/2021	0.191
10/30/2021	0.192
10/31/2021	0.198
12/21/2021	0.228
12/22/2021	0.233
12/23/2021	0.232
12/24/2021	0.238
12/25/2021	0.225
12/26/2021	0.234
12/27/2021	0.246
12/28/2021	0.244
12/29/2021	0.257
12/30/2021	0.258
12/31/2021	0.268
1/1/2022	0.260
1/2/2022	0.270
1/3/2022	0.251
1/4/2022	0.251
1/5/2022	0.245
1/6/2022	0.231
1/7/2022	0.227
1/8/2022	0.233
1/9/2022	0.240
1/10/2022	0.226
1/11/2022	0.237
1/12/2022	0.223
1/13/2022	0.229
1/14/2022	0.224
1/15/2022	0.240
1/16/2022	0.248
1/17/2022	0.253
1/18/2022	0.243
1/19/2022	0.233
1/20/2022	0.225
1/21/2022	0.229
1/22/2022	0.239
1/23/2022	0.249
1/24/2022	0.236

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
12/6/2021	0.201	1/25/2022	0.239
12/7/2021	0.197	1/26/2022	0.239
12/8/2021	0.208	1/27/2022	0.233
12/9/2021	0.204	1/28/2022	0.238
12/10/2021	0.195	1/29/2022	0.264
12/11/2021	0.209	1/30/2022	0.251
12/12/2021	0.235	1/31/2022	0.256
12/13/2021	0.201	2/1/2022	0.242
12/14/2021	0.197	2/2/2022	0.240
12/15/2021	0.205	2/3/2022	0.250
12/16/2021	0.202	2/4/2022	0.250
12/17/2021	0.200	2/5/2022	0.259
12/18/2021	0.211	2/6/2022	0.260
12/19/2021	0.220	2/7/2022	0.259
12/20/2021	0.226	2/8/2022	0.241
2/9/2022	0.241	3/31/2022	0.194
2/10/2022	0.244	4/1/2022	0.184
2/11/2022	0.232	4/2/2022	0.194
2/12/2022	0.255	4/3/2022	0.207
2/13/2022	0.263	4/4/2022	0.210
2/14/2022	0.261	4/5/2022	0.211
2/15/2022	0.250	4/6/2022	0.209
2/16/2022	0.241	4/7/2022	0.215
2/17/2022	0.234	4/8/2022	0.200
2/18/2022	0.241	4/9/2022	0.204
2/19/2022	0.262	4/10/2022	0.215
2/20/2022	0.261	4/11/2022	0.212
2/21/2022	0.256	4/12/2022	0.203
2/22/2022	0.242	4/13/2022	0.206
2/23/2022	0.245	4/14/2022	0.219
2/24/2022	0.243	4/15/2022	0.214
2/25/2022	0.246	4/16/2022	0.231
2/26/2022	0.260	4/17/2022	0.231
2/27/2022	0.267	4/18/2022	0.217
2/28/2022	0.256	4/19/2022	0.208
3/1/2022	0.250	4/20/2022	0.210
3/2/2022	0.273	4/21/2022	0.208
3/3/2022	0.255	4/22/2022	0.206
3/4/2022	0.229	4/23/2022	0.201
3/5/2022	0.235	4/24/2022	0.221
3/6/2022	0.245	4/25/2022	0.216
3/7/2022	0.238	4/26/2022	0.229
3/8/2022	0.223	4/27/2022	0.220
3/9/2022	0.229	4/28/2022	0.210
3/10/2022	0.236	4/29/2022	0.225
3/11/2022	0.236	4/30/2022	0.218
3/12/2022	0.257	5/1/2022	0.233
3/13/2022	0.246	5/2/2022	0.225
3/14/2022	0.243	5/3/2022	0.227

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)	Date	Flow (MGD)
3/15/2022	0.236	5/4/2022	0.208
3/16/2022	0.238	5/5/2022	0.210
3/17/2022	0.233	5/6/2022	0.199
3/18/2022	0.236	5/7/2022	0.198
3/19/2022	0.242	5/8/2022	0.212
3/20/2022	0.260	5/9/2022	0.212
3/21/2022	0.237	5/10/2022	0.208
3/22/2022	0.242	5/11/2022	0.200
3/23/2022	0.253	5/12/2022	0.208
3/24/2022	0.232	5/13/2022	0.205
3/25/2022	0.222	5/14/2022	0.212
3/26/2022	0.212	5/15/2022	0.217
3/27/2022	0.221	5/16/2022	0.211
3/28/2022	0.213	5/17/2022	0.219
3/29/2022	0.207	5/18/2022	0.220
3/30/2022	0.201	5/19/2022	0.231
5/20/2022	0.211	7/9/2022	0.281
5/21/2022	0.220	7/10/2022	0.292
5/22/2022	0.230	7/11/2022	0.292
5/23/2022	0.219	7/12/2022	0.282
5/24/2022	0.230	7/13/2022	0.287
5/25/2022	0.217	7/14/2022	0.302
5/26/2022	0.223	7/15/2022	0.281
5/27/2022	0.223	7/16/2022	0.270
5/28/2022	0.245	7/17/2022	0.282
5/29/2022	0.234	7/18/2022	0.278
5/30/2022	0.242	7/19/2022	0.278
5/31/2022	0.250	7/20/2022	0.281
6/1/2022	0.250	7/21/2022	0.285
6/2/2022	0.241	7/22/2022	0.274
6/3/2022	0.233	7/23/2022	0.277
6/4/2022	0.247	7/24/2022	0.280
6/5/2022	0.262	7/25/2022	0.279
6/6/2022	0.257	7/26/2022	0.263
6/7/2022	0.248	7/27/2022	0.285
6/8/2022	0.248	7/28/2022	0.279
6/9/2022	0.245	7/29/2022	0.269
6/10/2022	0.241	7/30/2022	0.270
6/11/2022	0.239	7/31/2022	0.279
6/12/2022	0.253	8/1/2022	0.267
6/13/2022	0.291	8/2/2022	0.306
6/14/2022	0.252	8/3/2022	0.276
6/15/2022	0.274	8/4/2022	0.279
6/16/2022	0.268	8/5/2022	0.263
6/17/2022	0.250	8/6/2022	0.361
6/18/2022	0.248	8/7/2022	0.288
6/19/2022	0.248	8/8/2022	0.263
6/20/2022	0.264	8/9/2022	0.265
6/21/2022	0.258	8/10/2022	0.267

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
6/22/2022	0.248
6/23/2022	0.249
6/24/2022	0.259
6/25/2022	0.263
6/26/2022	0.284
6/27/2022	0.275
6/28/2022	0.277
6/29/2022	0.282
6/30/2022	0.281
7/1/2022	0.280
7/2/2022	0.291
7/3/2022	0.280
7/4/2022	0.299
7/5/2022	0.296
7/6/2022	0.288
7/7/2022	0.288
7/8/2022	0.283
8/28/2022	0.267
8/29/2022	0.255
8/30/2022	0.249
8/31/2022	0.240
9/1/2022	0.235
9/2/2022	0.249
9/3/2022	0.246
9/4/2022	0.257
9/5/2022	0.264
9/6/2022	0.246
9/7/2022	0.239
9/8/2022	0.246
9/9/2022	0.237
9/10/2022	0.243
9/11/2022	0.264
9/12/2022	0.239
9/13/2022	0.246
9/14/2022	0.246
9/15/2022	0.246
9/16/2022	0.240
9/17/2022	0.241
9/18/2022	0.259
9/19/2022	0.238
9/20/2022	0.234
9/21/2022	0.248
9/22/2022	0.275
9/23/2022	0.250
9/24/2022	0.257
9/25/2022	0.267
9/26/2022	0.245
9/27/2022	0.240
9/28/2022	0.225

Date	Flow (MGD)
8/11/2022	0.261
8/12/2022	0.273
8/13/2022	0.288
8/14/2022	0.292
8/15/2022	0.265
8/16/2022	0.247
8/17/2022	0.255
8/18/2022	0.255
8/19/2022	0.246
8/20/2022	0.241
8/21/2022	0.257
8/22/2022	0.243
8/23/2022	0.244
8/24/2022	0.249
8/25/2022	0.245
8/26/2022	0.250
8/27/2022	0.243
10/17/2022	0.230
10/18/2022	0.217
10/19/2022	0.220
10/20/2022	0.219
10/21/2022	0.205
10/22/2022	0.231
10/23/2022	0.238
10/24/2022	0.225
10/25/2022	0.211
10/26/2022	0.215
10/27/2022	0.207
10/28/2022	0.204
10/29/2022	0.211
10/30/2022	0.222
10/31/2022	0.210
11/1/2022	0.216
11/2/2022	0.222
11/3/2022	0.213
11/4/2022	0.212
11/5/2022	0.301
11/6/2022	0.247
11/7/2022	0.228
11/8/2022	0.218
11/9/2022	0.224
11/10/2022	0.211
11/11/2022	0.213
11/12/2022	0.226
11/13/2022	0.231
11/14/2022	0.219
11/15/2022	0.213
11/16/2022	0.218
11/17/2022	0.196

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Daily Flows at the South LS

Date	Flow (MGD)
9/29/2022	0.225
9/30/2022	0.213
10/1/2022	0.242
10/2/2022	0.233
10/3/2022	0.224
10/4/2022	0.219
10/5/2022	0.220
10/6/2022	0.226
10/7/2022	0.214
10/8/2022	0.229
10/9/2022	0.228
10/10/2022	0.227
10/11/2022	0.221
10/12/2022	0.223
10/13/2022	0.224
10/14/2022	0.220
10/15/2022	0.235
10/16/2022	0.243
12/6/2022	0.223
12/7/2022	0.225
12/8/2022	0.224
12/9/2022	0.221
12/10/2022	0.232
12/11/2022	0.239
12/12/2022	0.220
12/13/2022	0.216
12/14/2022	0.219
12/15/2022	0.221
12/16/2022	0.221
12/17/2022	0.235
12/18/2022	0.246
12/19/2022	0.242
12/20/2022	0.255
12/21/2022	0.264
12/22/2022	0.268
12/23/2022	0.276
12/24/2022	0.269
12/25/2022	0.242
12/26/2022	0.266
12/27/2022	0.286
12/28/2022	0.263
12/29/2022	0.267
12/30/2022	0.276
12/31/2022	0.268

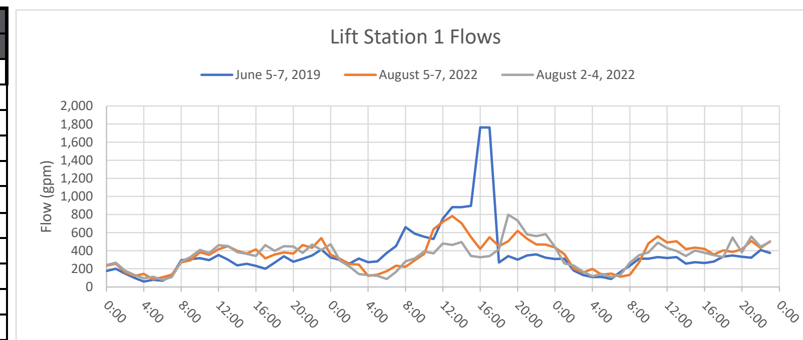
Date	Flow (MGD)
11/18/2022	0.214
11/19/2022	0.212
11/20/2022	0.221
11/21/2022	0.232
11/22/2022	0.219
11/23/2022	0.215
11/24/2022	0.235
11/25/2022	0.206
11/26/2022	0.220
11/27/2022	0.232
11/28/2022	0.219
11/29/2022	0.222
11/30/2022	0.225
12/1/2022	0.223
12/2/2022	0.231
12/3/2022	0.232
12/4/2022	0.238
12/5/2022	0.224

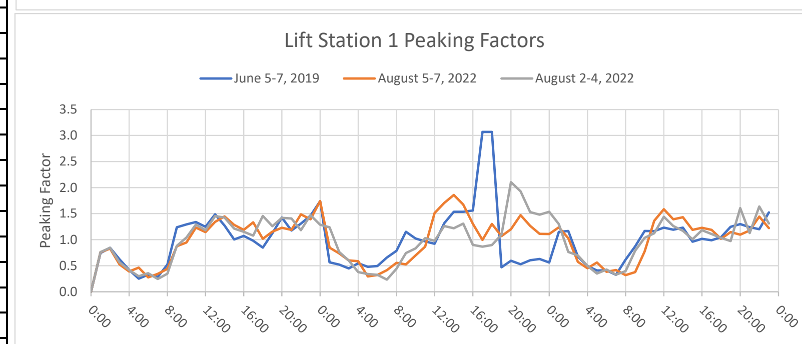
Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Lift Station 1 SCADA

Time	Flows (gpm)			Peaking Factors		
	June 5-7, 2019	August 5-7, 2022	August 2-4, 2022	June 5-7 2019	August 5-7, 2022	August 2-4, 2022
23:00	-	-	-	-	-	-
0:00	176	235	241	0.74	0.76	0.76
1:00	200	257	268	0.84	0.83	0.84
2:00	148	162	179	0.62	0.52	0.56
3:00	100	121	132	0.42	0.39	0.42
4:00	59	144	94	0.25	0.46	0.30
5:00	78	86	113	0.33	0.28	0.36
6:00	68	107	77	0.29	0.34	0.24
7:00	123	136	110	0.52	0.44	0.35
8:00	294	272	279	1.24	0.87	0.88
9:00	307	294	330	1.29	0.95	1.04
10:00	318	382	410	1.34	1.23	1.29
11:00	296	355	375	1.24	1.14	1.18
12:00	353	416	461	1.49	1.34	1.45
13:00	301	449	452	1.27	1.45	1.42
14:00	238	399	385	1.00	1.28	1.21
15:00	255	369	365	1.07	1.19	1.15
16:00	233	414	342	0.98	1.33	1.08
17:00	201	316	462	0.85	1.02	1.46
18:00	267	359	399	1.12	1.15	1.26
19:00	338	382	450	1.42	1.23	1.42
20:00	279	369	446	1.17	1.19	1.41
21:00	311	462	375	1.31	1.49	1.18
22:00	347	432	467	1.46	1.39	1.47
23:00	413	541	408	1.74	1.74	1.29
0:00	324	357	470	0.56	**0.85**	1.24
1:00	299	310	290	0.52	**0.74**	0.76
2:00	257	254	227	0.45	**0.60**	0.60
3:00	314	247	143	0.55	**0.59**	0.38
4:00	273	124	129	0.48	**0.29**	0.34
5:00	282	136	123	0.49	**0.32**	0.32
6:00	376	175	88	0.65	**0.41**	0.23
7:00	451	234	167	0.79	**0.55**	0.44
8:00	661	221	282	1.15	**0.52**	0.74
9:00	588	294	316	1.02	**0.70**	0.83
10:00	554	365	391	0.96	**0.87**	1.03
11:00	529	637	370	0.92	**1.51**	0.97
12:00	754	718	479	1.31	**1.70**	1.26
13:00	881	783	464	1.53	**1.86**	1.22
14:00	881	705	497	1.53	**1.67**	1.31
15:00	896	550	342	1.56	**1.30**	0.90
16:00	1763	419	328	3.07	**0.99**	0.86
17:00	1763	548	341	3.07	**1.30**	0.90
18:00	269	450	417	0.47	**1.07**	1.10
19:00	341	506	800	0.59	**1.20**	2.10
20:00	302	620	733	0.53	**1.47**	1.93
21:00	347	533	581	0.60	**1.26**	1.53
22:00	360	469	562	0.63	**1.11**	1.48
23:00	322	467	583	0.56	**1.11**	1.53
0:00	308	436	441	1.15	1.24	1.30
1:00	313	362	259	1.17	1.03	0.76
2:00	181	202	237	0.67	0.57	0.70
3:00	132	158	168	0.49	0.45	0.50
4:00	109	198	118	0.41	0.56	0.35
5:00	110	135	144	0.41	0.38	0.42
6:00	87	147	111	0.33	0.42	0.33
7:00	165	112	134	0.61	0.32	0.39
8:00	234	133	267	0.87	0.38	0.79
9:00	313	272	351	1.17	0.77	1.03
10:00	312	480	381	1.16	1.36	1.12
11:00	330	559	489	1.23	1.58	1.44
12:00	320	490	428	1.19	1.39	1.26
13:00	330	504	397	1.23	1.43	1.17
14:00	257	419	342	0.96	1.19	1.01
15:00	273	433	402	1.02	1.23	1.18
16:00	265	419	377	0.99	1.19	1.11
17:00	280	358	351	1.05	1.01	1.03
18:00	334	404	331	1.25	1.14	0.97
19:00	348	386	545	1.30	1.09	1.61
20:00	333	414	382	1.24	1.18	1.12
21:00	322	509	556	1.20	1.44	1.64
22:00	408	431	445	1.52	1.22	1.31
23:00	376	503	498	1.40	1.43	1.47
0:00	-	-	-	-	-	-

Bolded values used as final peaking factors





	Max Peaking Factors		
Day 1	1.49	1.49	1.47
Day 2	3.07	**1.86**	2.10
Day 3	1.52	1.58	1.64

Client: CITY OF VICTOR
Project: VICTOR WWFPS
Project No.: 222169-002

CCTV Inspection Inventory

Pipe ID	Start MH	End MH	General Location	Length (ft)	Defects Observed	Repair Recommended (Y/N)
39	MH49	MH50A	Fir St and S Main St	169.3	Plugged Service Line	Clean out service
315	MH-FID276	MH-FID275	219 Abby Loop to 222 Abby Loop	92.2	None	No
342	MH-FID391	MH-FID241	58 Eva Ln to Birch St	396	Minor rock build up	No
359	MH-FID238	MH-FID391	42 Eva Ln to 58 Eva Ln	145.3	None	No
13	MH-FID73	MH-FID81	Christopher St and Shelby St running north up Shelby	394.4	None	No
372	MH-FID243	MH-FID244	109 Brome Dr to 129 Brome Dr	135.8	None	No
149 & 254	MH93	FID463	188 West Center to 210 West Center	398.9	None	No
211	MH-FID127	MH-FID126	East Lakewood Rd to Lupine Ln and Lakewood Dr	392.6	None	No
95	MH15	MH14	47 Cedron to Crystal Ct	190.3	None	No
410	MH-FID358	MH-FID114	419 Moose Haven Ct to 374 Moose Haven Ct	169.1	None	No
411	MH-FID114	MH-FID113	374 Moose Haven Ct to 9500 South	122.2	None	No
321	MH-FID254	MH151	8 Bigbear Lane to 12 Big Bear Lane	297.1	None	No
328	MH-FID249	MH-FID250	House Top Ln to Mountain Shadows Way	145.9	None	No
432 & 433	MH-FID258	MH-FID256	7949 Housetop Lane to 7897 Housetop Lane	705	None	No
323	MH-FID448	MH-FID255	126 Baldy Mountain Dr to 106 Baldy Mountain Dr	493.1	None	No
326, 325, & 324	MH-FID251	MH-FID254	Mountain Shadoways Way to Big Bear Lane	867.7	None	No
434	MH-FID256	MH-FID255	7817 House Top Ln to Baldy Mountain Dr	193.4	None	No
343	MH-FID239	MH-FID240	68 Eva Ln to Birch St	293.2	None	No
390	MH-FID70	MH-FID72	9345 Henley St to Christopher St	377.8	None	No
399	MH-FID106	MH-FID357	Timberline Loop lot 6 block 3 to lot 3 block 3	394.1	None	No
435	MH-FID93	MH-FID92	256 Abby Loop to 268 Abby Loop	192.4	None	No
314	MH-FID92	MH-FID276	270 Abby Loop to 219 Abby Loop	327.9	Partial Service Blockage	No
436	MH-FID92	MH-FID91	268 Abby Loop to 270 Abby Loop	102.3	None	No
200	MH151	MH150	12 Big Bear Lane to Deer Dr	235.2	None	No
193 & 194	MH141	MH143	7981 Deer Dr to 7865 Deer Drive	563	None	No
308 & 310	ME87	MH88	23 West Dogwood to 55 West Dogwood	518.7	Cracked fitting	Yes, low priority minor crack

Client: City of Victor
Project: WWFPS
Project No.: 222168**-002**

Appendix B - Wastewater Treatment Alternative Costs

Item	Alt. 1: Status Quo (Stay with Driggs)[1]		Alt. 2: Lagoon & Land Application[2]		Alt. 3: Lagoon & Surface Discharge	Alt. 4: Mechanical & Surface Discharge	Alt. 5: Mechanical & Rapid Infiltration
Forcemain to WWTP	-	-	$2,160,000	$2,160,000	$2,160,000	$2,160,000	$2,160,000
Headworks with Influent Screen	-	-	$500,000	$500,000	$500,000	$500,000	$500,000
Vortex Grit Removal	-	-	-	-	-	$360,000	$360,000
Treatment Lagoons	-	-	$5,010,000	$5,010,000	$5,010,000	-	-
MBBR Treatment & Lagoon Cover	-	-	-	-	$3,519,000	-	-
Oxidation Ditch & Clarifier w/ MOB	-	-	-	-	-	$7,242,000	-
Fine Screen, MBR, & UV Vessels	-	-	-	-	-	-	$10,584,000
UV Disinfection Channels	-	-	-	-	-	$950,000	$0
Chlorine Dosing System	-	-	$300,000	$300,000	$300,000	-	-
Dechlorination System	-	-	-	-	$250,000	-	-
Winter Storage Pond	-	-	$4,270,000	$4,270,000	-	-	-
Irrigation Pump Station	-	-	$690,000	$690,000	-	-	-
Irrigation System	-	-	$500,000	$500,000	-	-	-
Biosolid Dewatering	-	-	-	-	-	$1,880,000	$1,880,000
Rapid Infiltration Basins	-	-	-	-	-	-	$4,775,000
Collection Improvements	$4,892,000	$11,033,000	$1,331,000	$1,331,000	$1,331,000	$1,331,000	$1,331,000
Construction Subtotal	$4,892,000	$11,033,000	$14,761,000	$14,761,000	$13,070,000	$14,423,000	$21,590,000
General Conditions (10%)	$489,200	$1,103,300	$1,477,000	$1,477,000	$1,307,000	$1,443,000	$2,159,000
Subtotal	$5,381,000	$12,136,000	$16,238,000	$16,238,000	$14,377,000	$15,866,000	$23,749,000
Contingency (30%)	$1,614,300	$3,640,800	$4,872,000	$4,872,000	$4,314,000	$4,760,000	$7,125,000
Subtotal	$6,995,000	$15,777,000	$21,110,000	$21,110,000	$18,691,000	$20,626,000	$30,874,000
Contractor OH&P (15%)	$1,049,300	$2,366,600	$3,167,000	$3,167,000	$2,804,000	$3,094,000	$4,632,000
Total Construction Cost	**$8,044,000**	**$18,144,000**	**$24,277,000**	**$24,277,000**	**$21,495,000**	**$23,720,000**	**$35,506,000**
Design, Legal, & Construction (25%)	$2,011,000	$4,536,000	$6,070,000	$6,070,000	$5,374,000	$5,930,000	$8,877,000
Total Project Cost	**$10,055,000**	**$22,680,000**	**$30,347,000**	**$30,347,000**	**$26,869,000**	**$29,650,000**	**$44,383,000**
Property Cost	-	-	$14,800,000	$2,000,000	$2,000,000	$400,000	$2,000,000
Current Obligation to Driggs	$2,072,250	$2,072,250	$2,072,250	$2,072,250	$2,072,250	$2,072,250	$2,072,250
Future Obligation to Driggs	$11,475,000	$11,475,000	$0	$0	$0	$0	$0
Total Project & Land Cost	**$23,600,000**	**$36,200,000**	**$47,200,000**	**$34,400,000**	**$30,900,000**	**$32,100,000**	**$48,500,000**
Electricity & Fuels	$6,000	$6,000	$177,000	$177,000	$214,000	$124,000	$237,000
Chemicals	$0	$0	$16,000	$16,000	$30,000	$16,000	$32,000
Disposal	$0	$0	$6,000	$6,000	$6,000	$34,000	$34,000
Parts	$56,569	$56,569	$65,000	$65,000	$56,000	$61,000	$75,000
Personnel	$255,000	$255,000	$336,000	$336,000	$336,000	$417,000	$417,000
Misc. (office, phone, other costs)	$183,000	$183,000	$238,000	$238,000	$238,000	$238,000	$238,000
O&M Costs Paid to Driggs	$366,000	$366,000	$0	$0	$0	$0	$0
Estimated Annual O&M	$866,600	$866,600	$838,000	$838,000	$880,000	$890,000	$1,033,000
20-Year O&M Present Value	$17,400,000	$17,400,000	$16,800,000	$16,800,000	$17,600,000	$17,800,000	$20,700,000
20-Year Life Cycle Cost	**$41,000,000**	**$53,600,000**	**$64,000,000**	**$51,200,000**	**$48,500,000**	**$49,900,000**	**$69,200,000**

1) The left column only includes costs on the Victor ownership side. The right column includes all costs for collection system improvements, including on the Driggs side.

2) The left column assumes the land application area is purchased by the City. The right column assumes it is leased for no cost.

APPENDIX C

Flow Monitoring

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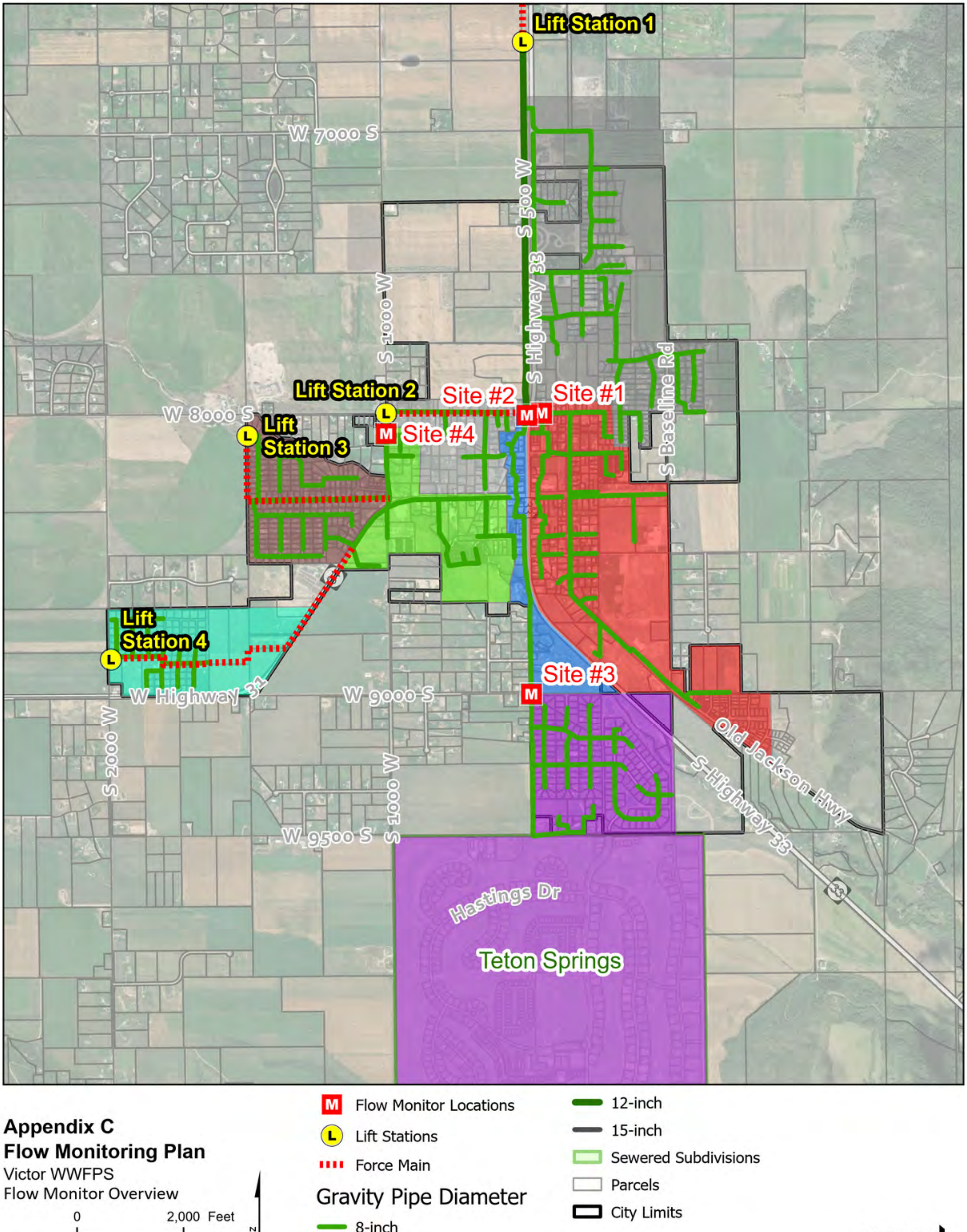
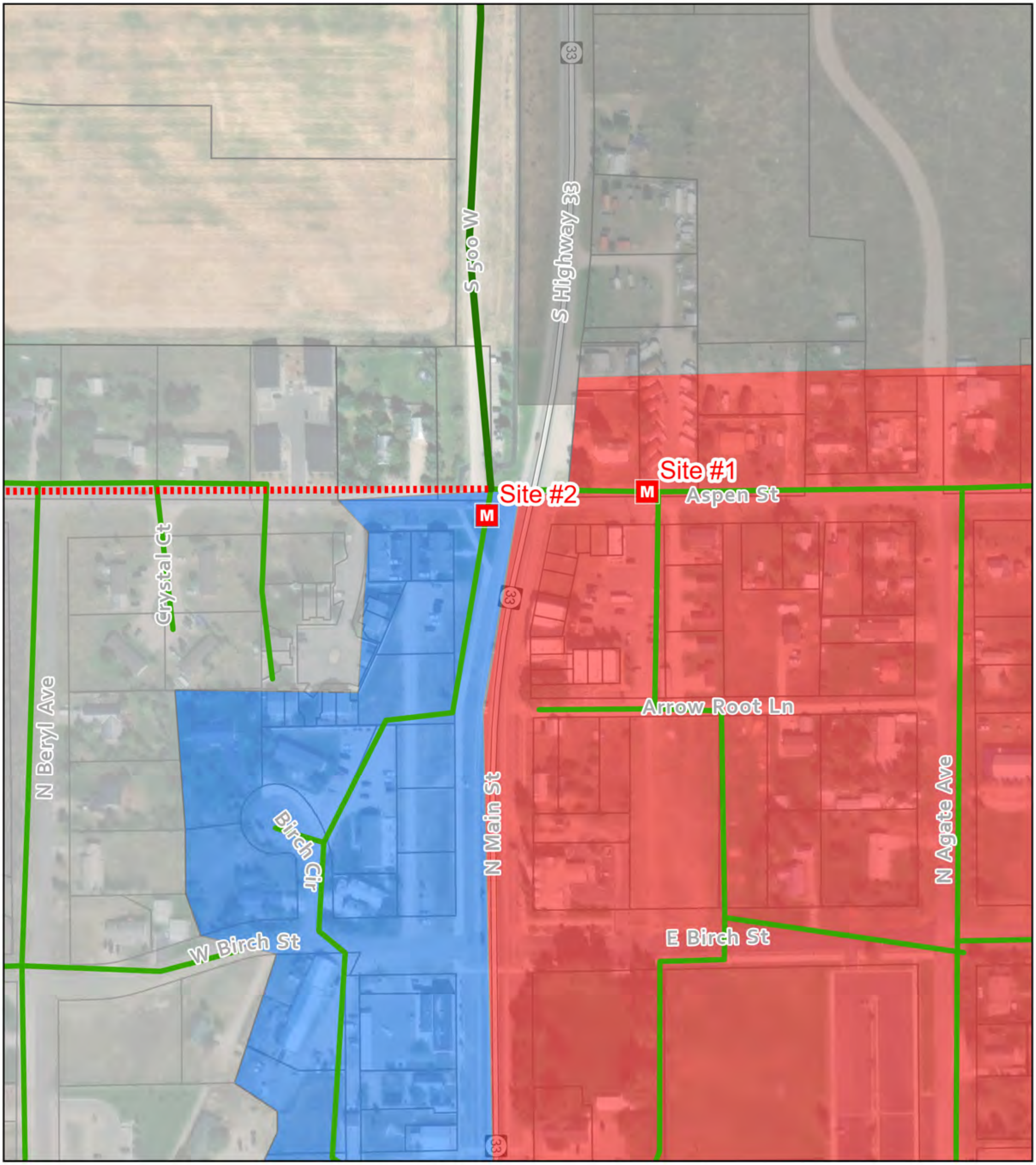


Appendix C
Flow Monitoring Plan
Victor WWFPS
Flow Monitor Overview

KELLER ASSOCIATES



Appendix C
Flow Monitoring Plan
Victor WWFPS
Site 1 & 2

2,000 Feet

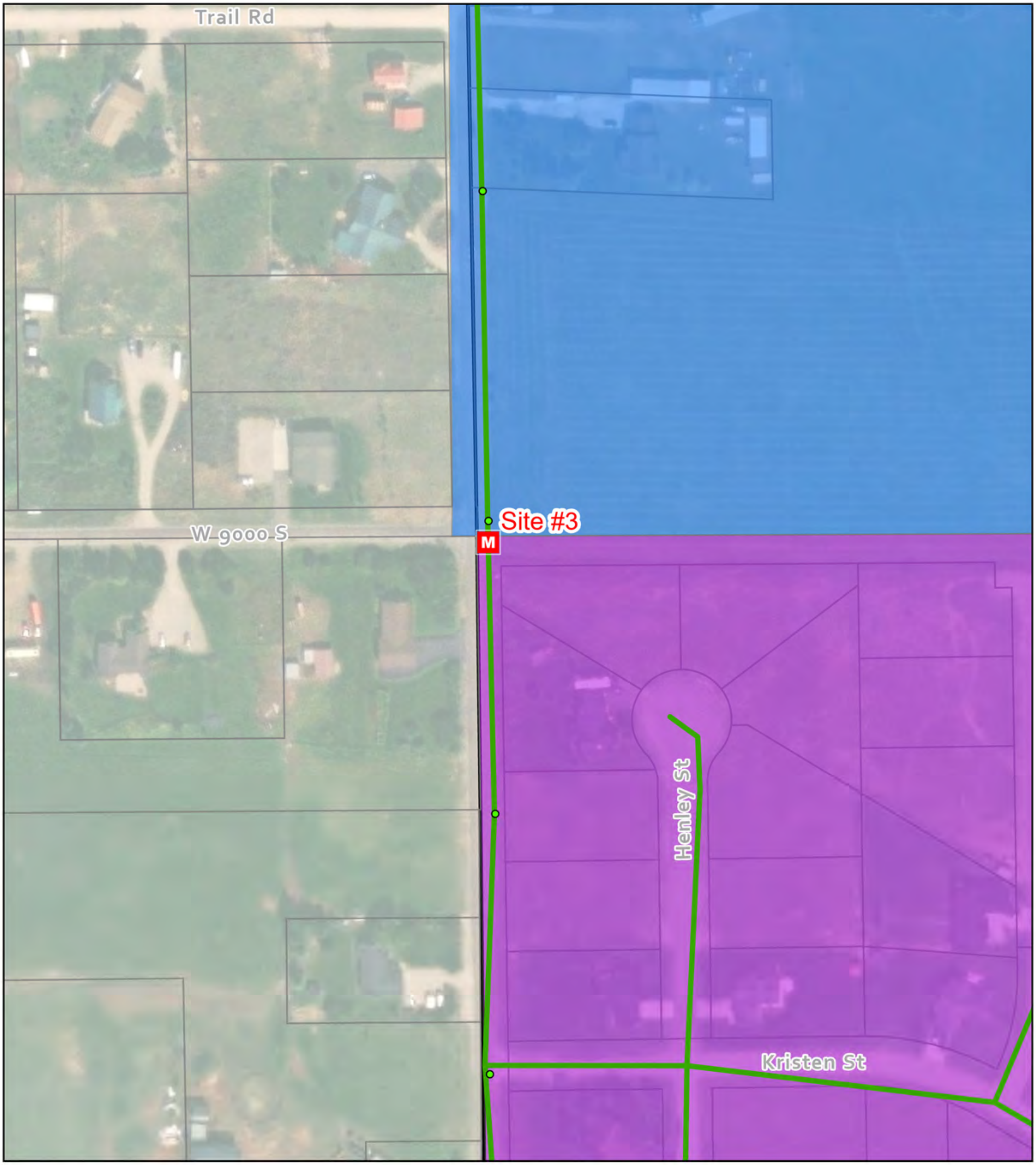
N

Flow Monitor Locations
Lift Stations
Force Main

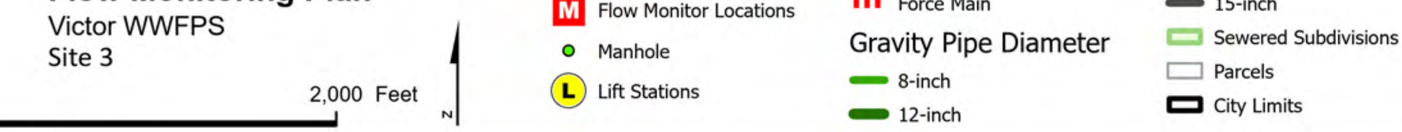
Gravity Pipe Diameter

8-inch
12-inch
15-inch
Sewered Subdivisions
Parcels
City Limits

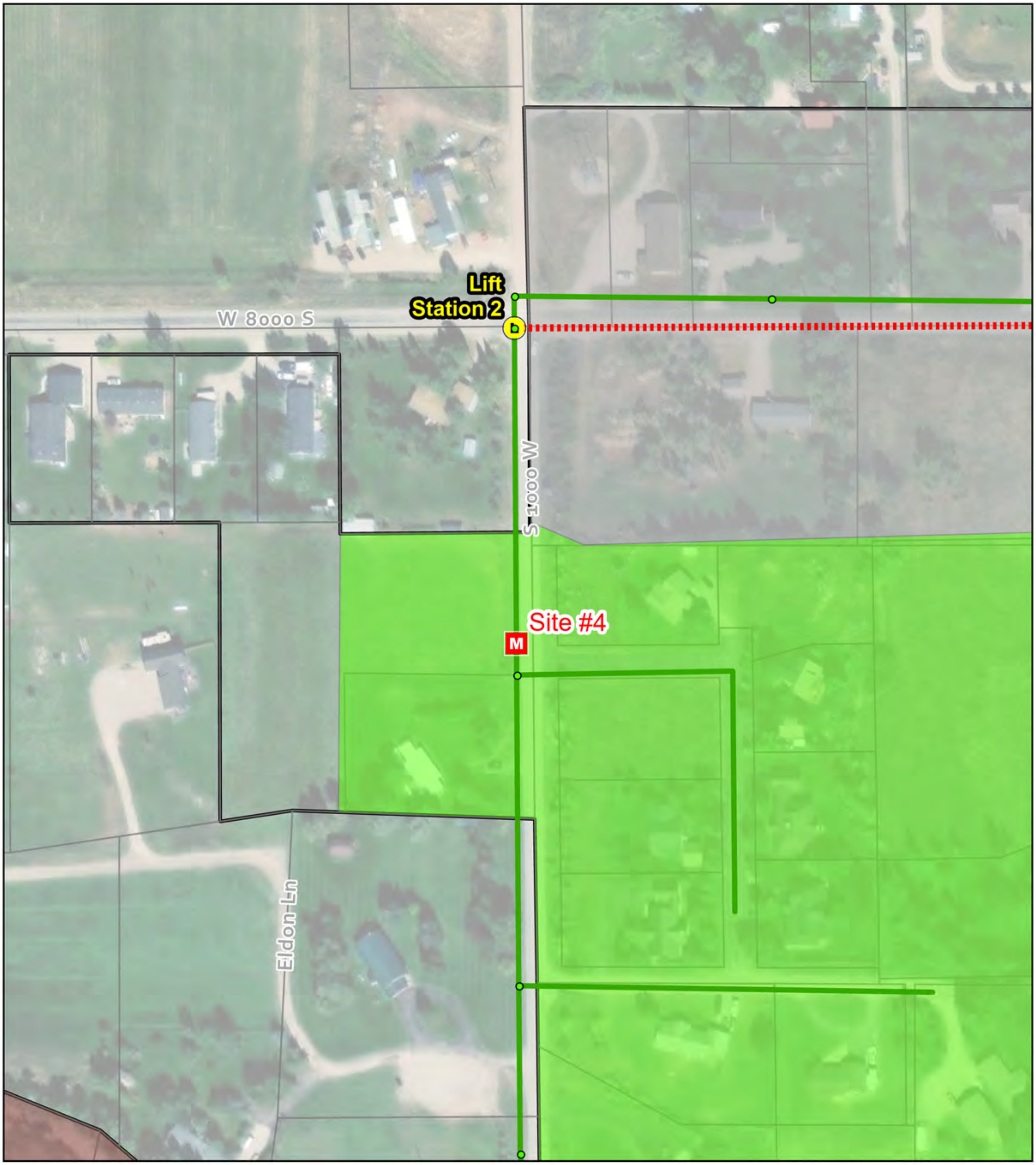
KELLER ASSOCIATES



Appendix C
Flow Monitoring Plan
Victor WWFPS
Site 3



KELLER ASSOCIATES



Appendix C
Flow Monitoring Plan
Victor WWFPS
Site 4

2,000 Feet

N

M	Flow Monitor Locations
	Manhole
L	Lift Stations
	Force Main

Gravity Pipe Diameter

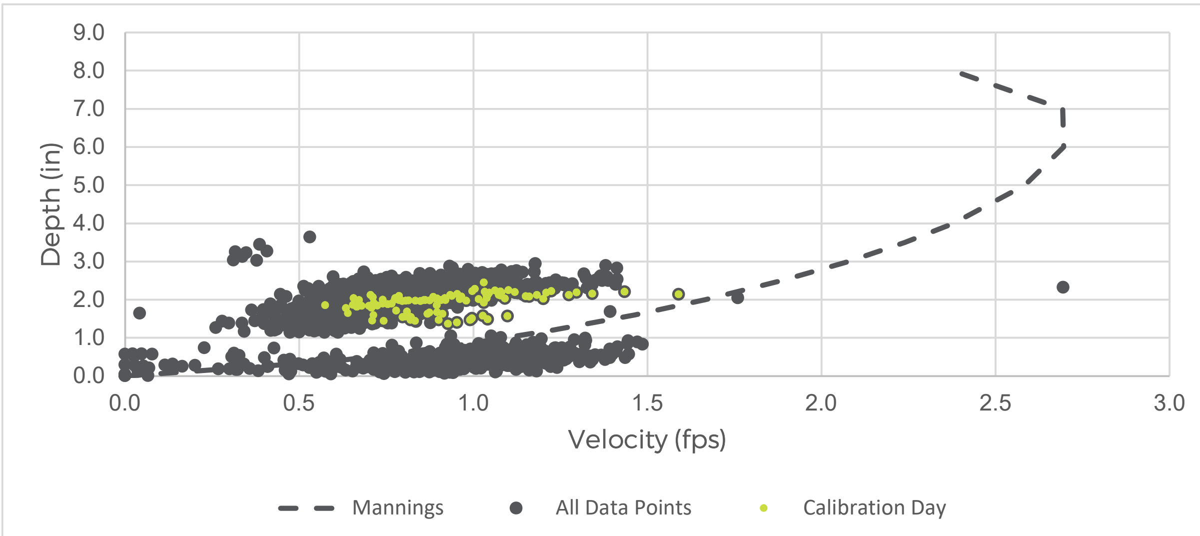
- 8-inch
- 12-inch
- 15-inch
- Sewered Subdivisions
- Parcels
- City Limits

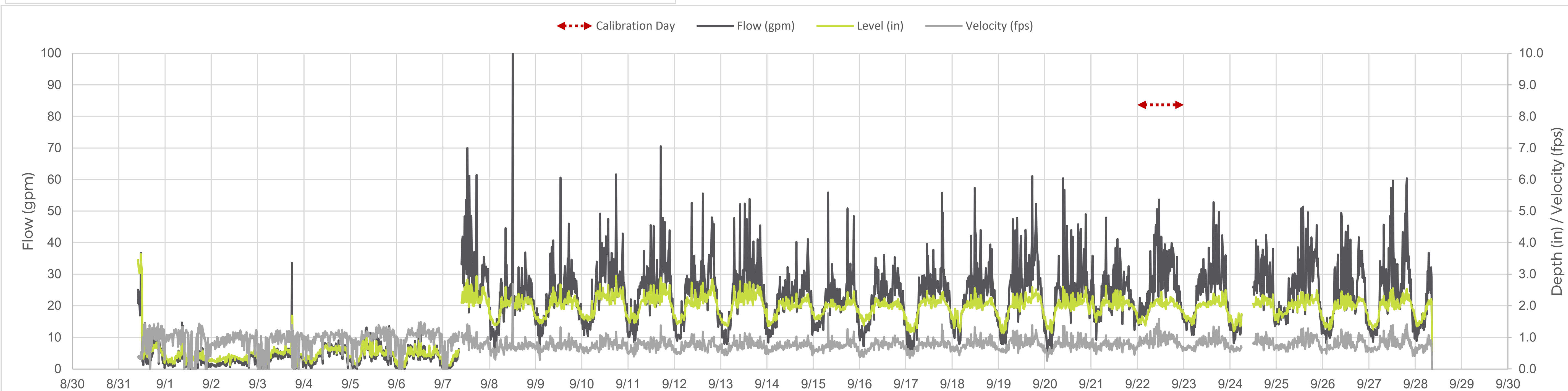
KELLER ASSOCIATES

Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Appendix C

Site 1 Raw Data

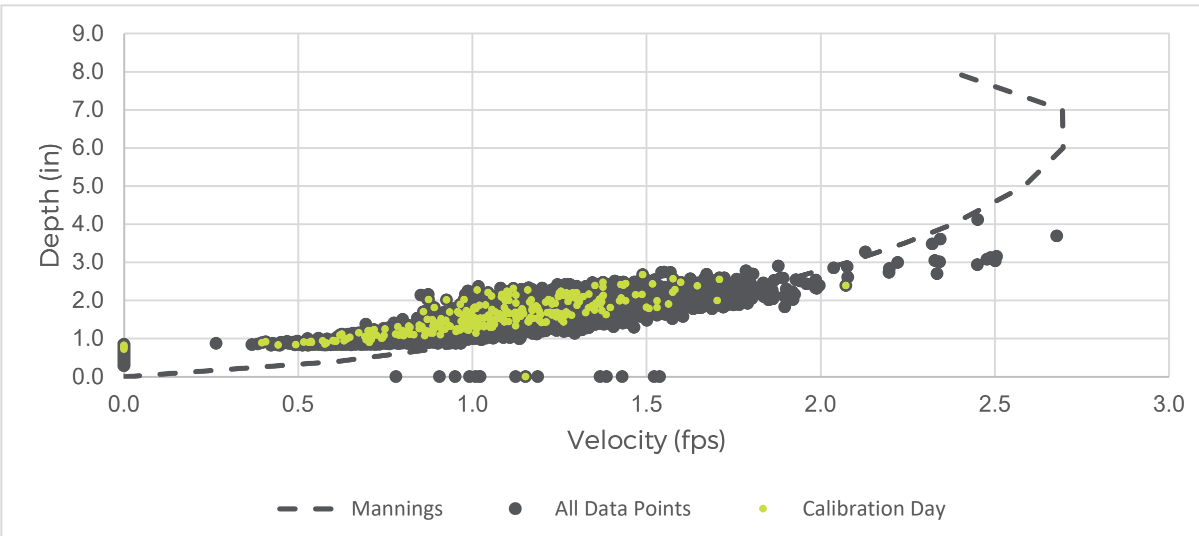


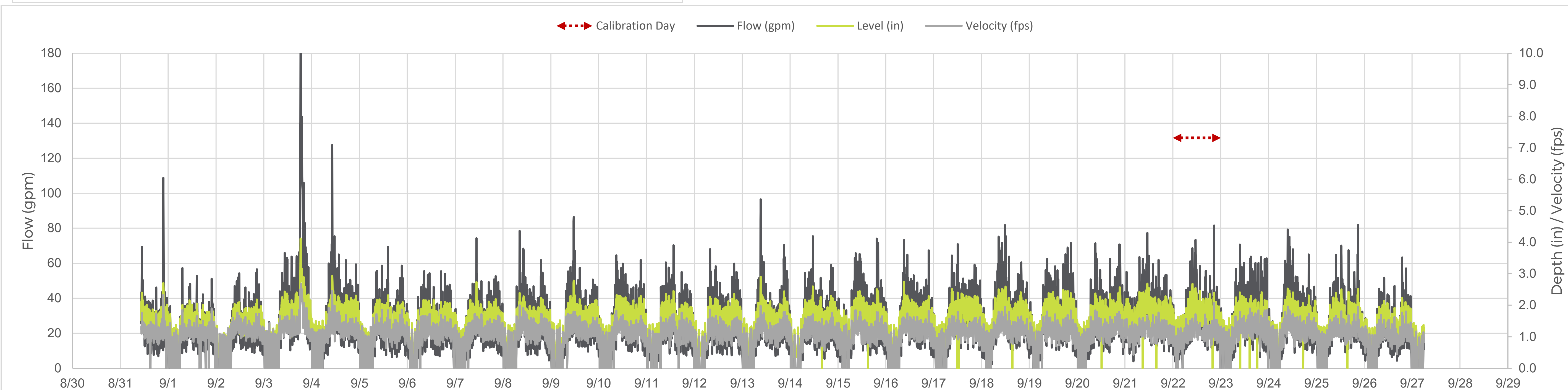


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Appendix C

Site 2 Raw Data

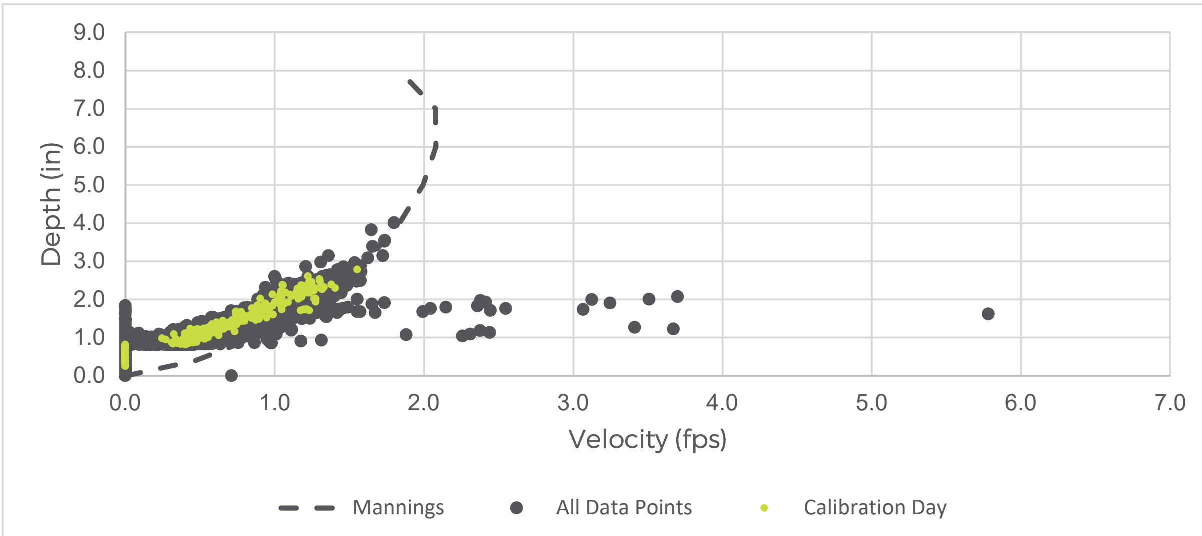


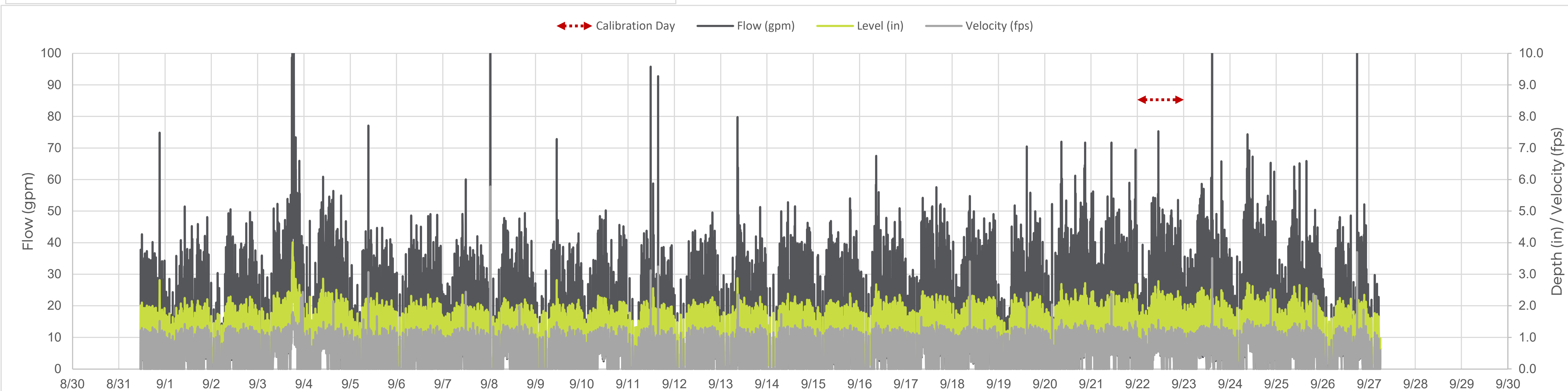


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Appendix C

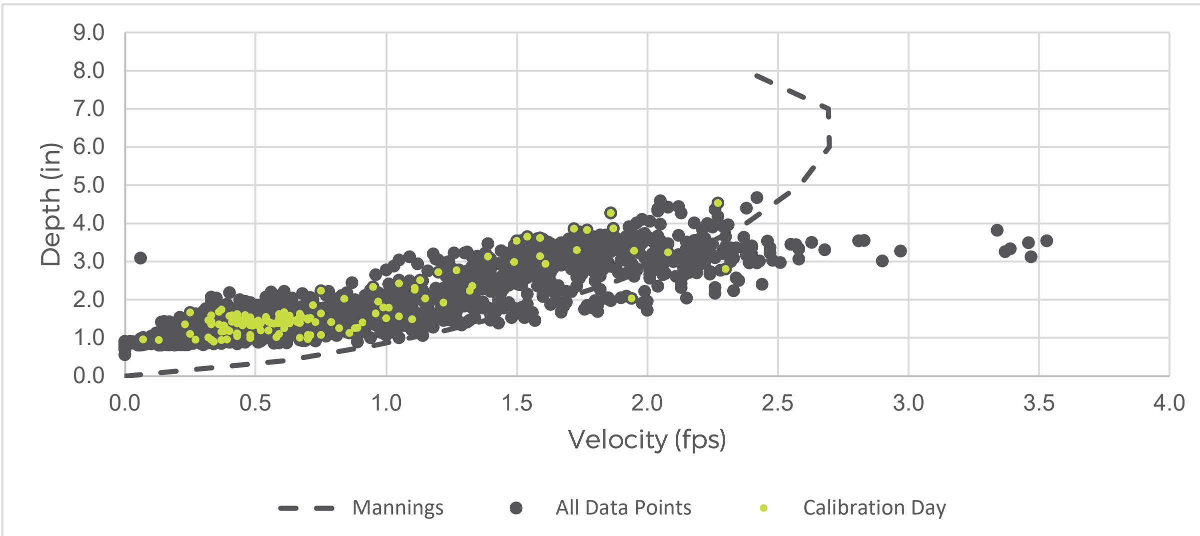
Site 3 Raw Data

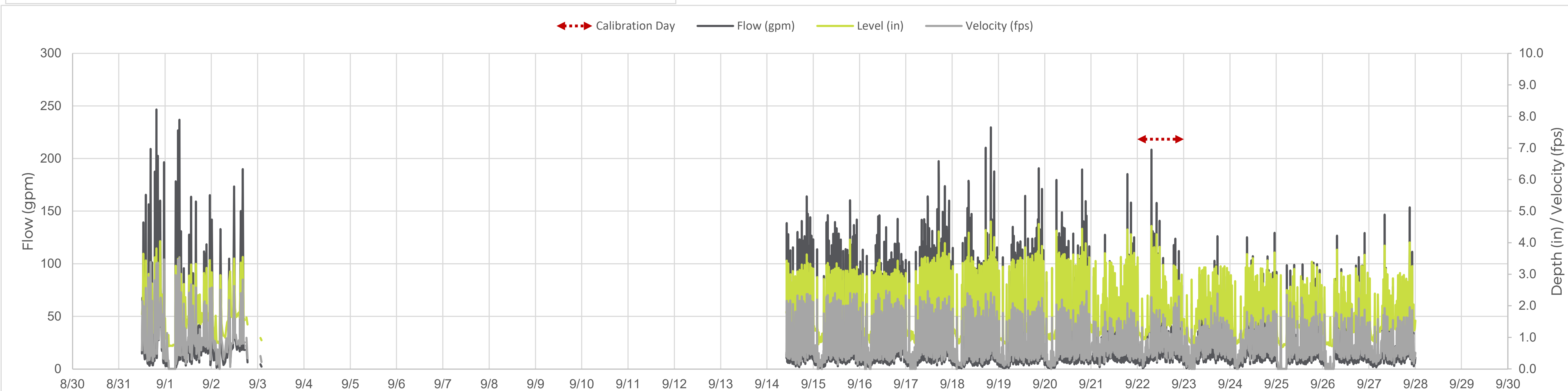




Client: City of Victor
Project: WW Collection Plan **Appendix C**
Project No.: 222168

<u>Site 4 Raw Data</u>



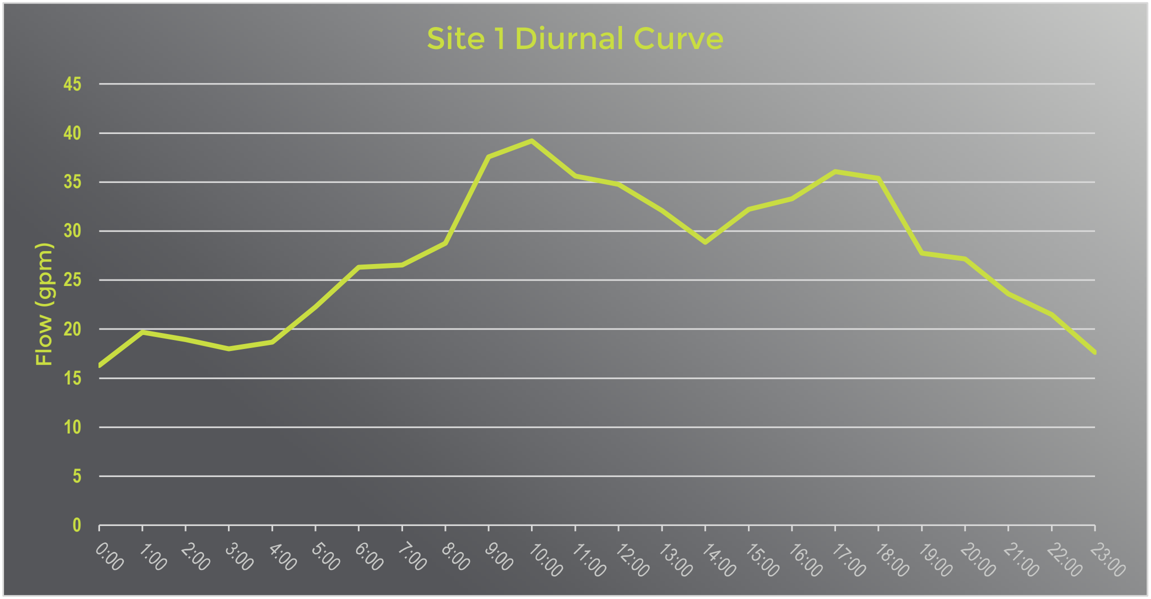


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Site 1 Diurnal Curve

Calibration Day **9/22/2023**

Date	*Time*	1-Hour Avg. Flow (gpm)	Peaking Factor
9/22/2023 1:00	*0:00*	16	0.59
9/22/2023 2:00	*1:00*	20	0.72
9/22/2023 3:00	*2:00*	19	0.69
9/22/2023 4:00	*3:00*	18	0.66
9/22/2023 5:00	*4:00*	19	0.68
9/22/2023 6:00	*5:00*	22	0.81
9/22/2023 7:00	*6:00*	26	0.96
9/22/2023 8:00	*7:00*	27	0.97
9/22/2023 9:00	*8:00*	29	1.05
9/22/2023 10:00	*9:00*	38	1.37
9/22/2023 11:00	*10:00*	39	1.43
9/22/2023 12:00	*11:00*	36	1.30
9/22/2023 13:00	*12:00*	35	1.27
9/22/2023 14:00	*13:00*	32	1.17
9/22/2023 15:00	*14:00*	29	1.05
9/22/2023 16:00	*15:00*	32	1.18
9/22/2023 17:00	*16:00*	33	1.21
9/22/2023 18:00	*17:00*	36	1.32
9/22/2023 19:00	*18:00*	35	1.29
9/22/2023 20:00	*19:00*	28	1.01
9/22/2023 21:00	*20:00*	27	0.99
9/22/2023 22:00	*21:00*	24	0.86
9/22/2023 23:00	*22:00*	21	0.78
9/23/2023 0:00	*23:00*	18	0.64
Average	**-**	**27**	**1.00**
Max	**-**	**39**	**1.43**

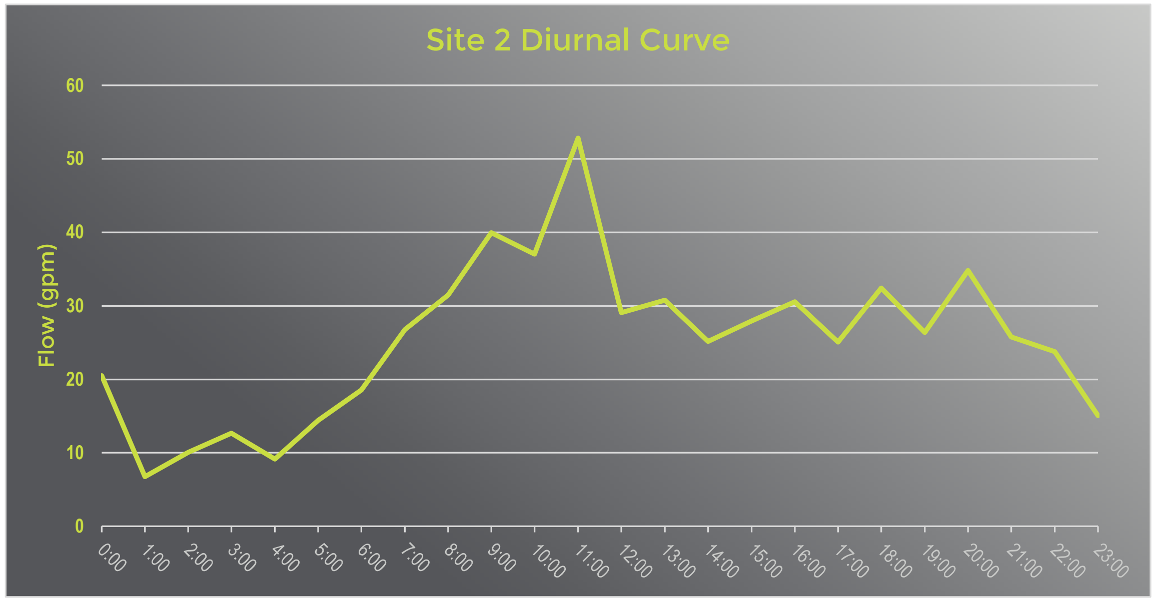


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Site 2 Diurnal Curve

Calibration Day **9/22/2023**

Date	*Time*	1-Hour Avg. Flow (gpm)	Peaking Factor
9/22/2023 1:00	*0:00*	20	0.81
9/22/2023 2:00	*1:00*	7	0.27
9/22/2023 3:00	*2:00*	10	0.40
9/22/2023 4:00	*3:00*	13	0.50
9/22/2023 5:00	*4:00*	9	0.36
9/22/2023 6:00	*5:00*	14	0.57
9/22/2023 7:00	*6:00*	19	0.73
9/22/2023 8:00	*7:00*	27	1.06
9/22/2023 9:00	*8:00*	31	1.24
9/22/2023 10:00	*9:00*	40	1.58
9/22/2023 11:00	*10:00*	37	1.46
9/22/2023 12:00	*11:00*	53	2.09
9/22/2023 13:00	*12:00*	29	1.15
9/22/2023 14:00	*13:00*	31	1.22
9/22/2023 15:00	*14:00*	25	1.00
9/22/2023 16:00	*15:00*	28	1.11
9/22/2023 17:00	*16:00*	31	1.21
9/22/2023 18:00	*17:00*	25	0.99
9/22/2023 19:00	*18:00*	32	1.28
9/22/2023 20:00	*19:00*	26	1.04
9/22/2023 21:00	*20:00*	35	1.38
9/22/2023 22:00	*21:00*	26	1.02
9/22/2023 23:00	*22:00*	24	0.94
9/23/2023 0:00	*23:00*	15	0.60
Average	**-**	**25.29**	**1.00**
Max	**-**	**53**	**2.09**

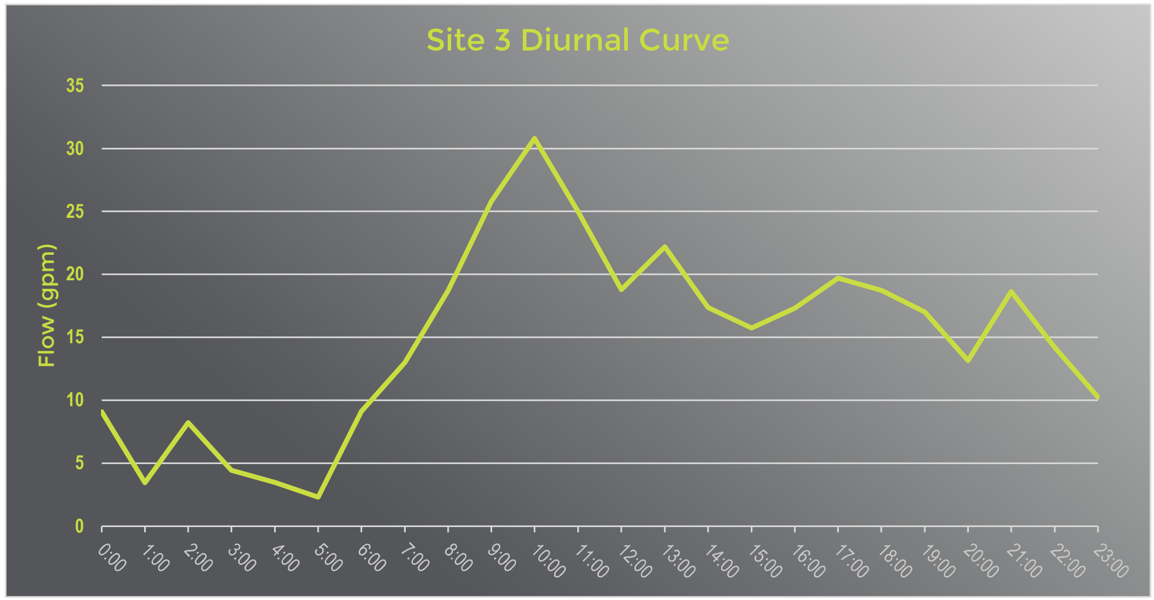


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Site 3 Diurnal Curve

Calibration Day **9/22/2023**

Date	*Time*	1-Hour Avg. Flow (gpm)	Peaking Factor
9/22/2023 1:00	*0:00*	9	0.61
9/22/2023 2:00	*1:00*	3	0.23
9/22/2023 3:00	*2:00*	8	0.55
9/22/2023 4:00	*3:00*	4	0.30
9/22/2023 5:00	*4:00*	3	0.23
9/22/2023 6:00	*5:00*	2	0.16
9/22/2023 7:00	*6:00*	9	0.61
9/22/2023 8:00	*7:00*	13	0.88
9/22/2023 9:00	*8:00*	19	1.26
9/22/2023 10:00	*9:00*	26	1.74
9/22/2023 11:00	*10:00*	31	2.07
9/22/2023 12:00	*11:00*	25	1.68
9/22/2023 13:00	*12:00*	19	1.27
9/22/2023 14:00	*13:00*	22	1.49
9/22/2023 15:00	*14:00*	17	1.17
9/22/2023 16:00	*15:00*	16	1.06
9/22/2023 17:00	*16:00*	17	1.17
9/22/2023 18:00	*17:00*	20	1.33
9/22/2023 19:00	*18:00*	19	1.26
9/22/2023 20:00	*19:00*	17	1.15
9/22/2023 21:00	*20:00*	13	0.89
9/22/2023 22:00	*21:00*	19	1.25
9/22/2023 23:00	*22:00*	14	0.96
9/23/2023 0:00	*23:00*	10	0.69
Average	**-**	**15**	**1.00**
Max	**-**	**31**	**2.07**

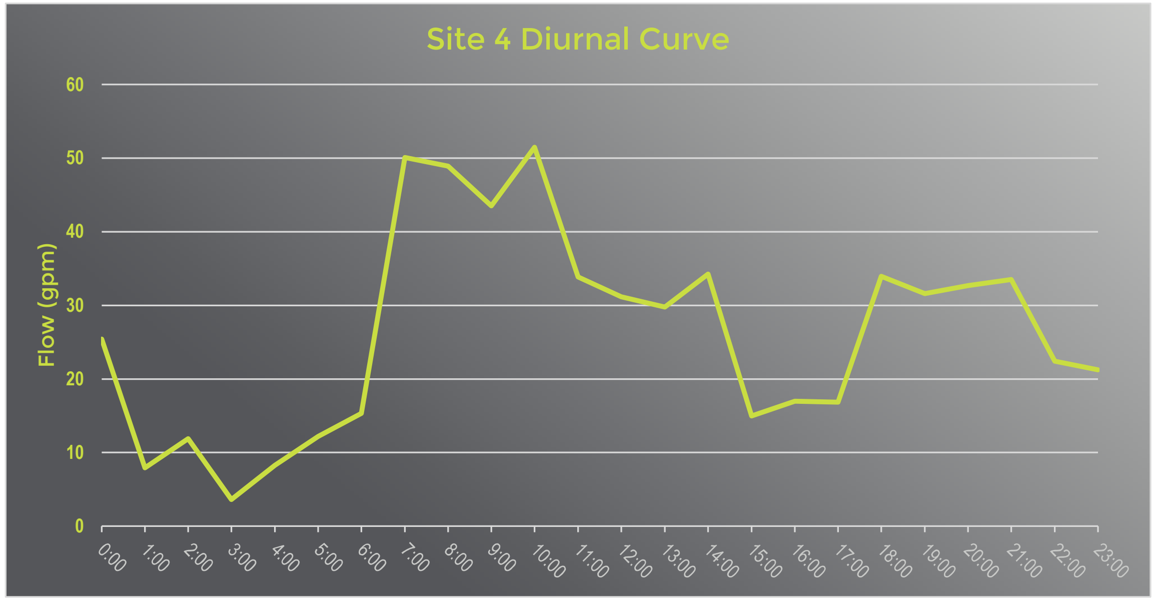


Client: City of Victor
Project: WW Collection Plan
Project No.: 222168

Site 4 Diurnal Curve

Calibration Day **9/22/2023**

Date	*Time*	1-Hour Avg. Flow (gpm)	Peaking Factor
9/22/2023 1:00	*0:00*	25	0.97
9/22/2023 2:00	*1:00*	8	0.30
9/22/2023 3:00	*2:00*	12	0.45
9/22/2023 4:00	*3:00*	4	0.14
9/22/2023 5:00	*4:00*	8	0.31
9/22/2023 6:00	*5:00*	12	0.46
9/22/2023 7:00	*6:00*	15	0.58
9/22/2023 8:00	*7:00*	50	1.90
9/22/2023 9:00	*8:00*	49	1.86
9/22/2023 10:00	*9:00*	44	1.65
9/22/2023 11:00	*10:00*	51	1.95
9/22/2023 12:00	*11:00*	34	1.29
9/22/2023 13:00	*12:00*	31	1.18
9/22/2023 14:00	*13:00*	30	1.13
9/22/2023 15:00	*14:00*	34	1.30
9/22/2023 16:00	*15:00*	15	0.57
9/22/2023 17:00	*16:00*	17	0.64
9/22/2023 18:00	*17:00*	17	0.64
9/22/2023 19:00	*18:00*	34	1.29
9/22/2023 20:00	*19:00*	32	1.20
9/22/2023 21:00	*20:00*	33	1.24
9/22/2023 22:00	*21:00*	34	1.27
9/22/2023 23:00	*22:00*	22	0.85
9/23/2023 0:00	*23:00*	21	0.81
Average	**-**	**26**	**1.00**
Max	**-**	**51**	**1.95**

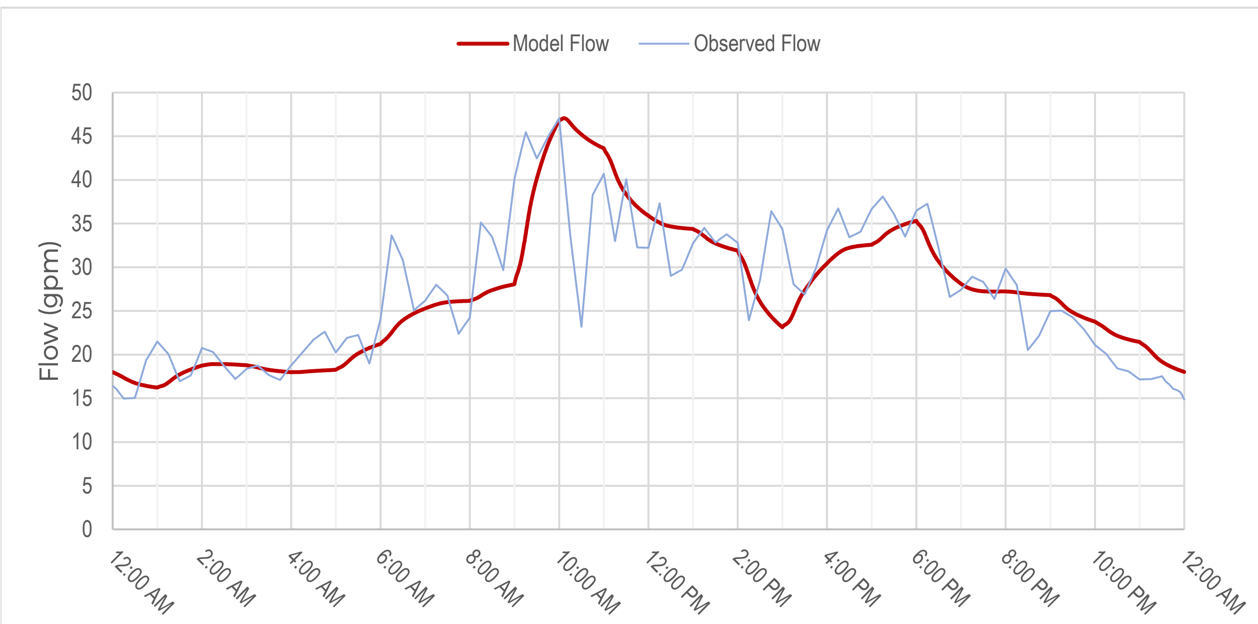


Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Model Calibration Results

Site Number:	**1**
Flow Monitoring Period:	**8/31/2023 - 9/28/2023**
Calibration Day:	**9/22/2023**

Parameter	Average Daily Flow (gpm)	Peak Flow (gpm)
Observed Data	27	47
Model Data	27	47
Difference	-1.0%	0.0%



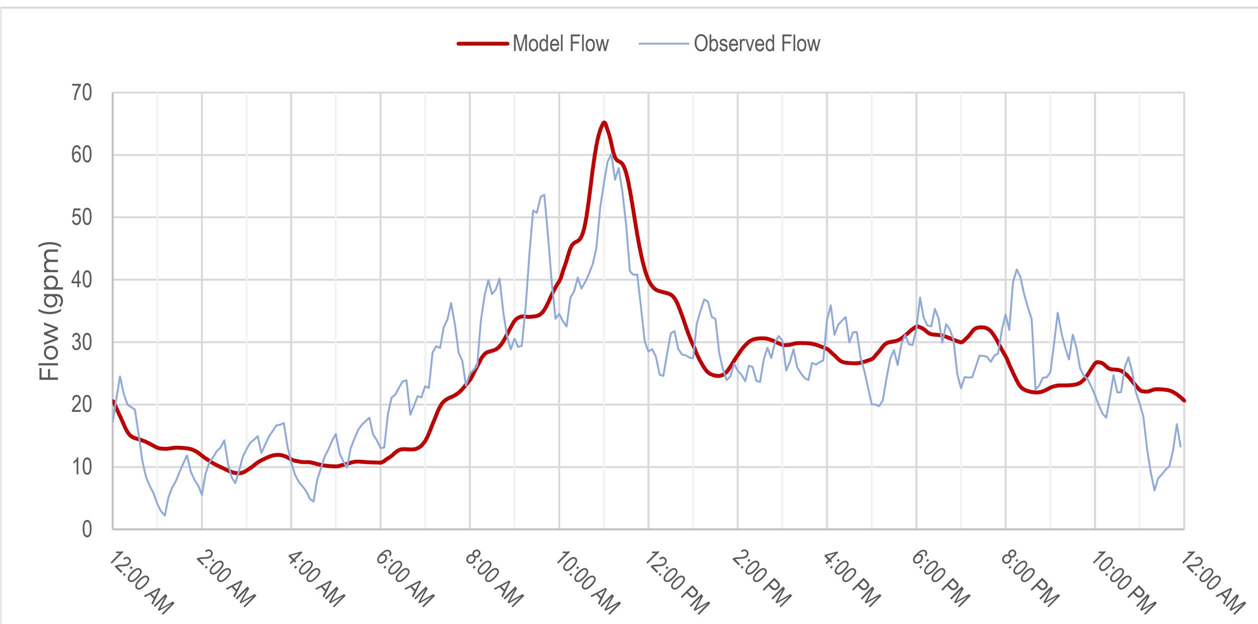
Client: City of Victor
Project: WWFPS
Project No.: 222168-002

KELLER ASSOCIATES

Model Calibration Results

Site Number: **2**
Flow Monitoring Period: **8/31/2023 - 9/28/2023**
Calibration Day: **9/22/2023**

Parameter	Average Daily Flow (gpm)	Peak Flow (gpm)
Observed Data	25	60
Model Data	25	65
Difference	0.5%	8.4%

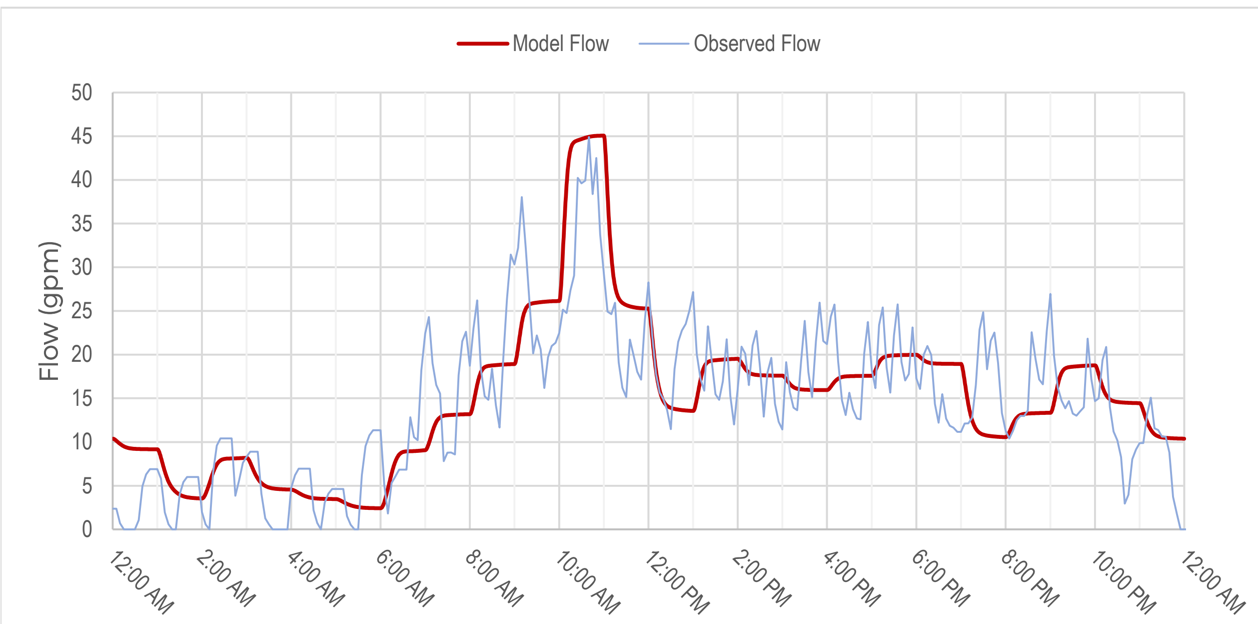


Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Model Calibration Results

Site Number: 3
Flow Monitoring Period: 8/31/2023 - 9/28/2023
Calibration Day: 9/22/2023

Parameter	Average Daily Flow (gpm)	Peak Flow (gpm)
Observed Data	14	45
Model Data	15	45
Difference	4.1%	0.4%

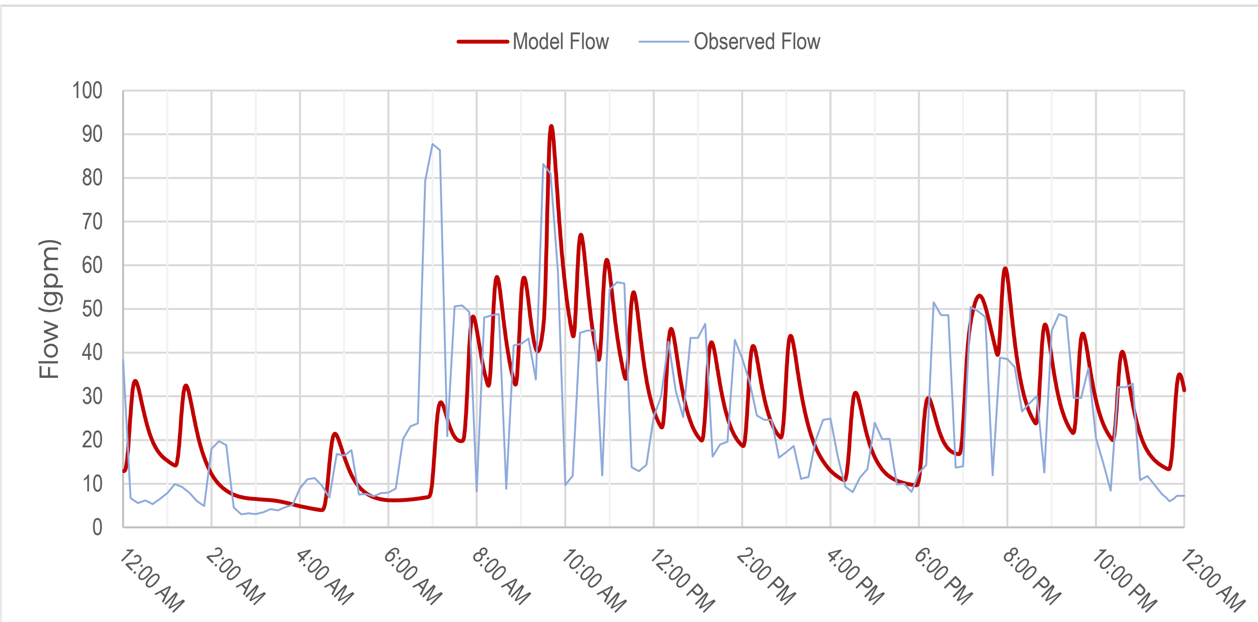


Client: City of Victor
Project: WWFPS
Project No.: 222168-002

Model Calibration Results

Site Number: 4
Flow Monitoring Period: 8/31/2023 - 9/28/2023
Calibration Day: 9/22/2023

Parameter	Average Daily Flow (gpm)	Peak Flow (gpm)
Observed Data	25	88
Model Data	26	92
Difference	6%	5%



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APPENDIX D

City of Driggs IPDES Permit

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Region 10, NPDES Permits Unit
1200 6th Ave
Suite 900 M/S OWW-130
Seattle, WA 98101

Fact Sheet

Public Comment Start Date: October 23, 2009
Public Comment Expiration Date: November 23, 2009

Technical Contact: Brian Nickel
206-553-6251
800-424-4372, ext. 6251 (within Alaska, Idaho, Oregon and Washington)
Nickel.Brian@epa.gov

Proposed Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA)

City of Driggs
Wastewater Treatment Plant

EPA Proposes To Reissue NPDES Permit
EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

State Clean Water Act Section 401 Certification
EPA is requesting that the Idaho Department of Environmental Quality (IDEQ) certify the NPDES permit for this facility, under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Idaho Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650

Public Comment
Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "http://epa.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

US EPA Region 10
1435 N. Orchard
Boise, ID 83706
(208) 378-5746

Idaho Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650

Acronyms **5**

I. Applicant **7**

A. General Information 7

II. Facility Information **7**

A. Treatment Plant Description 7
B. Background Information 7

III. Receiving Water **7**

A. Low Flow Conditions 8
B. Water Quality Standards 8

IV. Effluent Limitations **9**

A. Basis for Effluent Limitations 9
B. Proposed Effluent Limitations 9
C. Basis for Deleting Fecal Coliform Effluent Limits 9
D. Compliance Schedule for Ammonia 11

V. Monitoring Requirements **11**

A. Basis for Effluent and Surface Water Monitoring 11
B. Effluent Monitoring 12
C. Surface Water Monitoring 12

VI. Sludge (Biosolids) Requirements **13**

VII. Other Permit Conditions **14**

A. Quality Assurance Plan 14
B. Operation and Maintenance Plan 14
C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System 14
D. Standard Permit Provisions 15

VIII. Other Legal Requirements **15**

A. Endangered Species Act 15
B. Essential Fish Habitat 16
C. State Certification 16
D. Permit Expiration 16

IX. References **16**

Appendix A: Facility Information **A-1**

Appendix B: Facility Map **B-1**

Appendix C: Basis for Effluent Limits **C-1**

A. Technology-Based Effluent Limits 1

B. Water Quality-based Effluent Limits 3
C. Facility-Specific Water Quality-based Limits 4

Appendix D: Reasonable Potential Calculations D-1

A. Mass Balance 1
B. Maximum Projected Effluent Concentration 2
C. Maximum Projected Receiving Water Concentration 3

Appendix E: WQBEL Calculations - Aquatic Life Criteria E-1

A. Calculate the Wasteload Allocations (WLAs) 1
B. Derive the maximum daily and average monthly effluent limits 2

Appendix F: Endangered Species Act F-1

References 1

Appendix G: Idaho Department of Environmental Quality Draft Clean Water Act Section 401 Certification G-1

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30Q10	30 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
AML	Average Monthly Limit
AWL	Average Weekly Limit
BOD_5	Biochemical oxygen demand, five-day
BMP	Best Management Practices
ºC	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System

OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SS	Suspended Solids
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Applicant

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

City of Driggs
Wastewater Treatment Plant

Physical Location:
West of Driggs on West Buxton Road

Mailing Address:
P.O. Box 48
Driggs, ID 83422

Contact: Louis Christensen, Mayor, City of Driggs

II. Facility Information

A. Treatment Plant Description

The City of Driggs owns, operates, and has maintenance responsibility for the wastewater treatment plant, which treats domestic sewage from local residents and commercial establishments. The plant is designed to provide secondary treatment to 0.6 mgd of wastewater. The average flow rate is about 0.31 mgd, according to the permit application. The maximum daily flow rate over the term of the previous permit was 0.778 mgd, according to discharge monitoring reports (DMRs).

The wastewater treatment plant uses a four-cell aerated lagoon to provide treatment equivalent to secondary treatment. Treated wastewater is disinfected by chlorination.

B. Background Information

The most recent NPDES permit for the wastewater treatment plant was issued a on August 9, 2001, became effective on September 11, 2001, and expired on September 11, 2006. An NPDES application for permit reissuance was received by EPA on September 11th, 2006. EPA determined that the application was timely and complete, and the permit has been administratively extended under 40 CFR 122.6 until the permit can be reissued. The first NPDES permit was issued to this facility in November 1974.

A map has been included in Appendix A which shows the location of the treatment plant.

III. Receiving Water

This facility discharges to an unnamed drainage ditch, which is a tributary of Woods Creek, which is a tributary of the Teton River.

A. Low Flow Conditions

The *Technical Support Document for Water Quality-Based Toxics Control* (hereinafter referred to as the TSD) (EPA, 1991) and Section 210 of the Idaho Water Quality Standards (WQS) recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the WQS state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (1Q10) for acute criteria. Because the chronic criterion for ammonia is a 30-day average concentration not to be exceeded more than once every three years, the 30B3 or the 30Q10 should be used for the chronic ammonia criterion instead of the 7Q10. The 30B3 is a biologically-based flow rate designed to ensure an excursion frequency of no more than once every three years for a 30-day average flow rate. For human health criteria, the Idaho water quality standards recommend the 30Q5 flow rate for non-carcinogens, and the harmonic mean flow rate for carcinogens.

There are no flow data available for the unnamed ditch which is the immediate receiving water. Woods Creek has been monitored by the Friends of the Teton River. The minimum flow rate (of 14 measurements) was 2.8 CFS, and the harmonic mean was 7.1 CFS. Flow rates in the immediate receiving water, which is tributary to Woods Creek, would be less than these values.

B. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as drinking water supply, contact recreation, and aquatic life) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

This facility discharges to an unnamed drainage ditch in the Teton subbasin (HUC 17040204), which is tributary to Woods Creek, which is tributary to the Teton River. Neither the immediate receiving water nor Woods Creek are designated for specific beneficial uses in the Idaho Water Quality Standards. Undesignated surface waters are protected for the uses of cold water aquatic life and primary contact recreation (IDAPA 58.01.02.101.01.a.) Water quality criteria designed to protect these beneficial uses appear in Sections 210, 250, and 251 of the Idaho Water Quality Standards.

In addition, the Idaho Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply (Section 100.03.b and c), wildlife habitats (100.04) and aesthetics (100.05). The WQS state, in Sections 252.02, 252.03, and 253 that these uses are to be protected by narrative criteria which appear in Section 200. These narrative criteria state that all surface waters of the State shall be free from hazardous materials; toxic substances; deleterious materials; radioactive materials; floating, suspended or submerged matter; excess nutrients; oxygen-demanding materials; and sediment in concentrations which would impair beneficial uses. The WQS also state, in Section 252.02 that the criteria from *Water Quality Criteria 1972* (EPA-R3-73-033), also referred to as the "Blue Book," can be used to determine numeric criteria for the protection of the agricultural water supply use.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits. The basis for the effluent limits proposed in the draft permit is provided in Appendices C, D, and E.

B. Proposed Effluent Limitations

Below are the proposed effluent limits that are in the draft permit.

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses.
2. Removal Requirements for BOD_5 and TSS: The monthly average effluent concentration must not exceed 35 percent of the monthly average influent concentration. Percent removal of BOD_5 and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.

Table 1 (below) presents the proposed numeric effluent limits.

C. Basis for Deleting Fecal Coliform Effluent Limits

The draft permit proposes to delete the previous permit's effluent limits for fecal coliform. Effluent limitations for all other pollutants are as stringent as or more stringent than those in the current permit.

Statutory Prohibitions on Backsliding

Section 402(o) of the Clean Water Act (CWA) generally prohibits the establishment of effluent limits in a reissued NPDES permit that are less stringent than the corresponding limits in the previous permit, but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)), but in this case, the effluent limits being revised are water quality-based effluent limits (WQBELs).

Table 1: Proposed Effluent Limits

Parameter	Units	Effluent Limits		
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/L	45	65	—
	lb/day	225	325	—
	% removal	65% (min.)	—	—
Total Suspended Solids (TSS)	mg/L	45	65	—
	lb/day	225	325	—
	% removal	65% (min.)	—	—
E. Coli	#/100 ml	126[1]	—	406[2]
pH	s.u.	6.5 – 9.0 at all times		
Total Residual Chlorine	µg/L	12.4	—	17.8
	lb/day	0.062	—	0.089
Total Ammonia as N (Final)	mg/L	0.84	—	1.68
	lb/day	4.2	—	8.4
Total Ammonia as N (Interim)	mg/L	23	46	—
	lb/day	115	230	—

Notes:
1. Geometric mean.
2. Instantaneous/single sample maximum.

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the *U.S. EPA NPDES Permit Writers' Manual* (EPA-833-B-96-003) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of water quality standards or effluent limit guidelines.

Fecal Coliform

The draft permit proposes to delete the fecal coliform limits in the previous permit, while retaining the E. coli limits from the previous permit. The receiving water has not been listed on Idaho's "303(d) list" as not attaining or not being expected to attain water quality standards for bacteria. When water quality standards for the relevant pollutant are being attained, Section 303(d)(4)(B) of the Act states that water quality-based effluent limits may be revised if the revision is consistent with the State's antidegradation policy.

The draft permit, like the previous permit, includes "criteria end-of-pipe" effluent limits for bacteria, in order to protect contact recreation beneficial uses in the receiving water. The new water quality criteria and effluent limits simply use the indicator organism currently specified in the Idaho water quality standards (E. coli) to provide the same level of protection for the beneficial use of primary contact recreation as was provided by the fecal coliform effluent limits. EPA does not believe that the change from fecal coliform limits to E. coli limits will result in degradation of the receiving water or have any effect on beneficial uses. Therefore, EPA believes that the deletion of the of fecal coliform effluent limits is compliant with Section 303(d)(4)(B) of the Act.

Clean Water Act Section 402(o)(3) Requirements

Because the E. coli limits apply current water quality criteria at the end-of-pipe, the effluent limits are derived from and comply with water quality standards for E. coli. The secondary treatment technology-based effluent limits do not include effluent limits for bacteria. Because the effluent limits will continue to ensure that water quality standards are met and do not violate the secondary treatment effluent limits, the limits proposed limits comply with Section 402(o)(3) of the CWA.

EPA is requesting that IDEQ certify that the permit limits are protective of Idaho's water quality standards under Section 401 of the CWA.

D. Compliance Schedule for Ammonia

Effluent data indicate that the permittee cannot comply with the proposed water quality-based effluent limits for total ammonia as N immediately. The proposed average monthly limit for total ammonia as N is 0.84 mg/L. The average ammonia concentration has been 7.0 mg/L and the maximum effluent ammonia concentration was 29 mg/L.

Federal regulations (40 CFR 122.47) and the Idaho Water Quality Standards (IDAPA 58.01.02.400.03) allow for compliance schedules in permits. Idaho's compliance schedule rule allows compliance schedules only for water quality-based effluent limits "when new limitations are in the permit for the first time." The federal compliance schedule rule allows compliance schedules "when appropriate," requires compliance with effluent limits "as soon as possible," and requires "interim requirements and the dates for their achievement."

In its draft Clean Water Act Section 401 certification, the State of Idaho has proposed to allow a compliance schedule for total ammonia as N. The proposed compliance schedule ends on October 1, 2013. The permit includes interim requirements and the dates for their achievement, in compliance with 40 CFR 122.47. The draft permit also proposes interim effluent limits for ammonia. The interim effluent limits apply during the term of the compliance schedule and represent the level of ammonia control currently achieved at the facility.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) and on the application for renewal, as appropriate, to the U.S. Environmental Protection Agency (EPA).

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the method detection limits are less than the effluent limits.

Table 2, below, presents the proposed effluent monitoring requirements for the City of Driggs WWTP. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Monitoring Changes from the Previous Permit

Effluent BOD_5 and TSS concentrations have been greater than the proposed average monthly limits of 45 mg/L about 19% of the time for BOD_5 and about 23% of the time for TSS. Therefore EPA has increased the monitoring frequency for BOD_5 and TSS in order to better determine compliance with the BOD_5 and TSS effluent limits.

EPA proposes twice per year effluent monitoring for the pollutants listed in Part B.6 of the Form 2A NPDES application that are not subject to effluent limits (total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, oil and grease, total phosphorus, dissolved oxygen, and total dissolved solids) so that these data will be available when the permittee applies for a renewal of this permit.

C. Surface Water Monitoring

Table 3 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the application for renewal of the permit.

EPA proposes to discontinue receiving water monitoring for temperature, pH, and ammonia, because the purpose of this monitoring was to determine if the discharge had the reasonable potential to cause or contribute to excursions above water quality standards for ammonia. An analysis of effluent and receiving water data shows that the discharge does, in fact, have the reasonable potential to cause or contribute to excursions above water quality standards for ammonia, therefore, further monitoring for pH, temperature, and ammonia in the receiving water will not yield meaningful data.

EPA proposes surface water monitoring for dissolved oxygen, upstream and downstream from the point of discharge. These data will be used to determine if water quality-based effluent limits for biochemical oxygen demand are necessary when the permit is reissued.

Table 2: Effluent Monitoring Requirements				
Parameter	**Units**	**Sample Location**	**Sample Frequency**	**Sample Type**
Flow	mgd	Influent or Effluent	Continuous	recording
BOD_5	mg/L	Influent & Effluent	2/month	grab
	lb/day	Influent & Effluent		calculation[1]
	% Removal	% Removal	1/month	calculation[2]
TSS	mg/L	Influent & Effluent	2/month	grab
	lb/day	Influent & Effluent		calculation[1]
	% Removal	% Removal	1/month	calculation[2]
pH	standard units	Effluent	1/week	grab
E. Coli	#/100 ml	Effluent	5/month	grab
Total Residual Chlorine	µg/L	Effluent	1/week	grab
	lb/day	Effluent		calculation[1]
Total Ammonia as N	mg/L	Effluent	2/month	grab
	lb/day	Effluent		calculation[1]
Total Phosphorus	mg/L	Influent & Effluent	2/year	grab
Dissolved Oxygen	mg/L	Effluent	2/year	grab
Nitrate + Nitrite	mg/L	Effluent	2/year	grab
Oil and Grease	mg/L	Effluent	2/year	grab
Temperature	ºC	Effluent	1/week	grab
Total Dissolved Solids	mg/L	Effluent	2/year	grab
Total Kjeldahl Nitrogen	mg/L	Effluent	2/year	grab

Notes:
1. Loading is calculated by multiplying the concentration in mg/L by the flow in mgd and a conversion factor of 8.34. If the concentration is measured in µg/L, the conversion factor is 0.00834.
2. Percent removal is calculated using the following equation:
   (average monthly influent – average monthly effluent) ÷ average monthly influent.
3. The permittee must report the minimum effluent dilution ratio observed during the month.
4. Each sampling event must include three 24-hour composite samples taken over the course of a calendar week.

Table 3: Receiving Water Monitoring Requirements			
Parameter (units)	**Sample Locations**	**Sample Frequency**	**Sample Type**
Flow (CFS)	Upstream	1/month	Measure
Dissolved Oxygen (mg/L)	Upstream and Downstream	Quarterly[1]	Composite

1. Quarters are defined as January through March, April through June, July through September and October though December.

VI. Sludge (Biosolids) Requirements

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

VII. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The City of Driggs is required to update the Quality Assurance Plan for the wastewater treatment plant within 180 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Operation and Maintenance Plan

The permit requires the City of Driggs to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 180 days of the effective date of the final permit. The plan shall be retained on site and made available to EPA and IDEQ upon request.

C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System

Untreated or partially treated discharges from separate sanitary sewer systems are referred to as sanitary sewer overflows (SSOs). SSOs may present serious risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Untreated sewage contains pathogens and other pollutants, which are toxic. SSOs are not authorized under this permit. Pursuant to the NPDES regulations, discharges from separate sanitary sewer systems authorized by NPDES permits must meet effluent limitations that are based upon secondary treatment. Further, discharges must meet any more stringent effluent limitations that are established to meet EPA-approved state water quality standards.

The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system. The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify the EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6))

Written Reports – The permittee is required to provide the EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation and maintenance (CMOM) program.

The permittee may refer to Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

D. Standard Permit Provisions

Sections III, IV, and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. EPA has determined that the issuance of this NPDES permit will have no effect on threatened or endangered species. Therefore, consultation is not required for this action. However, EPA will notify USFWS and NOAA Fisheries of the issuance of this draft permit and will consider any comments made by the Services prior to issuance of a final permit. See Appendix F of this fact sheet for more information.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. EPA has determined that the discharge from the City of Driggs WWTP will not affect any EFH species in the vicinity of the discharge; therefore consultation is not required for this action.

C. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

Appendix A: Facility Information

General Information

NPDES ID Number:	ID0020141
Physical Location:	West of Driggs on West Buxton Road
Mailing Address:	P.O. Box 48 Driggs, ID 83422
Facility Background:	The most recent NPDES permit for the wastewater treatment plant was issued on August 9, 2001, became effective on September 11, 2001, and expired on September 11, 2006. An NPDES application for permit reissuance was received by EPA on September 11th, 2006. The first NPDES permit was issued to this facility in November 1974.

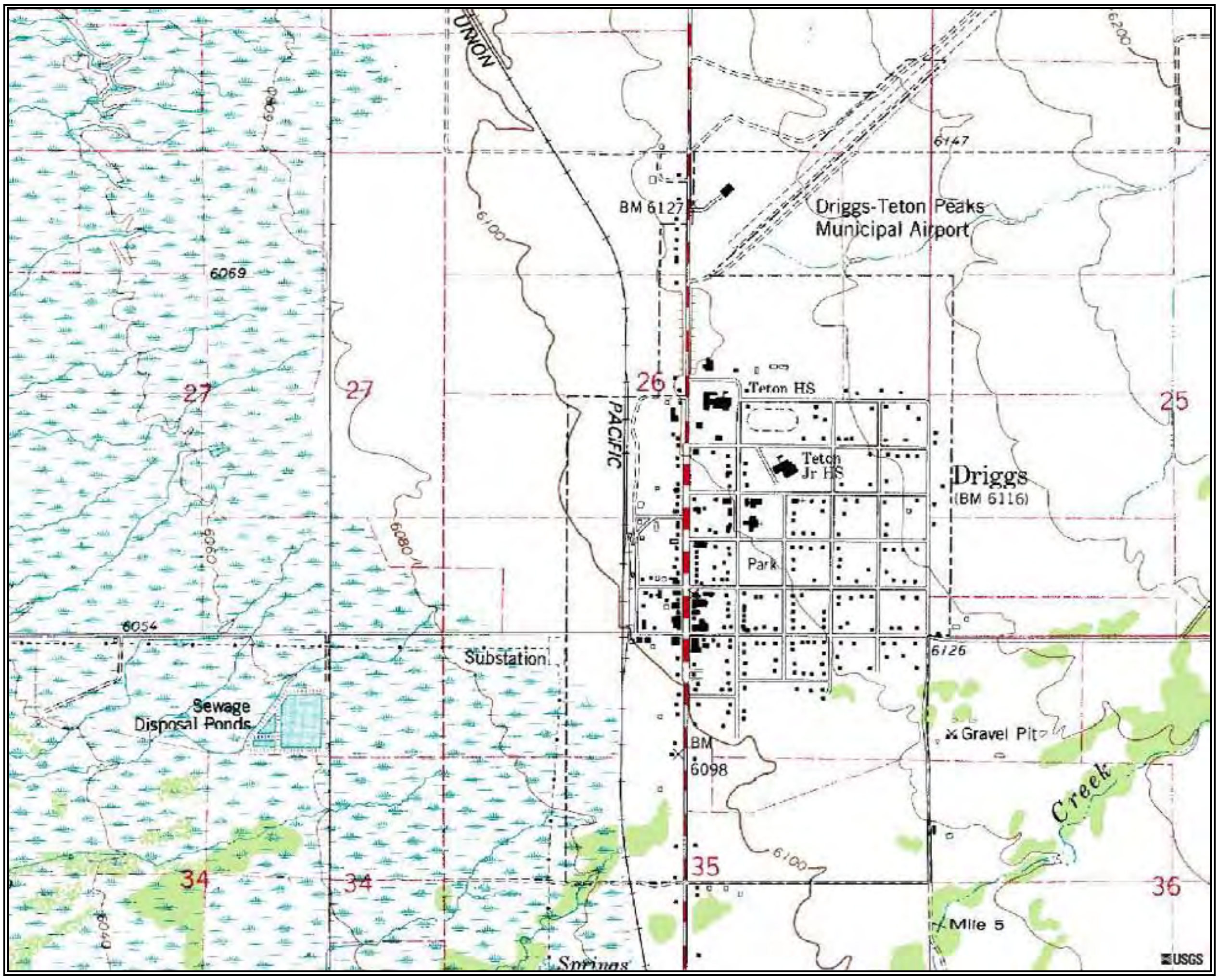
Facility Information

Type of Facility:	Publicly Owned Treatment Works (POTW)
Treatment Train:	Aerated lagoons, chlorination
Flow:	Design flow is 0.6 mgd. Average flow is 0.31 mgd; the maximum daily flow is 0.778 mgd.
Outfall Location:	Latitude 43º 43' 15" N; longitude 111º 07' 45" W

Receiving Water Information

Receiving Water:	An unnamed drainage ditch which is tributary to Woods Creek, which is tributary to the Teton River
Watershed:	Teton (HUC 17040204)
Beneficial Uses:	Cold water aquatic life, primary contact recreation, industrial and agricultural water supply, wildlife habitats, and aesthetics

Appendix B: Facility Map



Appendix C: Basis for Effluent Limits

The following discussion explains in more detail the statutory and regulatory basis for the technology and water quality-based effluent limits in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general, and Part C discusses facility specific water quality-based effluent limits.

A. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," which all POTWs were required to meet by July 1, 1977. EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH.

For most POTWs, the applicable technology-based effluent limits are found in 40 CFR 133.102. However, some facilities are eligible for "treatment equivalent to secondary" effluent limits found in 40 CFR 133.105, which are less stringent than the "secondary treatment" limits of 40 CFR 133.102.

EPA has determined that the Driggs WWTP is eligible for treatment equivalent to secondary because it cannot consistently comply with the "secondary treatment" effluent limits of 40 CFR 133.102, it uses waste stabilization ponds as its principal treatment process, and it provides significant biological treatment of municipal wastewater, meaning it consistently removes at least 65% of influent BOD_5 (40 CFR 133.101(g), (k)).

The federally promulgated treatment equivalent to secondary effluent limits applicable to this facility are listed in Table C-1.

Table C-1: Treatment Equivalent to Secondary Effluent Limits (40 CFR 133.105)

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD_5	45 mg/L	65 mg/L	---
TSS	45 mg/L	65 mg/L	---
Removal Rates for BOD_5 and TSS	65% (minimum)	---	---
pH	---	---	6.0 - 9.0 s.u.

Alternative State Requirements and Special Considerations for Waste Stabilization Ponds

Alternative State Requirements are authorized by 40 CFR 133.105(d) and allow for less stringent limits than the "treatment equivalent to secondary" effluent limits for facilities eligible for "treatment equivalent to secondary" within a certain geographical area. The State of Idaho does not have approved alternative state requirements (see the *U.S. EPA NPDES Permit Writers' Manual* at Page 84-85 and 49 FR 37005, September 20, 1984).

An alternate basis for establishing TSS effluent limits for POTWs using waste stabilization ponds that are less stringent than "treatment equivalent to secondary" limits is 40 CFR 133.103(c). This regulation allows EPA or the States (with EPA approval) to set TSS limits equal to the TSS effluent concentration achieved 90 percent of the time by waste stabilization ponds within a State or appropriate contiguous geographical area. This analysis has not been completed by EPA or the State of Idaho. Therefore, EPA cannot establish TSS limits less stringent than the "treatment equivalent to secondary" rule for the Driggs WWTP on the basis of 40 CFR 133.103(c).

Therefore, the proposed permit contains effluent limits consistent with the "treatment equivalent to secondary" rule (40 CFR 133.105(b)) which are more stringent than the TSS effluent limits in the previous permit.

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The plant uses chlorine disinfection.

A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Use of Technology-based Effluent Limits in the Draft Permit

EPA has determined that the technology-based effluent limits for BOD_5 and TSS are stringent enough to ensure compliance with Idaho's federally-approved water quality standards. Therefore, the technology-based effluent limits for BOD_5 and TSS appear in the draft permit. More stringent water quality-based effluent limits are proposed for pH and chlorine.

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

[1] 8.34 is a conversion factor equal to the density of water in pounds per gallon

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States. The NPDES regulation (40 CFR 122.44(d)(1)) implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal water quality standard, including narrative criteria for water quality, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

When evaluating the effluent to determine if water quality-based effluent limits are needed, based on numeric criteria, EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific chemical, then the discharge has the reasonable potential to cause or contribute to an exceedance of the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it is appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and when the receiving water meets the criteria necessary to protect the designated uses of the water body. Mixing zones must be authorized by IDEQ.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water.

In cases where a mixing zone is not authorized, either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA. Establishing the criterion as the wasteload allocation ensures that the permittee will not cause or contribute to an exceedance of the criterion. The following discussion details the specific water quality-based effluent limits in the draft permit.

Once a WLA is developed, EPA calculates effluent limits which are protective of the WLA using statistical procedures described in Appendix E.

C. Facility-Specific Water Quality-based Limits

Ammonia

The Idaho water quality standards contain criteria for the protection of aquatic life from the toxic effects of ammonia. EPA has applied ammonia criteria which are protective of salmonids, including early life stages. These are the generally applicable statewide criteria for Idaho. The criteria are dependent on pH and temperature, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. The following table details the equations used to determine water quality criteria for ammonia, and the values of these equations at the 95th percentile pH and temperature measured in Woods Creek, which are 8.63 standard units and 18.04 ºC, respectively.

Table C-2: Water Quality Criteria for Ammonia		
	Acute Criterion[1]	**Chronic Criterion**[2]
Equations:	$\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\left(2.85, 1.45\times 10^{0.028\times(25-T)}\right)$
Results	1.68	0.702

E. Coli

The Idaho water quality standards state that waters of the State of Idaho that are designated for recreation are not to contain E. coli bacteria in concentrations exceeding a geometric mean of 126 organisms per 100 ml based on a minimum of five samples taken every three to seven days over a thirty day period. Therefore, the draft permit contains a monthly geometric mean effluent limit for E. coli of 126 organisms per 100 ml, and a minimum sampling frequency of five grab samples per month (IDAPA 58.01.02.251.01.a.).

The Idaho water quality standards also state that a water sample that exceeds certain "single sample maximum" values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of water quality standards. For waters designated for primary contact recreation, the "single sample maximum" value is 406 organisms per 100 ml (IDAPA 58.01.02.251.01.b.ii.).

The goal of a water quality-based effluent limit is to ensure a low probability that water quality standards will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent (see TSD at Section 5.3.1). Because a single sample value exceeding 406 organisms per 100 ml indicates a likely exceedance of the geometric mean criterion, EPA has imposed an instantaneous (single grab sample) maximum effluent limit for E. coli of 406 organisms per 100 ml, in addition to a monthly geometric mean limit of 126 organisms per 100 ml, which directly implements the water quality criterion for E. coli. This will ensure that the discharge will have a low probability of exceeding water quality standards for E. coli.

Regulations at 40 CFR 122.45(d)(2) require that effluent limitations for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. The terms "average monthly limit" and "average weekly limit" are defined in 40 CFR 122.2 as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. In order to ensure that the effluent limits are "derived from and comply with" the geometric mean water quality criterion, as required by 40 CFR 122.44(d)(1)(vii)(A), it is necessary to express the effluent limits as a monthly geometric mean and an instantaneous maximum limit.

Total Residual Chlorine

The 2001 permit included water quality-based effluent limits for chlorine that applied water quality criteria at the end-of-pipe (*see* the 2001 Fact Sheet at Appendix E). The water quality criteria for chlorine have not changed since the 2001 permit was issued. The effluent limits in the previous permit therefore remain appropriate and EPA has continued these limits forward in the reissued permit in compliance with the anti-backsliding provisions of the Clean Water Act.

Floating, Suspended and Submerged Matter

The State of Idaho has a narrative water quality criterion which reads "Surface waters of the state shall be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses (IDAPA 58.01.02.200.05)." This criterion has been included in the permit as a narrative effluent limit.

Summary of Limits and Bases

The following table summarizes the general statutory and regulatory bases for the limits in the draft permit.

Table C-3: Summary of Effluent Limit Bases

Limited Parameter	Basis for Limit
BOD_5	Clean Water Act (CWA) Section 301(b)(1)(B), 40 CFR 133 (technology-based)
TSS	CWA Section 301(b)(1)(B), 40 CFR 133 (technology-based)
Floating, Suspended or Submerged Matter	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.200.05 (water quality-based)
pH	CWA Section 301(b)(1)(C), IDAPA 58.01.02.250.01.a (water quality-based)
E. Coli	CWA Sections 301(b)(1)(C) and 402(o), 40 CFR 122.44(d), IDAPA 58.01.02.251.01 (water quality-based and anti-backsliding)
Chlorine	CWA Sections 301(b)(1)(C) and 402(o), 40 CFR 122.44(d), IDAPA 58.01.02.210 (water quality-based and anti-backsliding)
Ammonia, Interim	40 CFR 122.47(a)(3) (compliance schedule interim requirements)
Ammonia, Final	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250 (water quality-based)

Appendix D: Reasonable Potential Calculations

The following describes the process EPA has used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Idaho's federally approved water quality standards. EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This section discusses how the maximum projected receiving water concentration is determined.

A. Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_dQ_d = C_eQ_e + C_uQ_u \qquad \text{(Equation D-1)}$$

where,

C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e = Maximum projected effluent concentration
C_u = 95th percentile measured receiving water upstream concentration
Q_d = Receiving water flow rate downstream of the effluent discharge = $Q_e + Q_u$
Q_e = Effluent flow rate (set equal to the design flow of the WWTP)
Q_u = Receiving water low flow rate upstream of the discharge (e.g. 1Q10 or 7Q10)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_eQ_e + C_uQ_u}{Q_e + Q_u} \qquad \text{(Equation D-2)}$$

The above form of the equation is based on the assumption that a mixing zone is allowed, the discharge is rapidly and completely mixed with the receiving stream, and 100% of the stream flow is available for mixing, under the State's mixing zone policies.

In this case, there is very little flow in the receiving water upstream from the discharge. Therefore, there is not enough flow in the receiving water to authorize a mixing zone. Even if a mixing zone could be authorized, it would not significantly change the effluent limits or the outcome of the reasonable potential analysis. If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \text{(Equation D-3)}$$

B. Maximum Projected Effluent Concentration

EPA has not performed a reasonable potential analysis for chlorine because the effluent limits in the 2001 permit applied water quality criteria for chlorine at the end-of-pipe. Since the water quality criteria have not changed, the previous permit's effluent limits have been continued forward under the anti-backsliding provisions of the Clean Water Act (section 402(o)).

To calculate the maximum projected effluent concentration for ammonia and nitrate, EPA has used the procedure described in section 3.3 of the TSD, "Determining the Need for Permit Limits with Effluent Monitoring Data." In this procedure, the 99th percentile of the effluent data is the maximum projected effluent concentration in the mass balance equation.

Since there are a limited number of data points available, the 99th percentile is calculated by multiplying the maximum reported effluent concentration by a "reasonable potential multiplier" (RPM). The RPM is the ratio of the 99th percentile concentration to the maximum reported effluent concentration. The RPM is calculated from the coefficient of variation (CV) of the data and the number of data points.

The CV is defined as the ratio of the standard deviation of the data set to the mean, but when fewer than 10 data points are available, the TSD recommends making the assumption that the CV is equal to 0.6 (see TSD at Page 53).

Using the equations in section 3.3.2 of the TSD, the reasonable potential multiplier (RPM) is calculated based on the CV and the number of samples in the data set as follows. The following discussion presents the equations used to calculate the RPM, and also works through the calculations for the RPM for copper as an example. Reasonable potential calculations for all pollutants can be found in Table D-1.

First, the percentile represented by the highest reported concentration is calculated.

$$p_n = (1 - \text{confidence level})^{1/n} \quad \text{(Equation D-4)}$$

where,
p_n = the percentile represented by the highest reported concentration
n = the number of samples
confidence level = 99% = 0.99

The data set contains 38 ammonia samples collected from the effluent, therefore:

$$p_n = (1 - 0.99)^{1/38}$$
$$p_n = 0.886$$

This means that we can say, with 99% confidence, that the maximum reported effluent copper concentration is greater than the 88th percentile.

The reasonable potential multiplier (RPM) is the ratio of the 99th percentile concentration (at the 99% confidence level) to the maximum reported effluent concentration. This is calculated as follows:

$$RPM = C_{99}/C_p \quad \text{(Equation D-5)}$$

Where,

$C = \exp(z\sigma - 0.5\sigma^2)$ (Equation D-6)

Where,
$\sigma^2 = \ln(CV^2 + 1)$ (Equation D-7)
$\sigma = \sqrt{\sigma^2}$
CV = coefficient of variation = (standard deviation) ÷ (mean)
z = the inverse of the normal cumulative distribution function at a given percentile

In the case of ammonia:

CV = coefficient of variation = 1.343
$\sigma^2 = \ln(CV^2 + 1) = 1.031$
$\sigma = \sqrt{\sigma^2} = 1.015$
z = 2.326 for the 99th percentile = 1.205 for the 88th percentile

$C_{99} = \exp(2.326 \times 1.015 - 0.5 \times 1.031) = 6.337$
$C_{90} = \exp(1.297 \times 1.015 - 0.5 \times 1.031) = 2.030$

$RPM = C_{99}/C_{88} = 6.34/2.03$
RPM = 3.12

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$C_e = (RPM)(MRC)$ (Equation D-8)

where MRC = Maximum Reported Concentration

In the case of ammonia,

C_e = (3.12)(28.8 mg/L) = **89.9 mg/L**

C. Maximum Projected Receiving Water Concentration

The discharge has reasonable potential to cause or contribute to excursions above water quality criteria if the maximum projected concentration of the pollutant is greater than the criterion. For ammonia:

$C_d = C_e$ = 89.9 mg/L

The maximum projected concentration of ammonia is greater than the criteria (1.68 mg/L acute and 0.702 mg/L chronic), therefore, the discharge has the reasonable potential to cause or contribute to excursions above water quality standards, and an effluent limit is required.

Table D-1: Reasonable Potential Calculations

Effluent Percentile value	99%														
		State Water Quality Standard		Max concentration at edge of...											
	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQ'D?**		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*		*Pn*	*ug/L*	*CV*	*s*	*n*				COMMENTS
Ammonia, mg/L		1.68	0.702	89.9	89.9	**YES**	0.886	28.8	1.343	1.015	38	3.12	1.00	1.00	EOP
Nitrate, mg/L		100	100	79.9	79.9	**NO**	0.896	20.5	2.021	1.275	42	3.90	1.00	1.00	EOP

Appendix E: WQBEL Calculations - Aquatic Life Criteria

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) in the draft permit were calculated. The new WQBELs for ammonia are derived from aquatic life criteria. The following discussion presents the general equations used to calculate the water quality-based effluent limits for the ammonia WQBEL. The calculations are summarized in Table E-1.

A. Calculate the Wasteload Allocations (WLAs)

In cases where no mixing zone is authorized, the wasteload allocations are equal to the water quality criteria.

$$C_e = WLA = C_d \qquad \text{(Equation E-1)}$$

In the case of ammonia, for the acute criterion,

$$\mathbf{WLA_a = 1.68\ mg/L}$$

For the chronic criterion,

$$\mathbf{WLA_c = 0.702\ mg/L}$$

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from Chapter 5 of EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD). The City of Driggs will need to improve ammonia removal performance above current levels in order to achieve compliance with the effluent limits in the draft permit. The future effluent variability, once treatment is improved, is unknown. When effluent variability is unknown, the TSD recommends making the assumption that the CV is equal to 0.6 (see TSD at Pages 53 and E-3).

$$LTA_a = WLA_a \times \exp(0.5\sigma^2 - z\,\sigma) \qquad \text{(Equation E-2)}$$
$$LTA_c = WLA_c \times \exp(0.5\,\sigma_4^2 - z\,\sigma_4) \qquad \text{(Equation E-3)}$$

where,

$$\sigma^2 = \ln(CV^2 + 1)$$
$$\sigma = \sqrt{\sigma^2}$$
$$\sigma_{30}^2 = \ln(CV^2/30 + 1)$$
$$\sigma_{30} = \sqrt{\sigma_{30}^2}$$
$z = 2.326$ for 99th percentile probability basis

In the case of ammonia,

$$\sigma^2 = \ln(0.6^2 + 1) = 0.3075$$
$$\sigma = \sqrt{\sigma^2} = 0.5545$$
$$\sigma_{30}^2 = \ln(0.6^2/30 + 1) = 0.0119$$
$$\sigma_{30} = \sqrt{\sigma_{30}^2} = 0.1092$$
$z = 2.326$ for 99th percentile probability basis

Therefore,

LTA_a = 1.68 mg/L × exp(0.5 × 0.3075 - 2.326 × 0.5545)
LTA_a = 0.540 mg/L

LTA_c = 0.702 mg/L × exp(0.5 × 0.0119 - 2.326 × 0.1092)
LTA_c = 0.547 mg/L

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below. For ammonia, the acute LTA of 0.540 mg/L is more stringent.

B. Derive the maximum daily and average monthly effluent limits

Using the TSD equations (section 5.4.1), the MDL and AML effluent limits are calculated as follows:

$MDL = LTA \times \exp(z_m \sigma - 0.5 \sigma^2)$ (Equation E-4)
$AML = LTA \times \exp(z_a \sigma_n - 0.5 \sigma_n^2)$ (Equation E-5)

where σ, and σ^2 are defined as they are for the LTA equations (E-2 and E-3) and,

$\sigma_n^2 = \ln(CV^2/n + 1) = 0.0862$
$\sigma_n = \sqrt{\sigma_n^2} = 0.294$
$z_a = 1.645$ for 95th percentile probability basis
$z_m = 2.326$ for 99th percentile probability basis
n = number of sampling events required per month (minimum of 4)

In the case of ammonia,

MDL = 0.540 mg/L × exp(2.326 × 0.5545 - 0.5 × 0.3075)
MDL = 1.68 mg/L

AML = 0.540 mg/L × exp(1.645 × 0.294 - 0.5 × 0.0862)
AML = 0.84 mg/L

Table E-1, on the following page, summarizes the calculations for water quality-based effluent limits based on two-value aquatic life criteria.

Table E-1: Effluent Limit Calculations

Statistical variables for permit limit calculation																
LTA Probability Basis	99%															
MDL Probability Basis	99%															
AML Probability Basis	95%															
Permit Limit Calculation Summary									**Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations**							
	Acute Dil'n Factor	Chronic Dil'n Factor	Ambient Concentration	Water Quality Standard Acute	Water Quality Standard Chronic	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)	Comments	WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	Limiting LTA	Coeff. Var. (CV)	# of Samples per Month	
PARAMETER			*ug/L*	*ug/L*	*ug/L*	ug/L	ug/L		*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*decimal*	*n*	
Ammonia, mg/L	1.00	1.00		1.68	0.702	**0.84**	**1.68**	EOP	1.68	0.702	0.540	0.547	0.540	0.60	4.00	

Appendix F: Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the US Fish and Wildlife Service (USFWS) regarding potential effects that a federal action may have on listed endangered and threatened species.

In an e-mail dated January 21, 2009, NOAA Fisheries stated that there are no threatened or endangered species under NOAA's jurisdiction in the Snake River drainage upstream of the Hells Canyon Dam, which is located at river mile 247.5. The City of Driggs discharge is more than 600 miles upstream from the nearest ESA-listed threatened or endangered species under NOAA's jurisdiction. Therefore, the reissuance of this permit will have no effect on any listed threatened or endangered species under NOAA's jurisdiction.

The subject discharge is located in Teton County, Idaho. The USFWS county species list for Teton County lists the Canada lynx (*Lynx canadensis*), which has a status of threatened.

EPA has also determined that the reissuance of an NPDES permit to the City of Ashton will have no effect on the Canada lynx. The Canada lynx is a terrestrial species, which is generally not susceptible to the water quality impacts that may result from the reissuance of an NPDES permit. The primary causes of the Canada lynx's decline are habitat destruction, overutilization for commercial, recreational, scientific, or educational purposes, and climate change (USFWS 2005). Reissuance of an NPDES permit to the City of Driggs will have no effect on habitat destruction, utilization of species for commercial, recreational, scientific, or educational purposes, or climate change. Therefore, the issuance of this permit will have no effect on the Canada lynx.

References

US Fish and Wildlife Service. 2005. Recovery Outline for the Contiguous United States Distinct Population Segment of the Canada Lynx.

Appendix G: Idaho Department of Environmental Quality Draft Clean Water Act Section 401 Certification

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101-3140

Authorization to Discharge Under the National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq*., as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

The City of Driggs

is authorized to discharge from the wastewater treatment plant located near Driggs, Idaho, at the following location(s):

Outfall	**Receiving Water**	**Latitude**	**Longitude**
001	Unnamed Tributary to Woods Creek	43º 43' 15"	111º 7' 45"

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective January 1, 2011.

This permit and the authorization to discharge shall expire at midnight, December 31, 2015.

The permittee shall reapply for a permit reissuance on or before July 4, 2015, 180 days before the expiration of this permit if the permittee intends to continue operations and discharges at the facility beyond the term of this permit.

Signed this 4th day of November, 2010.

/s/
Michael A. Bussell, Director
Office of Water and Watersheds

Schedule of Submissions

The following is a summary of some of the items the permittee must complete and/or submit to EPA during the term of this permit:

Item	Due Date
1. Discharge Monitoring Reports (DMR)	DMRs are due monthly and must be postmarked on or before the 10th day of the month following the monitoring month (see III.B).
2. Quality Assurance Plan (QAP)	The permittee must provide EPA and Idaho Department of Environmental Quality (IDEQ) with written notification that the Plan has been developed and implemented by May 30, 2011 (see II.B). The Plan must be kept on site and made available to EPA and IDEQ upon request.
3. Operation and Maintenance (O&M) Plan	The permittee must provide EPA and IDEQ with written notification that the Plan has been developed and implemented by May 30, 2011 (see II.A). The Plan must be kept on site and made available to EPA and IDEQ upon request.
4. NPDES Application Renewal	The application must be submitted at least 180 days before the expiration date of the permit (see V.B).
5. Surface Water Monitoring Report	The Report must be submitted with the next permit application (see I.C).
6. Compliance Schedule	Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date (see III.J).
7. Twenty-Four Hour Notice of Noncompliance Reporting	The permittee must report certain occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances. (See III.G and I.B.2.)
8. Emergency Response and Public Notification Plan	The permittee must provide EPA and IDEQ with written notification that the Plan has been developed and implemented by May 30, 2011 (see II.D). The Plan must be kept on site and made available to EPA and IDEQ upon request.

Table of Contents

Schedule of Submissions **2**

I. Limitations and Monitoring Requirements **5**

A. Discharge Authorization 5
B. Effluent Limitations and Monitoring 5
C. Surface Water Monitoring 7
D. Schedule of Compliance 7

II. Special Conditions **8**

A. Operation and Maintenance (O&M) Plan 8
B. Quality Assurance Plan (QAP) 8
C. Control of Undesirable Pollutants and Industrial Users 9
D. Emergency Response and Public Notification Plan 10

III. Monitoring, Recording and Reporting Requirements **10**

A. Representative Sampling (Routine and Non-Routine Discharges) 10
B. Reporting of Monitoring Results 11
C. Monitoring Procedures 11
D. Additional Monitoring by Permittee 11
E. Records Contents 11
F. Retention of Records 12
G. Twenty-four Hour Notice of Noncompliance Reporting 12
H. Other Noncompliance Reporting 13
I. Public Notification 13
J. Notice of New Introduction of Toxic Pollutants 14

IV. Compliance Responsibilities **14**

A. Duty to Comply 14
B. Penalties for Violations of Permit Conditions 14
C. Need To Halt or Reduce Activity not a Defense 16
D. Duty to Mitigate 16
E. Proper Operation and Maintenance 16
F. Bypass of Treatment Facilities 16
G. Upset Conditions 17
H. Toxic Pollutants 18
I. Planned Changes 18
J. Anticipated Noncompliance 18
K. Reopener 18

V. General Provisions **19**

A. Permit Actions 19
B. Duty to Reapply 19
C. Duty to Provide Information 19
D. Other Information 19

E. Signatory Requirements 19
F. Availability of Reports 20
G. Inspection and Entry 20
H. Property Rights 21
I. Transfers 21
J. State Laws 21

VI. Definitions 21

I. Limitations and Monitoring Requirements

A. Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from the outfalls specified herein to an unnamed tributary to Woods Creek, within the limits and subject to the conditions set forth herein. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process.

B. Effluent Limitations and Monitoring

1. The permittee must limit and monitor discharges from outfall 001 as specified in Table 1, below. All figures represent maximum effluent limits unless otherwise indicated. The permittee must comply with the effluent limits in the tables at all times unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of this permit.
2. The permittee must report within 24 hours any violation of the maximum daily limits or instantaneous maximum limits for the following pollutants: E. coli, total residual chlorine, and total ammonia as N. Violations of all other effluent limits are to be reported at the time that discharge monitoring reports are submitted (See III.B and III.H.).
3. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses of the receiving water.
4. Removal Requirements for five-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS): The monthly average effluent concentration must not exceed 35 percent of the monthly average influent concentration. Percent removal of BOD_5 and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.
5. The permittee must collect effluent samples from the effluent stream after the last treatment unit prior to discharge into the receiving waters.
6. Minimum Levels. For all effluent monitoring, the permittee must use methods that can achieve a minimum level (ML) less than the effluent limitation. For purposes of reporting on the DMR for a single sample, if a value is less than the Method Detection Limit (MDL), the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}."

Table 1: Effluent Limitations and Monitoring Requirements							
Parameter	Effluent Limitations				Monitoring Requirements		
	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Report	—	Report	Influent or Effluent	continuous	recording
Temperature	ºC	Report	—	Report	Effluent	1/week	grab
Biochemical Oxygen Demand (BOD_5)	mg/L	45	65	—	Influent & Effluent	2/month	grab
	lb/day	225	325	—			calculation
	% removal	65% (min)	—	—	% removal	1/month	calculation
Total Suspended Solids (TSS)	mg/L	45	65	—	Influent & Effluent	2/month	grab
	lb/day	225	325	—			calculation
	% removal	65% (min)	—	—	% removal	1/month	calculation
E. Coli Bacteria[1,2]	#/100 ml	126 (geometric mean)	—	406 (instantaneous maximum)	Effluent	5/month	grab
pH	s.u.	6.5 – 9.0 at all times			Effluent	1/week	grab
Total Residual Chlorine[2]	µg/L	12.4	—	17.8	Effluent	1/week	grab
	lb/day	0.062	—	0.089			calculation
Total Ammonia as N[2,3] (Final)	mg/L	0.84	—	1.68	Effluent	2/month	grab
	lb/day	4.2	—	8.4			calculation
Total Ammonia as N[3] (Interim)	mg/L	23	46	—	Effluent	2/month	grab
	lb/day	115	230	—			calculation
Alkalinity, Total	mg/L as $CaCO_3$	Report	—	Report	Effluent	2/year	grab
Dissolved Oxygen	mg/L	Report	—	Report	Effluent	2/year	grab
Nitrate plus Nitrite	mg/L	Report	—	Report	Effluent	2/year	grab
Oil and Grease	mg/L	Report	—	Report	Effluent	2/year	grab
Total Dissolved Solids	mg/L	Report	—	Report	Effluent	2/year	grab
Total Kjeldahl Nitrogen	mg/L	Report	—	Report	Effluent	2/year	grab
Total Phosphorus as P	mg/L	Report	—	Report	Effluent	2/year	grab

1. The average monthly E. Coli bacteria counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-7 days within a calendar month. No single sample may exceed 406 organisms per 100 ml. See Part VI for a definition of geometric mean.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Parts I.B.2. and III.G.
3. See Part I.D.

7. For purposes of calculating monthly averages except for E. coli, zero may be assigned for values less than the MDL, and the {numeric value of the MDL} may be assigned for values between the MDL and the ML. If the average value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is equal to or greater than the ML, the permittee must report and use the actual value.

C. Surface Water Monitoring

The permittee must conduct surface water monitoring. Surface water monitoring must start by March 31, 2011 and continue for as long as this permit remains in effect. The program must meet the following requirements:

1. Monitoring stations must be established in the unnamed stream to which the permittee discharges at the following locations:
   a) Above the influence of the facility's discharge, and
   b) Below the facility's discharge, at a point where the effluent and the receiving water are completely mixed.
2. The permittee must seek approval of the surface water monitoring stations from IDEQ.
3. A failure to obtain IDEQ approval of surface water monitoring stations does not relieve the permittee of the surface water monitoring requirements of this permit.
4. The permittee must measure flow in the receiving water on a monthly basis, at the upstream monitoring station.
5. The permittee must monitor dissolved oxygen in the receiving water on a quarterly basis, at both the upstream and downstream monitoring stations. Quarters are defined as January – March, April – June, July – September, and October – December.
6. Quality assurance/quality control plans for all the monitoring must be documented in the Quality Assurance Plan required under Part II.B., "Quality Assurance Plan".
7. Surface water monitoring results must be submitted to EPA and IDEQ with the application for renewal of this permit (see V.B.). At a minimum, the report must include the following:
   a) Dates of sample collection and analyses.
   b) Results of sample analysis.
   c) Relevant quality assurance/quality control (QA/QC) information.

D. Schedule of Compliance

The permittee must comply with all effluent limitations and monitoring requirements in Part I.B of this permit immediately upon the effective date of this permit except the final effluent limitations for total ammonia as N.

1. The permittee must achieve compliance with the final effluent limits for total ammonia as N no later than October 1, 2013.
2. While the schedule of compliance is in effect, the permittee must comply with the following interim requirements:
   a) The permittee must comply with the interim effluent limitations and monitoring requirements in Part I.B of this permit.

b) By one year after the effective date of the final permit, and annually thereafter until compliance with the final effluent limits is achieved, the permittee must submit to EPA and IDEQ a report of progress toward completion of upgrades necessary to meet ammonia limits.

c) On or before February 15, 2013, the permittee must complete any necessary studies and facility upgrades needed to comply with the final ammonia limits and demonstrate that it can meet those limits.

II. Special Conditions

A. Operation and Maintenance Plan

In addition to the requirements specified in Part IV.E of this permit (Proper Operation and Maintenance), the permittee must develop and implement an operation and maintenance (O&M) plan for the wastewater treatment facility. The permittee must submit written notice to EPA and IDEQ within by May 30, 2011 that the plan has been developed and implemented. Any existing O&M plan may be modified for compliance with this section. The plan shall be retained on site and made available on request to EPA and IDEQ.

B. Quality Assurance Plan (QAP)

The permittee must develop and implement a quality assurance plan (QAP) for all monitoring required by this permit. The permittee must submit written notice to EPA and IDEQ by May 30, 2011 that the Plan has been developed and implemented. Any existing QAPs may be modified for compliance with this section.

1. The QAP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the permit and in explaining data anomalies when they occur.

2. Throughout all sample collection and analysis activities, the permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5). The QAP must be prepared in the format that is specified in these documents.

3. At a minimum, the QAP must include the following:

   a) Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements.

   b) Map(s) indicating the location of each sampling point.

   c) Qualification and training of personnel.

d) Name(s), address(es) and telephone number(s) of the laboratories used by or proposed to be used by the permittee.

4. The permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.

5. Copies of the QAP must be kept on site and made available to EPA and/or IDEQ upon request.

C. Control of Undesirable Pollutants and Industrial Users

1. The permittee must require any industrial user discharging to its treatment works to comply with any applicable requirements of 40 CFR 403 through 471.

2. The permittee must not allow introduction of the following pollutants into the POTW:

a) Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit (ºF) or 60 degrees Centigrade (ºC) using the test methods specified in 40 CFR 261.21.

b) Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than 5.0, unless the POTW is specifically designed to accommodate such Discharges.

c) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference.

d) Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a Discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW.

e) Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 ºC (104 ºF) unless the Director of the Office of Water and Watersheds, upon request of the POTW, approves alternate temperature limits.

f) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

h) Any trucked or hauled pollutants, except at discharge points designated by the POTW.

i) Any pollutant which causes “Pass Through” or “Interference.” See Part VI of the permit.

D. Emergency Response and Public Notification Plan

1. The permittee must develop and implement an overflow emergency response and public notification plan that identifies measures to protect public health from overflows that may endanger health and unanticipated bypasses or upsets that exceed any effluent limitation in the permit. At a minimum the plan must include mechanisms to:

    a) Ensure that the permittee is aware (to the greatest extent possible) of all overflows from portions of the collection system over which the permittee has ownership or operational control and unanticipated bypass or upset that exceed any effluent limitation in the permit;

    b) Ensure appropriate responses including assurance that reports of an overflow or of an unanticipated bypass or upset that exceed any effluent limitation in the permit are immediately dispatched to appropriate personnel for investigation and response;

    c) Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;

    d) Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained; and

    e) Provide emergency operations.

2. The permittee must submit written notice to EPA and IDEQ by May 30, 2011 that the plan has been developed and implemented. Any existing emergency response and public notification plan may be modified for compliance with this section.

III. Monitoring, Recording and Reporting Requirements

A. Representative Sampling (Routine and Non-Routine Discharges)

Samples and measurements must be representative of the volume and nature of the monitored discharge.

In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Part I.B. of this permit that are likely to be affected by the discharge.

The permittee must collect such additional samples as soon as the spill, discharge, or bypassed effluent reaches the outfall. The samples must be analyzed in accordance with Part III.C ("Monitoring Procedures"). The permittee must report all additional monitoring in accordance with Part III.D ("Additional Monitoring by Permittee").

B. Reporting of Monitoring Results

1. Paper Copy Submissions

The permittee must summarize monitoring results each month on the DMR form (EPA No. 3320-1) or equivalent. The permittee must submit reports monthly, postmarked by the 10th day of the following month. The permittee must sign and certify all DMRs, and all other reports, in accordance with the requirements of Part V.E ("Signatory Requirements") of this permit. The permittee must submit the legible originals of these documents to the Director, Office of Compliance and Enforcement, with copies to IDEQ at the following addresses:

US EPA Region 10
Attn: ICIS Data Entry Team
1200 Sixth Avenue
Suite 900 M/S OCE-133
Seattle, Washington 98101-3140

Idaho Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650

2. Electronic submissions

If, during the period when this permit is effective, EPA makes electronic reporting available, the permittee may submit reports electronically, following guidance provided by EPA according to the same due dates in Part III.B.1, above. The permittee must certify all DMRs and all other reports in accordance with the requirements of Part V.E ("Signatory Requirements"). The permittee must retain the legible originals of these documents and make them available, upon request, to the EPA Region 10 Director, Office of Compliance and Enforcement.

C. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures have been specified in this permit or approved by EPA as an alternate test procedure under 40 CFR 136.5.

D. Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the permittee must include the results of this monitoring in the calculation and reporting of the data submitted in the DMR.

Upon request by EPA, the permittee must submit results of any other sampling, regardless of the test method used.

E. Records Contents

Records of monitoring information must include:

1. the date, exact place, and time of sampling or measurements;
2. the name(s) of the individual(s) who performed the sampling or measurements;
3. the date(s) analyses were performed;
4. the names of the individual(s) who performed the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

F. Retention of Records

The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the NPDES permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of EPA or IDEQ at any time.

G. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the permittee becomes aware of the circumstances:
   a) any noncompliance that may endanger human health or the environment;
   b) any unanticipated bypass that exceeds any effluent limitation in the permit (See Part IV.F., “Bypass of Treatment Facilities”);
   c) any upset that exceeds any effluent limitation in the permit (See Part IV.G., “Upset Conditions”); or
   d) any violation of a maximum daily discharge limitation for applicable pollutants identified by Part I.B.2.
   e) any overflow prior to the treatment works over which the permittee has ownership or has operational control. An overflow is any spill, release or diversion of municipal sewage including:
      (i) an overflow that results in a discharge to waters of the United States; and
      (ii) an overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral) that does not reach waters of the United States.
2. The permittee must also provide a written submission within five days of the time that the permittee becomes aware of any event required to be reported under subpart 1 above. The written submission must contain:

a) a description of the noncompliance and its cause;

b) the period of noncompliance, including exact dates and times;

c) the estimated time noncompliance is expected to continue if it has not been corrected; and

d) steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

e) if the noncompliance involves an overflow, the written submission must contain:

(i) The location of the overflow;

(ii) The receiving water (if there is one);

(iii) An estimate of the volume of the overflow;

(iv) A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);

(v) The estimated date and time when the overflow began and stopped or will be stopped;

(vi) The cause or suspected cause of the overflow;

(vii) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;

(viii) An estimate of the number of persons who came into contact with wastewater from the overflow; and

(ix) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.

3. The Director of the Office of Compliance and Enforcement may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Hotline in Seattle, Washington, by telephone, (206) 553-1846.

4. Reports must be submitted to the addresses in Part III.B ("Reporting of Monitoring Results").

H. Other Noncompliance Reporting

The permittee must report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for Part III.B ("Reporting of Monitoring Results") are submitted. The reports must contain the information listed in Part III.G.2 of this permit ("Twenty-four Hour Notice of Noncompliance Reporting").

I. Public Notification

The permittee must immediately notify the public, health agencies and other affected entities (e.g., public water systems) of any overflow which the permittee owns or has operational control; or any unanticipated bypass or upset that exceeds any effluent limitation in the permit in accordance with the notification procedures developed in accordance with Part III.G.

J. Notice of New Introduction of Toxic Pollutants

The permittee must notify the Director of the Office of Water and Watersheds and IDEQ in writing of:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Act if it were directly discharging those pollutants; and
2. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For the purposes of this section, adequate notice must include information on:
   a) The quality and quantity of effluent to be introduced into the POTW, and
   b) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
4. The permittee must notify the Director of the Office of Water and Watersheds at the following address:

   US EPA Region 10
   Attn: NPDES Permits Unit Manager
   1200 Sixth Avenue
   Suite 900 M/S OWW-130
   Seattle, WA 98101-3140

IV. Compliance Responsibilities

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

B. Penalties for Violations of Permit Conditions

1. Civil and Administrative Penalties. Pursuant to 40 CFR Part 19 and the Act, any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461

note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $37,500 per day for each violation).

2. Administrative Penalties. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Pursuant to 40 CFR 19 and the Act, administrative penalties for Class I violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $16,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $37,500). Pursuant to 40 CFR 19 and the Act, penalties for Class II violations are not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $16,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $177,500).

3. Criminal Penalties:

   a) Negligent Violations. The Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both.

   b) Knowing Violations. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

   c) Knowing Endangerment. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

d) False Statements. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

C. Need To Halt or Reduce Activity not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.

D. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

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

F. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for

essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this Part.

2. Notice.

   a) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior written notice, if possible at least 10 days before the date of the bypass.

   b) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required under Part III.G (“Twenty-four Hour Notice of Noncompliance Reporting”).

3. Prohibition of bypass.

   a) Bypass is prohibited, and the Director of the Office of Compliance and Enforcement may take enforcement action against the permittee for a bypass, unless:

      (i) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

      (iii) The permittee submitted notices as required under paragraph 2 of this Part.

   b) The Director of the Office of Compliance and Enforcement may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part.

G. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee meets the requirements of paragraph 2 of this Part. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a) An upset occurred and that the permittee can identify the cause(s) of the upset;

   b) The permitted facility was at the time being properly operated;

c) The permittee submitted notice of the upset as required under Part III.G, “Twenty-four Hour Notice of Noncompliance Reporting;” and

d) The permittee complied with any remedial measures required under Part IV.D, “Duty to Mitigate.”

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

H. Toxic Pollutants

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

I. Planned Changes

The permittee must give written notice to the Director of the Office of Water and Watersheds as specified in Part III.I.4. and IDEQ as soon as possible of any planned physical alterations or additions to the permitted facility whenever:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this permit.
3. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application site.

J. Anticipated Noncompliance

The permittee must give written advance notice to the Director of the Office of Compliance and Enforcement and IDEQ of any planned changes in the permitted facility or activity that may result in noncompliance with this permit.

K. Reopener

This permit may be reopened to include any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the Act. The Director may modify or revoke and reissue the permit if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

V. General Provisions

A. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR 122.62, 122.64, or 124.5. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

B. Duty to Reapply

If the permittee intends to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. In accordance with 40 CFR 122.21(d), and unless permission for the application to be submitted at a later date has been granted by the Regional Administrator, the permittee must submit a new application at least 180 days before the expiration date of this permit.

C. Duty to Provide Information

The permittee must furnish to EPA and IDEQ, within the time specified in the request, any information that EPA or IDEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to EPA or IDEQ, upon request, copies of records required to be kept by this permit.

D. Other Information

When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or that it submitted incorrect information in a permit application or any report to EPA or IDEQ, it must promptly submit the omitted facts or corrected information in writing.

E. Signatory Requirements

All applications, reports or information submitted to EPA and IDEQ must be signed and certified as follows.

1. All permit applications must be signed as follows:
    a) For a corporation: by a responsible corporate officer.
    b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
    c) For a municipality, state, federal, Indian tribe, or other public agency: by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by EPA or IDEQ must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a) The authorization is made in writing by a person described above;

b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and

c) The written authorization is submitted to the Director of the Office of Compliance and Enforcement and IDEQ.

3. Changes to authorization. If an authorization under Part V.E.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.E.2. must be submitted to the Director of the Office of Compliance and Enforcement and IDEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this Part must make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. Availability of Reports

In accordance with 40 CFR 2, information submitted to EPA pursuant to this permit may be claimed as confidential by the permittee. In accordance with the Act, permit applications, permits and effluent data are not considered confidential. Any confidentiality claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice to the permittee. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR 2, Subpart B (Public Information) and 41 Fed. Reg. 36902 through 36924 (September 1, 1976), as amended.

G. Inspection and Entry

The permittee must allow the Director of the Office of Compliance and Enforcement, EPA Region 10; IDEQ; or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

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

H. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, nor any infringement of federal, tribal, state or local laws or regulations.

I. Transfers

This permit is not transferable to any person except after written notice to the Director of the Office of Water and Watersheds as specified in Part III.I.4. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory).

J. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

VI. Definitions

1. “Act” means the Clean Water Act.
2. “Administrator” means the Administrator of the EPA, or an authorized representative.
3. “Average monthly discharge limitation” means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.

4. "Average weekly discharge limitation" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.
5. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
7. "Composite" - see "8-hour composite".
8. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.
9. "Director of the Office of Compliance and Enforcement" means the Director of the Office of Compliance and Enforcement, EPA Region 10, or an authorized representative.
10. "Director of the Office of Water and Watersheds" means the Director of the Office of Water and Watersheds, EPA Region 10, or an authorized representative.
11. "DMR" means discharge monitoring report.
12. "EPA" means the United States Environmental Protection Agency.
13. "Geometric Mean" means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.
14. "Grab" sample is an individual sample collected over a period of time not exceeding 15 minutes.
15. "IDEQ" means the Idaho Department of Environmental Quality.
16. "Interference" is defined at 40 CFR 403.3.
17. "Maximum daily discharge limitation" means the highest allowable "daily discharge."
18. "Method Detection Limit (MDL)" means the minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

19. "Minimum Level (ML)" means the concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

20. "NPDES" means National Pollutant Discharge Elimination System, the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits . . . under sections 307, 402, 318, and 405 of the CWA.

21. "Pass Through" means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

22. "QA/QC" means quality assurance/quality control.

23. "Regional Administrator" means the Regional Administrator of Region 10 of the EPA, or the authorized representative of the Regional Administrator.

24. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

25. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

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APPENDIX E

Growth Areas

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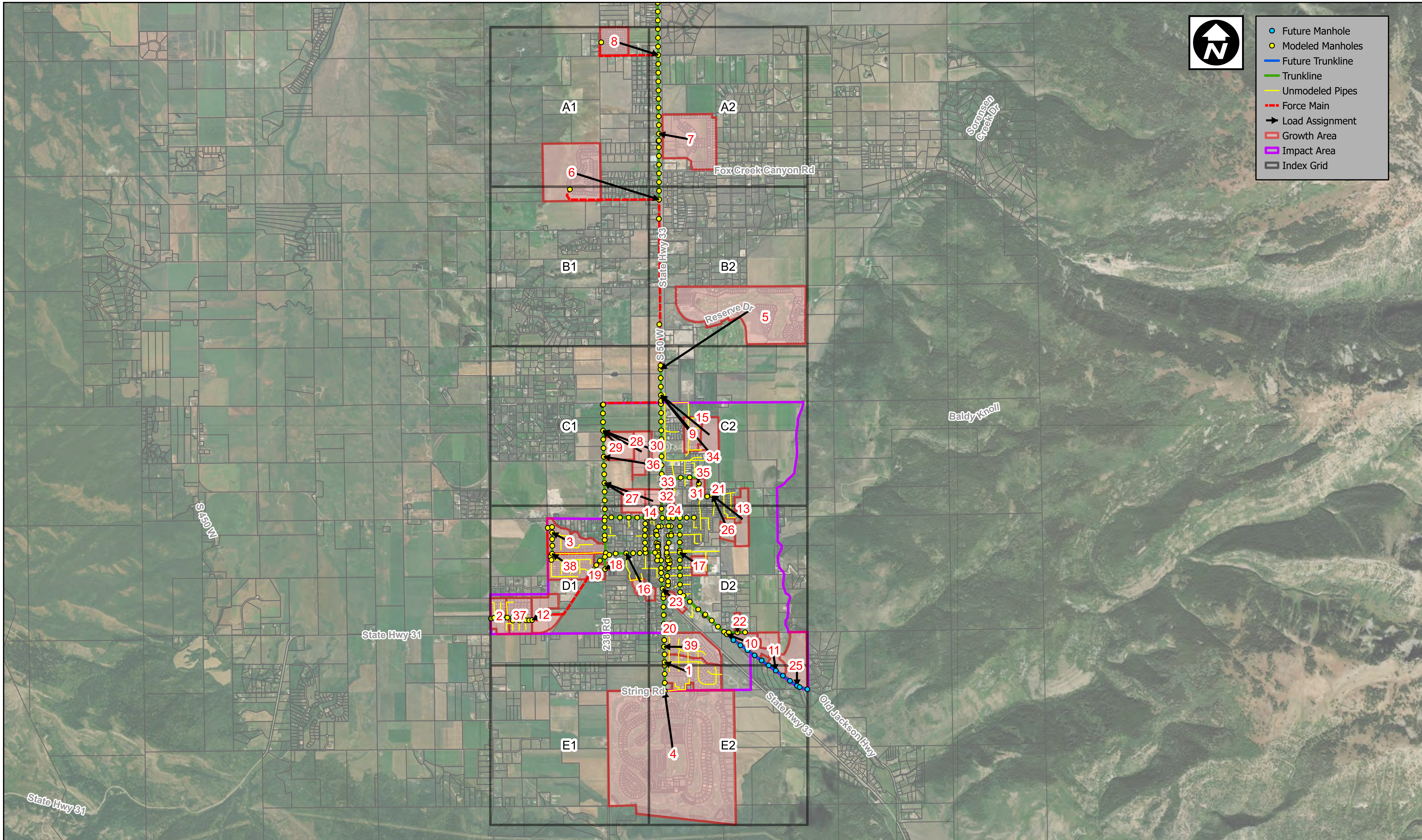
Client: City of Victor
Project: Wastewater Facility Planning Study
Project No.: 222168-002

Growth Area Characteristics

Growth Area ID	Name	Estimated EDUs to Buildout	Area (acres)	Additional Population by 2045[1]	Additional Population by 2075[1]	Comp. Plan Land Use Type	Source
1	Christopher St A	77	81.8	230	230	Edge Neighborhood	Empty Parcels on most recent aerial imagery
2	Settlement A	24	28.2	40	40	Edge Neighborhood	Empty Parcels on most recent aerial imagery
3	Brookside A	18	56.8	50	50	Surrounding Neighborhood	Empty Parcels on most recent aerial imagery
4	Teton Springs	340	768.7	830	980	County Subdivision (Not in Comp. Plan)	Empty Parcels on most recent aerial imagery
5	Teton Reserve	121	281.4	230	350	County Subdivision (Not in Comp. Plan)	Empty Parcels on most recent aerial imagery
6	River Meadows	29	160.8	90	90	County Subdivision (Not in Comp. Plan)	Empty Parcels on most recent aerial imagery
7	Fox Creek	20	127.0	70	70	County Subdivision (Not in Comp. Plan)	Empty Parcels on most recent aerial imagery
8	Valley Vista Estates	47	38.5	110	110	County Subdivision (Not in Comp. Plan)	Empty Parcels on most recent aerial imagery
9	Lupine Ln	35	26.1	100	100	Surrounding Neighborhood	Empty Parcels on most recent aerial imagery
10	Mountainside Blvd	50	24.5	150	150	Downtown Neighborhood	Empty Parcels on most recent aerial imagery
11	1 East of Mountainside Blvd	114	28.6	130	410	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
12	East of Settlement	164	41.1	180	590	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
13	1 East of Aspen St	33	32.8	50	170	Edge Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
14	1 NW of Cedron and HWY 33	250	17.9	210	700	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
15	East of Lupine Lane	129	32.2	140	460	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
16	South of Abby Loop	123	15.4	120	380	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
17	West of Elementary	109	13.6	100	340	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
18	NE of Bighorn Trail	27	3.3	30	80	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
19	West of Bighorn Trail	73	9.2	70	230	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
20	North of Christopher Street	5	5.1	10	30	Edge Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
21	1 East of Larkspur Ave	44	5.5	40	140	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
22	North of Mountainside Blvd	40	5.0	40	120	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
23	North of HWY 33 Stinker Store	113	8.0	100	310	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
24	1 West of N Agate Ave	74	5.3	60	210	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
25	2 East of Mountainside Blvd	53	52.9	80	270	Edge Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
26	2 East of Aspen St	60	15.0	70	220	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
27	2 NW of Cedron and HWY 33	213	26.6	200	650	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
28	3 NW of Cedron and HWY 33	137	34.2	150	490	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
29	4 NW of Cedron and HWY 33	40	39.7	60	200	Edge Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
30	5 NW of Cedron and HWY 33	9	8.6	10	40	Employment	Estimated from Comp. Plan Land Use EDUs/Acre
31	2 East of Larkspur Ave	22	5.5	20	80	Surrounding Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
32	2 West of N Agate Ave	28	2.0	20	80	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
33	3 West of N Agate Ave	35	2.5	30	100	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
34	2 East of Larkspur Ave	28	3.5	30	90	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
35	3 East of Larkspur Ave	22	2.7	20	70	Downtown Neighborhood	Estimated from Comp. Plan Land Use EDUs/Acre
36	6 NW of Cedron and HWY 33	94	6.7	80	260	Downtown Core	Estimated from Comp. Plan Land Use EDUs/Acre
37	Settlement B	33	42.5	100	100	Edge Neighborhood	Empty Parcels on most recent aerial imagery
38	Brookside B	13	56.2	40	40	Surrounding Neighborhood	Empty Parcels on most recent aerial imagery
39	Christopher St B	50	61.7	150	150	Edge Neighborhood	Empty Parcels on most recent aerial imagery

1) Values rounded to nearest 10.

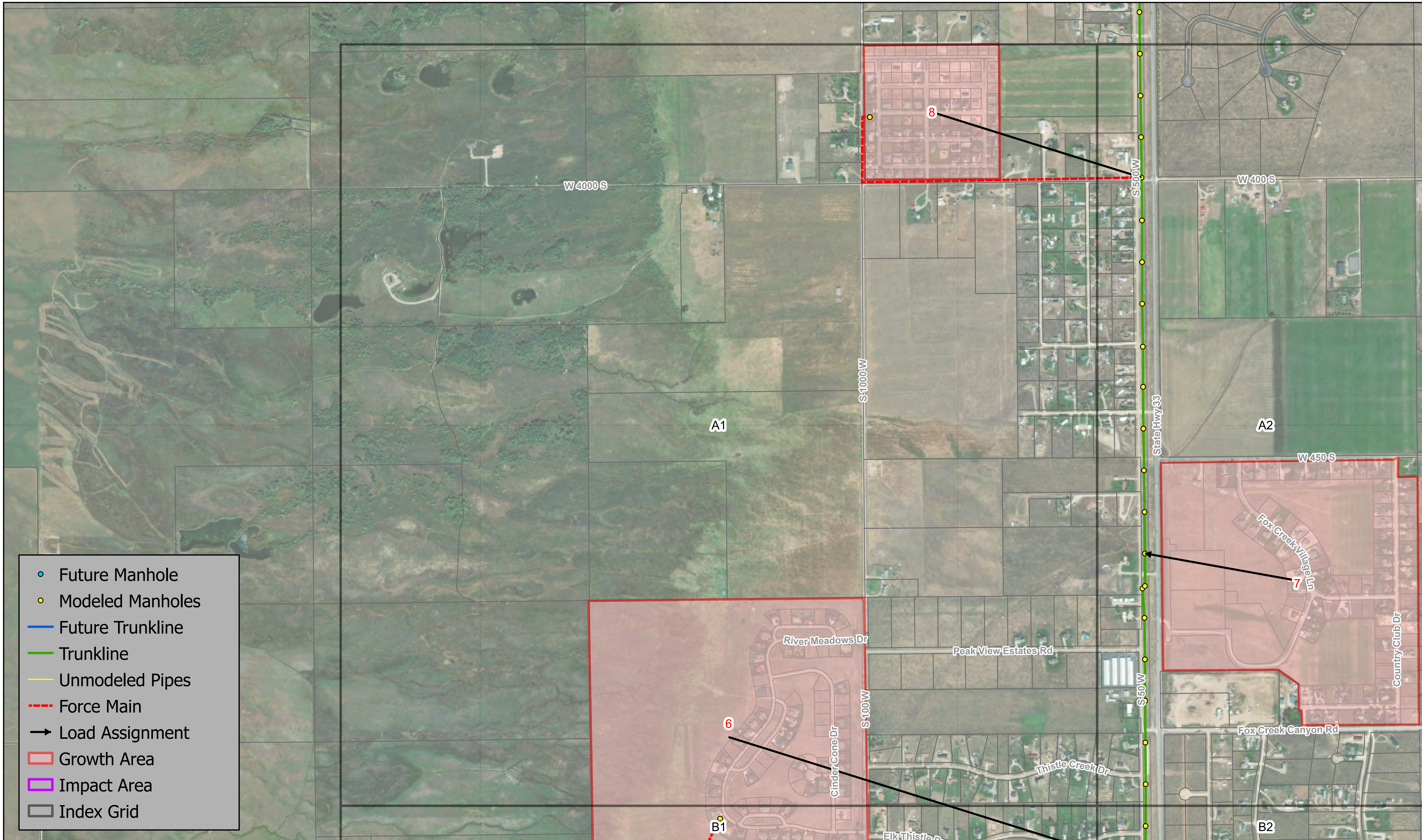


Growth Load Assignments

KELLER ASSOCIATES

CITY of VICTOR

Overview

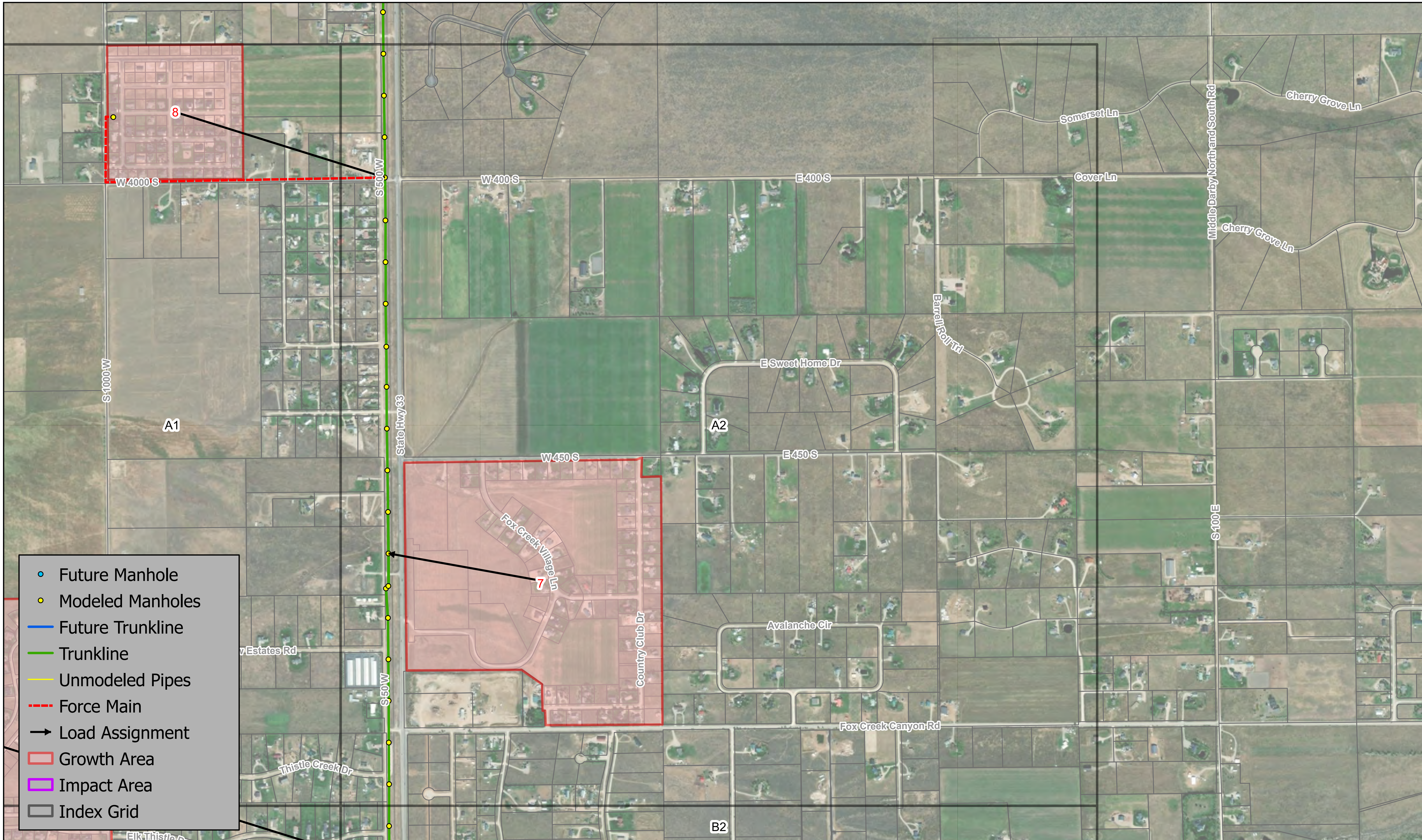


0 500 1,000 1,500 2,000 US Feet

Growth Load Assignments

KELLER ASSOCIATES

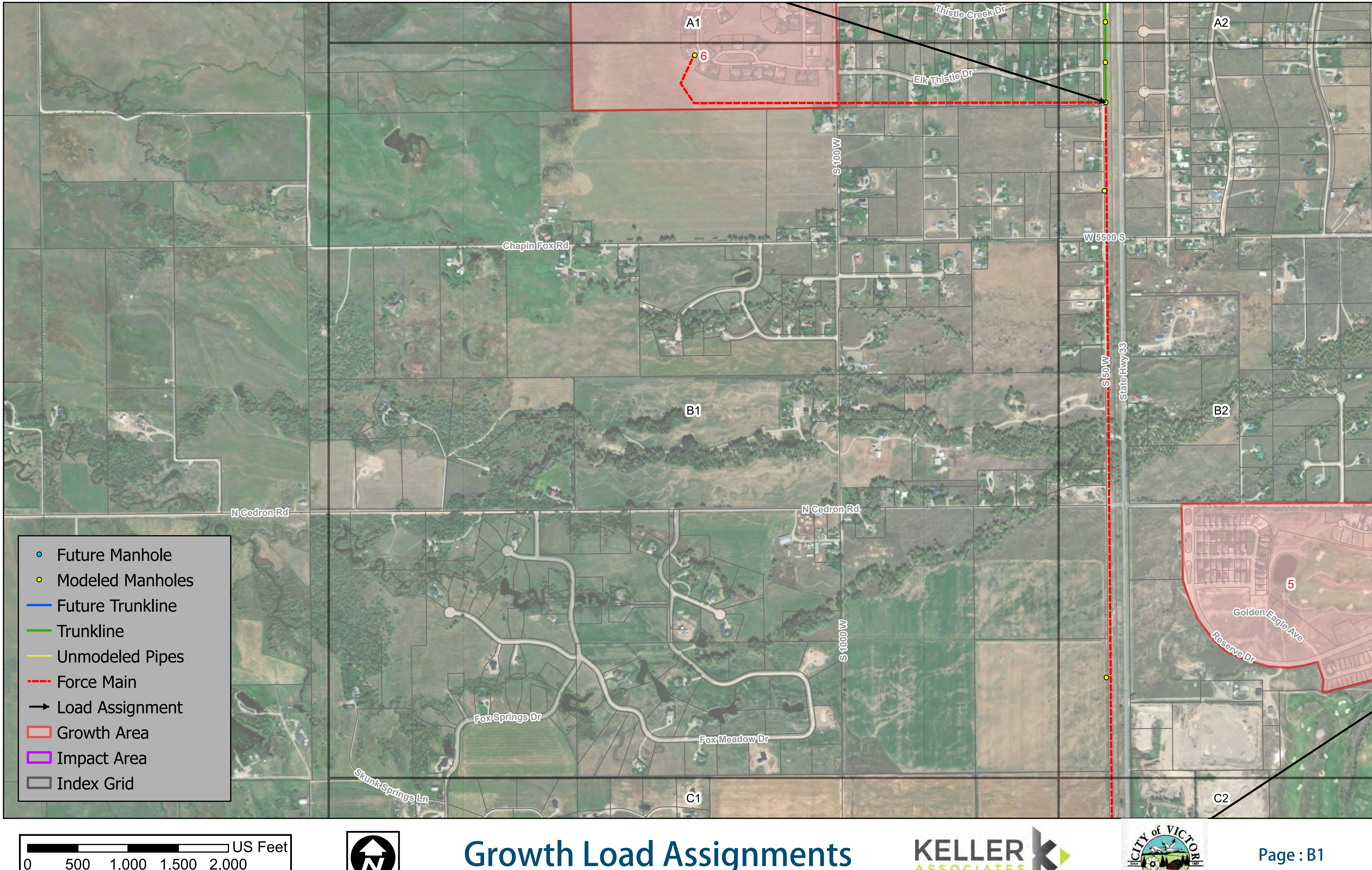
CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

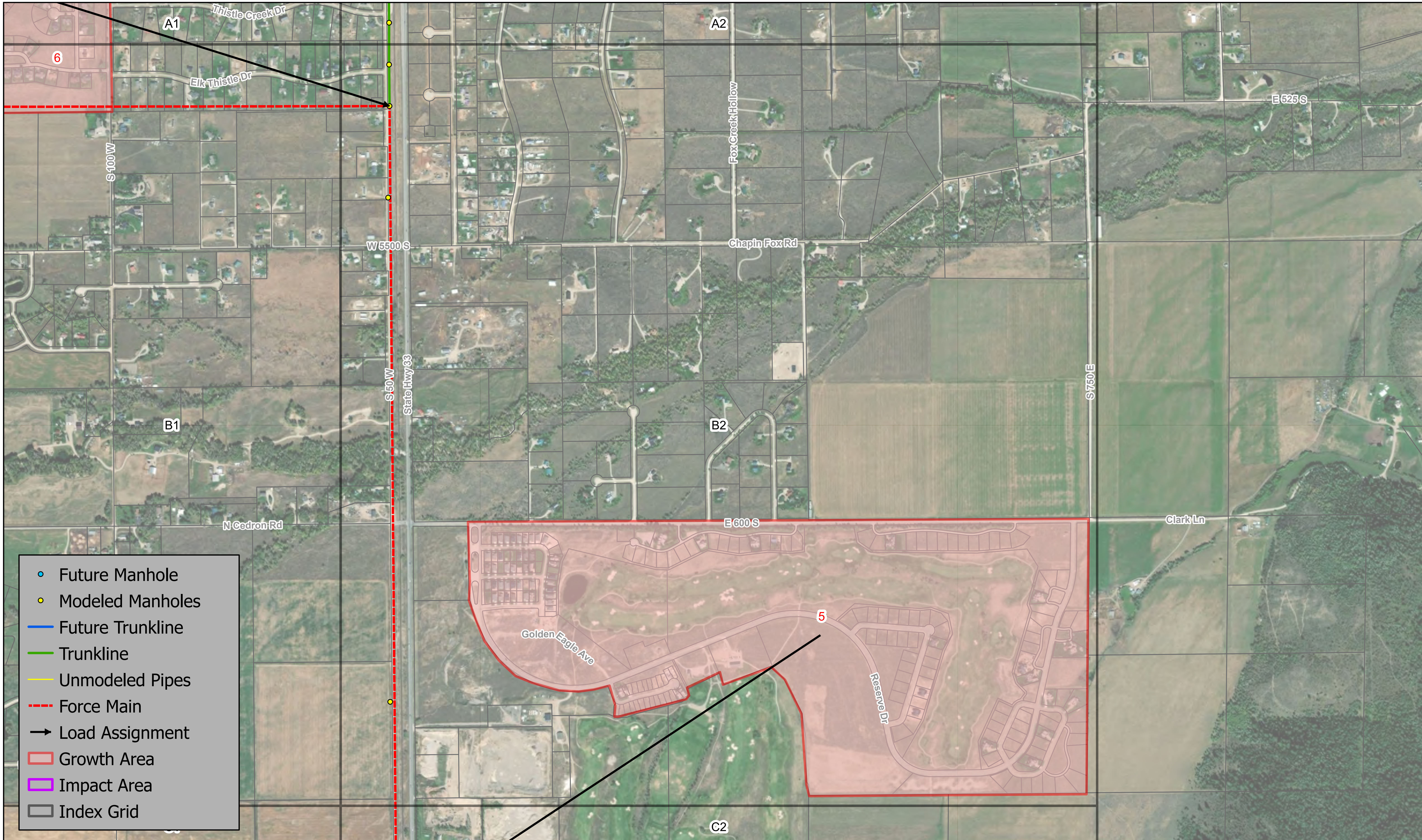
CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

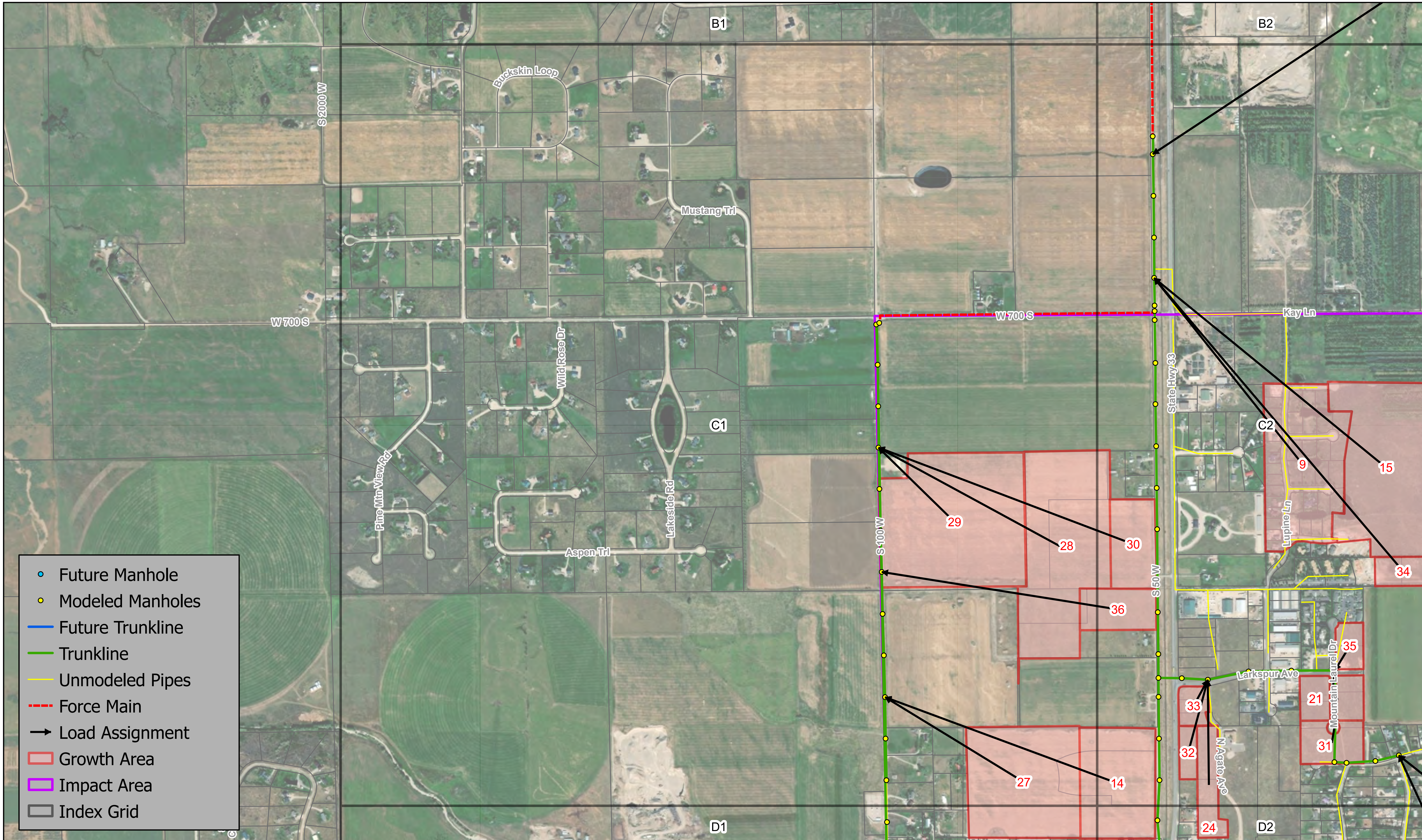
CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

CITY of VICTOR



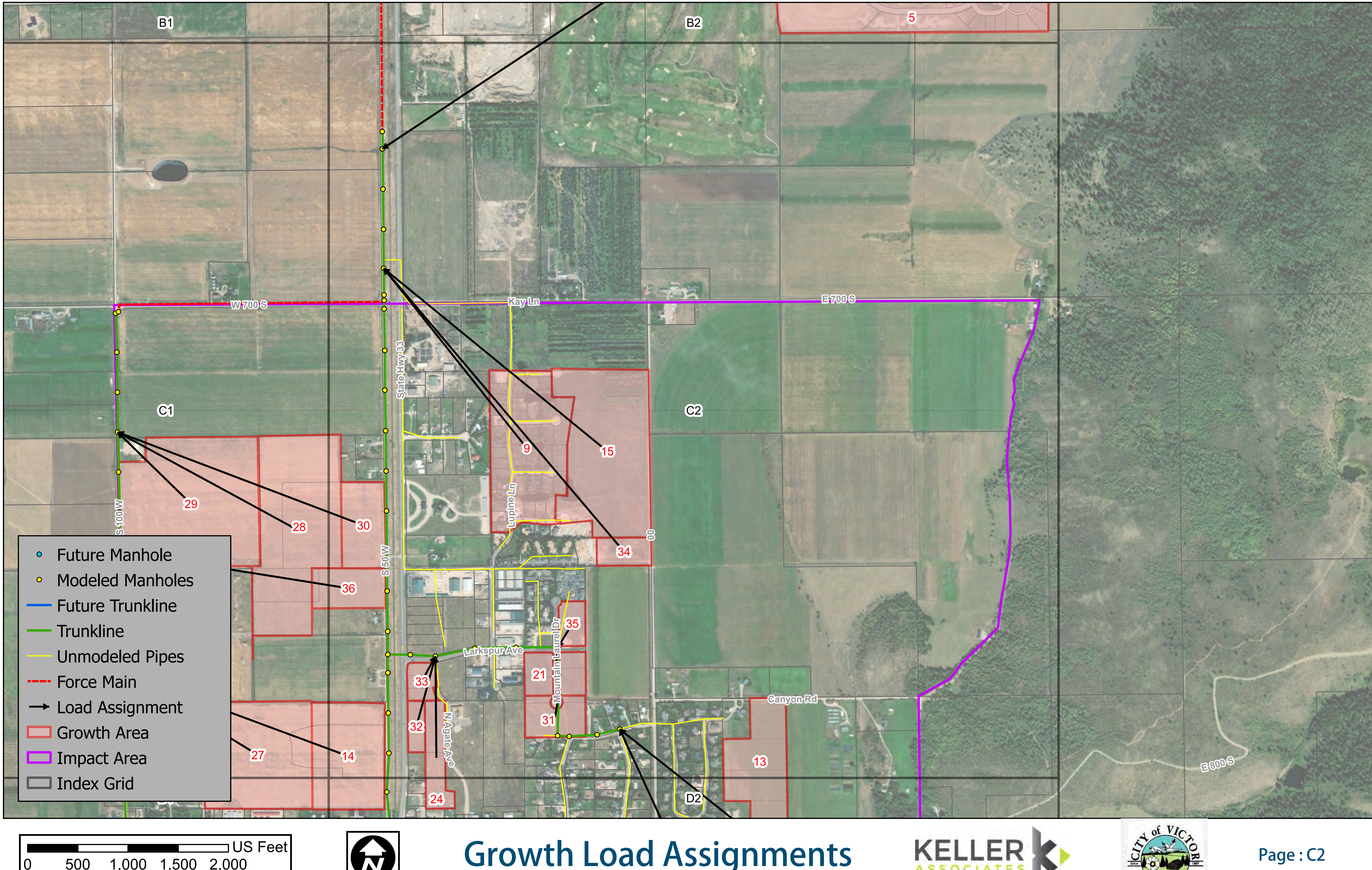
US Feet
0 500 1,000 1,500 2,000

Growth Load Assignments

KELLER ASSOCIATES

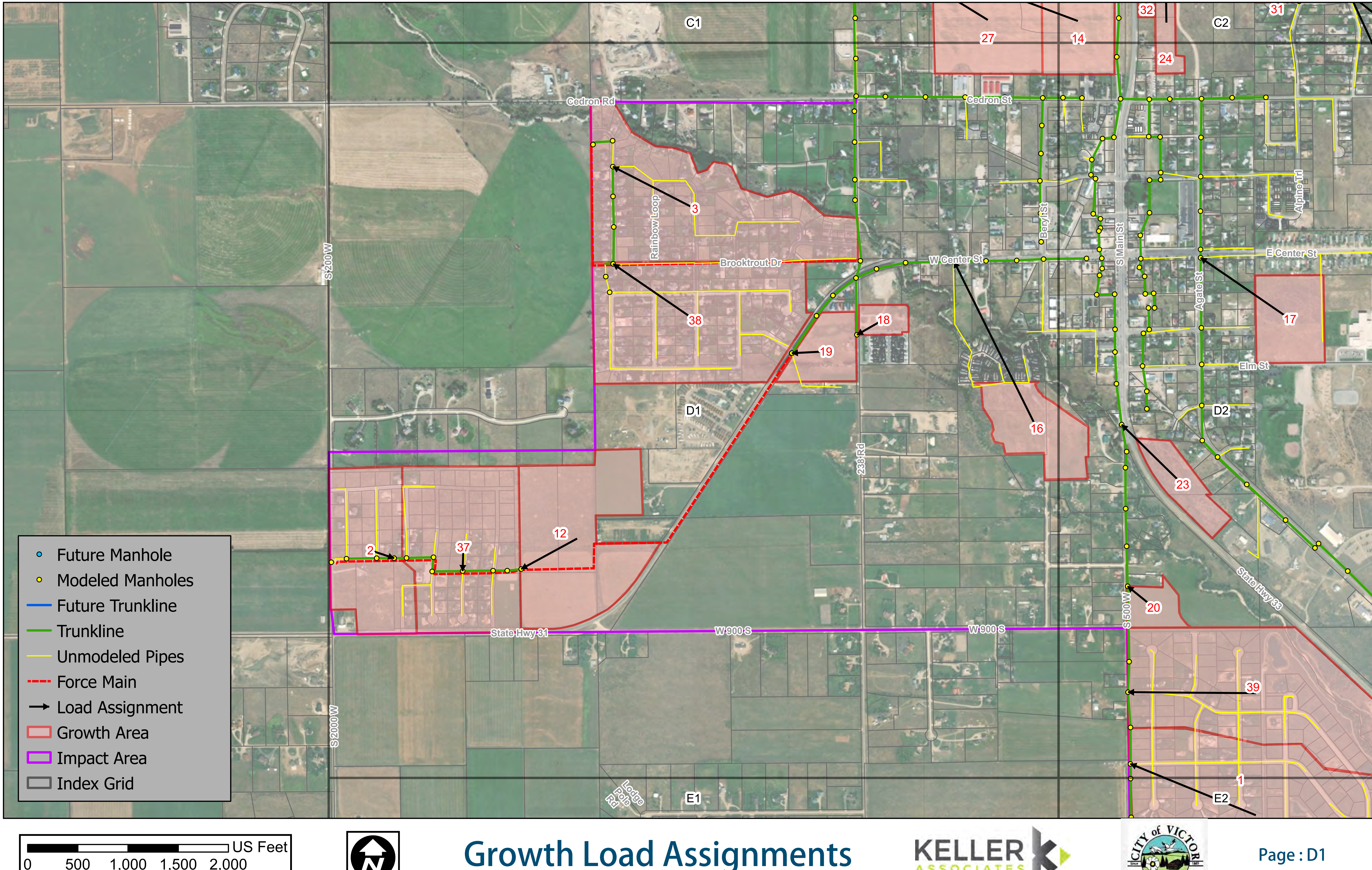
CITY of VICTOR

Page : C1



Growth Load Assignments

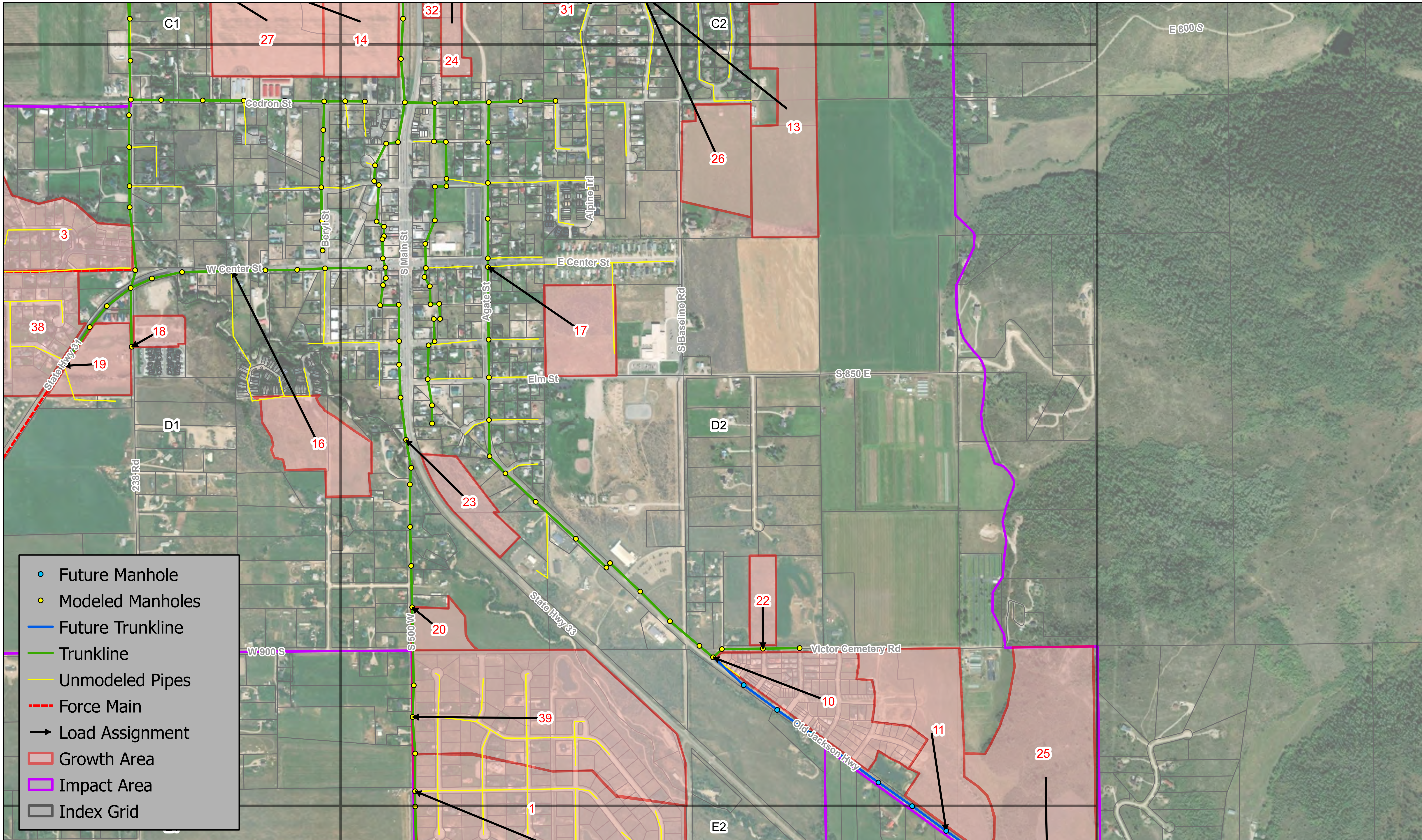
KELLER ASSOCIATES



Growth Load Assignments

KELLER ASSOCIATES

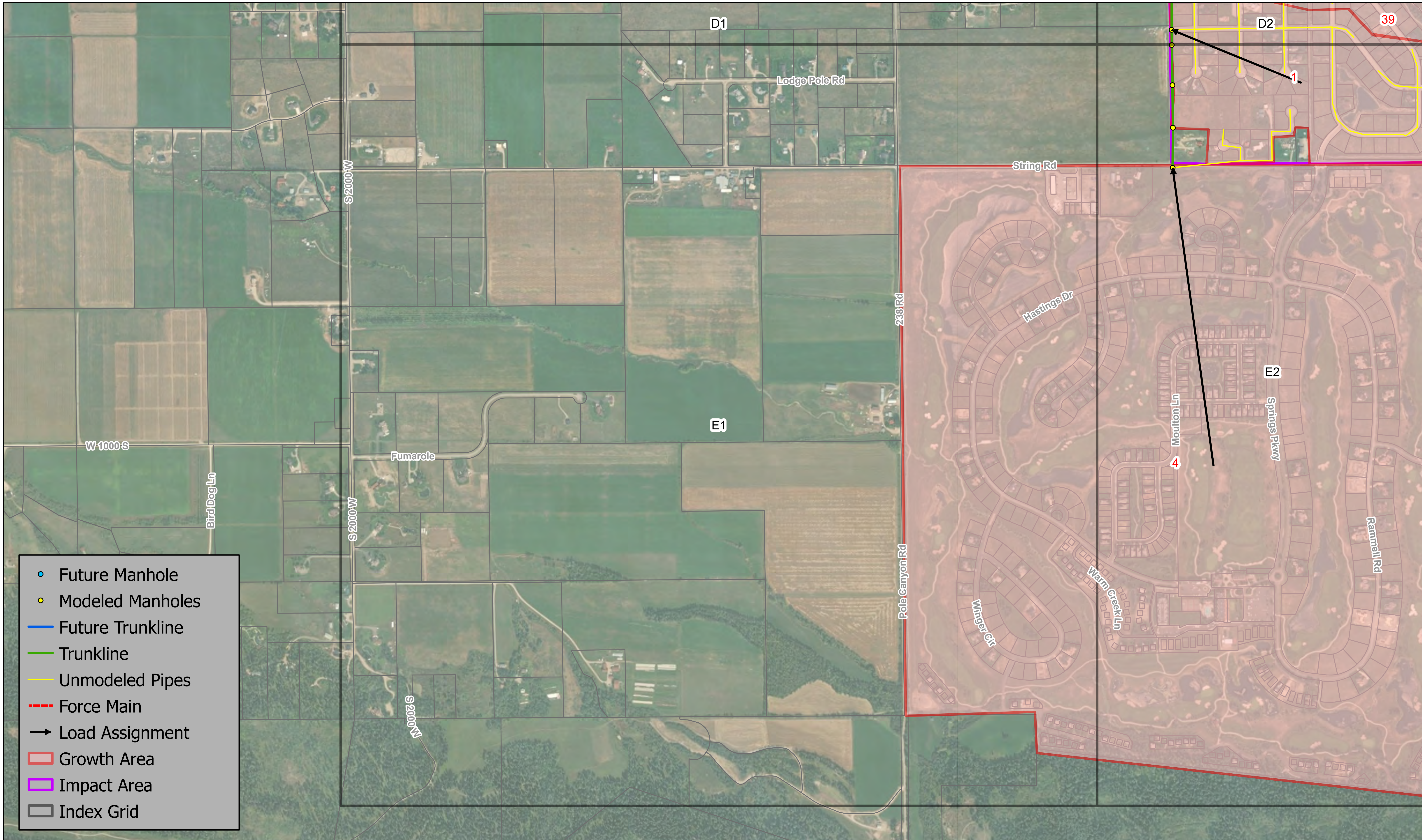
CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

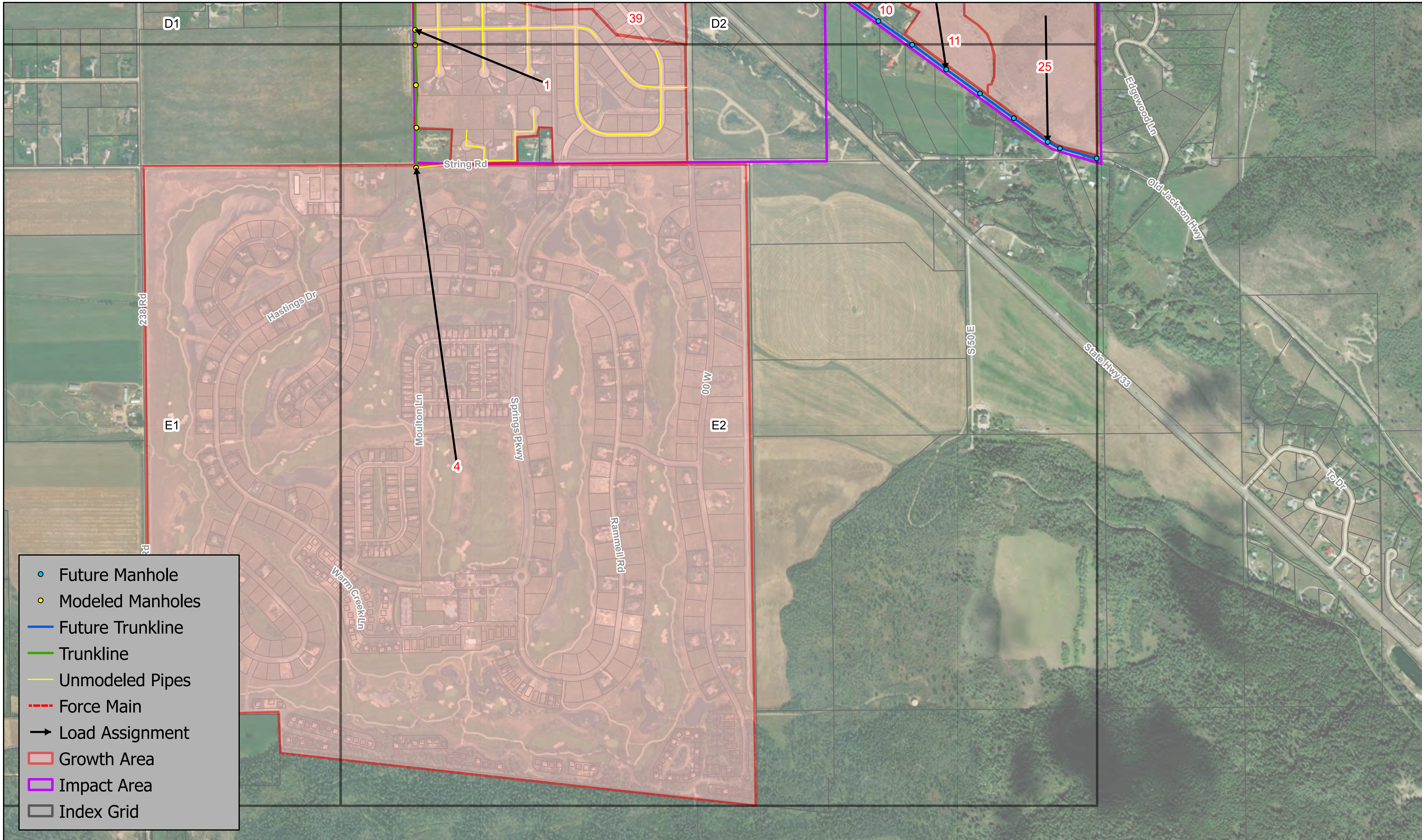
CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

CITY of VICTOR



Growth Load Assignments

KELLER ASSOCIATES

CITY of VICTOR

APPENDIX F

Annual Replacement Budgets

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Client: City of Victor
Project: Wastewater Facility Planning Study
Project No.: 222168-002

Rates, Revenues, and Expenses

	Historic	Historic	Historic	Historic	Baseline
Fiscal Year	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Typical Monthly User Rate (Residential)	**$61.04**	**$61.04**	**$61.04**	**$61.04**	**$61.04**
Revenues					
Charges for Services	$ 940,551	$ 1,143,545	$ 1,156,014	$ 1,309,265	$ 1,208,162
Miscellaneous	$ 70,000	$ 1,728	$ 765	$ 428,333	$ 103,754
Investment Return	$ 17,028	$ -	$ -	$ -	$ -
Total Revenues	**$ 1,027,579**	**$ 1,145,273**	**$ 1,156,779**	**$ 1,737,598**	**$ 1,311,916**
Expenditures					
Personnel	$ 263,398	$ 252,403	$ 239,428	$ 327,450	$ 348,659
Goods and Services	$ 148,428	$ 151,807	$ 200,537	$ 294,586	$ 260,855
Debt Service	$ 205,648	$ 205,648	$ 205,648	$ 205,648	$ 447,792
City of Driggs	$ 213,960	$ 212,102	$ 105,303	$ 184,953	$ 393,000
Total Expenditures	**$ 831,434**	**$ 821,960**	**$ 750,916**	**$ 1,012,637**	**$ 1,450,306**
Change in Fund Balance	**$ 196,145**	**$ 323,313**	**$ 405,863**	**$ 724,961**	**$ (138,390)**
Ending Fund Balance					**$ (138,390)**

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

City of Victor Short Lived and Long Lived Asset Replacement

Short Lived Assets	Quantity	Unit	Unit Cost	Total Replacement Cost	Typical Useful Life / Frequency (years)	Annualized Replacement Cost
Lift Station #1						
Submersible Pump & Motor (50 hp)	2	EA	$50,000	$100,000	20	$5,000
Routine Pump Inspection	1	LS	$3,000	$3,000	5	$600
Impeller Replacement	2	EA	$7,500	$15,000	10	$1,500
Electrical and Control	1	LS	$46,000	$50,000	15	$3,400
Total Lift Station #1 Cost				**$168,000**	**-**	**$10,500**
Lift Station #2						
Submersible Pump & Motor (10 hp)	2	EA	$40,000	$80,000	20	$4,000
Routine Pump Inspection	1	LS	$3,000	$3,000	5	$600
Impeller Replacement	2	EA	$6,000	$12,000	10	$1,200
Electrical and Control	1	LS	$46,000	$50,000	15	$3,400
Total Lift Station #2 Cost				**$145,000**	**-**	**$9,200**
Lift Station #3						
Submersible Pump & Motor (7.5 hp)	2	EA	$35,000	$70,000	20	$3,500
Routine Pump Inspection	1	LS	$3,000	$3,000	5	$600
Impeller Replacement	2	EA	$6,000	$12,000	10	$1,200
Electrical and Control	1	LS	$46,000	$50,000	15	$3,400
Total Lift Station #3 Cost				**$135,000**	**-**	**$8,700**
Lift Station #4						
Submersible Pump & Motor (7.5 hp)	2	EA	$35,000	$70,000	20	$3,500
Routine Pump Inspection	1	LS	$3,000	$3,000	5	$600
Impeller Replacement	2	EA	$6,000	$12,000	10	$1,200
Electrical and Control	1	LS	$46,000	$50,000	15	$3,400
Total Lift Station #4 Cost				**$135,000**	**-**	**$8,700**
Total Material Costs				**$583,000**	**-**	**$37,100**
Mobilization					10%	$3,710
Subtotal					-	**$40,810**
Contingency					20%	$8,200
Total Construction Cost					-	**$49,000**
Engineering					20%	$9,800
Total Short-Lived Asset Replacement (rounded)					**-**	**$59,000**

Client: City of Victor
Project: WWFPS
Project No.: 222168-002

City of Victor Short Lived and Long Lived Asset Replacement

Long Lived Assets	Quantity	Unit	Unit Cost	Total Replacement Cost	Typical Useful Life (years)	Annualized Replacement Cost
Pipelines / Cleanouts						
8-inch Pipe & Surface Repair (Gravity)	112,375	LF	$220	$24,720,000	75	$330,000
10-inch Pipe & Surface Repair (Gravity)	5,221	LF	$225	$1,170,000	75	$16,000
12-inch Pipe & Surface Repair (Gravity)	11,130	LF	$230	$2,560,000	75	$35,000
15-inch Pipe & Surface Repair (Gravity)	7,170	LF	$238	$1,710,000	75	$23,000
4-inch Pipe & Surface Repair (Pressure)	9,800	LF	$210	$2,060,000	75	$28,000
6-inch Pipe & Surface Repair (Pressure)	2,870	LF	$210	$600,000	75	$8,000
8-inch pipe & Surface Repair (Pressure)	7,600	LF	$220	$1,670,000	75	$23,000
Manhole	517	EA	$9,800	$5,070,000	50	$102,000
			Total Pipelines / Cleanouts	**$39,560,000**	**-**	**$565,000**
Lift Station #1						
Valves / Meters	1	LS	$48,000	$48,000	30	$1,600
Wetwell (rehab)	1	EA	$42,000	$42,000	25	$1,700
			Total Lift Station #1 Cost	**$90,000**	**-**	**$3,300**
Lift Station #2						
Valves / Meters	1	LS	$48,000	$50,000	30	$1,700
Wetwell (rehab)	1	EA	$42,000	$40,000	25	$1,600
			Total Lift Station #2 Cost	**$90,000**	**-**	**$3,300**
Lift Station #3						
Valves / Meters	1	LS	$48,000	$50,000	30	$1,700
Wetwell (rehab)	1	EA	$42,000	$40,000	25	$1,600
			Total Lift Station #3 Cost	**$90,000**	**-**	**$3,300**
Lift Station #4						
Valves / Meters	1	LS	$48,000	$50,000	30	$1,700
Wetwell (rehab)	1	EA	$42,000	$40,000	25	$1,600
			Total Lift Station #4 Cost	**$90,000**	**-**	**$3,300**
Total Collection System Replacement Costs				**$39,920,000**		**$578,200**
				Mobilization	10%	$57,820
				Subtotal	-	**$636,020**
				Contingency	20%	$127,200
				Total Construction Cost	-	**$763,200**
				Engineering	20%	$152,600
				Total Long-Lived Asset Replacement (rounded)	-	**$916,000**

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APPENDIX G

Capital Improvement Plan

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Client: City of Victor
Project: Wastewater Facility Planning Study
Project No.: 222168-002

CIP Prioritization Criteria

Priority	Description
1	- Address capacity deficiencies under existing flows
2	- Address capacity deficiencies under 20-year flows
3	- Address capacity deficiencies under 50-year flows

City of Victor | 222168-002

5-Year CIP

ID#	Project Name	Cost	Opinion of Probable Costs (2024 Dollars)				
			2025	2026	2027	2028	2029
Priority 1 Improvements							
1.1	Driggs South Lift Station Force Main Upsize	$ 3,654,000	$ 731,000	$ 2,923,000			
1.2	Driggs South Lift Station Upgrades	$ 2,735,000	$ 547,000	$ 2,188,000			
1.3	Lift Station 1 Force Main Installation	$ 3,076,000		$ 615,000	$ 2,461,000		
1.4	Lift Station 1 Upgrades	$ 2,735,000		$ 547,000	$ 2,188,000		
Total (rounded)		**$ 12,200,000**	**$ 1,278,000**	**$ 6,273,000**	**$ 4,649,000**	**$ -**	**$ -**

CIP Summary

ID#	Project Name	Project Trigger	Total Estimated Cost (2024 Dollars)
Priority 1 Improvements (2025-2030)			
1.2	Driggs South Lift Station Force Main Upsize	Existing PHF exceeds velocity constraints	$ 3,654,000
1.1	Driggs South Lift Station Upgrades	Existing PHF exceeds capacity trigger	$ 2,735,000
1.4	Lift Station 1 Force Main Installation	Existing PHF exceeds velocity constraints	$ 3,076,000
1.3	Lift Station 1 Upgrades	Existing PHF exceeds capacity trigger	$ 2,735,000
		Total Priority 1 Improvements (rounded)	**$ 12,200,000**
Priority 2 Improvements (2031-2045)			
2.1	Interceptor Upgrades (12" to 15")	Surcharging during 20-year MDF	$ 1,326,000
2.2	Lift Station 2 Upgrades	20-Year PHD exceeds capacity trigger	$ 226,000
2.3	S 500 W Pipe Upsize	Surcharging during 20-year MDF	$ 4,570,000
2.4	Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$ 2,920,000
2.5	Driggs - Interceptor Upgrades (15" to 21")	Upstream improvements during 20-year MDF	$ 6,235,000
2.6	Lift Station Backup Provisions	Recommended resiliency improvement	$ 205,000
		Total Priority 2 Improvements (rounded)	**$ 15,482,000**
Priority 3 Improvements (2046 - 2075)			
3.1	Driggs South Lift Station and Interceptor Upgrades	50-Year PHD exceeds capacity trigger	$ 391,000
3.2	Lift Station 1 Upgrades	50-Year PHD exceeds capacity trigger	$ 391,000
3.3	Upstream of Lift Station 1 Upsize	Surcharging during 50-year MDF	$ 889,000
3.4	S 1000 W Pipe Upsize	Surcharging during 50-year MDF	$ 946,000
3.5	Lift Station 4 Upgrades	50-Year PHD exceeds capacity trigger	$ 205,000
		Total Priority 3 Improvements (rounded)	**$ 2,822,000**
		TOTAL SYSTEM IMPROVEMENTS COSTS (rounded)	**$ 30,504,000**

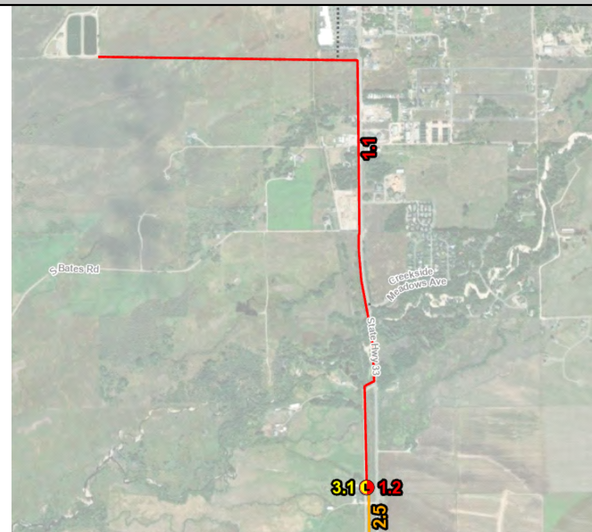
Notes

The cost estimate herein is concept level information only based on our perception of current conditions at the project location and its accuracy is subject to significant variation depending upon project definition and other factors. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. This cost opinion is in **2024** dollars and does not include escalation to time of actual construction. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein."

Project Title:	Location:
Driggs South Lift Station Force Main Upsize	**Driggs South Lift Station to Main Lift Station Shared Force Main**

Project Identifier:

1.1



Need for Project:
- Existing force main size is not sufficient to convey projected 20-year peak hour flows.

Objective:
- Install new 12-inch force main from Driggs South LS to the WWTP

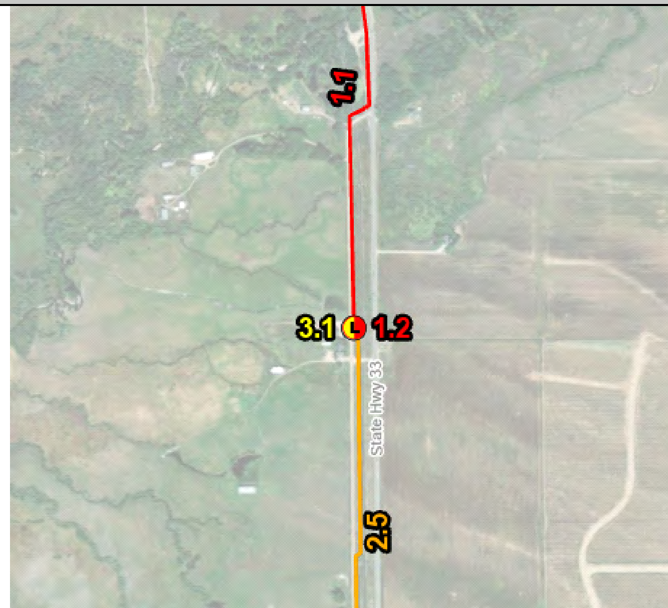
Design Considerations:
- Additional alternatives to correct this deficiency should be considered. Refer to Driggs WW Collection Plan for additional details.
-Assumes installation of new 12-inch pipe parallel to existing 8-inch pipe.
- Directional drilling or boring may be required under creek
- Some cost sharing between the Victor and Driggs may be negotiated. Costs below reflect the total anticipated project costs.
-Could be completed concurrently with CIP 1.2 pump upgrades

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
12-inch Pressure Pipe - Excavation, Backfill	10,460	LF	$ 158	$ 1,650,000	
Roadway Full Lane Asphalt Repair	90	LF	$ 85	$ 8,000	
Gravel Surface Repair	150	LF	$ 11	$ 2,000	
Natural Surface Repair	10,220	EA	$ 5	$ 50,000	
Traffic Control - Without Flagging	240	EA	$ 5	$ 2,000	
Connect to existing Lift Station	1	LS	$ 40,000	$ 40,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 1,777,000***
Additional Elements					
Mobilization and General Conditions			10%	$178,000	
				Subtotal	***$1,955,000***
Contingency			30%	$587,000	
				Subtotal	***$2,542,000***
Contractor Overhead and Profit			15%	$381,000	
				Total Construction Subtotal	***$2,923,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$731,000	
				Total Project Costs (rounded)	**$ 3,654,000**

Project Title:	Location:
Driggs South Lift Station Upgrades	**Driggs South Lift Station**

Project Identifier:

1.2



Need for Project:
- Existing peak hour flows exceed the firm capacity

Objective:
- Increase the capacity to convey 20-year projected peak hour flows

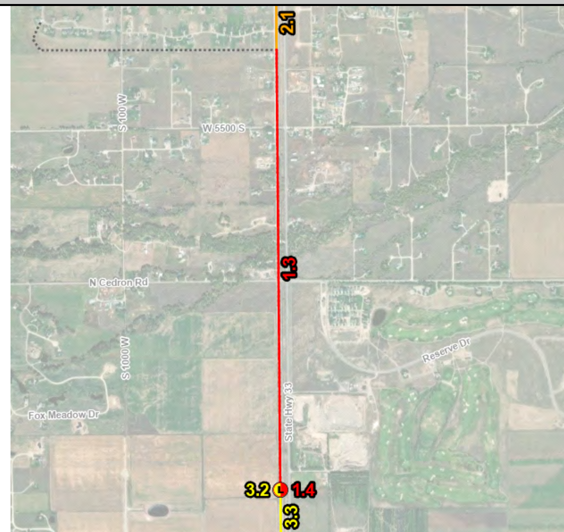
Design Considerations:
- Could be completed concurrently with CIP 1.1 force main upsizing
- This project assumes the complete replacement of the lift station.
- The condition of the lift station should be assessed prior to improvements being made to confirm entire lift station needs replacement.
- Some cost sharing between the Victor and Driggs may be negotiated. Costs below reflect the total anticipated project costs.
- Exisiting PHF = 590 gpm
- 2045 PHF = 1,225; 85% of proposed firm capacity is the 2045 PHF
- Provisions to meet the projected 50-year flows could be considered (i.e., room for additional pumps, oversized electrical gear. etc.)

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Replace Lift Station (>=25 hp pumps)	1	LS	$ 1,306,000	$ 1,306,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 1,331,000***
Additional Elements					
Mobilization and General Conditions			10%	$133,000	
				Subtotal	***$1,464,000***
Contingency			30%	$439,000	
				Subtotal	***$1,903,000***
Contractor Overhead and Profit			15%	$285,000	
				Total Construction Subtotal	***$2,188,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$547,000	
				Total Project Costs (rounded)	**$ 2,735,000**

Project Title:	Location:
Lift Station 1 Force Main Installation	**Lift Station 1 to River Meadows Subdivision**

Project Identifier:

1.3



<u>Need for Project:</u>
- Existing force main size is not sufficient to convey projected 20-year peak hour flows.

<u>Objective:</u>
- Install a new 12-inch force main adjacent to existing 8-inch force main

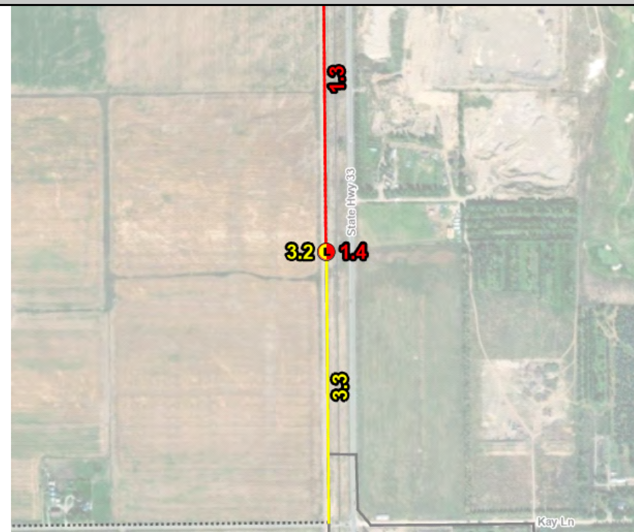
<u>Design Considerations:</u>
- Force main is sized to meet target velocities under 20-year and 50-year flow projections
- Assumes exisiting force main remains in service during construction
- Install air release/vacuum valves and cleanout stations as needed
- Directional drilling or boring may be required under creek
- Assumes the new 12-inch force main will be used day to day. Controls to pump into the existing 8-inch force main should be set up in event of an emergency.

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
12-inch Pressure Pipe - Excavation, Backfill	7,650	LF	$ 158	$ 1,207,000	
Gravel Surface Repair	170	EA	$ 11	$ 2,000	
Natural Surface Repair	7,480	EA	$ 5	$ 37,000	
Connect to Existing Lift Station	1	LS	$ 50,000	$ 50,000	
Jack and Bore	400	LF	$ 500	$ 200,000	
				Construction Subtotal	***$ 1,496,000***
Additional Elements					
Mobilization and General Conditions			10%	$150,000	
				Subtotal	***$1,646,000***
Contingency			30%	$494,000	
				Subtotal	***$2,140,000***
Contractor Overhead and Profit			15%	$321,000	
				Total Construction Subtotal	***$2,461,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$615,000	
				Total Project Costs (rounded)	**$ 3,076,000**

Project Title:	Location:
Lift Station 1 Upgrades	**Lift Station 1**

Project Identifier:

1.4



Need for Project:
- Existing peak hour flows exceed the 85% of the firm capacity

Objective:
- Increase the capacity to convey 20-year projected peak hour flows

Design Considerations:
- Could be completed concurrently with CIP 1.3 force main upsizing
- This project assumes the complete replacement of the lift station.
- The condition of the lift station should be assessed prior to improvements being made to confirm entire lift station needs replacement.
- Existing PHF = 650 gpm
-Provisions to meet the projected 50-year flows could be considered (i.e., room for additional pumps, oversized electrical gear. etc.)

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Replace Lift Station (>=25 hp pumps)	1	LS	$ 1,306,000	$ 1,306,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 1,331,000***
Additional Elements					
Mobilization and General Conditions			10%	$133,000	
				Subtotal	***$1,464,000***
Contingency			30%	$439,000	
				Subtotal	***$1,903,000***
Contractor Overhead and Profit			15%	$285,000	
				Total Construction Subtotal	***$2,188,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$547,000	
				Total Project Costs (rounded)	**$ 2,735,000**

Project Title:	Location:
Interceptor Upgrades (12" to 15")	**Highway 33 - River Meadows to Existing 15" Pipe**

Project Identifier:

2.1

Need for Project:
- Existing gravity sewer pipes are undersized to convey 20-year projected flows without surcharging

Objective:
- Upsize the existing gravity pipe to meet future peak hour flows

Design Considerations:
- Assumes replacement of existing manholes, and bypass pumping will be needed
- Assumes same Victor to Driggs Ownership line from 2011 Victor Interceptor Record Drawings
- Assumes pipe is installed at 0.0015 ft/ft slope

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
15-inch Gravity Pipe - Excavation, Backfill	2,670	LF	$ 196	$ 524,000	
48-Inch, Standard Manhole	8	EA	$ 9,653	$ 78,000	
Gravel Surface Repair	330	LF	$ 11	$ 4,000	
Natural Surface Repair	2,340	LF	$ 5	$ 12,000	
Traffic Control w/o Flaggers	330	LF	$ 5	$ 2,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 645,000***
Additional Elements					
Mobilization and General Conditions			10%	$65,000	
				Subtotal	***$710,000***
Contingency			30%	$213,000	
				Subtotal	***$923,000***
Contractor Overhead and Profit			15%	$138,000	
				Total Construction Subtotal	***$1,061,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$265,000	
				Total Project Costs (rounded)	**$ 1,326,000**

Project Title:	Location:
Lift Station 2 Upgrades	**Lift Station 2**

Project Identifier:

2.2

<u>Need for Project:</u>
- 20-year projected peak hour flows exceed the 85% of the firm capacity

<u>Objective:</u>
- Increase the capacity to convey 50-year projected peak hour flows

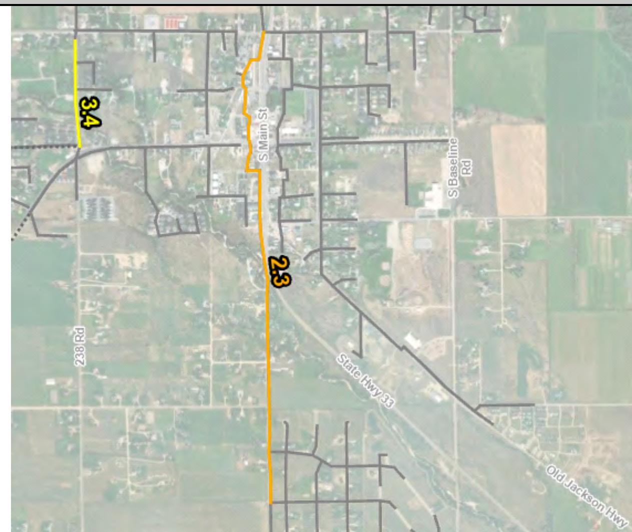
<u>Design Considerations:</u>
-Assumes only the pumps and electrical equipment need replaced. No other improvements are included in this cost, however a conditions assesment should be completed during pre-design to confirm use of existing infrastructure.
- 2045 PHF = 291 gpm
- 2075 PHF = 565 gpm

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Lift Station 2 - Pump Upsize (565 gpm)	2	EA	$ 30,000	$ 60,000	
Electrical Upgrades	1	LS	$ 25,000	$ 25,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 110,000***
Additional Elements					
Mobilization and General Conditions			10%	$11,000	
				Subtotal	***$121,000***
Contingency			30%	$36,000	
				Subtotal	***$157,000***
Contractor Overhead and Profit			15%	$24,000	
				Total Construction Subtotal	***$181,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$45,000	
				Total Project Costs (rounded)	**$ 226,000**

Project Title:	Location:
S 500 W Pipe Upsize	**S 500 W - Christopher Street to Cedron Rd and Highway 33**

Project Identifier:

2.3



Need for Project:
- Existing gravity sewer pipes are undersized to convey 20-year projected flows without surcharging
jected future flows exceed the capacity of the existing pipe

Objective:
- Upsize gravity pipe to increase capacity

Design Considerations:
- Assumes replacement of existing manholes, and bypass pumping will be needed
- Open trench of exisitng roadway will be required
-Consider straightening alingment along Main Street to improve access and keep infrastructure within right-of-way
-Assumes 12-inch pipe is installed at minimum slope of 0.0022 ft/ft
- Directional drilling or boring may be required under creek

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
12-inch Gravity Pipe - Excavation, Backfill	7,050	LF	$ 173	$ 1,220,000	
48-Inch, Standard Manhole	30	EA	$ 9,653	$ 290,000	
Reconnect Services	42	EA	$ 1,500	$ 63,000	
Roadway Full Lane Asphalt Repair	7,050	LS	$ 85	$ 598,000	
Traffic Control - Without Flagging	5,750	LF	$ 5	$ 27,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 2,223,000***
Additional Elements					
Mobilization and General Conditions			10%	$222,000	
				Subtotal	***$2,445,000***
Contingency			30%	$734,000	
				Subtotal	***$3,179,000***
Contractor Overhead and Profit			15%	$477,000	
				Total Construction Subtotal	***$3,656,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$914,000	
				Total Project Costs (rounded)	**$ 4,570,000**

Project Title:	Location:
Interceptor Upgrades (15" to 21")	**Highway 33 - Existing 15" Pipe to Driggs Ownership**

Project Identifier:

2.4

<u>Need for Project:</u>
- Upsizing the existing 12" gravity sewer pipes leads to 15" pipe downstream becoming undersized to convey 20-year projected flows without surpassing 85% d/D

<u>Objective:</u>
- Upsize the existing gravity pipe to meet future peak hour flows

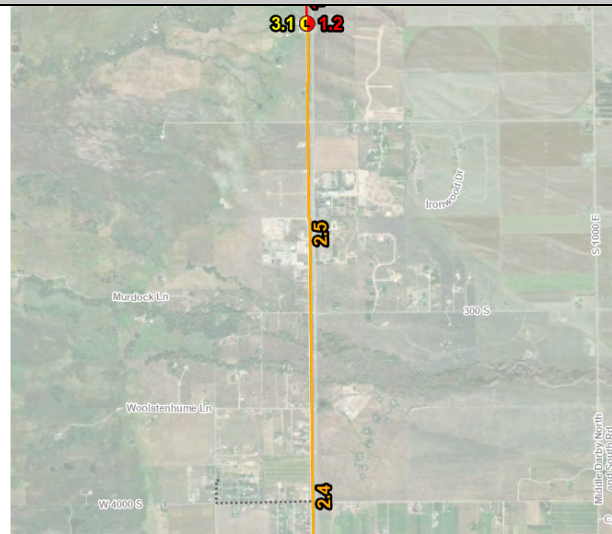
<u>Design Considerations:</u>
- Assumes replacement of existing manholes, and bypass pumping will be needed
- Assumes same Victor to Driggs Ownership line from 2011 Victor Interceptor Record Drawings
- Assumes pipe is installed at 0.001 ft/ft slope
- In place abandoned parallel 12" pipe may be utilized to decrease quantity of new pipe

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
21-inch Gravity Pipe - Excavation, Backfill	5,630	LF	$ 211	$ 1,188,000	
60-Inch, Standard Manhole	12	EA	$ 14,696	$ 177,000	
Gravel Surface Repair	120	LF	$ 11	$ 2,000	
Natural Surface Repair	5,510	LF	$ 5	$ 27,000	
Traffic Control w/o Flaggers	120	LF	$ 5	$ 1,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 1,420,000***
Additional Elements					
Mobilization and General Conditions			10%	$142,000	
				Subtotal	***$1,562,000***
Contingency			30%	$469,000	
				Subtotal	***$2,031,000***
Contractor Overhead and Profit			15%	$305,000	
				Total Construction Subtotal	***$2,336,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$584,000	
				Total Project Costs (rounded)	**$ 2,920,000**

Project Title:	Location:
Driggs - Interceptor Upgrades (15" to 21")	**Highway 33 - Driggs Ownership to Driggs South Lift Station**

Project Identifier:

2.5



<u>Need for Project:</u>
- Upsizing the existing 12" gravity sewer pipes leads to 15" pipe downstream becoming undersized to convey 20-year projected flows without surpassing 85% d/D

<u>Objective:</u>
- Upsize the existing gravity pipe to meet future peak hour flows

<u>Design Considerations:</u>
- Costs may be split between Driggs and Victor
- Assumes replacement of existing manholes, and bypass pumping will be needed
- Assumes same Victor to Driggs Ownership line from 2011 Victor Interceptor Record Drawings
- Assumes pipe is installed at 0.001 ft/ft slope
- In place abandoned parallel 12" pipe may be utilized to decrease quantity of new pipe

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
21-inch Gravity Pipe - Excavation, Backfill	11,730	LF	$ 211	$ 2,476,000	
60-Inch, Standard Manhole	32	EA	$ 14,696	$ 471,000	
Gravel Surface Repair	210	LF	$ 11	$ 3,000	
Natural Surface Repair	11,520	LF	$ 5	$ 57,000	
Traffic Control w/o Flaggers	210	LF	$ 5	$ 1,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 3,033,000***
Additional Elements					
Mobilization and General Conditions			10%	$303,000	
				Subtotal	***$3,336,000***
Contingency			30%	$1,001,000	
				Subtotal	***$4,337,000***
Contractor Overhead and Profit			15%	$651,000	
				Total Construction Subtotal	***$4,988,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$1,247,000	
				Total Project Costs (rounded)	**$ 6,235,000**

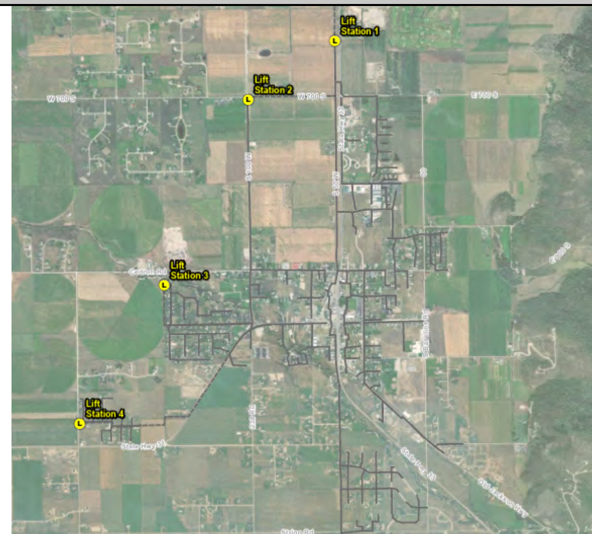
Project Title:	Location:
Lift Station Backup Provisions	**City Lift Stations**

Project Identifier:

2.6

<u>Need for Project:</u>
- During a power outage event the City only has one portable generator to service all four lift stations. During high flow events lift stations could overflow.

<u>Objective:</u>
- Purchase additional generators and/or make required electrical changes to operate lift stations with generators.

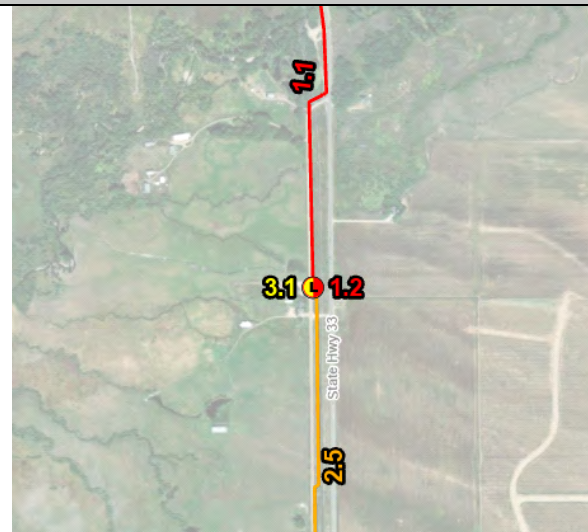


General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Lift Station Backup Provisions	1	EA	$ 100,000	$ 100,000	
				Construction Subtotal	***$ 100,000***
Additional Elements					
Mobilization and General Conditions			10%	$10,000	
				Subtotal	***$110,000***
Contingency			30%	$33,000	
				Subtotal	***$143,000***
Contractor Overhead and Profit			15%	$21,000	
				Total Construction Subtotal	***$164,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$41,000	
				Total Project Costs (rounded)	**$ 205,000**

Project Title:	Location:
Driggs South Lift Station and Interceptor Upgrades	**Driggs South Lift Station**

Project Identifier:

3.1



Need for Project:
- 50-year projected peak hour flows exceed the 85% of the firm capacity
- Portion of Driggs maintained interceptor are undersized to convey 50-year projected flows without surcharging

Objective:
- Increase the capacity to convey 50-year projected peak hour flows

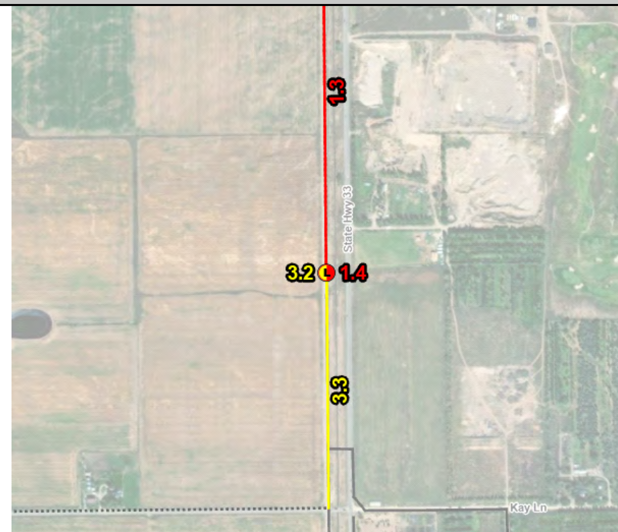
Design Considerations:
- Costs may be split between Driggs and Victor
- 2075 PHF = 1,746 gpm
- Assumes same Victor to Driggs Ownership line from 2011 Victor Interceptor Record Drawings
- Assumes pipe is installed at 0.001 ft/ft slope
- In place abandoned parallel 12" pipe may be utilized to decrease quantity of new pipe

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Driggs South Lift Station - Pump Upsize (1,750 gpm)	2	EA	$ 70,000	$ 140,000	
Electrical Upgrades	1	LS	$ 25,000	$ 25,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 190,000***
Additional Elements					
Mobilization and General Conditions			10%	$19,000	
				Subtotal	***$209,000***
Contingency			30%	$63,000	
				Subtotal	***$272,000***
Contractor Overhead and Profit			15%	$41,000	
				Total Construction Subtotal	***$313,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$78,000	
				Total Project Costs (rounded)	**$ 391,000**

Project Title:	Location:
Lift Station 1 Upgrades	**Lift Station 1**

Project Identifier:

3.2



<u>Need for Project:</u>
- 50-year projected peak hour flows exceed the 85% of the firm capacity

<u>Objective:</u>
- Increase the capacity to convey 50-year projected peak hour flows

<u>Design Considerations:</u>
- 2075 PHF = 1,589 gpm

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Lift Station 1 - Pump Upsize (1,590 gpm)	2	EA	$ 70,000	$ 140,000	
Electrical Upgrades	1	LS	$ 25,000	$ 25,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 190,000***
Additional Elements					
Mobilization and General Conditions			10%	$19,000	
				Subtotal	***$209,000***
Contingency			30%	$63,000	
				Subtotal	***$272,000***
Contractor Overhead and Profit			15%	$41,000	
				Total Construction Subtotal	***$313,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$78,000	
				Total Project Costs (rounded)	**$ 391,000**

Project Title:	Location:
Upstream of Lift Station 1 Upsize	**W 7000 S to Lift Station 1**

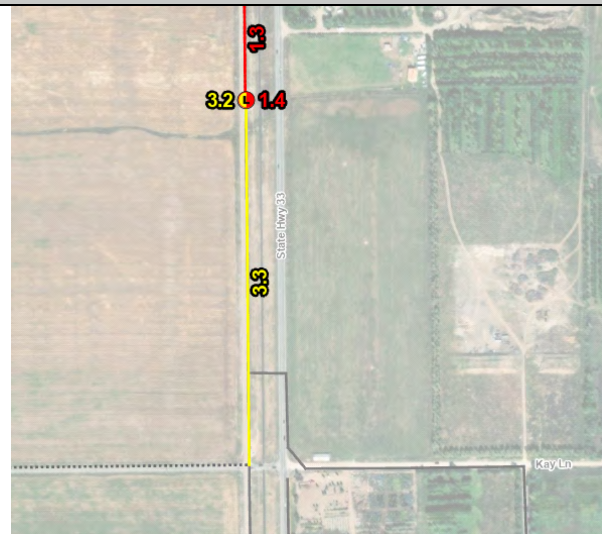
Project Identifier:

3.3

Need for Project:
- Existing gravity sewer pipes are undersized to convey 50-year projected flows with a d/D of less than 75%

Objective:
- Upsize the existing gravity pipe to meet future peak hour flows

Design Considerations:
- Assumes replacement of existing manholes, and bypass pumping will be needed



General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
15-inch Gravity Pipe - Excavation, Backfill	1,700	LF	$ 196	$ 334,000	
48-inch, Concrete Manhole	6	EA	$ 9,653	$ 58,000	
Natural Surface Repair	1,700	LF	$ 5	$ 9,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
Connect to Existing Lift Station	1	EA	$ 5,816	$ 6,000	
				Construction Subtotal	***$ 432,000***
Additional Elements					
Mobilization and General Conditions			10%	$43,000	
				Subtotal	***$475,000***
Contingency			30%	$143,000	
				Subtotal	***$618,000***
Contractor Overhead and Profit			15%	$93,000	
				Total Construction Subtotal	***$711,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$178,000	
				Total Project Costs (rounded)	**$ 889,000**

Project Title:	Location:
S 1000 W Pipe Upsize	**S 1000 W - Brooktrout Drive to Cedron Rd**

Project Identifier:

3.4

Need for Project:

- Existing gravity sewer pipes are undersized to convey 50-year projected flows with a d/D of less than 75%

Objective:

- Upsize the existing gravity pipe to meet future peak hour flows

Design Considerations:

- Assumes replacement of existing manholes, and bypass pumping will be needed
- Assumes pipe burst existing pipe to cross Trail Creek
- Open trench of exisitng roadway will be required
- Assumes 10-inch pipe is installed at 0.0028 ft/ft slope

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
10-inch Pipe - Excavation and Backfill	1,125	LF	$ 162	$ 183,000	
10-inch Pressure Pipe Burst	375	LF	$ 220	$ 83,000	
48-Inch, Standard Manhole	5	EA	$ 9,653	$ 49,000	
Reconnect Services	11	EA	$ 1,500	$ 17,000	
Roadway Full Lane Asphalt Repair	1,125	LS	$ 85	$ 96,000	
Traffic Control - Without Flagging	1,500	LF	$ 5	$ 7,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 460,000***
Additional Elements					
Mobilization and General Conditions			10%	$46,000	
				Subtotal	***$506,000***
Contingency			30%	$152,000	
				Subtotal	***$658,000***
Contractor Overhead and Profit			15%	$99,000	
				Total Construction Subtotal	***$757,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$189,000	
				Total Project Costs (rounded)	**$ 946,000**

Project Title:	Location:
Lift Station 4 Upgrades	**Lift Station 4**

Project Identifier:

3.5

Need for Project:
- 50-year projected peak hour flows exceed the 85% of the firm capacity

Objective:
- Increase the capacity to convey 50-year projected peak hour flows

Design Considerations:
- 2075 PHF = 118 gpm

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2024 Dollars)
Lift Station 4 - Pump Upsize (120 gpm)	2	EA	$ 25,000	$ 50,000	
Electrical Upgrades	1	LS	$ 25,000	$ 25,000	
Bypass Pumping	1	LS	$ 25,000	$ 25,000	
				Construction Subtotal	***$ 100,000***
Additional Elements					
Mobilization and General Conditions			10%	$10,000	
				Subtotal	***$110,000***
Contingency			30%	$33,000	
				Subtotal	***$143,000***
Contractor Overhead and Profit			15%	$21,000	
				Total Construction Subtotal	***$164,000***
Plans and Contract Documents					
Design, Legal, and Construction Services			25%	$41,000	
				Total Project Costs (rounded)	**$ 205,000**

Client: City of Victor
Project: Wastewater Facility Planning Study
Project No.: 222168-002

Rates, Revenues, and Expenses

	Historic	Historic	Historic	Historic	Baseline
Fiscal Year	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Typical Monthly User Rate (Residential)	**$61.04**	**$61.04**	**$61.04**	**$61.04**	**$61.04**
Revenues					
Charges for Services	$ 940,551	$ 1,143,545	$ 1,156,014	$ 1,309,265	$ 1,208,162
Miscellaneous	$ 70,000	$ 1,728	$ 765	$ 428,333	$ 103,754
Investment Return	$ 17,028	$ -	$ -	$ -	$ -
Total Revenues	**$ 1,027,579**	**$ 1,145,273**	**$ 1,156,779**	**$ 1,737,598**	**$ 1,311,916**
Expenditures					
Personnel	$ 263,398	$ 252,403	$ 239,428	$ 327,450	$ 348,659
Goods and Services	$ 148,428	$ 151,807	$ 200,537	$ 294,586	$ 260,855
Debt Service	$ 205,648	$ 205,648	$ 205,648	$ 205,648	$ 447,792
City of Driggs	$ 213,960	$ 212,102	$ 105,303	$ 184,953	$ 393,000
Total Expenditures	**$ 831,434**	**$ 821,960**	**$ 750,916**	**$ 1,012,637**	**$ 1,450,306**
Change in Fund Balance	**$ 196,145**	**$ 323,313**	**$ 405,863**	**$ 724,961**	**$ (138,390)**
Ending Fund Balance					**$ (138,390)**

Client: City of Victor
Project: Wastewater Facility Planning Study
Project No.: 222168-002

Priority 1 Loan

Sewer Rate Evaluation	Existing System Priority 1 Improvements
Loan Evaluation	
Existing Sewer Bill (per month)	$61.04
Priority 1 Project Costs	$12,200,000
Grants	$0.00
Funding Source/s	DEQ
Loan Principle	$12,200,000
Interest Rate	2%
Term (yrs)	30
Annual Payment	$554,136
Monthly User Rate Increase	$30.42
Short-Lived Assets	
Annual Short-Lived Assets Reserve	$59,000
Monthly Short-Lived Assets Reserve	$4,917
Monthly User Rate for Short-Lived Assets Reserve	$3.24
Additional O&M	
Total Annual O&M	$0.00
Monthly User Rate for O&M	$0.00
Total New Monthly Sewer Bill	**$94.70**

1. Additional O&M is negligible as the Priority 1 improvement projects are improvements to existing facilities.
2. Priority 1 projects include projects that will likely be cost shared with the City of Driggs

KELLER ASSOCIATES

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