

TECHNICAL MEMORANDUM

Date: December 20, 2024
To: Jeff Thompson, PE; Matt Stefanson, PE, City of Redmond
From: BHC Consultants, LLC
CC: Design Team
Subject: Town Center Sanitary Sewer Evaluation
Project No: 24-10730.16



12/20/2024

1. Introduction

Development of the Redmond Town Center (Town Center) in 1997 resulted in construction of a gravity sanitary sewer collection system and associated wastewater lift station (WWLS) 17 to serve the area designated as the Leary Way Basin. The City of Redmond (City) is working to rezone the Leary Way Basin to allow higher density mixed-use developments in the Town Center zone. This technical memorandum provides a summary of the evaluated impacts of the updated zoning requirements on the wastewater flows and identifies recommended improvements in the City's collection and conveyance system to address those impacts. In addition to the planning level review of necessary improvements, this technical memorandum includes planning level costs, developed at the capital improvement project (CIP) planning level to support the City's CIP planning and to identify additional connection charges (ACC) for future developments.

2. General Wastewater Plan Update for the 2050 Comprehensive Plan

The City is currently undergoing a Comprehensive Plan Update (Vision 2050) to consolidate and change zoning classifications throughout the city. In response to the Vision 2050 Plan Update, the City evaluated impacts of potential zoning changes on their wastewater system and current General Wastewater Plan (Plan). The updated wastewater system analysis assumes Town Center can and will accommodate higher densities than currently exist, and that Town Center will mostly develop to six-story high mixed-use developments.

These zoning changes have presented the opportunity for developers to consider changes to properties in the Town Center area with some parcels actively engaged in the planning process for redevelopment. This interest in redevelopment resulted in a need for the City to review the wastewater collection system improvements necessary within the Leary Way Basin to meet the future development demands.

3. Gravity Collection System Improvements

3.1 Existing System Limits

Redmond Town Center is located within the Leary Way Basin. Wastewater generally flows south through gravity submains in 164th Ave SE, 166th Ave SE, and 168th Ave NE. Wastewater then enters a larger gravity main in Bear Creek Parkway and flows westerly to WWLS 17. WWLS 17 pumps wastewater back up to the Bear Creek Parkway gravity main, where it flows north to Leary Way then southwesterly to the King County Interceptor pipe. The County connection is located on the east side of the Sammamish River just north of Leary Way.

3.2 Required Gravity Collection System Improvements

Impacts to the wastewater system as a result in higher development interest and zoning changes were analyzed as part of the General Wastewater Plan Update for the 2050 Comprehensive Plan (April 2024). Results of the analysis indicated wastewater system improvements are needed in Town Center to accommodate future buildout wastewater demand in the area. More specifically, gravity wastewater improvements are necessary along Leary Way, Bear Creek Parkway, 164th Ave SE, 166th Ave SE and 168th Ave SE. Upgrades and capacity improvements are also necessary at Wastewater Lift Station (WWLS) 17. 164th Ave SE, 166th Ave SE and 168th Ave SE gravity system improvements will be paid for and constructed directly by developers; remaining improvements along Leary Way, Bear Creek Parkway and at WWLS 17 will be paid for and constructed upfront by the City and recovered later through an Additional Connection Charge.

3.3 Development of Gravity Conveyance Improvement Costs for Planning Level Estimates

Estimates of probable construction costs were developed for each gravity conveyance system improvement using the City's cost estimating template. Construction cost estimates for replacing/upsizing the pipes in Bear Creek Parkway and Leary Way were generated using the City's standard project cost estimate template for CIPs. Cost estimates assume existing pipes and manholes will be removed and replaced; 20-foot wide roadway restoration on average; and limited demolition costs. Pipe lengths were obtained from the Record Length field of the City's GIS layer for wastewater pipes. Allied costs were applied to estimate pre-design, construction, and right-of-way costs. Risk assessments were complete to determine the contingency for each project, which are identified in the summary cost sheets included as Attachment 1.

The contingency amount for the Design and Construction phases is based on the total estimated construction costs multiplied by the risk assessment, while the contingency amount for Right of Way is based on the total estimated rights of way costs multiplied by the risk assessment. A high risk for design and construction is assumed due proximity to the Sammamish River and potential for high groundwater during trenching for and installation of the replacement piping. A low risk for right of way is assumed since work will be done within existing right of way. A high-risk level corresponds to 40 percent contingency, while

a low-risk level corresponds to 25 percent contingency. Construction of the Leary Way Basin gravity sewer improvements is anticipated to begin within an approximate 5-year window, and as such, costs have been escalated to 2030 dollars using the City's cost template.

4. WWLS 17 Improvements

The higher density and associated increase in wastewater flows within the Leary Way Basin will result in a need to upgrade the existing WWLS 17. Upgrades to the existing lift station include both improvements that are required to modernize WWLS 17 and to serve future growth in the Redmond Town Center. Portions of the modernization of WWLS 17 will be required regardless of increased wastewater flows. These improvements are based on the *City of Redmond Wastewater Lift Station Standards* (December 2023), which summarizes the requirements for constructing new and retrofitting existing lift stations in the City of Redmond. For the purpose of this analysis and establishing cost responsibilities, only those improvements directly driven by the increased flow rate will be attributed to future developments.

4.1 WWLS 17 Design Flow

With the anticipated development in Redmond Town Center, a capacity of 1,500 gpm has been identified as the basis for design for WWLS 17. This increased flow rate would still be served through a duplex pump configuration within the existing wet well/dry well. Determination of the WWLS design flow rate was based on analysis of three alternative methods. These methods included basing the flow rate solely on the model outputs for the 2024 basin analysis, using revised peaking factors for the model output, or basing the calculation on the Washington State Department of Ecology (Ecology) Criteria for Sewage Work Design (Orange Book) method.

Utilizing only model outputs generally provides for a lower flow rate to WWLS 17 than the two other methods reviewed. Conversely, the Orange Book method results in higher design flows, due to the requirement for use of a peaking factor of 3.0 (per Figure C1-1 of the Orange Book).

The revised peaking factor method was selected as appropriate for determining the WWLS 17 capacity after review of the evaluation and corresponding design flows with the City of Redmond. Calculation of the design flow of 1,500 gpm was developed using the methodology and basis information described below.

- The build-out sewer demand for the Leary Way basin has been identified as 19,000 gallons per day per acre (gpad). A total of 61 acres would contribute to this dry weather flow rate.
- Infiltration and inflow (I/I) for wet weather flows is 3,500 gpad. 72 acres contribute to this I/I flow rate.
- Model hydrograph results indicate a peak inflow of 985 gallons per minute (gpm) to WWLS 17. However, it was noted that two load points were incorrectly assigned downstream of WWLS 17. These parcels were identified to contribute flow to WWLS 17 and for the purpose of this flow

determination added to the 985-gpm modeled flow. Loading these points upstream of WWLS 17 raises the peak flow to 1,172 gpm.

- Basin modeling analysis indicates a diurnal peaking factor slightly greater than 1.4. A peaking factor of 1.6 was selected to provide a conservative estimate of peak flows and provide a factor of safety to the peak hour flows.
- Dry weather flow was calculated as 805 gpm (19,000 gpad applied over 61 acres), which results in 1,288 gpm with a peaking factor of 1.6. The wet weather I/I flow calculated at the 3,500 gpad rate over 72 acres (175 gpm) was added to the peak dry weather flow resulting in a rate of 1,463 gpm, which was rounded to 1,500 gpm for establishing the WWLS 17 design flow.

4.2 Interim Capital Improvement Project

The City is currently undertaking a capital improvement project to replace the pumps, pump pedestals, and adjacent valves in WWLS 17. This limited upgrade was identified to address the existing aging pumps and replace them with models that eliminate the current seal water system. The existing 1,000 gpm capacity pumps will be replaced with 1,500 gpm pumps, meeting the future capacity demands identified above. The work associated with the pump replacement will be borne by the City using their maintenance fund. Similarly, the upgrades to suction and discharge piping and valves will be included as part of the City's maintenance of the station. Replacement pumps are compatible with variable frequency drive (VFD) starters to meet the requirements outlined in the lift station standards and to be compliant with the anticipated future modernization project.

4.3 Improvements to WWLS 17

To support the preparation of planning level costs for modernization of WWLS 17 and to meet the future development needs, an evaluation of station upgrades was completed. This focused on the requirements identified in the Redmond Wastewater Lift Station Standards for dry pit configurations. A description of the upgrades needs are described herein. In addition, the responsibility for costs is also identified.

The existing 8-inch discharge force main needs will require replacement to meet the design flow rate of 1,500 gpm due to the velocity in this pipe exceeding the eight feet per sec (fps) requirement. The City's standard is to size force mains to maintain pipe velocity between four and eight fps. To accomplish this, a 12-inch force main is recommended to replace the existing 8-inch force main. Approximately 30 lineal feet of force main in the lift station dry well and 120 lineal feet of buried force main will require replacement. Replacing the discharge force main is solely a requirement of the increased design capacity as a result of redevelopment of the Town Center. This is the only component of the WWLS 17 modernization that is a direct impact of the development activity, and the sole item included in the additional connection charge calculations further discussed in Section 5 of this technical memorandum.

Wet well modernization is required to meet City standards, operational needs, and WISHA/OSHA requirements. Improvements include retrofitting the fall protection systems and replacing the ladder and platform to meet current regulatory requirements and meet operational needs. The level transducer and floats in the wet well will be replaced due to obsolescence. A drop bowl will be added to the influent pipe to reduce the turbulence of influent flow to the wet well and reduce corrosion potential within the structure. All improvements to the wet well are maintenance/age related and are not a result of redevelopment in the Town Center.

Dry well improvements are also required to meet City standards, operational needs, and WISHA/OSHA requirements. Improvements include replacement of the ladder entry system, spot repairs to the interior coating, and general refurbishment of fall protection systems are necessary to extend the usable life of the dry well structure. A dehumidifier will be added to the facility and the sump pump replaced along with the unit heaters in the lower pump room. Due to their age, the crane and hoist must be replaced to maintain the ability to remove the pumps and associated equipment. All improvements to the dry well are maintenance/age related and are not a result of redevelopment in the Town Center.

Adding a flow meter to WWLS 17 is necessary to meet the City Standards for lift stations. Due to a limited footprint within the lift station's dry well, it is recommended to place the flow meter within a vault along the replacement force main alignment adjacent to the station. Estimates for this improvement include costs for a 12-inch flow meter, vault, associated appurtenances, and a remote panel located within the pump room to display flow data.

The existing odor control in WWLS 17 requires replacement due to obsolescence. While the odor control system in WWLS 17 has sufficient capacity to support the increased wastewater flow rate, its replacement is recommended as the unit approaches the end of its life-cycle. Improvements include removal and replacement of existing odor control unit, supply fans, and exhaust fans.

Several electrical improvements are required to modernize WWLS 17. Fluorescent lighting will be replaced with LED lighting. The motor starters will be upgraded to VFDs to meet City standards. The existing generator can still meet the requirements of the larger replacement pumps if soft starts or VFDs replace the existing direct-on-line starters, it is recommended to replace the generator, fuel tank, and fuel monitoring systems due to age and the likelihood of additional energy demands in the future.

The existing control panels in WWLS 17 require replacement to fit the VFDs and standard electrical and control configurations for a City lift station. Replacing the control panel necessitates an increase in the building footprint to provide the required electrical clearance for the panels.

To provide sufficient space for the upgraded electrical and control equipment and meet regulatory requirements, a new building with larger footprint will be required. The building replacement will incorporate an expanded footprint utilizing a concrete masonry unit extending over the dry well portion of the below grade structure. The approximate 1,000 square foot building will be comprised of multiple rooms (generator and controls) and include a standing seam roof, exterior and interior coatings, gutter and downspouts, generator exhaust penetrations, lighting, and HVAC. Other building improvements include replacing the davit retrieval system with a sleeve to eliminate trip hazard while not in use. The increase in building size, necessitating replacement, is independent of the increased flows from the Town Center development.

4.4 Development of WWLS Upgrades Costs for Planning Level Estimates

A planning level estimate of probable construction has been developed for the WWLS 17 modernization/upgrades. The costs for each component of the upgrades were prepared by identifying major elements of the work required. The lump sum value developed for the individual components were then input into the City's cost estimating template for CIP projects. Risk was assessed to apply the appropriate contingency to the planning level costs. Due to the complexity of retrofitting an existing station and the need to replace a portion of force main within a potentially high ground water table area, a high risk was identified for the cost proposal. Construction of the WWLS 17 upgrades is anticipated to begin within an approximate 5-year window, and as such, costs have been escalated to 2030 dollars using the City's cost template. All work will be within existing City ROW, easements, or parcels, which reduces that risk component.

Table 1 summarizes the planning level project costs associated with each improvement category described above and identifies whether the improvement is maintenance or development driven.

Table 1
Required Improvements in WWLS 17

Improvement	Driver for Improvements	Estimates of Probable Cost
Replace the discharge force main	Developer	\$691,449
Wet well modernization	Maintenance	\$88,647
Dry well improvements	Maintenance	\$177,295
Provision of a flow meter	Maintenance	\$159,565
Odor control system replacement	Maintenance	\$265,942
Electrical improvements	Maintenance	\$2,482,126
Building Improvements	Maintenance	\$4,113,237
Startup and Testing	Maintenance	\$265,942
TOTAL WWLS 17 IMPROVEMENTS COST		\$8,244,203

Only that portion of the WWLS 17 improvements associated with Developer Driven costs are considered as part of the Additional Connection Charges identified and presented in Section 5. Pump replacement will be completed under a separate maintenance project prior to the station modernization, as described in Section 4.2.

5. Additional Connection Charges

The wastewater system improvements will be designed and constructed as part of City-funded CIP, or CIPs. The City will fund the improvements upfront, covering all initial costs. To recoup the costs, the City will collect an Additional Connection Charge (ACC) from property owners when properties undergo redevelopment. This section outlines the assumptions and provides supporting data used to calculate the ACC. Figure 1 shows a map detailing the location of the wastewater improvements and the boundaries of the ACC area.

5.1 ACC Areas and Project Components

The ACC serves as a financial tool to equitably distribute the costs of infrastructure improvements across the redeveloped properties benefiting from the upgraded wastewater system. Property owners will only pay for downstream improvements relative to their property. For purposes of this analysis, the ACC area and project components are divided into smaller areas. There are five “ACC Areas” which represent different tributary discharge areas to the Town Center wastewater system. Wastewater improvement projects are divided into six project components, which are: Lift Station Component, Gravity Component 1, Gravity Component, Gravity Component 3, Gravity Component 4 and Gravity Component 5. Figure 2 shows a map of the ACC Areas and Project Components.

Each ACC Area is responsible for cost-sharing of the downstream project components. For some parcels, wastewater enters the public collection system in two locations and ultimately affects two different project components. For purposes of this analysis, wastewater from these parcels (PINs 7202410010, 7202410080, 7202410070, 4202410150, 7202410160, 7202410100, and 7202410030) is assumed to discharge evenly between the project component boundaries, and the ACC areas are therefore split evenly (i.e. 50/50). Table 2, below, presents project component responsibility by ACC Area.

Table 2
Project Component Responsibility by ACC Area

ACC Area (#)	ACC Area (square footage)	Project Component Responsibility
1	399,844	Gravity Component 1
2	897,503	Gravity Component 1 Lift Station Component Gravity Component 2
3	713,066	Gravity Component 1 Lift Station Component Gravity Component 2 Gravity Component 3
4	407,677	Gravity Component 1 Lift Station Component Gravity Component 2 Gravity Component 3 Gravity Component 4
5	545,321	Gravity Component 1 Lift Station Component Gravity Component 2 Gravity Component 3 Gravity Component 4 Gravity Component 5

5.2 Project Components and Costs

The six project components are displayed in Figure 2. Separating project components allows for application of the ACC only to the properties directly benefiting from each project component. Individual planning level opinions of probable project cost (OPPC) are provided for each project component and are included in Attachment 1. As only a portion of the cost associated with the WWLS 17 upgrades are attributable to the ACC, two cost breakouts are provided; one of the overall WWLS improvements cost and one representing only the force main replacement costs that are a result of development potential. Table 3 below shows the OPPC by project component and estimated cost, in parcel square footage, for each responsible ACC area.

Table 3
ACC Area by Cost

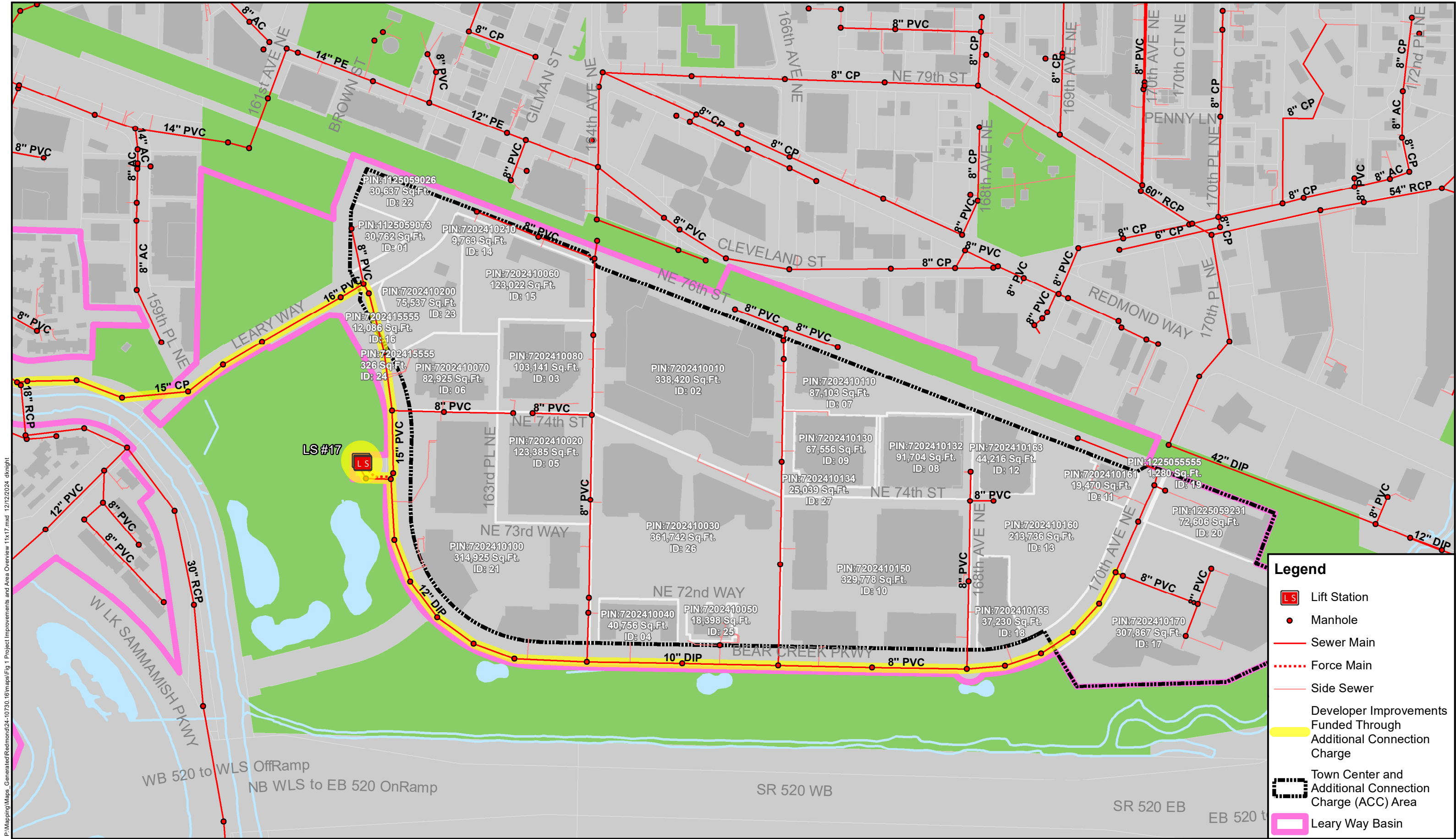
Project Component	OPPC (\$)	ACC Area Responsibility	Total responsible ACC Area (SF)	Cost per sf (\$/SF)
Gravity Component 1	\$8,447,128	All (1, 2, 3, 4, 5)	2,963,411	\$2.85
Lift Station Component	\$691,449	2, 3, 4, 5	2,563,567	\$0.27
Gravity Component 2	\$4,655,655	2, 3, 4, 5	2,563,567	\$1.82
Gravity Component 3	\$2,377,107	3,4,5	1,666,064	\$1.43
Gravity Component 4	\$2,272,992	4,5	952,998	\$2.39
Gravity Component 5	\$2,378,780	5	545,321	\$4.36

The cost per parcel square foot can also be summated and organized by ACC Area. For example, ACC Area 2 is responsible for project improvement costs for Gravity Component 1, Gravity Component 2 and the Lift Station Component. Adding up the cost per parcel square footage for project components downstream of ACC Area 2 gives the total cost per parcel square foot. Table 4 provides the summarized costs, in cost per parcel square foot, by ACC Area. To provide a cost for each parcel within the Town Center development area a matrix, delineated by tax parcel number, has been prepared that distributes the per square foot cost for each component. This provides both the distribution of costs and the total for each parcel. This matrix is included as Attachment 2 to this technical memorandum.

Table 4
ACC by Area and \$/SF

ACC Area	Additional Connection Charge (\$/SF)
1	\$2.85
2	\$4.94
3	\$6.36
4	\$8.75
5	\$13.11

Figures



P:\Mapping\Maps_Generated\Redmond\24-10730_16\maps\Fig 1 Project Improvements and Area Overview 11x17.mxd, 12/12/2024 dknight



GIS Data: City of Redmond

Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants LLC., assumes no responsibility for the validity of any information presented herein, nor any responsibility for the use or misuse of the data.

*Side streets - 164th Ave NE, 166th Ave NE and 168th Ave NE - sewer mains also require upgrades to support buildout wastewater demand. Developers will be required to construct additional side street sewer improvements based individual development impacts and as negotiated with the City during the development application process.



0 150 300 600 Feet



Project Improvements and Area Overview

Town Center Sanitary Sewer Evaluation

City of Redmond

December 2024



Legend

- Lift Station
- Manhole
- Sewer Main
- Force Main
- Side Sewer

**Developer Improvements
Funded Through Additional
Connection Charge**

- Lift Station Component
- Gravity Component 1
- Gravity Component 2
- Gravity Component 3
- Gravity Component 4
- Gravity Component 5

ACC Area

- 1
- 2
- 3
- 4
- 5

Town Center and
Additional Connection
Charge (ACC) Area

Leary Way Basin

ATTACHMENT 1

Individual Component CIP Worksheets



Project Overview

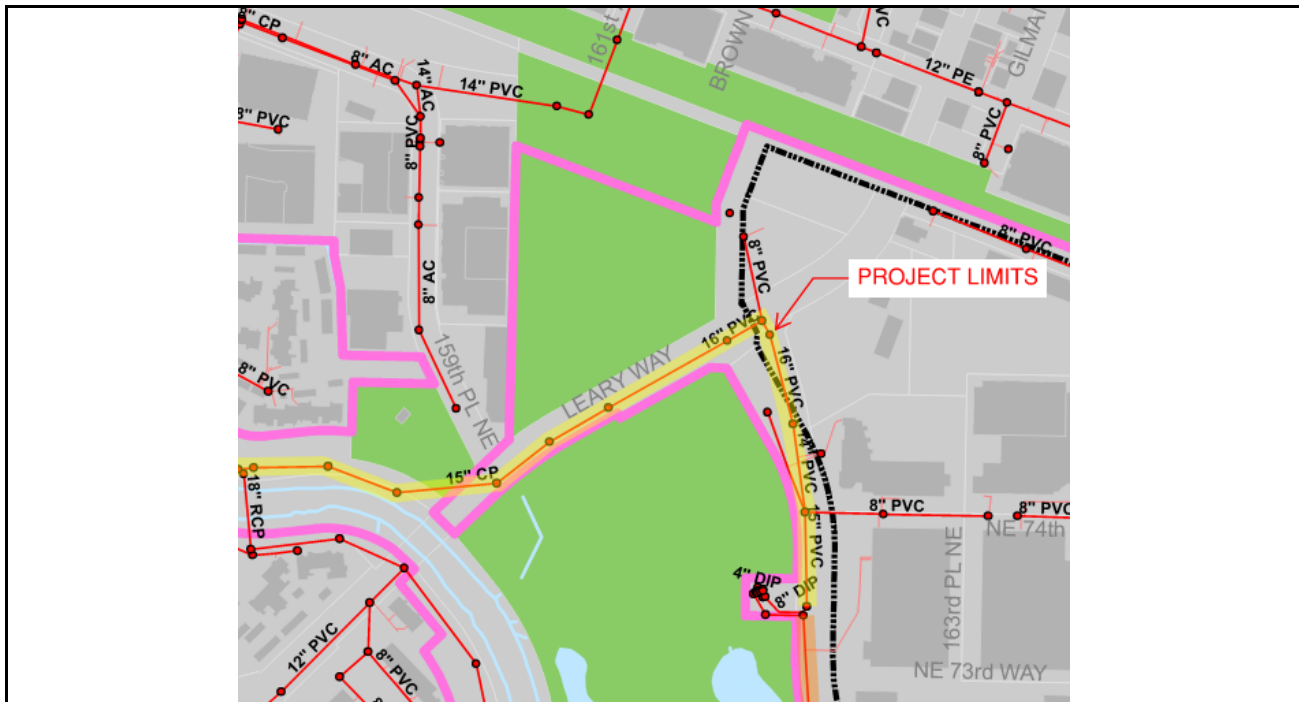
Project Name:	TO 16 - Gravity Component 1		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:	JRZ	Date:	11/21/2024

Neighborhood:	Downtown	Primary Street:	Leary Way
Existing Zoning:		Secondary Street:	Bear Creek Parkway
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project upsizes/replaces 1,943 LF of 14", 15" and 16" PVC pipe with 16" pipes for future flows in Redmond Town Center. Pipe lineal footage is determined from Record Length field of the City's wwPipe layer.

Estimate of Probable Costs: **\$8,447,128**

Project Map



**Project Cost Summary****Project Name:** TO 16 - Gravity Component 1**Project ID:** 0**Concept No.:** 0**Created By:** KG**Date:** 11/18/2024

Contingency amount for the Design & Construction phases is based on the total estimated construction costs x the risk assessment %. Contingency amount for the Right of Way phase is based on the total estimated Right of Ways costs x the risk assessment %.

	Cost	Risk Assessment	Contingency		Total
			%	Amount	
Pre-Design	\$186,933	<i>Total based on Const. Total w/contingency</i>		\$219,060	\$629,828
Design	\$747,733	<i>Total based on Const. Total w/contingency</i>		\$876,239	\$2,519,314
Construction	\$2,396,582	High	40%	\$958,633	\$5,205,039
Right of Way	\$47,932	Low	25%	\$11,983	\$92,947
Cost Estimate with Escalation				Subtotal	\$8,447,128
Project Escalation					\$3,002,034
Year of cost index:	2021				
Midpoint of Construction:	2030				
Escalation Rate:	5.00%				
Annual Maintenance and Operations Cost 2021					\$0
Maintenance Escalation					\$0
Year of cost index:	2021				
Midpoint of Construction:	2030				
Escalation Rate:	5.00%				
TOTAL ESTIMATE OF MAINTENANCE COST WITH ESCALATION					\$0
See Detail Sheets for Assumptions					



Project Overview

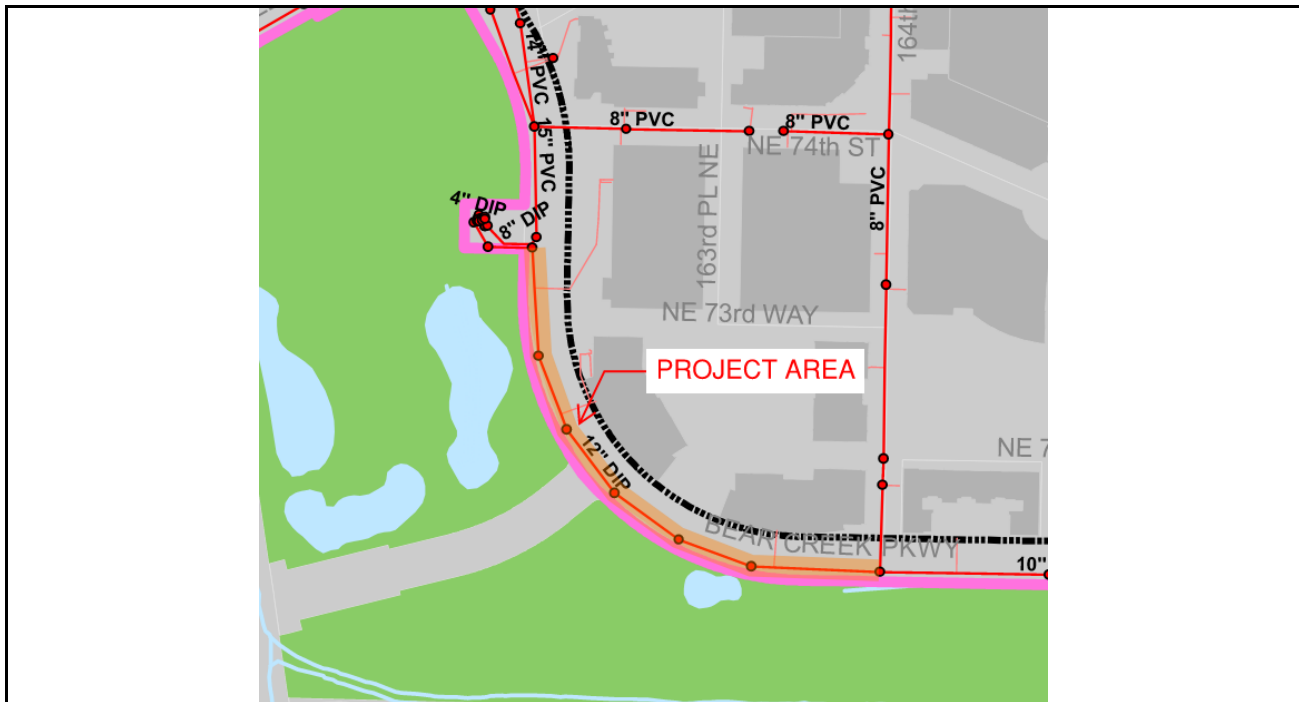
Project Name:	TO 16 - Gravity Component 2		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:	JRZ	Date:	11/21/2024

Neighborhood:	Downtown	Primary Street:	Bear Creek Parkway
Existing Zoning:		Secondary Street:	
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project upsizes 1061 LF of 12" DI pipe to 15" pipe for future flows in Redmond Town Center. Pipe lineal footage is determined from Record Length field of the City's wwPipe layer.

Estimate of Probable Costs: **\$4,655,655**

Project Map



Drainage and Environment Cost Estimate





Project Overview

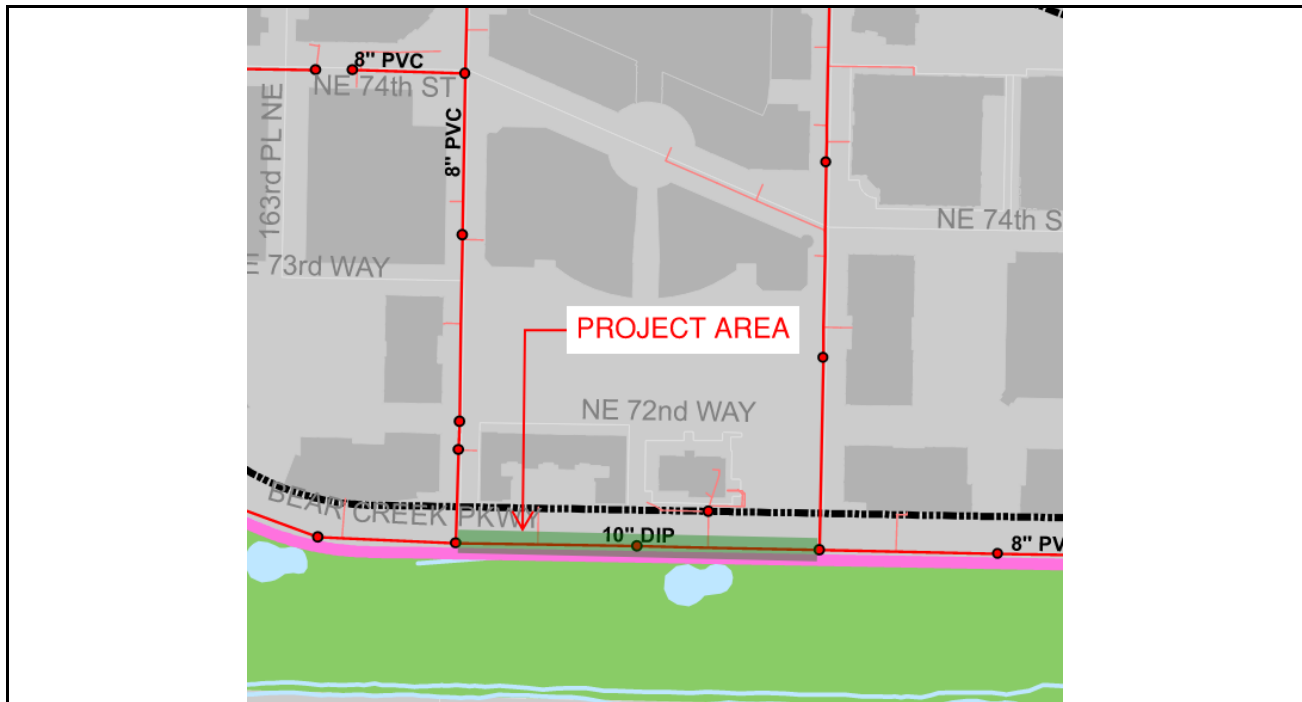
Project Name:	TO 16 - Gravity Component 3		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:	JRZ	Date:	11/21/2024

Neighborhood:	Downtown	Primary Street:	Bear Creek Parkway
Existing Zoning:		Secondary Street:	
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project upsizes 652 LF of 10" DI pipe to 12" pipe for future flows in Redmond Town Center. Pipe lineal footage is determined from Record Length field of the City's wwPipe layer.

Estimate of Probable Costs: **\$2,377,107**

Project Map



Drainage and Environment Cost Estimate



Date: 11/18/2024

See Detail Sheets for Assumptions



Project Overview

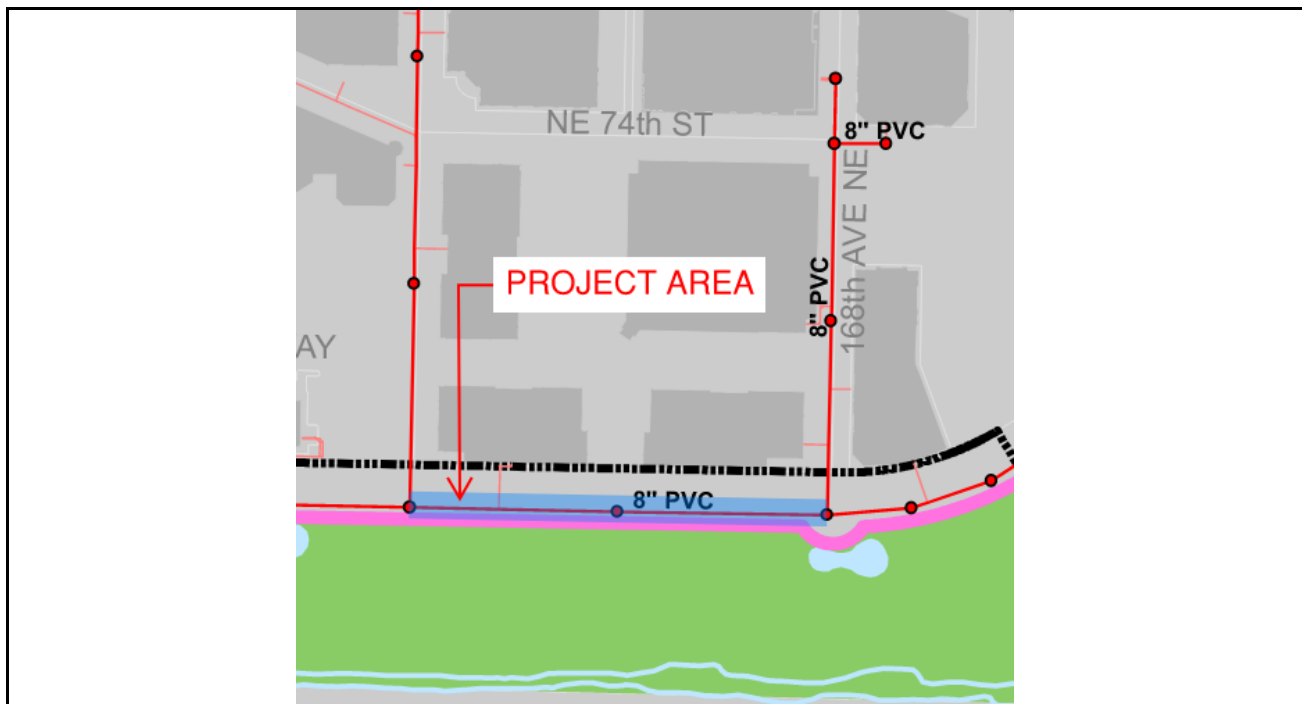
Project Name:	TO 16 - Gravity Component 4		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:	JRZ	Date:	11/21/2024

Neighborhood:	Downtown	Primary Street:	Bear Creek Parkway
Existing Zoning:		Secondary Street:	
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project upsizes 642 LF of 8" PVC to with 10" pipes for future flows in Redmond Town Center. Pipe lineal footage is determined from Record Length field of the City's wwPipe layer.

Estimate of Probable Costs: **\$2,272,992**

Project Map





Project Overview

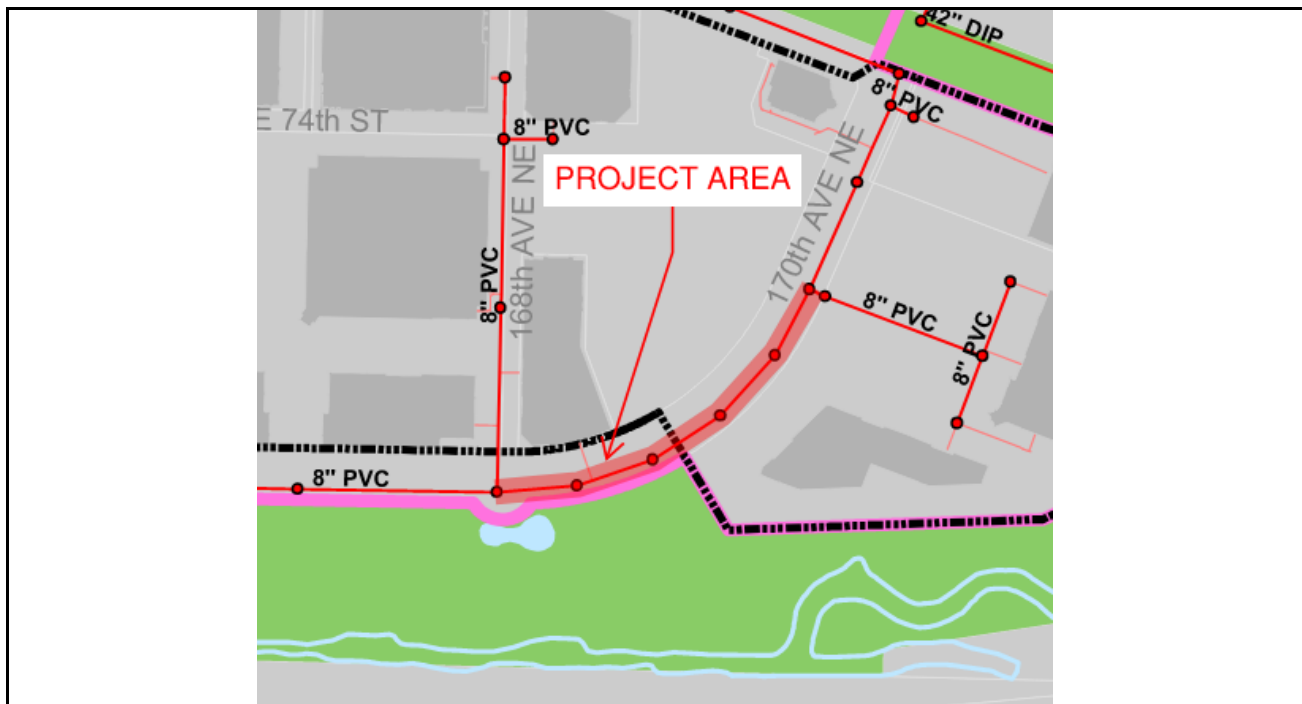
Project Name:	TO 16 - Gravity Component 5		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:	JRZ	Date:	11/21/2024

Neighborhood:	Downtown	Primary Street:	Bear Creek Parkway
Existing Zoning:		Secondary Street:	170th Ave NE
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project upsizes 644 LF of 8" PVC to with 10" pipes for future flows in Redmond Town Center. Pipe lineal footage is determined from Record Length field of the City's wwPipe layer.

Estimate of Probable Costs: **\$2,378,780**

Project Map



City of Redmond
Planning Level Opinion of Probable Costs
 Drainage and Environment Cost Estimate



Project Cost Summary Project Name: TO 16 - Gravity Component 5 Project ID: 0 Concept No.: 0 Created By: KG Date: 11/18/2024					
Contingency amount for the Design & Construction phases is based on the total estimated construction costs x the risk assessment %. Contingency amount for the Right of Way phase is based on the total estimated Right of Ways costs x the risk assessment %.					
	Cost	Risk Assessment	Contingency		Total
			%	Amount	
Pre-Design	\$52,642	<i>Total based on Const. Total w/contingency</i>		\$61,689	\$177,365
Design	\$210,568	<i>Total based on Const. Total w/contingency</i>		\$246,756	\$709,459
Construction	\$674,897	High	40%	\$269,959	\$1,465,781
Right of Way	\$13,498	Low	25%	\$3,374	\$26,175
Cost Estimate with Escalation				Subtotal	\$2,378,780
Project Escalation Year of cost index: 2021 Midpoint of Construction: 2030 Escalation Rate: 5.00%					\$845,397
Annual Maintenance and Operations Cost 2021 Year of cost index: 2021 Midpoint of Construction: 2030 Escalation Rate: 5.00%					\$0
Maintenance Escalation Year of cost index: 2021 Midpoint of Construction: 2030 Escalation Rate: 5.00%					\$0
TOTAL ESTIMATE OF MAINTENANCE COST WITH ESCALATION					\$0
See Detail Sheets for Assumptions					



Project Overview

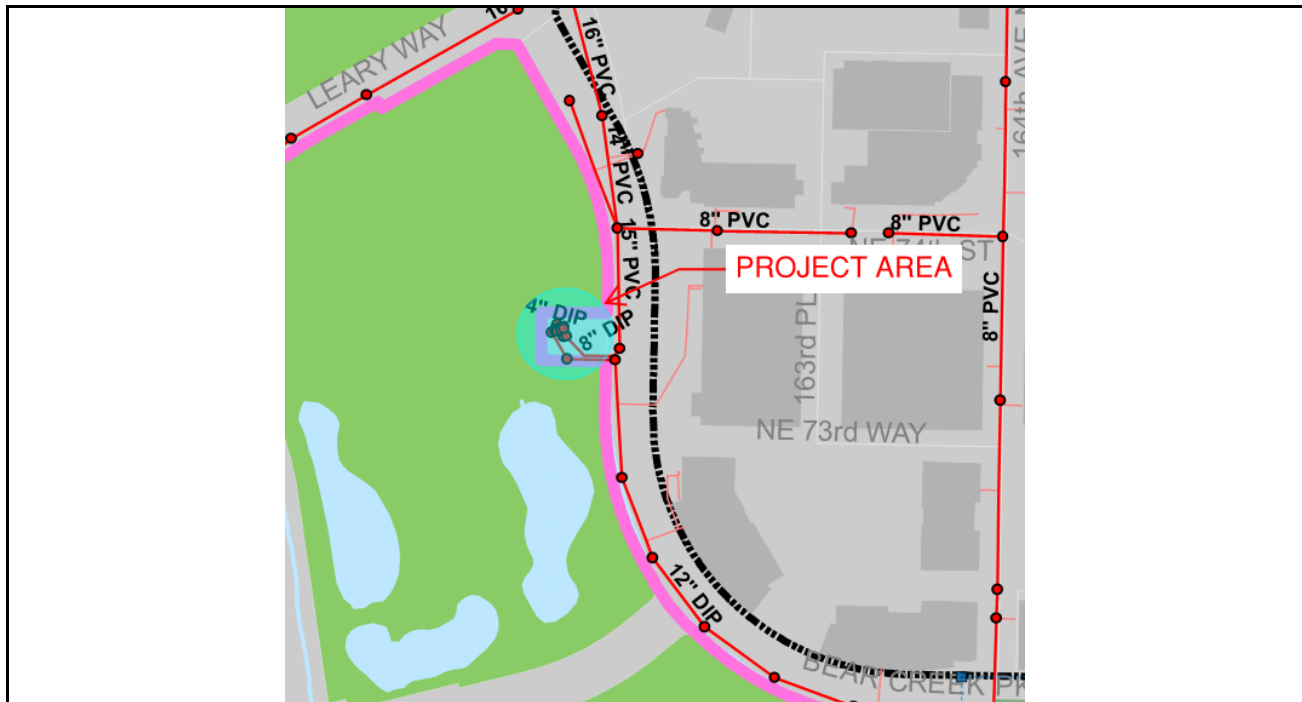
Project Name:	TO 16 - WWLS 17		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:		Date:	

Neighborhood:	Downtown	Primary Street:	
Existing Zoning:		Secondary Street:	
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: Replacement of WWLS 17 discharge force main for developer driven flow increase. Costs only reflect force main replacement. Upgrades to WWLS 17 are provided separate as a maintenance/CIP element.

Estimate of Probable Costs: **\$691,449**

Project Map



Project Overview

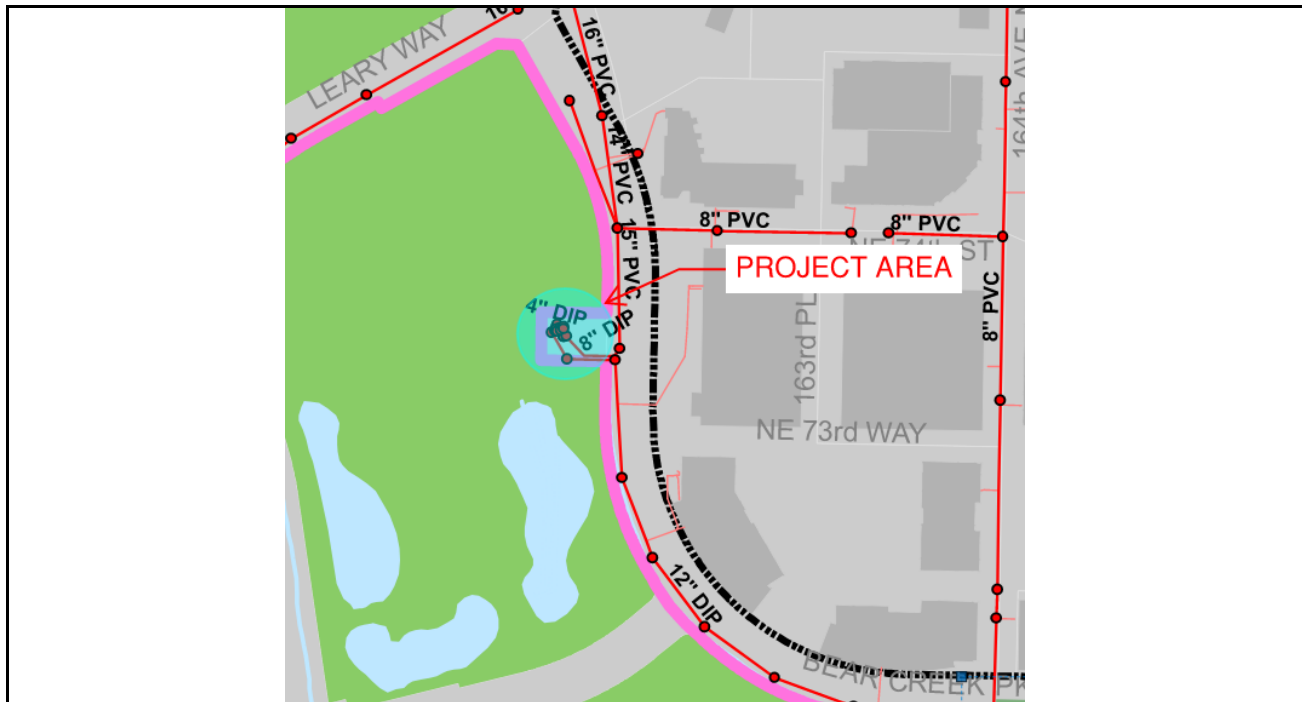
Project Name:	TO 16 - WWLS 17		
Project ID:		Concept No.:	
Created By:	KG	Date:	11/18/2024
Reviewed By:		Date:	

Neighborhood:	Downtown	Primary Street:	
Existing Zoning:		Secondary Street:	
Functional Plan:			
Parcel Based:		CFC Area:	

Project Description and Scope: This project includes maintenance driven and developer driven improvements to WWLS 17.

Estimate of Probable Costs: **\$8,244,201**

Project Map



City of Redmond
Planning Level Opinion of Probable Costs
 Drainage and Environment Cost Estimate



Project Cost Summary Project Name: TO 16 - WWLS 17 Project ID: 0 Concept No.: 0 Created By: KG Date: 11/18/2024					
Contingency amount for the Design & Construction phases is based on the total estimated construction costs x the risk assessment %. Contingency amount for the Right of Way phase is based on the total estimated Right of Ways costs x the risk assessment %.					
	Cost	Risk Assessment	Contingency		Total
			%	Amount	
Pre-Design	\$512,663	<i>Total based on Const. Total w/contingency</i>		\$0	\$687,017
Design	\$2,050,650	<i>Total based on Const. Total w/contingency</i>		\$0	\$2,748,067
Construction	\$2,563,313	High	40%	\$1,025,325	\$4,809,117
Right of Way	\$0	Low	25%	\$0	\$0
Cost Estimate with Escalation			Subtotal		\$8,244,201
Project Escalation Year of cost index: 2024 Midpoint of Construction: 2030 Escalation Rate: 5.00%					\$2,092,251
Annual Maintenance and Operations Cost 2021 Maintenance Escalation Year of cost index: 2021 Midpoint of Construction: 2030 Escalation Rate: 5.00%					\$28,000 \$15,438
TOTAL ESTIMATE OF MAINTENANCE COST WITH ESCALATION					\$43,438
See Detail Sheets for Assumptions 					

ATTACHMENT 2

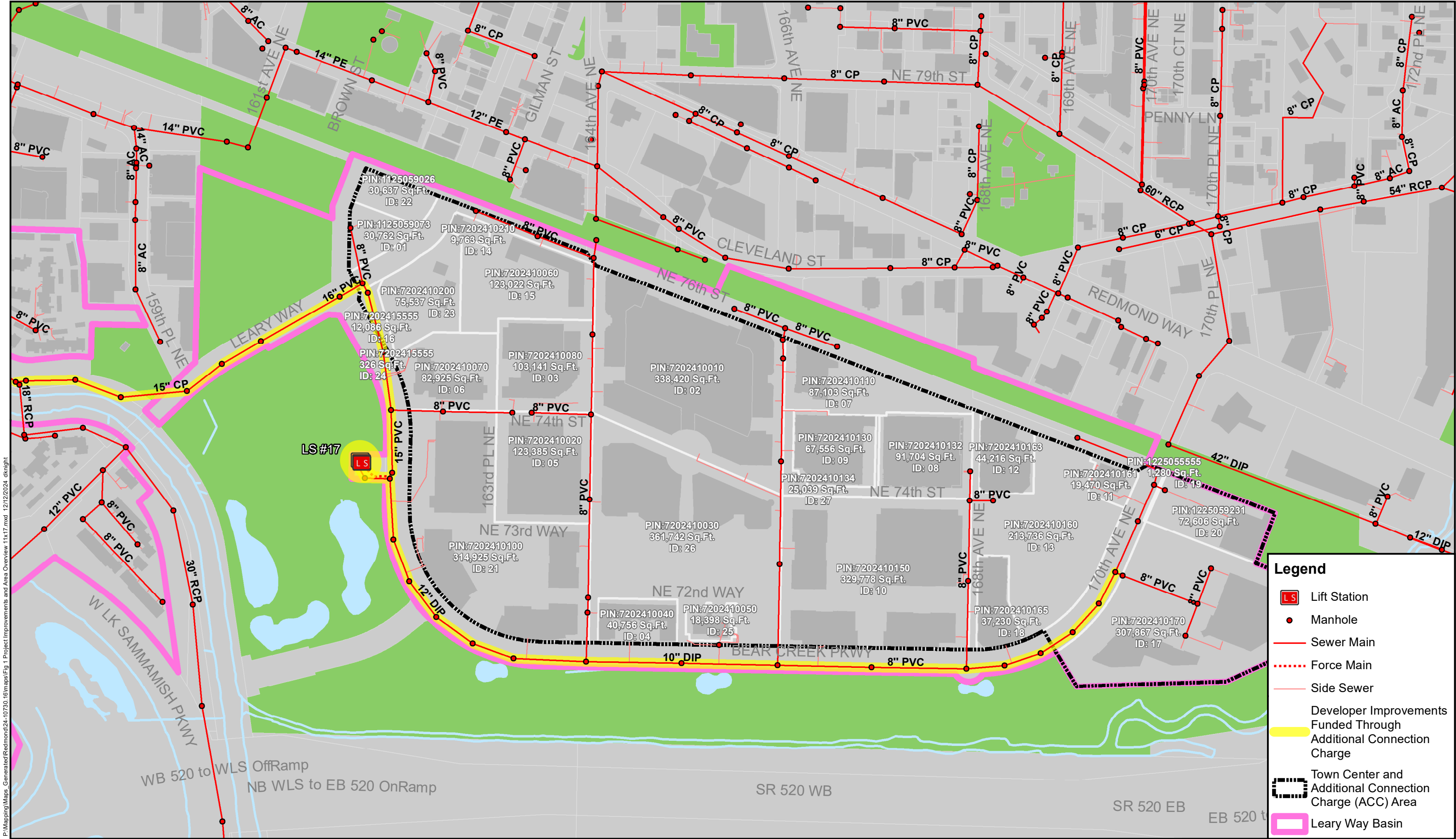
Additional Connection Charge by Parcel

Attachment 2 - Cost Per Parcel

ID	ACC Area	PIN	Parcel Area (sq ft)	\$/SF (See Table 3)	ACC by Parcel (\$)	ACC Combined for Split Parcels
01	1	1125059073	30,762	\$2.85	\$87,684.95	\$87,684.95
02	2	7202410010	169,210	\$4.94	\$835,267.62	\$1,911,960.57
	3	7202410010	169,210	\$6.36	\$1,076,692.95	
03	1	7202410080	51,570	\$2.85	\$146,999.78	\$401,565.18
	2	7202410080	51,570	\$4.94	\$254,565.40	
04	2	7202410040	40,756	\$4.94	\$201,184.70	\$201,184.70
05	2	7202410020	123,385	\$4.94	\$609,064.21	\$609,064.21
06	1	7202410070	41,463	\$2.85	\$118,188.33	\$322,859.78
	2	7202410070	41,463	\$4.94	\$204,671.45	
07	3	7202410110	87,103	\$6.36	\$554,243.39	\$554,243.39
08	4	7202410132	91,704	\$8.75	\$802,245.32	\$802,245.32
09	3	7202410130	67,556	\$6.36	\$429,864.11	\$429,864.11
10	3	7202410150	164,889	\$6.36	\$1,049,199.10	\$2,491,674.46
	4	7202410150	164,889	\$8.75	\$1,442,475.36	
11	5	7202410161	19,470	\$13.11	\$255,255.45	\$255,255.45
12	4	7202410163	44,216	\$8.75	\$386,807.84	\$386,807.84
13	4	7202410160	106,868	\$8.75	\$934,897.07	\$2,335,969.45
	5	7202410160	106,868	\$13.11	\$1,401,072.38	
14	2	7202410210	9,763	\$4.94	\$48,191.64	\$48,191.64
15	2	7202410060	123,022	\$4.94	\$607,272.13	\$607,272.13
16	1	7202415555	12,086	\$2.85	\$34,450.71	\$34,450.71
17	5	7202410170	307,867	\$13.11	\$4,036,234.88	\$4,036,234.88
18	5	7202410165	37,230	\$13.11	\$488,098.06	\$488,098.06
19	5	1225055555	1,280	\$13.11	\$16,780.80	\$16,780.80
20	5	1225059231	72,606	\$13.11	\$951,891.74	\$951,891.74
21	1	7202410100	157,462	\$2.85	\$448,842.86	\$1,226,121.99
	2	7202410100	157,462	\$4.94	\$777,279.12	
22	1	1125059026	30,637	\$2.85	\$87,331.32	\$87,331.32
23	1	7202410200	75,537	\$2.85	\$215,316.78	\$215,316.78
24	1	7202415555	326	\$2.85	\$930.55	\$930.55
25	3	7202410050	18,398	\$6.36	\$117,064.81	\$117,064.81
26	2	7202410030	180,871	\$4.94	\$892,829.91	\$2,043,722.93
	3	7202410030	180,871	\$6.36	\$1,150,893.02	
27	3	7202410134	25,039	\$6.36	\$159,325.31	\$159,325.31

*Highlighted parcels indicate parcels that have multiple discharge locations. Parcels are divided 50/50 and assigned to two applicable ACC Areas.

**See Figure 1 for map of parcels with PINs, IDs and parcel areas



Legend

- Lift Station
- Manhole
- Sewer Main
- Force Main
- Side Sewer
- Developer Improvements
- Funded Through Additional Connection Charge
- Town Center and Additional Connection Charge (ACC) Area
- Leary Way Basin

P:\Mapping\Maps_Generated\Redmond\24-10730_16\maps\Fig 1 Project Improvements and Area Overview 11x17.mxd, 12/12/2024 sknight



GIS Data: City of Redmond

Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants LLC., assumes no responsibility for the validity of any information presented herein, nor any responsibility for the use or misuse of the data.

*Side streets - 164th Ave NE, 166th Ave NE and 168th Ave NE - sewer mains also require upgrades to support buildout wastewater demand. Developers will be required to construct additional side street sewer improvements based individual development impacts and as negotiated with the City during the development application process.

N

0 150 300 600 Feet



Project Improvements and Area Overview

Town Center Sanitary Sewer Evaluation

City of Redmond

December 2024