Terrebonne Wastewater Feasibility Study

Exploring Sewer Solutions for the Community

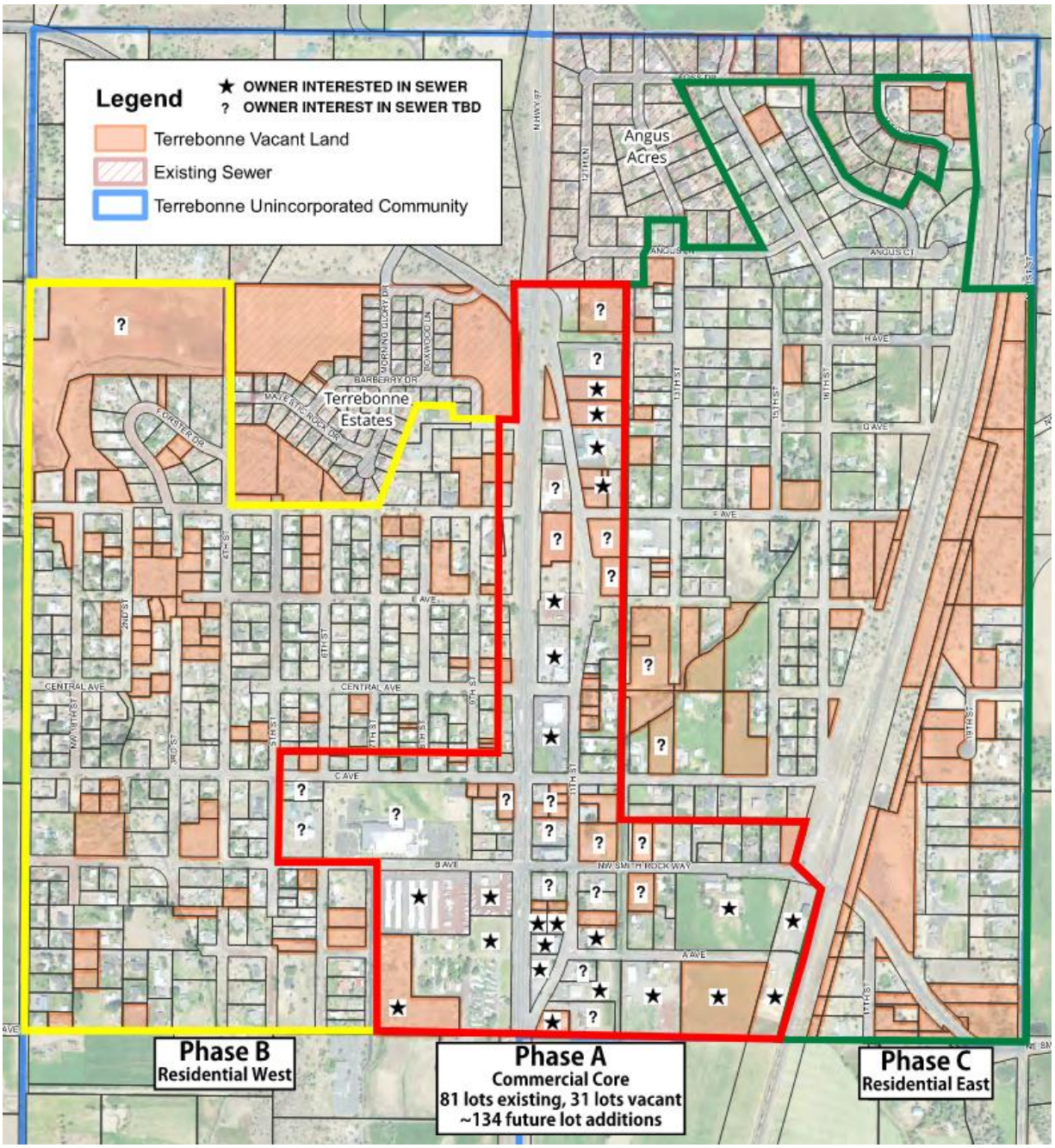
Memorandum: Project Update 6/28/2021

Introduction

This memorandum is meant to serve as a project update continuing to build upon the previous work as outlined in the previous project memorandum dated 5/3/2021. This memorandum evaluates the feasibility of a modified Phase A service area pumping septic tank effluent to the City of Redmond Wastewater Treatment Plant.

Service Area Definition

The map below shows vacant lands and existing private sewer systems in Terrebonne as of June 2019. System phasing is outlined below in color along with symbols indicating property owner interest in connecting to sewer.



Proposed Wastewater System Phasing

The Terrebonne service area has been divided into three separate phases of roughly equal size:

Phase A: Commercial Core
- This area has the highest concentration of septic system issues, businesses, and small residential lots
- The terrain in this region gently slopes toward Hwy 97 and 11th Street and north toward Lower Bridge Way
- 110 EDUs existing (EDU = equivalent dwelling unit)
- 359 EDUs at full buildout

Phase B: Residential West
- This area is mostly residential with larger lot sizes and generally fewer septic system issues
- Terrain in this region is relatively flat on the plateau and slopes down to the west from the plateau edge
- 169 EDUs existing
- 331 EDUs at full buildout

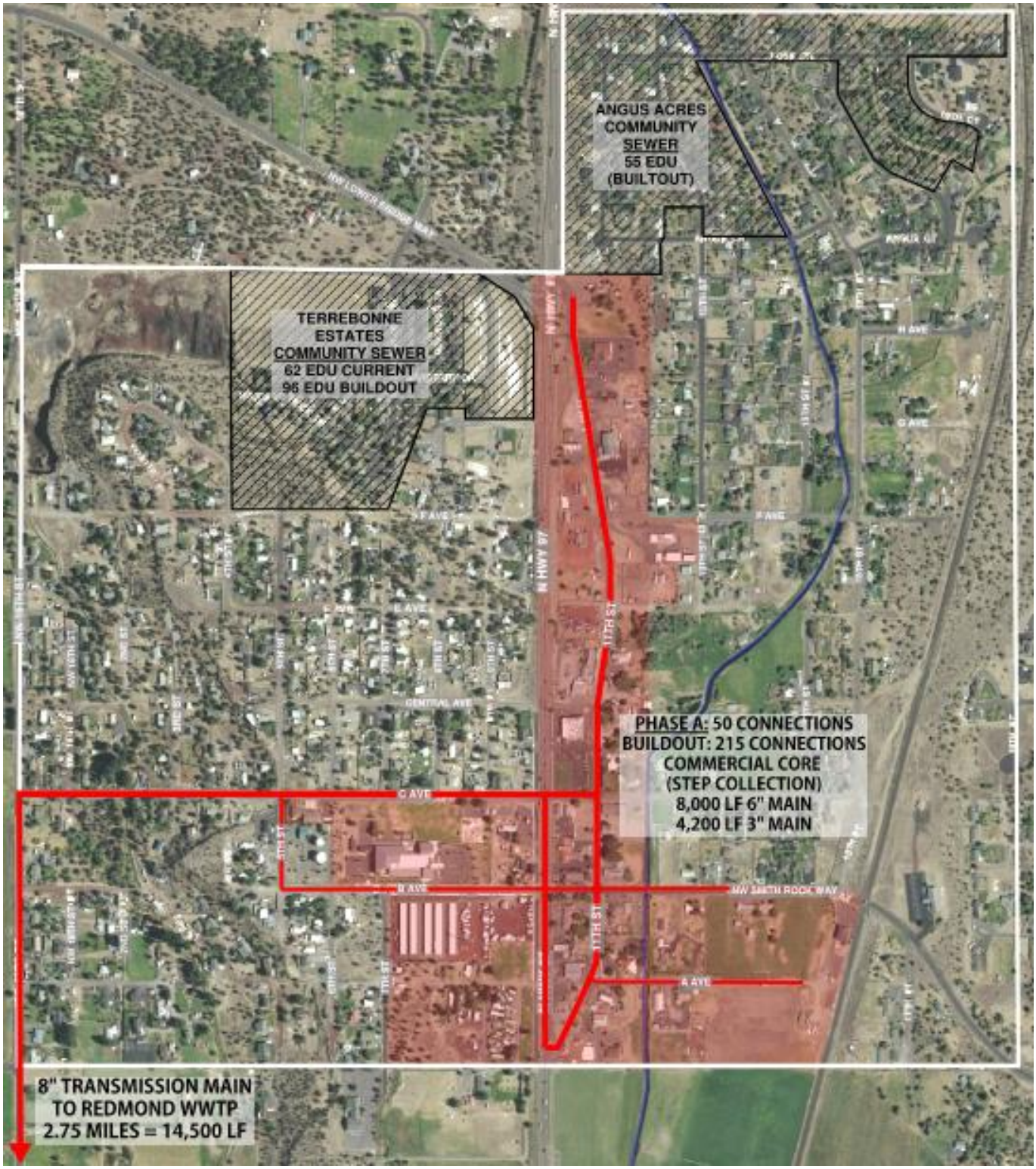
Phase C: Residential East
- This area is mostly residential with larger lot sizes and generally fewer septic system issues
- Terrain in this region is relatively flat, rural, and divided several COID irrigation laterals
- 143 EDUs existing
- 364 EDUs at full buildout

The constructed sewer system would initially serve just the Commercial Core in Phase A, with the ability to expand and serve Phase B and Phase C in the future if/when desired by the community.

Proposed Wastewater System – Pump to Redmond Wastewater Treatment Plant.
- Collection system includes Septic Tank Effluent Pumps (STEP) that collectively pump effluent to the Redmond WWTP in a 2.75-mile transmission main (See graphic below showing Prelos STEP system).
- This option is predicated on connection to the new Redmond wastewater treatment plant location (west of Northwest Way), currently in the design phase with the City of Redmond.
- This option does not require land acquisition or a WPCF permit from Oregon DEQ.
- The City of Redmond would charge connection fees and monthly rates to receive Terrebonne wastewater.

Proposed Phase A System Overview

- The proposed Phase A service Area is approximately 110 acres total, focused on serving the commercial core along Highway 97
- Onsite septic tank effluent pumps collectively pump to Redmond WWTP for disposal and treatment.
- A Terrebonne Sewer Advisory Group has been formed, consisting of approximately 10 Terrebonne Stakeholders in support of public sewer.
- This group represents approximately 25% of the larger properties in the Phase A service area.
- Another 25% of the property owners in the service area have expressed interest in connecting to sewer.



Equivalent Dwelling Unit (EDU) Estimates

- **50 Initial Connections = 110 EDU**
  - 19 commercial connections = 50 EDU
  - 31 residential connections + 29 Addl. Mobile Homes in Rustic Ranch = 60 EDU
  - Estimate based on metered water use for residential and commercial accounts.
- **215 Buildout Connections = 387 EDU**
  - 86 commercial connections = 258 EDU
  - 129 residential connections = 129 EDU
  - Estimate based on existing lots, vacant lots, development potential, and assumed breakout 40% commercial + 60% residential).

Capital Construction Cost Estimate

The estimated construction cost for the initial Phase A sewer system is approximately $4,952,214. This cost estimate shown below is based on approximate quantities of construction items and associated unit costs. Unit costs for STEP Collection System and 8" Force main include pavement removal and restoration. Included in this cost estimate are the connection fees ($2062/EDU) for the initial 110 EDUs to connect to the Redmond Wastewater Treatment Plant.

Phase	Construction Item	Quantity	Unit	Unit Price	Estimated Cost
A	STEP Collection System	12200	LF	$80	$976,000
	Prelos Septic Tank Replacements	50	EA	$8,000	$400,000
	8" Sewer Force Main to Redmond	14500	LF	$125	$1,812,500
	Redmond SDC Connection Fees	110	EDU	$2,062	$226,820
				Construction Subtotal:	$3,415,320
				Design, Legal, Admin, Permitting, Contingency (45%):	$1,536,894
				Estimated Phase A Total:	**$4,952,214**

Monthly Operating Budget Estimate

The table below shows a preliminary operating budget for the Phase A system with an initial 110 EDUs. The initial 110 EDUs can only financially support $2,750 in monthly debt payments with the assumed rates ($65/month), connection fees ($5,000/EDU), and estimated operating expenses. With this debt capacity, a maximum loan balance of approximately $686,000 could cover 14% of the capital construction costs and be repaid by the Sanitary District over a 30-year term. The remaining 86% of the capital costs would need to be funded by grants totaling approximately $4,266,189. For a project of this nature, 86% is a very high percentage of grant funding.

Phase A - Monthly Operating Budget		
Initial EDUs		110
Total Capital Costs (Phase A)	$	4,952,214
Assumed Connection Fees (per EDU)	$	5,000
Assumed Monthly Sewer Rate (per EDU)	$	65
Operating Reserve	$	550,000
Monthly Revenues	$	7,150
Monthly Operations & Maintenance Costs ($20/EDU)[1]	$	2,200
Monthly Service Fees to Redmond ($20/EDU)[2]	$	2,200
Monthly Debt Service Capacity (w/ initial 81 EDUs)	$	2,750
Maximum Loan Balance Computation (30-year term, 2.61% interest)	$	686,025
Required Grant to fund balance of project cost with assumed sewer rate	$	4,266,189
Required Grant as percentage of total project cost		86%

1. Assumed cost of $20/EDU to maintain effluent pumps and force mains, under review by utility companies to confirm.
2. Full COR monthly sewer rate is $32.58. The assumed sewer rate for Terrebonne users is $20/month. project team is coordinating with COR on a reduced rate that omits the portion allocated for Redmond collection system O&M.

Conclusion

Based on our preliminary design, analysis, coordination, and cost estimates, it may be feasible to construct and finance a sewer system that will initially serve the commercial core (Phase A) in Terrebonne with a significant contribution of grant funding from outside sources. Without the need for a new wastewater treatment plant and DEQ WPCF permit, it is estimated that this initial system could be constructed and operational in approximately five years. Once the STEP collection system and 8" forcemain are installed, the system can easily expand to serve nearby customers in the future by extending small diameter pressure mains in the public right-of-way, replacing septic tanks with Prelos systems, and connecting to the system with a small sewer service line (typically 1" diameter). As more properties connect to this initial STEP network and more EDUs pay into the system, debt service holds constant and a portion of the additional revenues can be allocated for capital expansion and replacement.

The estimated capital costs for the initial Phase A sewer system are approximately $5.0M. Approximately $4.3M in grant funding will be required for the Sanitary District to cover capital costs and operating costs with the initial 110 EDUs contributing financially at the assumed rates ($65/month) and connection fees ($5,000/EDU). This project is eligible for grant funding through state infrastructure funding programs. In addition, Deschutes County is aware of additional grant funds that may be available for this project. At the same time, it is uncommon for infrastructure projects of this nature to be 86% grant-funded.

Next Steps

- Deschutes County and project team to negotiate with City of Redmond Wastewater Division to confirm rates and fees for Terrebonne customers, as well as methods of wastewater measurement and payment.
- Terrebonne Sanitary District (TSD) formation per ORS Chapter 450 and guidance from the Deschutes County Legal Counsel.
- TSD to negotiate with City of Redmond Wastewater Division to confirm rates and fees for Terrebonne customers, as well as methods of wastewater measurement and payment.
- Parametrix completes the Preliminary Engineering Report (PER).
- TSD submits PER with grant and loan applications to fund system design, permitting, and construction.
- TSD obtains $4.4M in grants and $0.5M in loans to cover $4.9M estimated capital costs.
- TSD hires project team(s) to design and build sewer system and connect initial 50 customers (110 EDUs).
- TSD collects connection fees and monthly sewer rates to cover debt repayment and operating expenses.