Section 2 - Introduction, Purpose, Background, and Need

2.1. Authorization

In 2012, the City of Sheridan, Oregon contracted with Keller Associates, Inc. to complete a wastewater facilities plan. Funding for this study was provided by the Community Development Block Grant (CDBG) program.

2.2. Project Description

This study includes an evaluation of the City of Sheridan wastewater collection and treatment facilities. The project study area includes all areas within the City of Sheridan's Urban Growth Boundary (UGB). This study looks at a 20-year planning period.

The City of Sheridan is located approximately 60 miles southwest of Portland, Oregon in Yamhill County. The area's economic base includes the Spirit Mountain Casino, timber production lands, sales and associated manufacturing, and the Federal Correctional Institution (FCI). The City owns and operates a wastewater collection system and a wastewater treatment plant that treats wastewater from the city and the FCI collection systems. The FCI is responsible for operation and maintenance of the prison's collection system. The City operates the wastewater treatment plant as permitted by the Oregon Department of Environmental Quality (DEQ), through the National Pollutant Discharge Elimination System (NPDES) Permit No. 101625. Recent changes made to the NPDES permit are evaluated in this plan. Necessary operational and infrastructure improvements are also recommended.

2.3. Project Background

The City's most recent wastewater facilities plan was completed and subsequently approved by the DEQ in 2004. The 2004 facilities plan utilized SewerCAD to model the collection system. This plan has updated the model using InfoSewer, a hydraulic computer modeling program that integrates well with the City's geographic information system (GIS).

Since the 2004 facilities plan, a new flow meter has been installed for the city influent pipe to the wastewater treatment plant (WWTP), and new data has been collected to evaluate flows. This new flow data allowed for a more accurate analysis of the functionality of various system components.

2.4. Purpose and Need for the Project

The City of Sheridan experienced rapid population growth in the 1980s and 1990s, followed by more modest growth since 2000. Populations projected from previous studies are outdated due to recent declines in growth. The FCI was also originally expected to expand its inmate population, but now expects to maintain the existing inmate population for approximately 10 years. In recent years, the FCI has also implemented water conservation practices that have reduced the wastewater flow discharged to the City's wastewater treatment plant.

The City of Sheridan has experienced periodic violations of their NPDES permit; see section 5.2.7 for a summary of NPDES compliance issues. The lagoons are operating at or above their hydraulic capacities for storage. The potential to remove biochemical oxygen demand (BOD) and total suspended solids (TSS) is diminishing as the organic loading in the plant is nearing its design limits. This has contributed to NPDES compliance issues.

Other challenges include high levels of infiltration and inflow (I/I) and challenges with land application. Spikes in flow after rainfall events resulting from I/I is particularly harmful when it causes hydraulic overload of the system. Additionally, since there is not enough demand for land application of effluent during the summer months, a majority of the wastewater must be stored until the following winter when it can be discharged to the river during higher flow periods.

This plan analyzes the various components of the City's collection system (including gravity and pressure pipelines, pump stations, and wet wells) and the wastewater treatment plant (including treatment ponds, headworks facilities, chlorine contact chamber, de-chlorination, outfall, and irrigation pumps). Existing and projected flows are used to analyze the wastewater facilities. Alternatives to improve functionality and meet capacity are also presented. From these alternatives, recommended improvements and a capital improvement plan (CIP) have been developed.

2.5. Scope

The following list highlights the major tasks completed as part of this study:

- ✓ Review regulatory requirements
- ✓ Incorporate changes from new 2010 NPDES permit
- ✓ Update the study area characteristics to include updated data
- ✓ Review conditions of lift stations and treatment facility
- ✓ Complete pump tests
- ✓ Assess existing capacity limitations
- ✓ Rate pipeline conditions
- ✓ Collection system flow monitoring
- ✓ Upgrade existing computer model to InfoSewer software
- ✓ Determine the capacity of the land disposal area
- ✓ Analyze flows in the system
- ✓ Compare flows before and after the new meter was installed in the city system
- ✓ Evaluate I/I patterns
- ✓ Summarize all influent flow and water quality data
- ✓ Develop evaluation and design criteria for planning purposes
- ✓ Develop alternative improvements, for I/I, lift station capacity, nitrification options, suspended solids, disinfection, and disposal
- ✓ Establish the CIP including annual budgets
- ✓ Estimate System Development Charge (SDC) eligibility
- ✓ Prepare draft and final reports
- ✓ Prepare a stand-alone environmental information document

2.6. Acknowledgements

Key to the success of this project was the support and direction of the Technical Review Committee (TRC) consisting of the following individuals:

- Kie Cottam – Public Works Director
- Daryl Davis – Wastewater Treatment Plant Operator
- Rene Quinones – City Councilor
- Frank Sheridan – City Manager
- Jim Jacks – Senior Land Use Planner (Mid Willamette Valley Council of Governments)

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