

# **HANSONVILLE SEWER EXTENSION**

## **RUSSELL COUNTY PUBLIC SERVICE AUTHORITY**

*Cumberland Plateau Planning District*

### Project Background

The Hansonville project area is located southwest of the Town of Lebanon and extends primarily along U.S. Routes 19 and 58 and State Routes 657, 614, 673, 674 and 841 in the Willis, Cross Roads and Hansonville areas of Russell County. The project area includes approximately 510 residential connections and 15 commercial connections. Currently, the area is not served by a public sewage system. Residences and businesses in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watersheds of Little Cedar Creek, Carr Creek and Moccasin Creek none of which has been identified by the Virginia Department of Environmental Quality (DEQ) as an impaired stream. It is anticipated that, with the provision of public sewage service, a high potential will exist for residential growth and a moderate to high potential will exist for commercial and industrial growth.

### Proposed Facilities

The proposed facilities associated with the Hansonville Sewer Extension include approximately 21,000 linear feet of 10-inch gravity sewer, 89,200 linear feet of 8-inch gravity sewer, 13,200 linear feet of 6-inch force main, 17,300 linear feet of 4-inch force main, 11,000 linear feet of 2-inch force main, four sewage pumping stations and two grinder pump stations. The extension will connect to the existing Town of Lebanon sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Lebanon Wastewater Treatment Plant (WWTP). The Lebanon WWTP has a permitted capacity of 0.99 million gallons per day (MGD) and currently treats an average of 0.50 MGD. Treated effluent from the Lebanon WWTP discharges into Big Cedar Creek which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 630 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 189,000 GPD or 0.19 MGD. Therefore, adequate capacity is available at the Lebanon WWTP to treat the anticipated wastewater generated in the Hansonville project area.

### Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Hansonville Sewer Extension are \$11,670,620 and \$41,170, respectively. These costs result in an approximate present worth of \$23,113 per existing connection.

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**PRELIMINARY PROBABLE PROJECT COST**

Construction Cost

21,000 L.F. 10-inch Gravity Sewer @	\$64 /L.F.	\$1,344,000
89,200 L.F. 8-inch Gravity Sewer @	\$54 /L.F.	\$4,816,800
13,200 L.F. 6-inch Force Main @	\$21 /L.F.	\$277,200
17,300 L.F. 4-inch Force Main @	\$18 /L.F.	\$311,400
11,000 L.F. 2-inch Force Main @	\$15 /L.F.	\$165,000
4 EA. Sewage Pump Stations @	\$175,000 /EA.	\$700,000
2 EA. Grinder Pump Stations @	\$50,000 /EA.	\$100,000
135 EA. Force Main Connections @	\$5,600 /EA.	\$756,000
390 EA. Gravity Sewer Connections @	\$1,300 /EA.	\$507,000
Total Construction Cost		<u>\$8,977,400</u>

Related Cost

30 % Total Construction Cost		
Total Related Cost		\$2,693,220
<b>TOTAL PROJECT COST</b>		<b>\$11,670,620</b>

**ANNUAL OPERATION AND MAINTENANCE (O&M) COST**

Operation and Maintenance Cost

21,000 L.F. 10-inch Gravity Sewer @	\$0.10 /L.F.	\$2,100
89,200 L.F. 8-inch Gravity Sewer @	\$0.10 /L.F.	\$8,920
13,200 L.F. 6-inch Force Main @	\$0.10 /L.F.	\$1,320
17,300 L.F. 4-inch Force Main @	\$0.10 /L.F.	\$1,730
11,000 L.F. 2-inch Force Main @	\$0.10 /L.F.	\$1,100
4 EA. Sewage Pump Stations @	\$5,000 /EA.	\$20,000
2 EA. Grinder Pump Stations @	\$3,000 /EA.	\$6,000
TOTAL ANNUAL O&M COST		<u>\$41,170</u>

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$463,484

TOTAL PROJECT PRESENT WORTH	\$12,134,104
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PRESENT WORTH PER CONNECTION (525 CONNECTIONS)	\$23,113
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