

GRATTON SEWER EXTENSION

TAZEWELL COUNTY PUBLIC SERVICE AUTHORITY

Cumberland Plateau Planning District

Project Background

The Gratton project area extends east from the Town of Tazewell along State Route 61 and includes approximately 415 residential and 10 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. It is suspected that some of the septic systems in the area are failing and that straight piping does occur. The majority of the project area lies in the watershed of the Upper Clinch River 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, high potential exists for residential, commercial, and industrial growth.

Proposed Facilities

The proposed facilities associated with the Gratton Sewer Extension include approximately 53,315 linear feet of 8-inch gravity sewer, 5,385 linear feet of 4-inch force main and two sewage pumping stations. The extension will connect to the existing Town of Tazewell sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Tazewell Wastewater Treatment Plant (WWTP). The Tazewell WWTP has a permitted capacity of 2.00 million gallons per day (MGD) and currently treats an average of 0.84 MGD. Treated effluent from the Tazewell WWTP discharges into the Clinch River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 468 connections (anticipated 50-year growth of 10%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 140,400 GPD or 0.14 MGD. Therefore, adequate capacity is available at the Tazewell WWTP to treat the anticipated wastewater generated in the Gratton project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Gratton Sewer Extension are \$5,041,972 and \$15,870, respectively. These costs result in an approximate present worth of \$12,284 per existing connection.

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PRELIMINARY PROBABLE PROJECT COST

Construction Cost

53,315 L.F.	8-inch Gravity Sewer @	\$54 /L.F.	\$2,879,010
5,385 L.F.	4-inch Force Main @	\$18 /L.F.	\$96,930
2 EA.	Sewage Pump Station @	\$175,000 /EA.	\$350,000
425 EA.	Gravity Sewer Connections @	\$1,300 /EA.	\$552,500
Total Construction Cost			\$3,878,440

Related Cost

30 % Total Construction Cost

Total Related Cost \$1,163,532

TOTAL PROJECT COST \$5,041,972

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

Operation and Maintenance Cost

53,315 L.F.	8-inch Gravity Sewer @	\$0.10 /L.F.	\$5,332
5,385 L.F.	4-inch Force Main @	\$0.10 /L.F.	\$539
2 EA.	Sewage Pump Station @	\$5,000 /EA.	\$10,000
TOTAL ANNUAL O&M COST			\$15,870

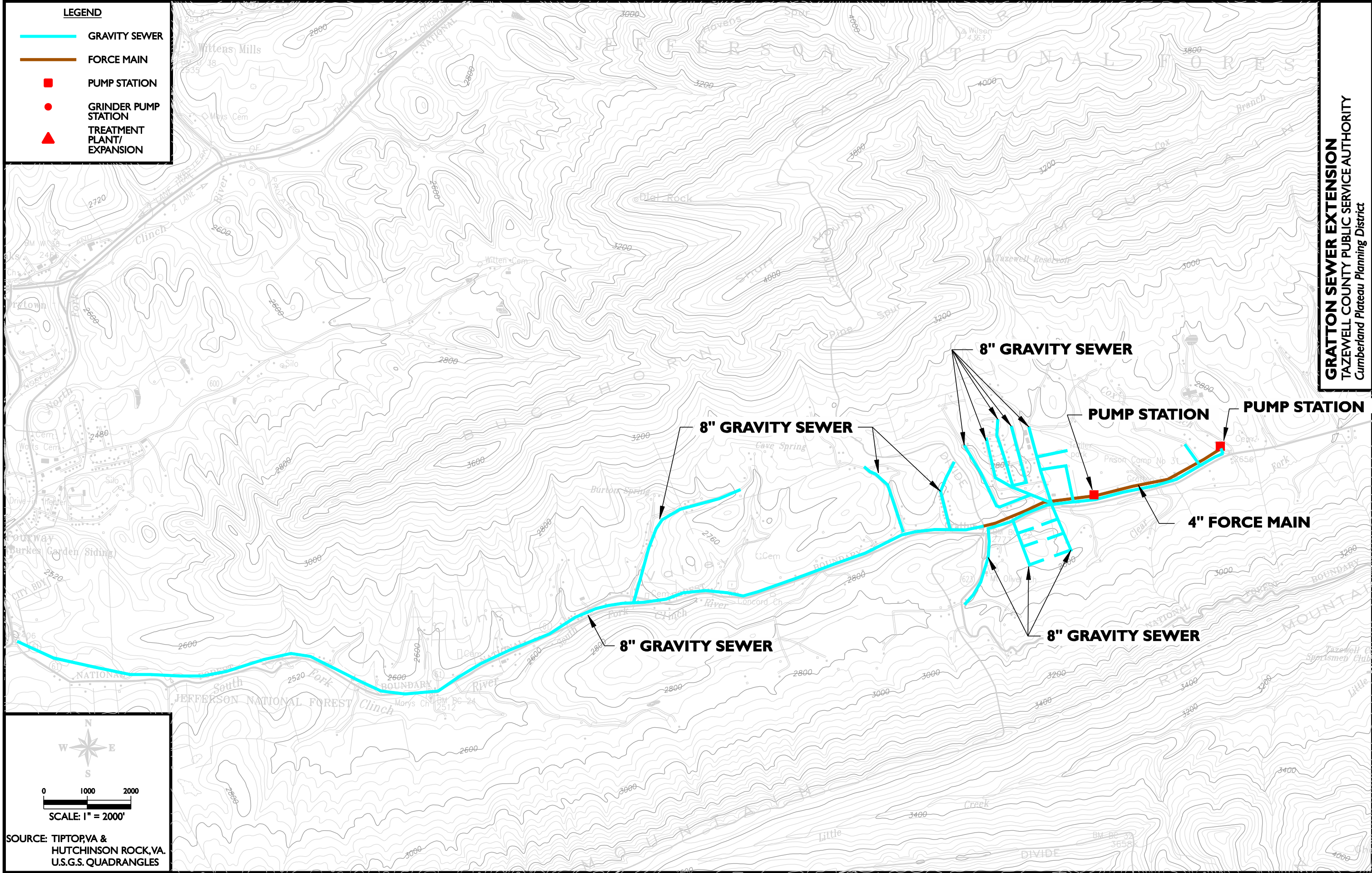
PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$178,661

TOTAL PROJECT PRESENT WORTH \$5,220,633

PRESENT WORTH PER CONNECTION (425 CONNECTIONS) \$12,284

LEGEND

- GRAVITY SEWER
- FORCE MAIN
- PUMP STATION
- GRINDER PUMP STATION
- ▲ TREATMENT PLANT/ EXPANSION



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SCALE: 1" = 2000'

SOURCE: TIPTOP,VA & HUTCHINSON ROCK,VA. U.S.G.S. QUADRANGLES