

Engineering Feasibility Report

Pat Mayse Lake Raw Water Pump Station

City of Paris, Lamar County, Texas



In an effort to stay ahead of the demand for water, the Paris City Council decided to undertake an investigation of the current water system so that an assessment could be made of key components (i.e.—raw water pumping and transmission, treatment, distribution, and storage).

Therefore, the council commissioned Hayter Engineering to analyse the existing raw water pump station on Pat Mayse Reservoir north of town. The investigation looked at the following key areas:

- Existing pump station capacity vs. theoretical capacity
- Contractual water obligations (volumes required by various commercial contracts)
- Regulatory water obligations (volumes required by various TCEQ rules)
- Reservoir safe yield compared to pump station capacity
- Obligations due to future population growth

Theoretical calculations as well as on-site testing resulted in a series of phased recommendations. These recommendations included the following:

- **Near-Term Improvements** — Increase the pipeline friction factor, replace pumps and motors, increase electrical capacity, and install an emergency generator to increase the raw water pumping capacity from 24 MGD to 35 MGD. The construction cost projection was \$3.2M.
- **Phase I Improvements** — Increase the station capacity to 44 MGD by increasing the pipeline friction factor, installing four 600 HP pumps with VFD motors, replace gates on intake structure and wetwell, and install an emergency generator. The construction cost projection was \$8.35M.
- **Phase II Improvements** — Increase the station capacity to 55 MGD, which will match the volume of water that the city can contractually withdraw from the reservoir. Replace all four pumps with three 1,250HP and one 750 HP pumps with VFD motors. Increase the pipeline friction factor, replace intake structure and wetwell gates, and install a second electrical feed. The construction cost projection was \$11.5M.

Due to budgetary constraints, the City of Paris has not implemented these improvements. Financial options are being investigated at this time. However, some of the basic recommendations from the Near-Term Improvements are currently being implemented.

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City of Paris, Texas

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