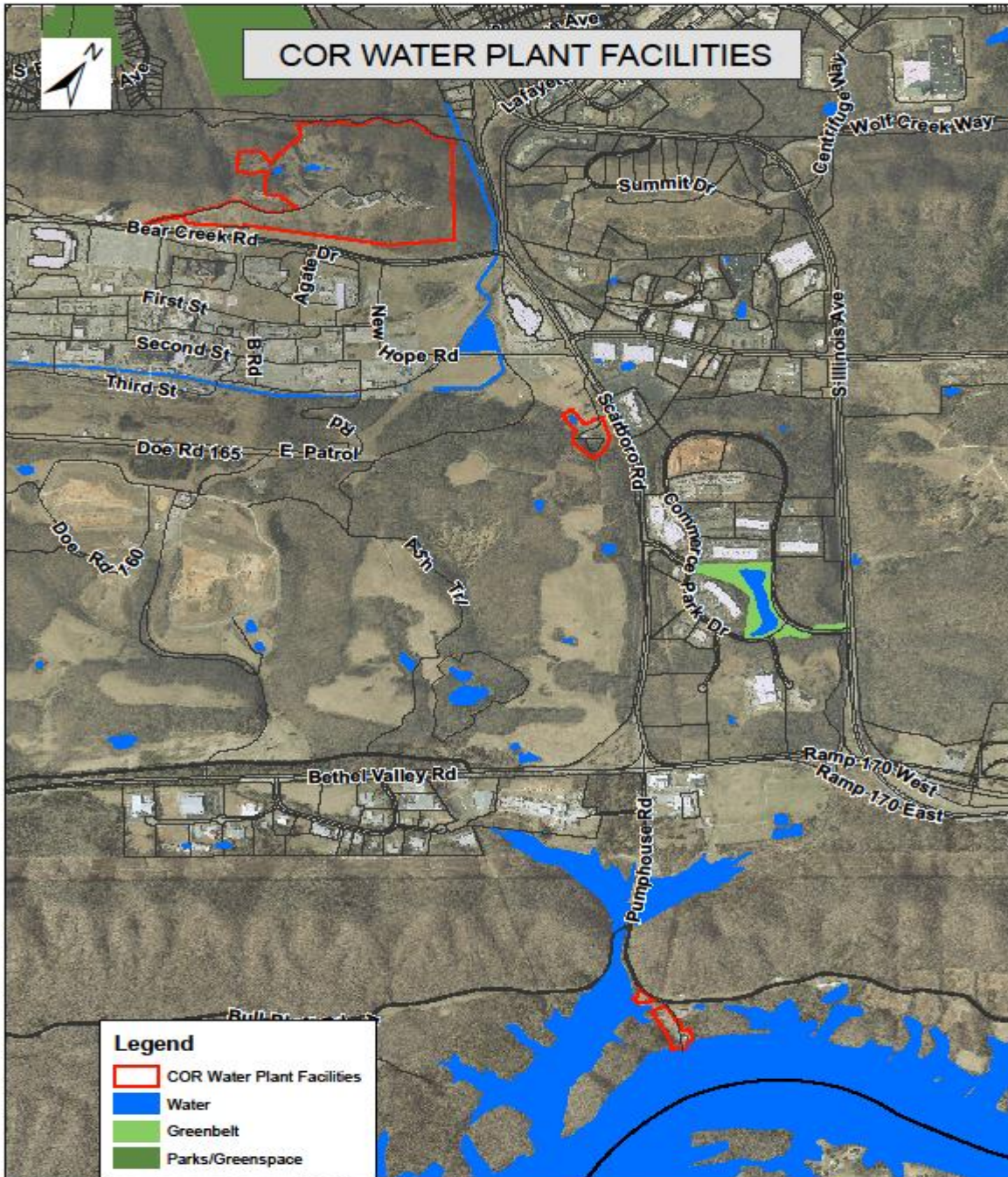


WATER PLANT SUB-AREA



Location & Function

The City currently operates and maintains the original 1940s era Water Treatment Plant (WTP), constructed by the Department of Energy (DOE). As with its original intent, this plant and its pumping and conveyance assets are vital to the daily operations of the DOE facilities and the City. The water produced at the plant is mission critical relative to the long term operation of DOE's world leading research and manufacturing park as well as daily usage from the City's medical, municipal, commercial, industrial and residential customers.

The existing WTP is comprised of three sites; the raw water intake, intermediate booster pump station and the WTP. The WTP is located on top of Pine Ridge, west of Scarboro Road and north of Bear Creek Road. Although it is located near the center of the city, it is isolated in the sense that it sits back from the surrounding streets and is shielded by trees. Access to the WTP is from a secured segment of Bear Creek Road within the Y-12 facility.

When originally constructed, in the 1940s, the plant's design capacity was 28 million gallons per day (mgd); however, due to its age and newer drinking water standards, the existing capacity has been reduced to approximately 10 mgd.

An evaluation of costs associated with full rehabilitation of the existing plant and its assets were compared to the construction of a new plant. The evaluation was completed by Jacob's Engineering and it was determined that the cost effective solution is the construction of a new plant. The preliminary design consists of a new 16 mgd plant to meet average daily and maximum daily demands, new finished water storage tanks, and a new finished water transmission main.

Plans

The new WTP will be located at the existing raw water intake located off Pump House Road and new finished water storage tanks are proposed on Pine Ridge on the east side of Scarboro Road with access to the tanks from Summit Place. A new finished transmission main will be constructed from the new WTP to the tanks, partially located in roadways and off roadways.

Benefits associated with the construction of a new WTP include the following:

- Increased capacity to meet existing and 20 year design average daily and maximum daily demands.
- Increased operational efficiency associated with all assets located at one (1) site versus the existing operation and maintenance of three (3) sites (raw water intake, intermediate pump station, and WTP).
- Replacement of the existing 2400 Volt electrical supply station, which is antiquated and requires specialized individuals to work on. Work associated with the 2400 Volt system is contracted out and there are only a few individuals in the region that are qualified to work

on this type of system. Replacement of the 2400 Volt system with a new 480 Volt system will allow the City's qualified electricians to work on the new system rather than contracting out this work.

- Increased energy efficiency associated with new energy efficient pumps and motors. The existing pumps are old and some cannot be replaced, which requires the City to find a manufacturer that will specially manufacture parts so the existing pumps can be maintained, which increases maintenance costs.
- Carbon footprint reduction associated with improved energy and operational efficiency. Less fuel will be used since all assets will be located at one (1) site versus three (3) sites. Less electricity will be used for heating and pumping.
- New transmission main to replace the existing 1940s era transmission main that has a history of breaks.
- Improved reliability of assets and delivery of safe, potable drinking water to the City and the DOE Complex.
- Removes an important City asset that is currently behind the Y-12 security boundary, thereby removing complexities associated with deliveries, contracted work, etc. associated with Y-12 security requirements.
- Improved customer confidence in quality and delivery.