

6 ALTERNATIVE EVALUATIONS

The preparation of this Wastewater Master Plan included the evaluation of alternatives for providing conveyance and treatment service to the City of Lee's Summit. As discussed in Section 5, alternatives for providing wastewater treatment in the Middle Big Creek Sub-District in lieu of expansion of the conveyance system to pump the wastewater to the LBVSD are currently being considered by the Sub-District's customers, including the City. Likewise, alternatives for providing peak flow capacity in the LBVSD Interceptor have been considered by the District's Technical Advisory Committee.

Alternatives for providing collection and conveyance facilities within the City were evaluated and discussed with the City's staff during master planning workshops. Following is a summary of these evaluations.

6.1 EVALUATION OF IMPROVEMENTS WITHOUT PRI DEVELOPMENT

The conveyance system plan, shown in Figure 5-2, was based on ultimate development of the entire city. Based on discussions between the City and PRI, a plan was developed showing the development of the conveyance system with the PRI property remaining undeveloped for an indefinite period. Figure 6-1 represents this alternative. The major difference in the alternatives for the ultimate wastewater conveyance facilities is the elimination of the interceptors, trunk lines, and pump stations that were recommended to serve the PRI property.

In the case of the PRI South property, the conveyance systems in the Cedar Creek, Mouse Creek, and Big Creek Watersheds can be reduced due to the elimination of projected flow from the PRI property.

The future pump stations and storage basins adjacent to Jacomo can be eliminated if the PRI North property is removed from conveyance system master planning. Under this alternative, the Rice Road Pump Station will remain as a permanent part of the Lake Jacomo Watershed conveyance facilities.

Capital improvement cost savings related to this alternative are addressed in Section 8.

6.2 EVALUATION OF CONVEYANCE ALTERNATIVE FOR MAYBROOK, SOUTH AND WEST PRAIRIE LEE, AND LITTLE CEDAR CREEK WATERSHEDS

Providing wastewater service to the Maybrook, South and West Prairie Lee, and Little Cedar Creek Watershed is complicated by the limitations provided by the location of Prairie Lee Lake, Lake Jacomo, and Lakewood Lake. There are no lake-bottom interceptors under Lake Jacomo or Prairie Lee Lake; and, the interceptor under Lakewood Lake has limited capacity. Pumping wastewater from the South and West Prairie Lee Watersheds to Maybrook (up to 16 million gallons per day) and Little Cedar Creek (up to 4 million gallons per day), was the most cost-effective alternative for the last 15-20 years due to available capacity in the Maybrook Interceptor. With the projected growth in the Maybrook Watershed, the ultimate wastewater service plan for these watersheds should be evaluated. Following is a description of the three alternative conveyance plans that were considered:

Alternative No. 1: This alternative assumes that of the 24 million gallons per day conveyed from the West and South Prairie Lee Watersheds, 16 million gallons per day would be pumped to the Maybrook Watershed and 8 million gallons per day would be pumped to the Little Cedar Creek Watershed, all by the Tudor Road Pump Station. Specific improvements include:

- a. Upgrade of the Tudor Road Pump Station to include dry pit submersible pumps.
- b. Improvements to Little Cedar Creek Interceptor and Force Main.
- c. Upgrade the Scruggs Road Pump Station to 16 million gallons per day capacity.

- d. Improvements to Scruggs Road force main.
- e. Improvements to Scruggs Road EFHB.
- f. New 12.8 million gallon EFHB in the Maybrook Watershed.

The estimated capital cost of this alternative is \$14.5 million.

Alternative No. 2: This alternative assumes the same flow split to Maybrook and Little Cedar Creek Watersheds as Alternative No. 1, however, it recommends that the Scruggs Road Pump Station will be upgraded to 16 million gallons per day and a new force main will be constructed from the Scruggs Road Pump Station to the intersection of Highway 291 and Scruggs Road. Specific improvements include:

- a. Upgrade of Scruggs Road Pump Station to 16 million gallons per day capacity.
- b. New force main from Scruggs Road Pump Station to intersection of Highway 291 and Scruggs Road.
- c. Improvements to Scruggs Road EFHB.
- d. New 12.8 million gallon excess flow holding basin in Maybrook Watershed.
- e. Improvements to Little Cedar Creek Interceptor and Force main.

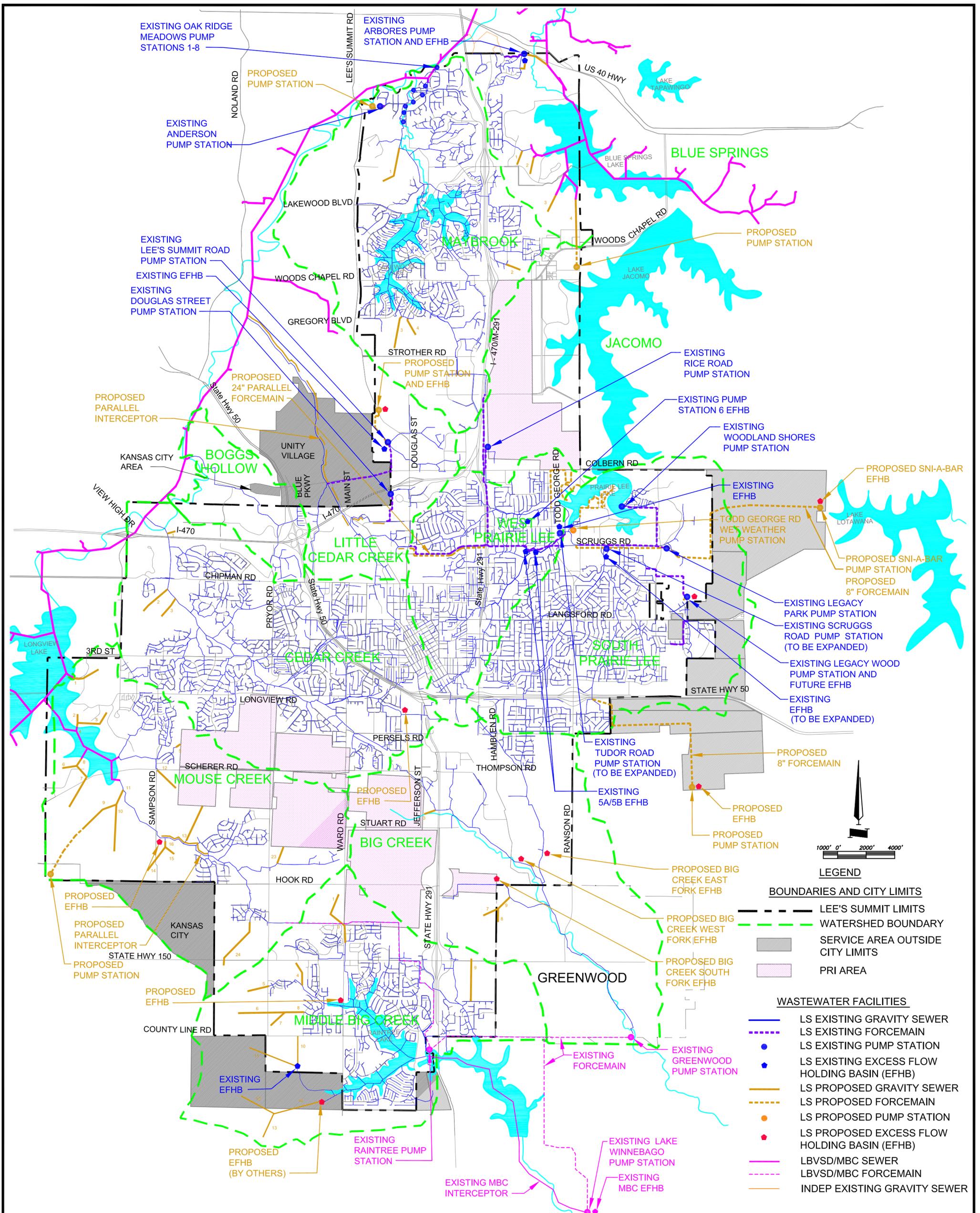
The estimated capital cost of this alternative is \$ 14.1 million.

Alternative No. 3: This alternative assumes that the 24 million gallons pumped from the West and South Prairie Lee Watersheds will be pumped entirely to the Little Cedar Creek Watershed, eliminating the need for an excess flow holding basin in the Maybrook Watershed. Specific improvements include the following:

- a. Upgrade of the Tudor Road Pump Station to include dry pit submersible pumps.
- b. Improvements to the Little Cedar Creek Force Main along Tudor Road.
- c. Improvement to the Little Cedar Creek Interceptor.
- d. Upgrade of the Scruggs Road Pump Station to 16 million gallons per day capacity.
- e. Improvements to Scruggs Road force main.
- f. Improvements to Scruggs Road EFHB.

The estimated capital cost of this alternative is \$ 12.8 million.

Based on this evaluation and after considering the long-term risks associated with odors, corrosion, and potential overflows into Lakewood, it is recommended that Alternative 3 be adopted as the long-term plan for conveyance of the watersheds included in this evaluation.



**CITY OF LEE'S SUMMIT WASTEWATER MASTER PLAN
ULTIMATE CONDITION WITHOUT PRI
FIGURE 6-1**

