

## 5.0 Wastewater Treatment Plant Discussion

FSD’s existing wastewater treatment facility provides a current design average daily flow of 1.30 mgd and design peak flow of 2.73 mgd. Hydraulic components are designed with a hydraulic capacity of 5.0 mgd to permit the plant to be approximately doubled in the future. Treatment process facilities were designed based on a maximum month average daily flow of 1.56 mgd and an organic loading capacity of 2,928 pounds of 5-day biochemical oxygen demand.

The State of Colorado requires wastewater utilities to have new treatment facilities in a design stage by the time flows reach 80 percent of their existing treatment capacity, and have new facilities under construction by the time that the flows reach 90 percent of existing capacity. Therefore, FSD should have completed a plan for additional treatment capacity and initiated design by the time the average daily flows reach 80 percent of 1.3 mgd, or 1.04 mgd. This level matches the actual average daily flow for year 2002. Therefore, FSD needs to begin planning for additional treatment capacity immediately.

Eighty percent of the existing facility’s design maximum month average daily flow is 1.25 mgd, or slightly more than the actual year 2002 rate of 1.22 mgd. This indicates that the need to begin planning for additional capacity is also justified on a treatment process basis.

The projected average daily flow for future years by major basin as assigned in the hydraulic model are listed in Table 5-1. By interpolation, the total ADF will exceed the treatment facility design average daily flow by year 2005.

Diameter (in)	Fountain Creek Basin	Jimmy Camp Creek Basin	Total
Existing (2002)	0.47	0.56	1.03
2010	0.56	1.18	1.84
Build-out	2.72	5.58	8.30

At this time, it is not known whether FSD will continue to treat all wastewater from the study area at its treatment facility location, or whether a regional plant will be

developed to handle all or part of FSD's flows. Potentially, FSD could participate in a new regional wastewater treatment plant to serve not only the FSD service area, but also surrounding areas such as Colorado Springs, the Widefield, and Colorado Centre. A regional facility might be located southeast of the FSD service area in the vicinity of Callahan Reservoir.

Alternative wastewater management concepts that FSD should consider include the following:

- ?? Alternative A, expand the existing wastewater treatment facility in stages to treat the projected flows. Relief sewers and pumping stations would be required to deliver future flows to the existing plant site.
- ?? Alternative B, participate in a regional wastewater treatment facility and convey all flows to the regional plant. One or more pumping stations would be required to deliver flows from both the Fountain Creek and Jimmy Camp Creek basins to the regional plant. The Little Ranches pumping station could be expanded and a new force main constructed to deliver Jimmy Camp Creek basin flows to the regional plant. A new station and force main would be required to transfer Fountain Creek basin flows.
- ?? Alternative C, expand the FSD wastewater treatment facility to serve projected flows from the Fountain Creek basin, and deliver projected flows from the Jimmy Camp Creek basin to a regional plant. Under this alternative, FSD's existing wastewater treatment facility would provide adequate treatment capacity for Fountain Creek basin flows well beyond year 2010, but would require expansion before build-out.