



Municipal Technical Advisory Service
INSTITUTE *for* PUBLIC SERVICE

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Planning for Water

Dear Reader:

The following document was created from the MTAS website ([mtas.tennessee.edu](https://www.mtas.tennessee.edu)). This website is maintained daily by MTAS staff and seeks to represent the most current information regarding issues relative to Tennessee municipal government.

We hope this information will be useful to you; reference to it will assist you with many of the questions that will arise in your tenure with municipal government. However, the *Tennessee Code Annotated* and other relevant laws or regulations should always be consulted before any action is taken based upon the contents of this document.

Please feel free to contact us if you have questions or comments regarding this information or any other MTAS website material.

Sincerely,

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Fire Service Planning for Water

Most municipal subdivision regulations require six-inch water mains capable of delivering at least 500 gpm at a residual pressure of 20 psi, and they require that hydrants be installed no more than 1,000 feet apart or 500 feet from residential structures. Desired fire hydrant spacing for residential areas is to have fire hydrants spaced on 500-foot centers. For commercial and industrial areas, fire hydrants should be on 300-foot centers. Some commercial and industrial occupancies with needed fire flows exceeding 3,500 gpm may need hydrants to be spaced much closer in order to provide enough hydrants to meet the needed fire flow. With the use of GPS equipment, insurance companies now can more accurately determine the exact distance of a structure from a fire hydrant and charge the correct property insurance rate. Public and private water utility districts operating within a city and its urban growth area are not required to comply with municipal subdivision regulations that require the installation of fire hydrants. There often is a serious disconnect between municipal planning and the provision of water by utility districts and private utility companies. It is somewhat ironic that only the largest utility, usually the electric system or the telephone company, was required to participate in the development of the 20-year urban growth plan required by Public Chapter 1101, and utilities are not required to comply with the city's growth plan.

According to Kevin J. Lauer, UT County Technical Assistance Service fire consultant, water systems typically can be designed and installed for fire protection with an increase in total project cost of only 4 to 10 percent over a potable system only. This is another area that will pay huge dividends over the next 10 to 15 years. He goes on to say that water systems and community development planning is a complex subject that local governments cannot afford to ignore. It is vital, not only for safety and property conservation, but also for the continued economic growth of a region.

Many communities in Tennessee want a water supply with six-inch or larger, depending upon the needed fire flow, water mains and community-wide fire hydrants. They want improved fire service to save lives and property; however, they complain about the affordability of such improvements. The Environmental Protection Agency (EPA) bases its affordability determinations on the criterion that a household with the median (50th percentile) income should be able to pay 2.5 percent of its pre-tax income for water. The 2015 median family income in Tennessee was \$57,830. At 2.5 percent this affordability measure indicates that customers should be able to pay up to \$120.48 per month for water. The average monthly water bill in calendar year 2000 for Tennessee cities with populations of less than 5,000 was \$17.46. Most households in Tennessee are paying approximately one-sixth of the EPA affordability index amount. While the author is not advocating a six-fold increase in water rates, many families are paying considerably more for cable television service than for water service.

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