

T e c h n i c a l M e m o r a n d u m

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Project Tennessee State University Campus Master Plan

Subject 3. Existing Campus Conditions
 3.2 Existing Campus Infrastructure
 3.2.1 Domestic Water and Fire Protection

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To Tennessee State University

The objective of this work is to discuss the condition and capability of the existing utility systems.

1. DOMESTIC & FIRE PROTECTION WATER

INTRODUCTION

The analysis of the existing domestic and fire protection water distribution system looks at present infrastructure conditions for both the public and private portions of the water system. The delineation of the public water system from the private water system is generally made at the meter, with the actual meter being a portion of the public water system. This delineation can be uncertain throughout the Tennessee State University (TSU) Campus, thus necessitating the need to analyze both portions of the system. In addition, the domestic and fire protection water distribution systems are analyzed together because of their shared dependency on the public water mains.

A generalized Existing Water Plan (III.B.1 Figure 1) of the water distribution system analyzed in this study is included with this report.

ANALYSIS

The Tennessee State University (TSU) water distribution system analysis is based on historical data, field observation, and coordination with various representatives of the owner and local regulatory agencies. The most recent contacts include representatives of Metro Water Services and both the TSU Department of Facilities Management and TSU Campus Planning Design & Construction.

The portion of the TSU campus water distribution system included in this study is served almost entirely off of public utility mains, predominantly the moderate volume (12-inch) main that runs through the center of campus in John A. Merritt Boulevard / John L. Driver Avenue. Additional moderate volume mains exist in 33rd Avenue (8-inch), 35th Avenue (8-inch), and Ed Temple Boulevard (10-inch); while the majority of public mains on the TSU campus are 6-inch mains.

The Metropolitan Government of Nashville and Davidson County water system in the Tennessee State University campus area, from a domestic and fire protection volume and pressure standpoint is characterized as generally fair to good. Water distribution is such that booster pumps are only needed in the high-rise buildings.

Items or areas of concern are as follows:

- Age of infrastructure – With age, rust deposits form within the gray cast iron water mains, begin to clog and pit the inside pipe walls of the system, and thus affect volume and pressure characteristics of the pipe.
- Industrial Arts Building – The deterioration of the existing Industrial Arts domestic water service due to age has caused volume and flow deficiencies.
- Love Learning Resource Center Loop – The water main that loops around the Love Learning Resource Center provides water to a majority of the buildings located on the northwest portion of the campus. The lack of valves and the condition of existing valves poses a maintenance issue. Shutting down this loop to service a single building service or section of pipe effectively shuts off service to the rest of the buildings on this loop.

Recommendations

The proposed recommendations for the above mentioned items or areas of concern are as follows:

- Ages of infrastructure – As most of the major water supply lines located in and around the TSU campus are the responsibility of Metro Water Services, planning and maintenance may be left to them. Any improvements or repairs associated with the small private service lines may best be handled on an as-needed basis. Although, it is recommended that campus maintenance personnel request and log fire hydrant flow test data from Metro Water Services as a means of monitoring any significant changes in operating pressures and flows.
- Industrial Arts Building – The existing Industrial Arts domestic water service should be replaced. The proposed water system improvements shown on the Proposed Water Plan (6.5.1 figure 1) will total approximately:
 - 150 L.F. of 2" Copper pipe
- Love Learning Resource Center Loop – The addition of three gate valves to this loop would allow single buildings or sections of pipe to be serviced, while water service is maintained to the remaining buildings on this loop. The proposed water system improvements shown on the Proposed Water Plan (6.5.1 figure 1) will total approximately:
 - 3 gate valves