

WATER SUPPLY WORK GROUP REPORT EXECUTIVE SUMMARY

The availability of an adequate and reliable water supply is paramount to effective fire suppression operations. The fire fighting water supply, whether from a municipal system, private system, or static source must be **rapidly available, efficient, expandable, and uninterrupted** to sustain long-duration fire suppression operations. A water supply that falls short of these requirements will likely contribute to greater property loss and may contribute to the number and severity of fire-related casualties.

Given that effective fire suppression is dependent upon the availability of an adequate and reliable water supply, and because the *Fire, Rescue and Emergency Medical Services Master Plan* has a recommendation concerning alternate sources of water, the Fire and Rescue Commission (FRC) established the Water Supply Work Group (WSWG) in June, 1998. The work group was charged with conducting a comprehensive study of 13 specific water supply issues facing the Montgomery County Fire and Rescue Service (MCFRS) and offering appropriate recommendations for improvements.

Working closely with local fire and rescue departments, the Division of Fire and Rescue Services, other county departments, the Washington Suburban Sanitary Commission, City of Rockville Public Works, Town of Poolesville Public Works, and several federal and private facilities, the WSWG identified and analyzed strengths and weaknesses of the fire suppression water supply delivery capabilities in Montgomery County. Topics addressed in these analyses included municipal water systems' infrastructure, local and national fire loss statistics, target hazards, limited access highways, fire flow requirements, response time goals, and MCFRS capabilities. Standards and models published by the National Fire Protection Association and Insurance Services Office, Incorporated, were used as a basis for this analysis.

The WSWG determined that major areas lacking fire hydrants include Barnseville, Beallsville, Dickerson, Boyds, Hyattstown, and portions of Darnestown, Potomac, Travilah, Laytonsville, Damascus, Olney, and Sandy Spring. Areas that lack fire hydrants generally rely on the MCFRS to provide water, either by mobile units having water tanks (i.e., tankers, engines, brush trucks) or by drafting from bodies of water or other static water sources in the vicinity of a structure or brush fire. While a small number of properties have pools, underground water tanks, cisterns, or dry hydrants attached to ponds, these static drafting sources are not under MCFRS control, therefore their reliability as drafting sources is suspect. Reliability of any static water source is often an issue due to accessibility problems and drought conditions.

To better identify the extent of water supply issues in rural areas, the WSWG and the County's Geographic Information System office developed a map showing the areas that each existing MCFRS tanker can reach within 10 minutes using the existing road network, as well as areas having fire hydrants and those lacking hydrants. The map indicates that there are significant portions of western Montgomery County, Darnestown, North Potomac, Travilah,

Potomac, Damascus, Olney, and Sandy Spring that lack hydrants and are beyond the 10-minute response of a tanker.

The capabilities of the three municipal water systems (i.e., WSSC, Rockville, Poolesville) within the county to provide an adequate and reliable water supply for fire suppression were compared by the WSWG to NFPA and ISO standards to identify deficiencies. For areas lacking hydrants, the WSWG identified water supply issues and developed alternate strategies to ensure adequate water delivery for future fire incidents, including the identification of specific drafting sites.

As part of its charge, the WSWG studied and, in some cases, tested MCFRS tankers, pumpers, and other apparatus with water delivery capabilities, as well as a wide variety of MCFRS appliances necessary to deliver water for fire suppression. Tests included evaluation of the four existing tankers engaged in filling, shuttle, and off-loading operations, culminating in a continuous flow capability rating for each tanker. In cooperation with the FRC's Station Location and Resource Allocation Work Group, the WSWG has developed future tanker deployment strategies for consideration.

Various supply line hose strategies were examined by the WSWG and compared to state-of-the-art methods used by other jurisdictions. Particular emphasis was placed on operations in rural areas where water is typically transported to the fire ground. Roadside identification of static water supply sources, enhanced mapping strategies, and improved dispatch procedures are recommended by the WSWG. County-wide standard operating procedures for water supply and improved training programs for command-level personnel and fire fighters are also recommended by the WSWG.

Through its recommendations, the WSWG is proposing a number of significant improvements to the fire suppression water delivery system that will address current hazards as well as those associated with expected growth within the county. These enhancements will assure rapid, efficient, expandable, and uninterrupted fire suppression water supply throughout the county, while correcting deficiencies and problems that have caused less than desirable results in the past. Improved resource deployment and subsequent water delivery improvements recommended by the WSWG may have the added benefit of lowering insurance premiums for some residents in rural areas.

While the Water Supply Work Group has formulated 33 specific recommendations, the group has identified ten select recommendations of greatest significance. The "top ten" recommendations, presented in order of priority, are listed on the next page.

TOP TEN RECOMMENDATIONS OF THE WATER SUPPLY WORK GROUP

1. Legislation mandating installation of quick-response, residential sprinklers in new single-family detached dwellings. [Add highrise retrofit]
2. MCFRS resources be deployed and SOPs be established that will enable first arriving suppression units to initiate a fire attack with at least 5,000 gallons of water for ten minutes (i.e., 500 GPM minimum flow rate for initial ten minutes).
3. Four additional tankers be placed in service, including deployment of tankers at Fire Stations 31, 4, and 30, and a reserve tanker at an appropriate location.
4. A MCFRS operations policy and training program addressing all aspects of fire department water supply, encompassing standard operating procedures for water supply in all areas of the county – urban, suburban and rural.
5. Tankers be added to the structure fire response assignment for all streets in areas where municipal fire hydrants are not available.
6. Develop Geographic Information System (GIS) maps and diagrams indicating the locations of all hydrants, fire department connections, and static water supply sources. When the mobile data terminal system goes online, ensure the inclusion of these maps and diagrams and tie to them data files concerning access, ownership, and specific operational tactics regarding each water supply source.
7. Develop an inspection procedure for use during in-service inspections for all buildings equipped with an automatic sprinkler system, standpipe system, and/or fire pump, that assures compliance with NFPA 25, “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.”
8. Service testing of all MCFRS pumpers on an approved schedule.
9. Replace current 3-inch supply hose with 4-inch large-diameter hose equipped with quarter-turn connections.
10. A contingency plan be developed that provides for adequate tanker coverage throughout Montgomery County during times of catastrophic failure of any of the three municipal water systems serving the county.