

February 26, 2013

Mr. Pinkerton:

I was not able to find any studies in our library on determining the annual cost of maintaining fire hydrants. I did find a survey conducted for the Harriman Utilities Board in November 2006 with some information on charges (see below) and here is the link to that survey on Knowledgebase

<http://www.mtas.tennessee.edu/KnowledgeBase.nsf/2efb230af01fb972852569d1007223c2/c3019be8ca51eddb8525723f0053ded8?OpenDocument&Highlight=0,Survey,Conducted,for,the,Harriman,Utilities,Board>.

<b>Contact</b>	<b>Who installs and maintains the fire hydrants?</b>	<b>Who pays for the installation and maintenance?</b>	<b>If the utility does the maintenance does the utility charge a fire hydrant fee to the city for annual maintenance?</b>	<b>If so how much is the fee?</b>
Lenoir City Utilities Board Shannon Littleton, Asst. General Manager 865-988-0717	Installation: Utilities Board or developer/contractor  Maintenance: Lenoir City, but recently started paying Utilities Board to maintain hydrants	Installation: Developer  Maintenance: Lenoir City or developer if outside city limits	Yes	\$20,000 annually. Rate varies depending on water treatment service manual
Rockwood Gas, Water, and Sewer Rodney King (865) 354-0163	Installation: Rockwood Water and Gas  Maintenance: Fire Department	City of Rockwood	N/A	N/A
Clinton Utilities Board (865)457-9232	Utilities Board	Installation: Developer Maintenance: Fire Department	Yes	\$50 per year per hydrant
Kingston Jim Pinkerton, Utility Manager; (865) 376-6584	Installation: City Water Maintenance: Fire Department	Fire Department	N/A	N/A
Crossville Les Sherrill, Utility Manager (931) 484-7631	City Water and Maintenance	Fire Department	Yes	Doesn't know
Lafollette Utilities Board Walter M. Baird, Jr., General Manager	Installation: Water Utility  Maintenance: Fire Department	City of Lafollette	N/A	N/A
Sweetwater Utilities Board Robert Bettis, General Manager (423) 337-5081	Utilities Board	Utilities Board	Yes	\$6 per hydrant per month
Sparta Bill Klein, Utility Manager 931-738-2281	Installation: Utility Board  Maintenance: Fire Department	City of Sparta	N/A	N/A

I can provide some guidelines you may use to help determine a reasonable cost for your city.

Fire hydrant maintenance includes both direct and indirect costs. Annual maintenance would include such things as listed below. The definitive reference publication for the proper maintenance of a fire hydrant is American Water Works Association's (AWWA) manual of practice M17 *Installation, Field Testing and Maintenance of Fire Hydrants*, and following those procedures (source: <http://www.awwa.org/store/manuals.aspx>).

- ◆ Visual inspection of the hydrant for general condition and damage
- ◆ Weeding and clearing around the hydrant
- ◆ Lubricating the operating nut on the fire hydrant
- ◆ Checking the caps, chains, and cap gaskets
- ◆ Cleaning and lubricating the threads on the caps
- ◆ Painting the hydrant as necessary
- ◆ Operating the hydrant (water is used)
- ◆ Static pressure test of the hydrant (water is used)
- ◆ Flushing the hydrant (water is used)
- ◆ Ensuring the fire hydrant drained properly (water is used)
- ◆ Performing a flow test (water is used)
- ◆ Making repairs as required
- ◆ Documentation of inspections, maintenance, and repairs

Costs associated with annual maintenance include:

- ◆ Labor costs (usually at an hourly rate plus benefits) for personnel performing the maintenance
- ◆ Equipment costs for vehicles and other equipment used
- ◆ Costs for parts and supplies
- ◆ Overhead costs for maintaining the office, parts inventory, operating infrastructure, etc.
- ◆ Unmetered water costs associated with water used for inspecting, flushing, and conducting flow tests

A sample method of calculating the labor cost is shown below. You can use a similar method for determining the cost for administrative labor (support, data entry, maintaining records, etc.) if any.

<b>Labor calculation</b>	
Hourly rate for the worker	\$10.00
Benefit cost rate for the city	45%
Hourly benefit rate	\$4.50
Hourly rate with benefits	\$14.50
Overhead factor rate for the city	70%
Calculated hourly rate per worker	\$24.65

The cost of operating the vehicle by the crew used must be considered (fuel, maintenance, etc.) Costs for the equipment may be calculated as a cost-per-mile rate for the vehicle used, hourly rate for the vehicle used, or allocated in some other manner as determined by the city.

Materials used (tools, repair parts, etc.) should be expensed as well.

I indicated that water is used in certain parts of inspecting, maintaining, and testing fire hydrants. This should be considered as water systems must account for unmetered water. The amount of water used will vary depending upon the type of test performed, static water pressure in the system, the size of the opening used, and the length of time water is flowing. As an example, a typical 5¼" barrel hydrant with a three-foot bury holds approximately seven (7) gallons of water. Therefore, if the only test performed is a static pressure test, the water used would be seven gallons. The cost of the water used may be small, but should be reported to the utility department so they can track it for their annual audit.

For safety, a two-person crew should be used for fire hydrant inspection, maintenance, repairs, and testing (when I was the fire chief in Germantown I had a firefighter suffer a broken leg when a 2½" cap blew off the hydrant and stuck him in the leg).

For a simple inspection and annual testing to verify proper operation, the crew may spend between 20 and 30 minutes with the hydrant. Maintenance and repairs will increase this time. The water department may be able to give typical repair times for different problems, such as replacing an operating nut or replacing a traffic connection.

Some utility companies charge a city or fire department for the use of fire hydrants. I found no concrete formula to use to determine an appropriate fee or charge, and the research done by other MTAS personnel shows that a fee in the range of \$4.00-\$5.00 per month, per hydrant, is common.

MTAS has a publication *Water and Wastewater Management* (<http://www.mtas.tennessee.edu/KnowledgeBase.nsf/2efb230af01fb972852569d1007223c2/d821a3bb7a8fd4b7852578fe004e905c?OpenDocument&Highlight=0,Water,Wastewater,Management>) and the following is copied from the publication:

**Fire Hydrant Charges:** Municipalities may elect to establish a charge from the water fund to the city general fund for fire hydrants. Usually the water system buys and installs fire hydrants. They are then "rented" by the city for use of the fire department. Water systems do not need fire hydrants to operate and many times incur additional distribution costs in order to install and maintain fire protection. Since this is for the benefit of the city, the general fund helps pay for this service.

MTAS has a publication available from Knowledgebase titled *Utility Manual* (<http://www.mtas.tennessee.edu/KnowledgeBase.nsf/2efb230af01fb972852569d1007223c2/f9ed911a99a2e6cf85257a6f004dd798?OpenDocument&Highlight=0,utility,manual>) and the following is copied from the publication:

**Unmetered Services** — Some user charges, such as fire hydrants and sprinklers, are unmetered. Flat charges are billed each month so that the service is available if needed. Usually these charges are based on the number of hydrants or sprinkler heads in service. Fire hydrants or fire protection, is usually charged to the city's general

fund. One very important thing to remember is that utilities should derive 90 to 95 percent of their revenues through user charges.

I hope this information is helpful. Please let me know if I can be of further service.

Dennis

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