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**REPORT TO MAGIC LAKE ESTATES WATER AND SEWER LOCAL SERVICES COMMITTEE
MEETING OF TUESDAY 26 APRIL 2011**

SUBJECT FIRE HYDRANT FLOW TESTING

ISSUE

Fire hydrants in the Magic Lake Estates Water Service Area (MLEWSA) have not been flow tested in several years. Home insurance providers have begun to increase premiums based on insufficient information to recognize hydrants in the MLEWSA for fire protection purposes.

BACKGROUND

There are 107 fire hydrants in the MLEWSA, of which 68 were installed in 2002 and 2003 as part of a water main replacement project and 39 are older. Many of the older hydrants were flow tested prior to the water main replacement project, and the newer hydrants have never been flow tested. Replacement of water mains and pressure reducing valve stations over the past several years has altered the hydraulic properties of the water distribution system to the extent that past hydrant flow tests may no longer be considered valid.

Dwellings located within a 300-metre radius of a hydrant recognized by FUS typically qualify for a reduction in home insurance premiums (providing that other conditions relating to the local fire service are also met). Insurance premium reductions for recognized hydrants have likely been made available to most or all MLEWSA residents in the past. However, Pender Island insurance brokers have begun to advise residents that such reductions will not continue to be available unless firefighting capacities throughout the water distribution system can be verified. Based on a staff conversation with a Pender Island insurance broker, the annual insurance premiums for a typical home at Magic Lake Estates may increase by roughly \$400 if underwriters do not continue to recognize hydrants in the MLEWSA for a fire protection credit.

As part of the pre-design review of the water system for the current upgrade project, consultant AECOM has developed a hydraulic model of the water distribution system. The model has been analyzed under conditions of maximum day domestic demand + 2,000 l/min fire demand for one hour, with a minimum residual pressure of 20 psi (requirements as set out in "Water Supply for Public Fire Protection", Fire Underwriters' Survey, 1999). The model predicts that fire flows and pressures will be sufficient to meet the Fire Underwriters' Survey (FUS) 1999 requirements for most hydrants in the MLEWSA; however, as many as 20 hydrants in the area are predicted to have marginal or insufficient residual pressure under fire flow and maximum domestic demand conditions. The model provides only an approximate estimate of how the distribution system would function. Hydrant flow testing in the field is necessary to confirm adequate fire flows and residual pressures.

ALTERNATIVES

1. That the Magic Lake Estates Water and Sewer Local Services Committee authorize the expenditure of up to \$20,000 from the Water Capital Reserve Fund to conduct flow tests on up to 20 hydrants, analyze test results and submit a report to the Fire Underwriters' Survey, local insurance brokers and the Pender Island Fire and Rescue Service. The terms will be coordinated with the fire service so that they have the opportunity to be present during testing.

2. That the Magic Lake Estates Water and Sewer Local Services Committee receive this report for information.

IMPLICATIONS

Alternative 1

It is proposed to mobilize a Victoria based CRD crew for up to five days to conduct flow tests. The distribution system hydraulic model can then be calibrated using hydrant flow test data under known system conditions to accurately determine which hydrants in the system will meet FUS requirements.

If the FUS 1999 requirements are applied to the MLE system, some hydrants are unlikely to be recognized for firefighting purposes. It is possible that a small number of dwellings near these hydrants are not also located within 300m of a recognized hydrant, and therefore may not qualify for reduced insurance premiums until improvements are made to increase fire flow capacity to the affected areas. Some or all of this work may be completed within the next three years as part of the grantable upgrade project.

Alternative 2

If hydrant flow testing is not conducted, most or all residents of Magic Lake Estates will likely be required to pay significantly higher premiums for home insurance in the future. If every household in the service area is subject to a \$400 increase in insurance premiums, the aggregate cost to the community would be roughly \$400,000 annually.

CONCLUSION

A sample of fire hydrants in the Magic Lake Estates Water Service Area should be flow tested, and results should be analyzed and reported to the Fire Underwriters' Survey, in order for service area residents to qualify for reduced property insurance rates.

RECOMMENDATION

That the Magic Lake Estates Water and Sewer Local Services Committee authorize the expenditure of up to \$20,000 from the Water Capital Reserve Fund to conduct flow tests on up to 20 hydrants, analyze test results and submit a report to the Fire Underwriters' Survey, local insurance brokers and the Pender Island Fire and Rescue Service.



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