



Making a difference...together

## REPORT TO MAGIC LAKE ESTATES WATER AND SEWER LOCAL SERVICES COMMITTEE MEETING OF TUESDAY 21 JUNE 2011

---

### **SUBJECT**      CONSUMPTION BASED BILLING

### **ISSUE**

Customer connections to the Magic Lake Estates water system have been retrofitted with meters, enabling cost recovery for the service to include a user-pay component based on metered water use.

### **BACKGROUND**

In 2008 the Magic Lake Estates Water and Sewer Local Services Committee (MLEWSC) initiated a project to retrofit customer service connections with meters, with the intent to introduce a usage charge upon its completion. The system is now fully metered, and customer water usage data has been collected every three months since September 2010. Although the data represents only a partial year, and did not include the entire service area until the last cycle, there is sufficient data to construct a model for evaluating alternative rate structures.

### **Three Scenarios**

Based on the available data, three alternative billing consumption charge scenarios have been modeled (Attachment 1):

1. A strongly tiered usage charge structure similar to that used for three Capital Regional District (CRD) service areas on Salt Spring Island, which provides significant cost savings to low water users and a very strong conservation incentive to high water users, but introduces a relatively high risk of a revenue shortfall.
2. A structure that provides no change in annual cost to low water users and a strong conservation incentive to high users, generating new revenue to build capital reserves with no risk to core budget revenue.
3. A slightly tiered structure that provides modest cost savings to low users and a moderate conservation incentive to high users, with some risk of a revenue shortfall.

To mitigate the risk of a revenue shortfall, Scenario 1 or 3 could be phased in over a period of three years, enabling the budget to be adjusted gradually for changes in usage patterns that are likely to result from implementing a usage charge. Scenario 2 could be fully implemented in 2012, although the amount of new revenue associated with usage charges would be uncertain.

### **Impacts on Cost of Service**

A subset of the available water use data, consisting of 397 connections for which meters have been read quarterly since June 2010, was sorted into four categories based on water usage patterns:

**Magic Lake Estates Water and Sewer Local Services Committee – 21 June 2011**  
**Consumption Based Billing**  
**Page 2**

- Low water users (total annual water use below 25th percentile, 42 m<sup>3</sup>)
- High water users (total annual water use above 90th percentile, 300 m<sup>3</sup>)
- Moderate seasonal users (annual use between 42 and 300 m<sup>3</sup>, and winter use below 20 m<sup>3</sup>)
- Moderate year-round users (annual use between 42 and 300 m<sup>3</sup>, and winter use above 20 m<sup>3</sup>)

Average quarterly usage for each of these categories was modeled to provide an indication of the impact on annual cost of service under each scenario (Attachment 2).

**ALTERNATIVES**

1. That the Magic Lake Estates Water and Sewer Local Services Committee direct staff to prepare information based on the proposed three scenarios to be presented at the 2011 Annual General Meeting
2. That the Magic Lake Estates Water and Sewer Local Services Committee direct staff to revise the scenarios for presentation at the 2011 Annual General Meeting.

**FINANCIAL IMPLICATIONS**

Alternative 1

A brief presentation would be prepared for the AGM to explain the three scenarios to residents, and to clearly show the impacts of each scenario. The model may be updated based on usage data for the second quarter of 2011.

Alternative 2

The rate design model can be easily adjusted to test additional scenarios.

**SUMMARY**

Three alternative scenarios are presented for introducing a usage charge for the Magic Lake Estates water service. Each alternative varies from the others in terms of revenue risk, cost savings for low users and conservation incentive for high users.

**RECOMMENDATION**

That the Magic Lake Estates Water and Sewer Local Services Committee direct staff to prepare information based on the proposed three scenarios to be presented at the 2011 Annual General Meeting.

  
\_\_\_\_\_  
Tim Tanton, PEng  
Senior Manager, Infrastructure Engineering

  
\_\_\_\_\_  
J.A. (Jack) Hull, MBA, PEng  
General Manager, Integrated Water Services  
Concurrence

CS:ls  
Attachments: 2

1. Typical CRD Local Service (High Risk)

Proposed Rate Structure (based on 2011 revenue requirement)

Parcel Tax	\$	496.57	per taxable folio				
Fixed Charge	\$	125.00	per water service connection				
Consumption Charge:							
For the first		38.00	m <sup>3</sup> per three months:	\$	0.50	per m <sup>3</sup>	
For the next		67.00	m <sup>3</sup> per three months:	\$	1.00	per m <sup>3</sup>	
Above		105.00	m <sup>3</sup> per three months:	\$	4.00	per m <sup>3</sup>	

Characteristics (based on 2011 revenue requirement)

Same consumption rates used in other CRD local service areas (inclining block)

Very strong water conservation incentive for high water users

Intended to be revenue neutral (6% increase based on current usage; trend is downward)

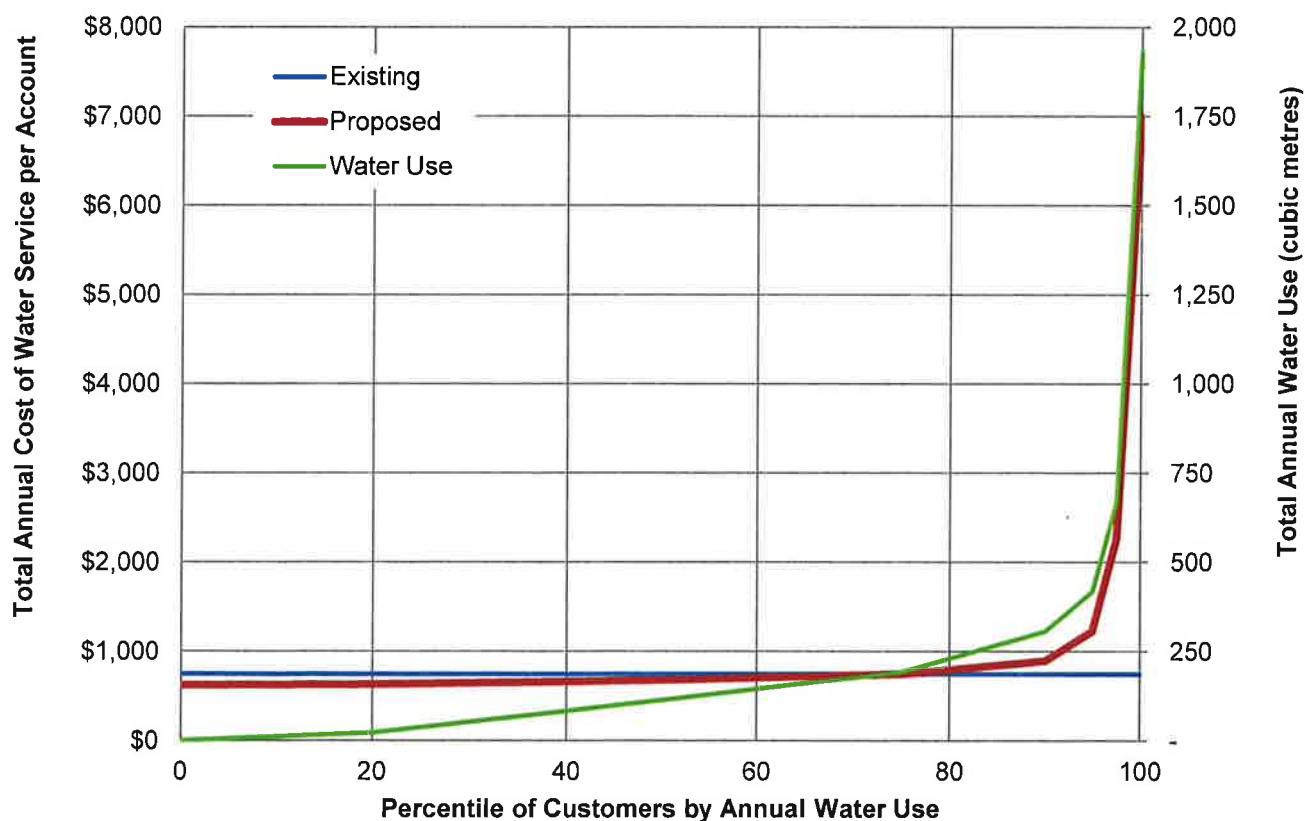
3/4 of customers see a cost decrease (17% for lowest users), 1/4 see an increase

Customers using more than about 600 m<sup>3</sup>/year (top 3%) pay more than \$2,000

High risk of revenue shortfall; could be mitigated by phasing in over three years

Unlikely to generate significant new revenue for infrastructure renewal

**Total Water Cost and Usage per Account**  
MAGIC LAKE ESTATES



**Magic Lake Estates Water Service  
Rate Design Scenario**

**2. Usage Charge to Build Reserves (No Risk)**

**Proposed Rate Structure (based on 2011 revenue requirement)**

Parcel Tax	\$	496.57	per taxable folio				
Fixed Charge	\$	250.00	per water service connection				
Consumption Charge:							
For the first		38.00	m <sup>3</sup> per three months:	\$	-	per m <sup>3</sup>	
For the next		67.00	m <sup>3</sup> per three months:	\$	1.00	per m <sup>3</sup>	
Above		105.00	m <sup>3</sup> per three months:	\$	2.00	per m <sup>3</sup>	

**Characteristics (based on 2011 revenue requirement)**

No change in existing parcel tax or user charge

Little or no consumption charge for customers with usage less than average (150 m<sup>3</sup>/year)

Strong water conservation incentive for high water users

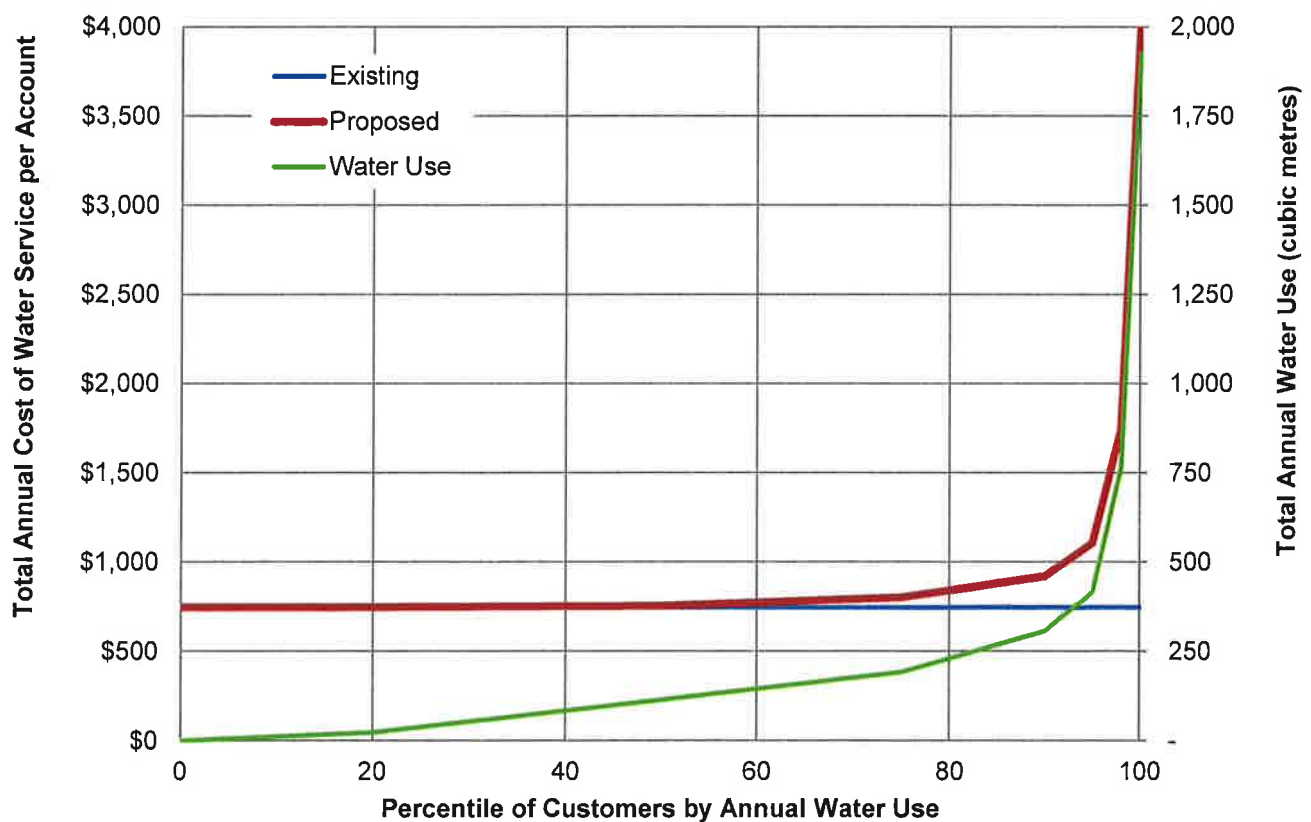
90% of customers pay less than \$200 in usage charges

Customers using more than about 700 m<sup>3</sup>/year (top 2%) pay more than \$1,000 in usage charges

No risk of a revenue shortfall

Contributes in the order of \$50,000 to reserves annually (large uncertainty depending on high users)

**Total Water Cost and Usage per Account  
MAGIC LAKE ESTATES**



**Magic Lake Estates Water Service  
Rate Design Scenario**

**3. Moderate Inclining Block (Medium Risk)**

**Proposed Rate Structure (based on 2011 revenue requirement)**

Parcel Tax	\$	496.57	per taxable folio			
Fixed Charge	\$	200.00	per water service connection			
Consumption Charge:						
For the first		38.00	m <sup>3</sup> per three months:	\$	0.75	per m <sup>3</sup>
For the next		67.00	m <sup>3</sup> per three months:	\$	1.00	per m <sup>3</sup>
Above		105.00	m <sup>3</sup> per three months:	\$	1.25	per m <sup>3</sup>

**Characteristics (based on 2011 revenue requirement)**

Moderate water conservation incentive for high water users

Revenue neutral (5% increase based on current usage; trend is downward)

Half of customers see a cost decrease, half see an increase

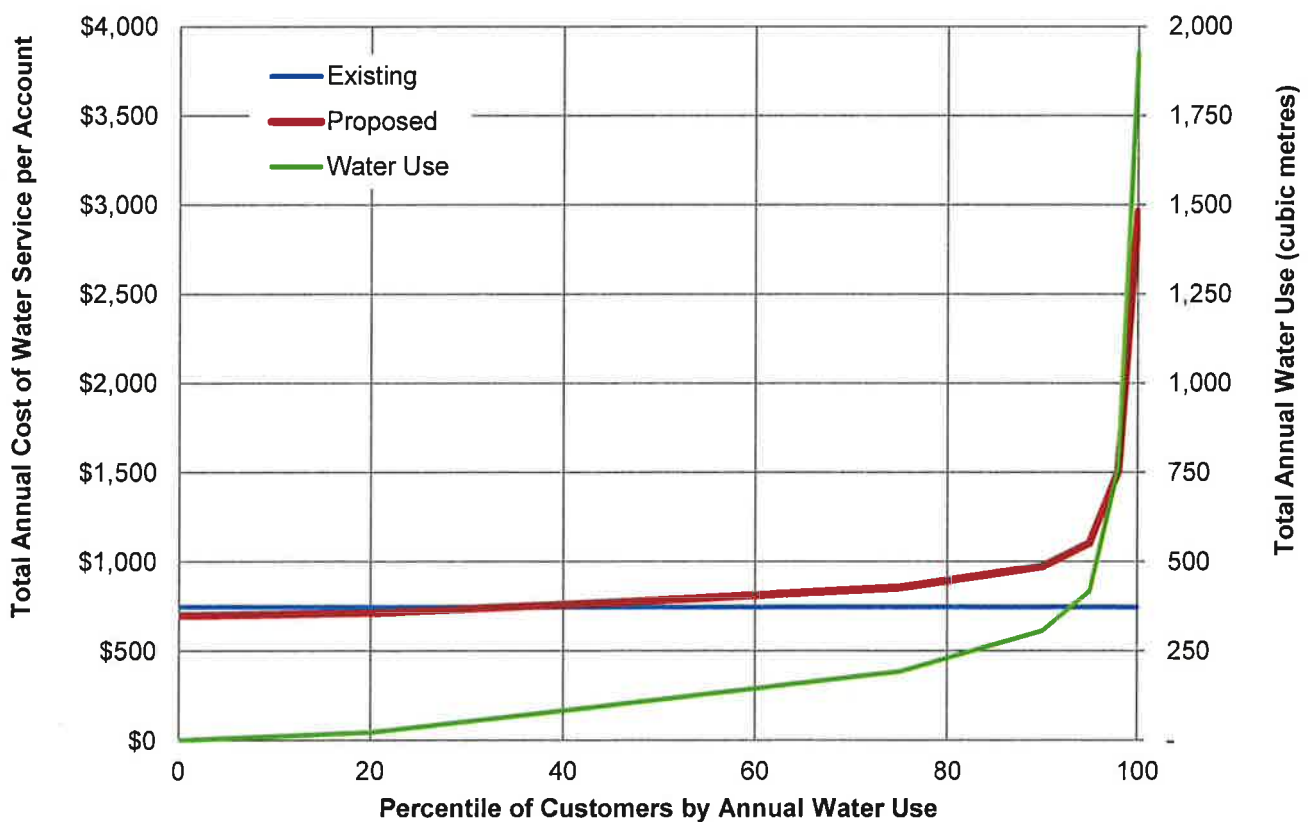
Lowest users see a 15% decrease

About 30 customers using more than about 600 m<sup>3</sup>/year (4 x average) pay more than \$1,200

Significant risk of a revenue shortfall

Unlikely to generate significant new revenue for infrastructure renewal

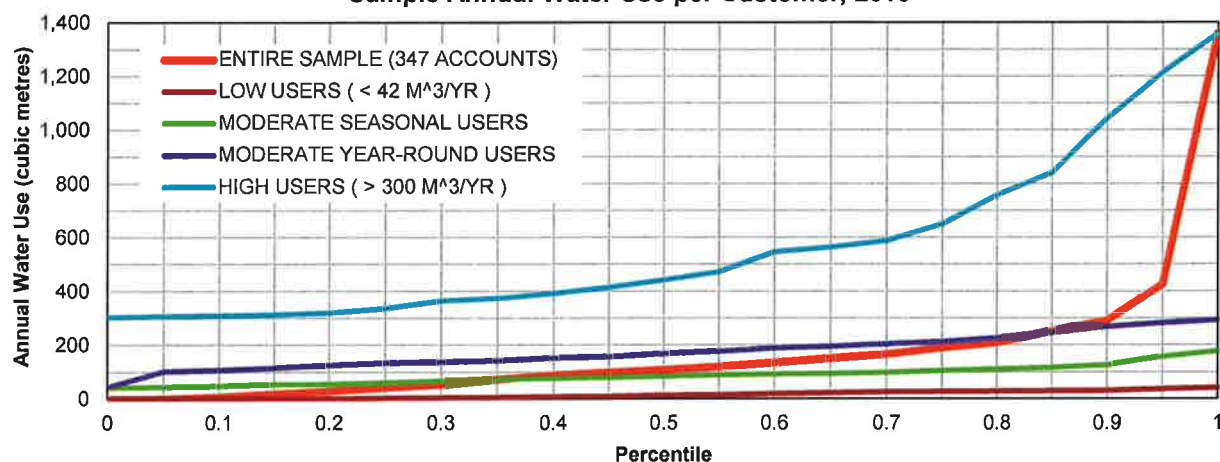
**Total Water Cost and Usage per Account  
MAGIC LAKE ESTATES**



## USAGE CHARGE SCENARIOS - IMPACT ON MAJOR USER GROUPS

Average water use per acct. (cubic metres)	ENTIRE SAMPLE (347 ACCOUNTS)	LOW USERS (<42 M <sup>3</sup> /YR, BTM 25%)	MODERATE SEASONAL USERS	MODERATE YEAR-ROUND USERS	HIGH USERS (>300 M <sup>3</sup> /YR, TOP 10%)
Q1	23	2	12	30	72
Q2	35	3	19	47	112
Q3	58	8	43	56	231
Q4	35	2	13	43	147
Total	150	16	88	177	562

MAGIC LAKE ESTATES  
Sample Annual Water Use per Customer, 2010



Annual cost of service	ENTIRE SAMPLE (347 ACCOUNTS)	LOW USERS (<42 M <sup>3</sup> /YR, BTM 25%)	MODERATE SEASONAL USERS	MODERATE YEAR-ROUND USERS	HIGH USERS (>300 M <sup>3</sup> /YR, TOP 10%)
Current (2011)	\$ 747	\$ 747	\$ 747	\$ 747	\$ 747
Scenario 1	\$ 707	\$ 629	\$ 668	\$ 726	\$ 1,632
Scenario 2	\$ 766	\$ 747	\$ 752	\$ 779	\$ 1,331
Scenario 3	\$ 814	\$ 708	\$ 764	\$ 837	\$ 1,264

MAGIC LAKE ESTATES  
Annual Cost of Service per Customer Category

