

**REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, SEPTEMBER 4, 2013****SUBJECT LEECH WATER SUPPLY AREA RESTORATION UPDATE****ISSUE**

Provide an update on the restoration activities and priorities for the Leech Water Supply Area (WSA) and implications on capital and operating budgets.

BACKGROUND

The Leech River watershed lands were acquired to control the use and management of the catchment area that will provide the future drinking water supply for the Greater Victoria Drinking Water System. The land acquisition was made in two phases: 8,791 ha in 2007 and 837 ha in 2010. At the time of purchase, the Leech WSA was approximately 95% logged and contained an extensive road network of more than 400 km.

In 2009, a consultant's report provided recommended restoration priorities for the Leech WSA. These recommendations were presented to the Regional Water Supply Commission and long term capital (\$5.756 M) and operating budgets to 2025 were established to fund the restoration activities (REPORT RWSC 2009-05).

REPORT

Since 2009, a substantial amount of work on the restoration of the Leech WSA has been completed. These accomplishments are listed below. Nevertheless, there is still much to do over the next decade or so. The priorities for the next few years are also listed below.

1. ROADS**Completed 2009 – 2012** (Capital Expenditure: \$825,700)

- Mapping of roads and stream networks
- Assessment of major roads and planning of main access routes
- Assessment of stream crossings and drainage structures on accessible roads
- Review of design flow criteria and required modifications to accommodate increased precipitation and the effects of climate change
- Road and stream crossing density analysis
- Removal of a failing bridge on Jarvis Main
- Upgrade of Survey Mountain Main
- Grading and basic road maintenance on main access routes
- Piling and removal of cables, old culverts and other scrap metal

Note: Annual maintenance of the road network is funded through operating funds.

Priorities 2013 – 2016 (Capital Requirement: \$1,252,500)

- Replacement of two bridges and a number of culverts on main access routes
- Rerouting of three sections of main access routes, two on a floodplain and one in very high terrain stability hazard with slope failures
- Construction of access to Little Healy Mountain to support video surveillance and weather station infrastructure
- Removal of a large condemned bridge spanning the West Leech River
- Construction of an alternate route to Weeks Lake to allow the rehabilitation of a section of road with high and very high terrain stability concerns
- Prioritization and planning of measures to correct surface drainage and erosion problems
- Prioritization and planning of the large network of roads to be rehabilitated

2. SLOPE STABILITY AND SOIL EROSION CONTROL

Completed 2009 - 2012 (Capital Expenditure: \$306,500)

- Classification and mapping of geology
- Classification and mapping of terrain, terrain stability and soil erosion potential
- LiDAR derived terrain, contour and canopy height mapping
- Identification of an alternate route to Weeks Lake to allow the rehabilitation of a section of road with high and very high terrain stability concerns
- Rehabilitation prescriptions for several spur roads on unstable terrain

Priorities 2013 - 2016 (Capital Requirement: \$489,200)

- Rehabilitation of spur roads on unstable terrain
- Assessments, prescriptions, and cost estimates for road rehabilitation needed in all high and very high terrain stability class areas
- Deactivation of approximately 15 kilometres of roads on unstable terrain
- Sediment source surveys and analysis to help prioritize rehabilitation efforts

3. REFORESTATION AND FOREST HEALTH

Completed 2009 - 2012 (Capital Expenditure: \$302,900)

- Integration of forest cover and ecosystem mapping received from private forest companies into CRD corporate data
- Update of forest cover mapping and information
- Planting of 137,186 tree seedlings – Douglas fir, western red cedar, white pine
- Stocking surveys conducted where reforestation success uncertain
- White pine blister rust surveys
- Annual aerial surveys of forest health since 2009
- Brushing of bracken fern for tree release

Priorities 2013 – 2016 (Capital Requirement: \$67,000)

- Forest health assessment of areas of chlorotic (yellow-tinged) regenerating Douglas fir
- Pruning of white pine in priority areas to reduce their susceptibility to blister rust
- Brushing treatments to ensure tree release from competing vegetation
- Determine frequency and needs for stand tending
- Establish measures to assess hydrologic/ecosystem recovery for ongoing reporting

4. WILDFIRE PROTECTION AND FOREST FUEL MANAGEMENT

Completed 2009 – 2012 (Capital Expenditure: \$220,800)

- Piling and burning of remaining logging slash to reduce wildfire hazard
- One fire weather station established in the southern Leech (Martin's Gulch)
- Establishment of a CRD communications facility on Survey Mountain
- Daily ground patrols during fire season
- Installation and updating of wildfire danger class information signs at Leech WSA entrances
- Air patrol coverage during high and extreme fire danger
- Identification and development of water pumping stations and fire vantage points
- Modelling of water pumping limits to depict areas of difficult fire suppression
- Removal of the derelict cabin at Jarvis Lake

Note: Some items funded by operating or other capital accounts

Priorities 2013 – 2016 (Capital Requirement: \$ 0)

- Additional fire weather station in the northern portion of the Leech watershed
- Revised wildfire management plan incorporating management of the Leech watershed
- Identification of helicopter landing locations for air based fire management
- Continuation of patrols, maintenance of pumping stations, vantage points, fire hazard awareness

Note: To be funded from operating and fire weather station capital

5. SECURITY

Completed 2009 – 2012 (Capital Expenditure: \$ 0)

- Security assessment and report for the GVWSA including Leech
- Maintenance of existing security gate at Weeks Lake
- Installation of 5 security gates and supporting fencing, lockblocks or barriers concentrated at the southern Leech boundary closest to Sooke Dam
- Barriers to vehicles driving right to the edge of Weeks Lake
- Posting of signage identifying CRD property, no hunting, no fires
- Outreach with the public in the area of Weeks and Jarvis Lakes during ground patrols
- Posting a notice in BC Hunting Regulations – Leech is closed to hunting

Note: Completed works funded from annual fence/gate capital and operating

Priorities 2013 - 2016 (Capital Requirement: \$ 0)

- Strategy/actions to limit placer/mineral mining exploration and development
- Incorporate Leech WSA into the Greater Victoria Water Supply Area Protection Bylaw 2804
- Define and implement the phased approach to a closed watershed for the Leech WSA
- Additional boundary marking, signage, gates and fencing to help define the Leech WSA as held and managed by the CRD.
- Address areas of trespass in the Leech WSA

Note: Funded from annual fence/gate capital and operating.

6. WILDLIFE AND INVASIVE PLANTS

Completed 2009 – 2012 and Ongoing (Capital Expenditure: \$ 0)

- Beaver detection and control
- Bullfrog detection, no control required so far
- Monitoring of wildlife species
- Brushing of roadside scotch broom
- Wetland surveys to assess drainage patterns, plant and animal classification and habitat potential for undesirable species (beaver, bullfrog and invasive plants)

Note: Funded by operating.

Priorities 2013 - 2016 (Capital Requirement: \$ 0)

- Canada goose monitoring at Jarvis and Weeks Lake
- Fish habitat and presence surveys
- Wetland mapping

Note: Funded by operating

7. WATER QUALITY

Completed 2009 – 2012 and Ongoing (Capital Expenditure: \$ 0)

- Monitoring Leech River water quality including nutrients and physical-chemical parameters.
- Leech River water flow monitoring

Note: Funded by operating.

Priorities 2013 – 2016 (Capital Requirement: \$ 0)

- Increase monitoring intensity and locations

8. FIRST NATIONS INTERESTS

Completed 2009 – 2012 and Ongoing (Capital expenditure: \$ 0)

- T'Sou-ke capacity building and skills training

Note. Funded by reforestation capital and operating

Priorities 2013 – 2016 (Capital Requirement: \$40,000)

- Cultural assessment of the Leech watershed in consultation with T'Sou-ke and other First Nations
- Working with T'Sou-ke Nation, continue to assist with capacity building and environmental restoration skills and knowledge

PROGRESS ON PRIORITIES IDENTIFIED IN 2009

The following table provides a summary of the capital funding by restoration priority type. The future focus of Leech restoration will address slope stability issues and required road upgrades and deactivation requirements along with the completion of a cultural assessment to assist with integrating the interests of First Nations in the management of the Leech WSA.

Table 1. Leech Restoration Capital Expenditures and Forecast Needs by Priority Type.

Priority Type	Expenditure 2009 - 2012	Forecast Need 2013 - 2016	Comment
Roads	\$828,700	\$1,252,500	
Slope Stability and Soil Erosion Control	\$306,500	\$489,200	
Reforestation and Forest Health	\$302,900	\$67,000	
Wildfire Protection and Forest Fuel Management	\$220,800	\$0	To be funded from operating
Security	\$0	\$0	Other capital and operating
Wildlife and Invasive Plants	\$0	\$0	Funded from operating
Water Quality	\$0	\$0	Funded from operating
First Nations Interests	\$0	\$40,000	
TOTAL	\$1,658,900	\$1,848,700	

To get a better sense of the scale of expenditures and needs, the data in this table is shown in graphical form on the next page.

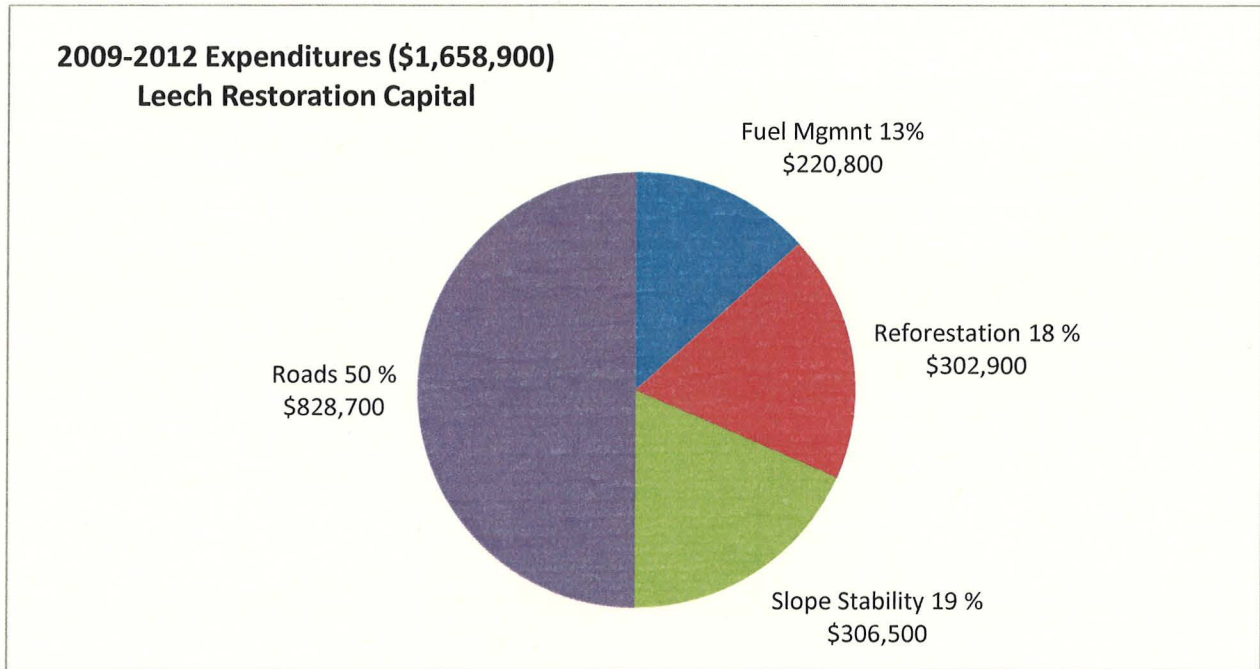


Figure 1. Expenditures by Priority Type – Leech Restoration Capital Funds

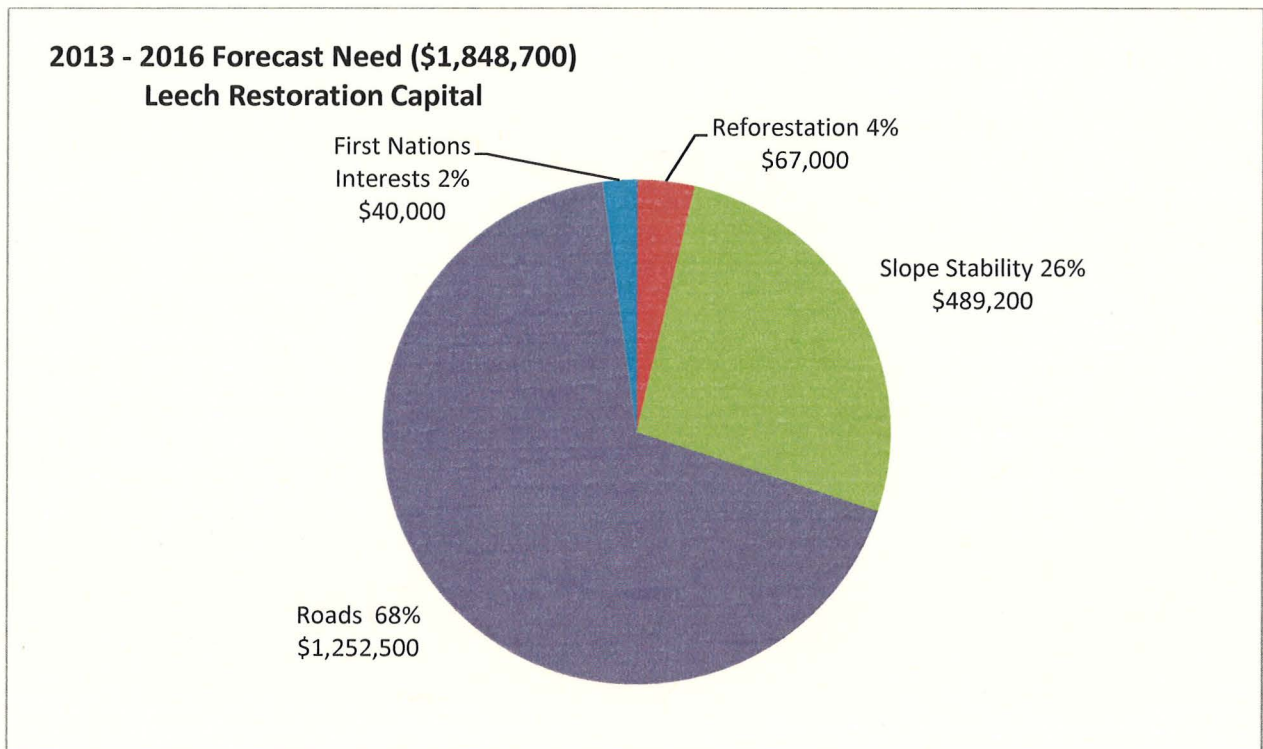


Figure 2. Forecast Need by Priority Type - Leech Restoration Capital Funds

Completing planned road and bridge upgrades and addressing slope stability issues in the Leech WSA is critical in 2013 – 2016. Failing bridges limit access to suppress wildfire and manage security issues. Roads with drainage concerns on unstable slopes pose a risk of landslides that could cause significant damage to Leech River water quality, associated fish habitat and could require a significant investment to stabilize after failure. Key vacant positions in Watershed Protection were filled in 2013 providing the resources to plan and supervise restoration projects. Carry forward and planned capital funds should provide sufficient funding to complete the high priority projects.

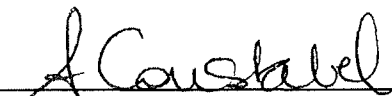
Operating funds have been held at the 2010 level and proposed increases have not occurred as originally planned. However, the need for increased operating funds to manage and maintain the Leech WSA is inevitable because the completion of new capital works will translate into new maintenance requirements. Staff are currently reassessing requirements and schedules and will present recommendations in the next 3 year budget cycle.

CONCLUSION

Restoration of the Leech Water Supply Area is progressing. Immediate fuel management, reforestation and road access issues have been addressed. High priority road, bridge and slope stability projects are underway and planned for 2013 – 2016.

RECOMMENDATION(S)

That the Regional Water Supply Committee receive the staff report for information.


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Concurrence

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