

Bowen Island Municipality

Report

Date: **January 24, 2007**

To: Joanne Cunday, Acting CAO

Cc: Isabell Hadford, Chief Administrative Officer
Mayor Bob Turner and Council

From: Brad Hawthorn, Public Works Superintendent

Subject: Funding Requirements and Priorities for Utility Capital Projects

This report is provided in order to establish priorities, costs, and financial borrowing requirements for utility related projects for the Municipal Local Service Areas for water and sewer, as well as other needs.

Recommendation

It is recommended that,

Whereas the Bowen Island Municipality has limited financial reserves and borrowing ability, and is undertaking a process of identifying capital requirements for various projects identified in its Strategic Planning Process,

And furthermore whereas the utility Local Service Areas of the Municipality are generally self-funded, but also have identified capital projects with costs that would require financing over time,

Be it resolved that Council adopt policy regarding criteria, and set priority thresholds on the identified utility projects, in order to manage the demands on reserves and borrowing capacity, and in doing so enact the following measures.

- 1) Rescind Council Resolution RES# 04-497 allowing the Bluewater Park Water System Local Service Area to borrow up to \$75,000 in funds for the construction of a water storage tank, following a recommendation from that Local Advisory Committee to merge operations with the proposed new King Edward Bay municipal water system instead,
- 2) Establish the draft priority hierarchy and project assessments for the utility Local Service Areas (presented by the Public Works Superintendent, January 24, 2007) as a planning tool for prioritizing utility capital projects for Staff,

- 3) Establish the utility project priority threshold for preferred financing assistance to the utility Local Service Areas, to only include the top five criteria categories listed as “High Priority” in the January 24, 2007 report from the Public Works Superintendent, and

In accordance with the proposed threshold for preferred funding, allocate municipal funding assistance for the following identified projects.

- a. **Tunstall Bay:** PRV chamber replacement at Tunstall Blvd and Whitesails Dr. (est. \$40,000)
 - b. **Snug Cove Sewer:** Automatic generator for pump station (est. \$17,000)
- 4) In addition to the preferred funding projects noted above, determine if the criteria for *Achieving fire protection to Minimum FUS Guidelines*, is also a municipal priority, and allocate or deny financing assistance for the identified projects accordingly,
 - 5) For all other utility capital projects, indicate to the utility Local Service Area Advisory and Management Committees and Staff that these projects must be funded through the regular utility funding/user rates/taxation means, (i.e. no municipal assistance to be provided),
 - 6) Direct Staff and the utility Local Service Area Advisory and Management Committees to place as a top priority, implementing preparations and acquiring equipment for emergency events of approximately 7-10 days in duration, including power outages (i.e. High Priority Criteria No. 4),

Background

Municipal Council initiated its current Strategic Planning process approximately 1 year ago. Projects were selected for priority based on need, merit, and importance and urgency, with less focus on total cost. At this time progress has been made on many of the initiatives, and some of the more significant projects are in the planning stages, with no significant costs incurred to date.

A follow up session of Council and staff is scheduled for January 26th; it is anticipated that priorities will be affirmed or amended, an action plan initiated for the next two years, and focus shifted to the availability of funding and realistic construction expectations.

It is recognized that Capital projects are also identified for the seven utility specified areas (i.e. water and sewer LAC's), the costs of some of which are beyond the means of the local areas. There is an expectation from some of the Local Area Service committees that this funding will come from borrowing from municipal reserves, accessing outside funding using the Municipality's borrowing power, or obtaining grant funding through applications endorsed by Council. Each of these options would compete for funding with Council's identified strategic plan projects, and therefore all projects must be prioritization in order to allocate resources.

The Public Works Superintendent initiated a process for assessing water system project priorities on January 31, 2006, which was discussed at the March 6th, 2006 Committee of the Whole meeting. The process consisted of the following stages.

- Task 1: Establish a hierarchy of priorities for evaluation,
- Task 2: Assess water system projects based on hierarchy categories,
- Task 3: Establish costs for projects,
- Task 4: Establish list of projects in priority order based on hierarchy, and determine funding sources.

The following sections describe the current progress.

Tasks 1 and 2: Existing Hierarchy of Criteria and Assessments

The first two stages were completed in 2006 by the Public Works Superintendent. Council reviewed the following draft hierarchy of criteria for water systems, and some amendments were made.

Priority	Description
High	Meeting public health (water quality) Permit requirements, Meeting water supply quantity during drought conditions, Meeting Operator Health and Safety requirements, Providing emergency backup measures Having Emergency Response and Drought Management Plans in place,
Med	Implementing conservation measures, Providing equipment redundancy for quality issues, Providing automatic remote monitoring; alarming for specific conditions, Implementing Watershed management plans and protection measures, Seasonal monitoring of water resources, Providing redundancy for quantity issues (where applicable), Achieving fire protection to Minimum FUS Guidelines, Addressing property issues where outstanding (easements, etc...),
Lower	Proactive replacement of infrastructure, and planning for future upgrades Achieving fire protection to Recommended FUS Guidelines, Providing additional Fire Water Supply for interface fires

It is recognized that at times, lesser criteria could take priority over higher criteria, depending on the order of implementation for a given project.

An additional amendment was made to the High Priority items, to include having emergency backup measures in place. It is anticipated that this would include being prepared for an approx. 7-10 day power outage, or loss of contact with the Vancouver Lower Mainland.

Following this establishment of criteria, assessments were made of each water system, in relation to the categories noted above (see attached). This information has not previously been released.

Task 3: Assessment of Costs for Utility Projects and Establishment of Priorities

With work complete on the first two tasks, preliminary work on the final two tasks was undertaken in preparation for the scheduled January 26th, 2007 Strategic Plan meeting. It is envisioned that Council will review this priority list, integrate it into its own Strategic Plan, and allocate priority for funding.

Attached to this report is a table providing a condensed list of projects in priority order by criteria category, with preliminary cost estimates, and the proposed funding source indicated.

This provides a rationale for Staff and the utility committees to follow in implementing capital projects, allocating level of effort and funding, and scheduling. This list should be conveyed to the utility committees, but not opened to debate.

Proposed Funding Assistance Threshold

Within the established hierarchy of priorities, certain categories (i.e. health and safety related, etc...) should be given a priority within Council's Strategic Plan and corresponding Financial Plan, where financial assistance to the Local Service Areas is required. It is recommended that the top five categories (i.e. High Priority criteria) should be given such priority.

Within these categories, there are two projects requiring financial assistance in the form of in-house loans for an estimated total of \$57,000, as follows.

- **Tunstall Bay:** PRV safety issue. Unsafe to access T-blvd & Whitesails PRV. (\$40,000)
- **Snug Cove Sewer:** Automatic generator for pump station (\$17,000)

Should it be decided that the criteria to provide the Local Service Areas with fire protection to Minimum FUS Guidelines, then an additional two projects should be prioritized for municipal financial assistance at an estimated \$527,000. It is noted that providing this level of protection is not a municipal requirement.

- **Eaglecliff:** Upgrade supply main or install tank (\$205,000)
- **Bowen Bay:** various options (\$322,000)

It is noted that the expansion of the Snug Cove Sewer system sewer treatment plant, is a project which is not within the list of utility priorities, but rather an initiative of Council required to meet its other goals and initiatives, and is already provided as a Council Strategic Plan item.

Impact on Budget, Staff, and utility Committees

Should Council adopt the philosophy and strategy provided in this report, the predicted affects would include the following.

Advantages:

- Provides defensible logic for prioritizing utility projects,
- Assists development of financial planning and resource allocation,
- Assists establishment of priorities for grant applications,
- Priorities more transparent, and documented,
- less Staff time spent defending/explaining rationale for resource allocation,
- creates realistic expectations of funding availability, and removes uncertainty,
- less time spent addressing non-essential/low priority issues,
- better productivity by focussing in important projects, and
- instils Public confidence in planning process and municipal management.

Disadvantages:

- Potential disagreement by utility Committees,
- Deferment of some higher profile, but less important projects,
- Perceived lack of assistance from Municipality to Local Service Areas,
- Elimination of some options currently under consideration (i.e. Bowen Bay infrastructure/amalgamation)

Therefore it is predicted that adopting this strategy would provide a net positive affect in municipal governance.

Submitted by:

Brad Hawthorn, Public Works Superintendent

Acting Chief Administrative Officer's Comments:

I support the logical approach to assigning realistic priorities and resource allocation

Joanne Cunday, Director of Finance

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Assessment of Water Systems - draft

	Hood Point	Eaglecliff	Tunstall Bay	Bowen Bay	Bluewater Park
Meeting public health (water quality) Permit requirements	Water Treatment in place, meeting requirements	No water treatment in place (disinfection only), generally meeting requirements, but concerns regarding surface water supply	Water Treatment in place, meeting requirements	No water treatment in place (disinfection only), generally meeting requirements, but concerns regarding surface water supply	No water treatment in place (disinfection only), generally meeting requirements, but concerns regarding surface water supply Supply source integration required,
Meeting water supply quantity during drought conditions	No problems observed during drought conditions	No problems observed during drought conditions	Concerns regarding long term ground water supply viability, but sustained though recent drought event	No problems observed during drought conditions, additional well capacity likely available	Concerns regarding long term ground water supply viability, but sustained (barely) though recent drought event
Meeting Operator Health and Safety requirements	OK	Cl shed chamber is dangerous confined space – entire building should be replaced	PRV safety issue. Unsafe to access T-blvd & Whitesails PRV. PRV lids to be replaced	Ventillation required in cl building	Ventillation required in cl building. Old building to be demolished

Providing Emergency Backup Measures	Problems with chlorination equipment resolved. Requires backup generator	Problems with chlorination equipment resolved. Battery backup (UPS) available	Requires backup generator	Appears ok, Dedicated backup generator available but requires new ATS	Problems with chlorination equipment resolved. Batter backup (UPS) available
Having Emergency Response and Drought Management Plans in place where required	ERP in place, DMP likely not an issue,	ERP in place, DMP likely not an issue,	ERP in place, DMP should be done, - see notes under water resource monitoring	ERP in place, DMP likely not an issue,	ERP in place, DMP initiated in 2005, - see notes under water resource monitoring
Implementing conservation measures	Meter readings taken regularly, No meter-based billing	Meter readings taken regularly, Meter-based billing in place	Meter readings taken regularly, No meter-based billing	Meter readings taken regularly, No meter-based billing	Meter readings taken regularly, Meter-based billing in place
Providing equipment redundancy for quality issues	Spare chlorination pump available, UV units are somewhat redundant	Spare chlorination pump available,	Spare chlorination pump available,	Spare chlorination pump available,	Spare chlorination pump available,
Providing automatic remote monitoring/ alarming for	No	No	No	No	Limited, Initiated Web-based online monitoring

specific conditions					available
Implementing Watershed management plans and protection measures	Not done, mostly Crown land	Not done, mostly Crown land	Not done, applies mostly to Explosives Creek Well	Not done, mostly Crown land	Not done, mostly Crown land. Watershed study complete
Seasonal monitoring of water resources	Seasonal Lake Level Monitoring in place – likely not an issue	No Lake Level Monitoring in place – likely not an issue, Groundwater monitoring in place	No groundwater monitoring in place	Reservoir Level Monitoring in place, Groundwater monitoring in place	Reservoir Level and creek Monitoring in place, No groundwater monitoring in place
Providing redundancy for quantity issues	Gravity fed system, Seasonal freezing problems experienced, Portable generator available.	Not an issue, gravity fed system.	Portable generator can be used for wells for limited capacity.	Backup power available for well No. 3. Gravity feed available from open reservoir.	No backup power for wells, Gravity feed available from open reservoir/creeks. Portable generator can be used for wells.
Achieving fire protection to Minimum FUS Guidelines	Storage – Yes	Storage - No (unless untreated water storage is considered)	Storage – Yes	Storage - No (unless untreated water storage is considered)	Storage - No (unless untreated water storage is considered)
	Fireflows – Yes	Fireflows – No	Fireflows – Yes	Fireflows – No	Fireflows –

					Marginal
Addressing property issues where outstanding (easements, etc...)	Some outstanding easement issues exist, and access to reservoir	Significant easement issues exist, access to reservoir is poor	No issues noted	No issues noted	Minor issues noted, being resolved (i.e. Crown Lands)
Proactive replacement of infrastructure, and planning for future upgrades	No Plan in place	No Plan in place	No Plan in place	No Plan in place	No Plan in place
Achieving fire protection to Recommended FUS Guidelines	Storage – No (unless untreated water storage is considered)	Storage - No (unless untreated water storage is considered)	Storage - No	Storage - No (unless untreated water storage is considered)	Storage - No (unless untreated water storage is considered)
	Fireflows – Likely Nearly	Fireflows – No	Fireflows – No	Fireflows – No	Fireflows – No
Providing additional Fire Water Supply for interface fires	Storage – Significant untreated water storage is available	Storage – Significant untreated water storage is available	Storage - No	Storage – Significant untreated water storage is available	Storage – Significant untreated water storage is available

Assessment of Water Systems - draft

	Cove Bay Water System				
	Gravity Zone	High Zone	Cates Hill	Valhalla	Deep Bay
Meeting public health (water quality) Permit requirements	No water treatment in place (disinfection only), generally meeting requirements, but concerns regarding surface water supply for future health requirements				
Meeting water supply quantity during drought conditions	Concerns regarding long term surface water supply viability, but sustained through recent drought event				
Meeting Operator Health and Safety requirements	PRV station access issues	n/a	n/a	n/a	PRV stations should be upgraded
Providing Emergency backup measures	Problems with chlorination equipment resolved, Chlorination station has battery backup	Large genset required for pump station	Large genset required for pump station	Large genset required for pump station	See notes – gravity zone
Having Emergency Response and Drought Management Plans	ERP in place, DMP initiated in 2005,				

in place where required					
Implementing conservation measures	Meter readings taken regularly and meter based billing in place for commercial properties, Metering Program initiated for residential connections, two-tiered system for meter-based billing in place				
Providing redundancy for quality issues	Spare chlorination injection pump available	See notes – gravity zone	See notes – gravity zone	Rechlorination station should have battery backup	See notes – gravity zone
Providing automatic remote alarming for specific conditions	Limited, Initiated Web based online monitoring and alarming	No	No	No	See notes – gravity zone
Implementing Watershed management plans and protection measures	Not done, mostly Private land. Watershed study complete				
Seasonal monitoring of water resources	Lake Level Monitoring in place				
Providing redundancy for quantity issues	Not an issue, gravity fed system,	Not available – portable generator required	Not available – portable generator required	Not available – portable generator required	See notes – gravity zone

Achieving fire protection to Minimum FUS Guidelines	Storage – Yes	Storage - No	Storage – Yes	Storage - Yes	Storage - Yes
	Fireflows – Yes	Fireflows – some areas, maybe	Fireflows – likely	Fireflows – likely	Fireflows – Yes
Addressing property issues where outstanding (easements, etc...)	Significant easement issues exist, access to reservoir is an issue				
Proactive replacement of infrastructure, and planning for future upgrades	No Plan in place priority in Snug Point	No Plan in place	No Plan in place	No Plan in place	No Plan in place, priority in Deep Bay
Achieving fire protection to Recommended FUS Guidelines	Storage – Yes	Storage - No	Storage – No Flows for Artisan Square an issue	Storage - Yes	Storage - Yes
	Fireflows – Likely Nearly	Fireflows – maybe	Fireflows – residential yes, commercial no	Fireflows – likely	Fireflows – likely not – restricted by PRV's & piping
Providing additional Fire Water Supply for interface fires	Storage – Significant water storage is available	Storage – Restricted by tank storage	Storage – Restricted by tank storage	Storage – Restricted by tank storage	Storage – Significant water storage is available

Condensed List of Water Systems Projects, Cost Estimates and Proposed Funding Sources - draft

	Project	Cost Est.	Potential Funding Source
Meeting public health (water quality) Permit requirements[1]	Eaglecliff: purchase online turbidity meter	\$3,000	LAC budget
	Bowen Bay: purchase online turbidity meter	\$3,000	LAC budget
	Increased THM Monitoring: Hood Point, Cove Bay	\$300 each/yr	LAC budget
Meeting water supply quantity during drought conditions	Bluewater: construct interconnection with KEB water system	\$16,400	LAC budget
Meeting Operator Health and Safety requirements	Cove Bay: PRV station upgrades	\$30,000	LAC budget
	Eaglecliff: Replace Cl shed/PRV chamber/Pump control building (confined space hazard)	\$40,000	LAC budget
	Tunstall Bay: PRV safety issue. Unsafe to access T-blvd & Whitesails PRV.	\$40,000	Borrowing
	PRV lids to be replaced	\$4,500	LAC budget
	Hydrant extension(s)	\$10,000	LAC budget
	Bowen Bay: Ventillation required in cl building	\$500	LAC budget
	Bluewater: Ventillation required in cl building.	\$500	LAC budget
	Bluewater: Old building to be demolished	\$3,000	LAC budget
	Snug Cove Sewer: Upgrade PS wetwell (pump slide rails, etc...)	\$27,000	LAC budget
	Snug Cove Sewer: Safety upgrades at Sewer Plant	\$2,000	LAC budget

Providing emergency backup measures	Cove Bay: Purchase 60 kW mobile generator	\$35,000	LAC budget
	Hood Point: Purchase generator for UV and PRV	\$3,000	LAC budget
	Tunstall Bay: Purchase generator	\$3,000	LAC budget
	Bowen Bay: Auto Transfer Switch to be replaced	\$2,500	LAC budget
	(note: battery backups now installed all systems where applicable) Snug Cove Sewer: replace genset with automatic unit	\$17,000	Borrowing
Having Emergency Response and Drought Management Plans in place where required	N/A, updates may be required	N/A	N/A
Implementing conservation measures	Cove Bay: Metering program ongoing	\$243,000	LAC budget and Grant funding
Addressing property issues where outstanding (easements, etc...)	Cove Bay: Water supply line easements	\$????	LAC budget
	Eaglecliff: easement nearly acquired, reservoir access to be constructed	\$15,000	LAC budget
	Bluewater: Address Crown land lease issue for Reservoir/tank	\$5,000	LAC budget
	Hood Point: Some outstanding easement issues exist, and access to reservoir	?????	LAC budget
Providing emergency backup and	Backup chlorine pumps are available	N/A	N/A

redundancy for quality issues			
Providing automatic remote alarming for specific conditions	SCADA – internet based (KWL Emerald) Cove Bay: 2 more sites required Eaglecliff: 1 site Hood Point: 1 site Tunstall Bay: 1 site Bowen Bay: 1 site Bluewater/KEB: 1 site	\$8,000 \$4,000 \$4,000 \$4,000 \$4,000 \$4,000	LAC budget LAC budget LAC budget LAC budget LAC budget LAC budget
Providing redundancy for quantity issues	(Generally no plans in place)	N/A	N/A
Achieving fire protection to Minimum FUS Guidelines	Cove Bay: Upgrade High Zone tank Eaglecliff: Upgrade supply main or install tank Bowen Bay: various options Bluewater: connect to KEB	\$200,000 \$205,000 \$322,000 addressed above	LAC budget LAC budget, and Borrowing or Assessments LAC budget, and Borrowing or Assessments N/A
Seasonal monitoring of water resources	Tunstall Bay: install 2 groundwater monitors Bluewater: install 2 groundwater monitors	\$2,000 \$2,000	LAC budget LAC budget

Proactive replacement of infrastructure and planning for future upgrades	(Generally few plans in place)	\$??	LAC budget
	Cove Bay: Water Treatment Plant Construction	\$3-5M	Borrowing or Assessments
	Cove Bay: Protect above ground piping at Terminal Creek	\$??	LAC budget
	Snug Cove Sewer: Sewer System Expansion	\$??	Borrowing or Assessments
	Eaglecliff: Drill second groundwater well	\$15,000	LAC budget
Achieving fire protection to Recommended FUS Guidelines	Cove Bay: various upgrades	\$??	LAC budget
	Eaglecliff: Install second 50,000 gal tank	\$200,000	Borrowing or Assessments
	Tunstall Bay: Install second 50,000 gal tank	\$200,000	Borrowing or Assessments
	Bowen Bay: see above	N/A	N/A
	Bluewater: replace additional watermains	\$106,400	Borrowing or Assessments
Providing additional Fire Water Supply for interface fires	No Plans in place	N/A	N/A