INFRASTRUCTURE SERVICES COMMITTEE

Thursday, July 3, 2014
SCRD Board Room, 1975 Field Road, Sechelt, BC

AGENDA

CALL TO ORDER 1:30 p.m.

AGENDA

1. Adoption of the Agenda

PETITION AND DELEGATION

2. Ronald Knight, Pender Harbour Garden Club — Annex A
   Regarding lack of availability of mulch formerly available free — pp 1 – 2

3. Regional Water Development Cost Charge Update — Annex B
   1. Bob Twerdoff, Opus DaytonKnight — pp 3 – 34
   2. General Manager Infrastructure Services Report

REPORTS

4. Manager of Transit and Fleet — Annex C
   Sunshine Coast Transit Future Plan and 3 Year Expansion MOU — pp 35 – 43

5. Manager of Transit and Fleet — Annex D
   BC Transit 2014/15 Amended Annual Operating Agreement (AOA) — p 44

6. Administrative Assistant — Annex E
   Bus Passes for Students (CSC Referral June 12/14) — p 45

7. Manager of Transit and Fleet — Annex F
   2015 Ports [345] Funding — pp 46 – 49

8. General Manager Infrastructure Services — Annex G
   Manual Water Meter Reading Fee — pp 50 – 56

9. Environmental Technician — Annex H
   Review of Forest Practices Board Special Investigation Report on Community Watersheds — pp 57 – 105

10. Administrative Assistant — Annex I
    Chapman Lake Storage Access Study (Board Rec. No. 295/14) — p 106

11. Manager of Waste Reduction and Recovery — Annex J
    AVICC Solid Waste Management Meeting — pp 107 – 109

12. Zero Waste Coordinator — Annex K
    Waste Composition Audit Timeline — p 110

13. Administrative Assistant — Annex L
    Monthly Report for June, 2014 — pp 111 – 112

14. Joint Watershed Management Advisory Committee Minutes of May 26, 2014 — Annex M, pp 113 – 115

15. Administrative Assistant
Joint Watershed Protocol Agreement Expansion to Include other Drinking Watersheds — Annex N, p 116

16. Public Wharves Advisory Committee Minutes of June 2, 2014 — Annex O, pp 117 – 119

COMMUNICATIONS

17. Vancouver Coastal Health, dated June 4, 2014
Regarding Request for Vancouver Coastal Health Support for Initiation of a Drinking Water Protection Plan for Chapman Creek Watershed — Annex P, pp 120 – 121

IN CAMERA

That the public be excluded from attendance at the meeting in accordance with section 90(1) (k) of the *Community Charter* "negotiations and related discussions respecting the proposed provision of a municipal service..."

ADJOURNMENT

New DELEGATION REQUEST form

Full Name: Ron Knight

Group Name: Pender Harbour Garden Club

Phone Number: 604-883-9807

Email: ronaldlknight@gmail.com

Address: 4622 Beaumont Road

Garden Bay BC V0N 1S1

Topic: Lack of availability of mulch which was formerly available free from the Garden Bay landfill.

Purpose: Other (provide details below)

Detail: A request: that the green waste that Pender Harbour residents take to the landfill be made available as much;
AND/OR
that chipped up green waste from roadway maintenance be dumped in one location for residents to take.

Requested Date: 2014-07-03

Documentation: Verbal only

Equipment: Laptop (Microsoft Windows 7, Office 2010/13, Adobe), Multimedia Projector (standard VGA connection, 1/8" stereo mini)

Agreement: I understand & agree to these terms.

Date Submitted: 2014-05-22

Green Waste to Mulch

A presentation by Ron Knight (4622 Beamont Road, Garden Bay, V0N 1S1) on behalf of Pender Harbour Garden Club

Accompanied by Diane Brown (4792 Sinclair Bay Road, Garden Bay, V0N 1S1)

Our request:

Please find a way for green waste to be chipped up into mulch and provided free of charge to residents with pickup trucks or smaller vehicles.

History:

For more than a decade, Pender Harbour residents were able to take green waste to the Garden Bay landfill where it was chipped up and the resulting partially-composted mulch made available free of charge for garden use. This excellent community service helped conserve water because garden soil covered with mulch requires less irrigation. In addition, air pollution was decreased because fewer residents burned their green waste and no trucking was required to move the debris elsewhere.

Three or four years ago, the free mulch service was terminated, and SCRD contracted with Salish Soils to truck green waste from the three Sunshine Coast landfills, to their site in Sechelt, where it was turned into various soil mixes. Residents were then left without any source of free mulch. A lucky few were able to negotiate with Hydro crews, who were chipping up roadside brush nearby, to dump a load of mulch on their property.

This spring, someone left large piles of newly chipped up green waste on a vacant lot across from the Pender Harbour Health Centre, and the Pender Harbour Garden Club executive informed its members that the mulch was available for free. Most of the pile disappeared within two months.

Please consider these suggestions (which could be applied Coast wide):

1) Beginning April 1, 2015, when the Salish Soils contract expires, hire a local company to chip up a portion of the green waste that is brought to the landfill(s). Provide mulch free to commercial or residential customers with a pickup truck or smaller vehicle, but charge everyone who uses a larger vehicle. Publicize the availability of free mulch frequently. …… and/or

2) Contact companies who remove brush from roadways and chip it up. Provide them with locations where they can dump mulch, on a regular basis, free of charge. Publicize these locations to residents.

Thank you for assistance with the preparation of this presentation to: Area A Director Frank Mauro; SCRD staff members: Jeremy Valeriote, Tracey Hincks, and Angie Legault; Pender Harbour Garden Club Executive.

SCRD STAFF REPORT

DATE: June 18, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Bryan Shoji, General Manager Infrastructure Services

RE: **REGIONAL WATER DEVELOPMENT COST CHARGES UPDATE**

RECOMMENDATION(S)

THAT the General Manager Infrastructure Services' report dated June 18, 2014 titled "Regional Water Development Cost Charges Update" be received;

AND THAT draft Regional Water Development Cost Charge Background Report prepared by Opus DaytonKnight and suggested fee amendments be issued for public consultation.

The purpose of this report is to introduce the Regional Water Development Cost Charge (DCC) Background report prepared by Opus DaytonKnight (Attachment A) and request direction to issue the report for public consultation.

BACKGROUND

The Provincial Development Cost Charge Best Practices Guide defines DCCs as follows.

> *Development Cost Charges (DCCs) are monies that are collected from land developers by a municipality, to offset some of the infrastructure expenditures incurred, to service the needs of new development. Imposed by bylaw pursuant to the Local Government Act, the charges are intended to facilitate development by providing a method to finance capital projects related to roads, drainage, sewers, water and parkland.*

The SCRD currently has three water DCC bylaws for the Regional Water System, separated by geographical location. All three bylaws were adopted on May 22, 1997.

Bylaw No. 437 (Eastern)
Bylaw No. 438 (Western)
Bylaw No. 439 (Sechelt)

The following resolution was adopted by the Board at the February 13, 2014, regular meeting:

096/14 **Recommendation No. 27** *Regional Water Service [370] – 2014 R1 Budget Proposal*

THAT the following budget proposal be approved and incorporated into the 2014 Budget:

- Budget Proposal 2 – Regional Water DCC Review, $30,000 funded through existing User Fees.

This will be the first review and update of the DCC bylaws.

The consulting engineering firm of Opus DaytonKnight were retained to carry out the Regional Water Service Development Cost Charge review. Opus DaytonKnight are the same firm that assisted with the development of the Comprehensive Regional Water Plan and Regional Water Business Plan and Rates Analysis.

DISCUSSION

The attached report provides a detailed explanation of the DCC review process and outlines the data used to support the recommended DCC rates and apportionment. Key recommendations contained within the report are:

- Merging the three existing geographical DCC areas into a single Regional DCC rate schedule.
- Creating two new DCC schedules for the three systems (Eastbourne, Egmont, Cove Cay) that are not currently connected, nor anticipated to connect, to the Regional Water System within the term of the Comprehensive Regional Water Plan (2036).
- Using a projected development growth rate of 1.2% to calculate the DCC rates.
- Incorporating a Municipal Assist Factor of 1% in line with other local governments.
- Proposed rate structure as per Table 12 of the report that is relatively comparable to existing rates, especially considering there have been no rate increases in 17 years.

Next Steps:

- Incorporate amendments from Committee into a final draft report.
- Release report for public consultation
  - Place report on web site
  - Engage affected stakeholders following the Engagement Plan below.
- Produce consultation feedback report to the October Infrastructure Services Committee
- Incorporate feedback into final report.
- Draft bylaws for adoption.

Engagement Plan:

The proposed public engagement process is intended to **Inform** and **Consult.**

	Inform	**Consult**	**Involve**	**Collaborate**	**Empower**
Public Participation Goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	To obtain public feedback on analysis, alternatives and/or decisions	To work directly with the public throughout the process to ensure that public concerns are understood and considered	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution	To place final decision-making in the hands of the public

Promise to the Public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced decisions	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced decisions	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Engagement Goal:

1. Ensure the public understands what DCCs are, why they exist, what and why changes are being proposed.
2. Gauge support for the proposed rate adjustments.

Key Messages:

1. DCCs are a standard method for local governments to charge developers for the cost of infrastructure required to service new development.
2. The SCRD is updating its Regional Water DCC bylaw for the first time in 17 years and seeking feedback on draft recommendations;
3. The DCC rate review was conducted in accordance with the Provincial Development Cost Charge Best Practices Guide;
4. The proposed rates are based on true infrastructure needs to accommodate growth related development.

Target Audience:

- Land Development Community
- Builders
- Business Associations
- Municipal Councils
- First Nations
- All Regional Water customers

Tactics to Inform:

- Press release
- Video of Open House presentation and Q&A for re-broadcasting on SCRD's YouTube channel
- Direct Open House invitations to the land development community, business associations, municipalities, and First Nations (by mail and email)
- Newspaper Ads (bulletin board, The Local and The Harbour Spiel
- SCRD website

Tactics to Consult:

- Open House (single event held in a central location), including presentation, question & answer period, and story boards
- Email submissions to info@scrd.ca
- By telephone to the General Manager Infrastructure Services
- Open House Q&A
- Feedback form distributed at Open House
- Online feedback form on SCRD website along with draft DCC report, presentation, text copy of Q&A and video

Timeline:

The proposed timeline for the public engagement process is July 10 to September 12, 2014.

Attachment A

OPUS DAYTONKNIGHT

Regional Water Service

DCC Background Report

June 23, 2014

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by Bob Twerdoff Consulting Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

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Statement of Qualifications and Limitations

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Appendices

1. Introduction

This background report provides information required to support a new Development Cost Charges Bylaw (DCC Bylaw) for the Sunshine Coast Regional District (SCRD) Regional Water Service Area, including requisite requirements to secure approval from the Inspector of Municipalities, Ministry of Community, Sport and Cultural Development.

The existing DCC Bylaws are as follows:

- Sunshine Coast Regional SCRD (Eastern) Bylaw No. 437, 1997 – adopted May 22, 1997
- Sunshine Coast Regional SCRD (Western) Bylaw No. 438, 1997 – adopted May 22, 1997
- Sunshine Coast Regional SCRD (Sechelt) Bylaw No. 439, 1997 – adopted May 22, 1997.

It's been 17 years since the last DCC Bylaw review.

This DCC Bylaw review considers:

- Adjustments to the benefiting areas;
- Modifying the land use categories assessed DCCs;
- Establishing appropriate exemptions to DCC charges;
- Updating growth projections;
- Updating project cost estimates and the DCC project list;
- Incorporating sustainability principles; and
- Clarifying how DCC credits should occur.

Building on work previously completed relating to growth and development within the SCRD, growth projections and DCC eligible projects were formulated. The reference materials used during this review include:

1. DCC Bylaw # 437 (Eastern), DCC Bylaw # 438 (Western), and DCC Bylaw # 439 (Sechelt)
2. Sunshine Coast Regional District – Comprehensive Regional Water Plan, June 2013
3. 2014 Capital Budget
4. 5 Year Financial Plan
5. Sunshine Coast Regional District Water Service Business Plan and Rates Development, 2013
6. Keats Island Official Community Plan, January 2011

This background report also incorporates the recommended approach to formulating DCC Bylaws contained in the Ministry of Community Services, Development Cost Charge Best Practices Guide, 2005. Guiding Principles prescribed within the Best Practices Guide are summarized below.

Integration

The DCC Bylaw provides SCRD's approach to issues with land efficiency, affordability and sustainability and it is consistent with their Official Community Plans (OCPs) and the Financial Plan.

Upon adoption of the proposed DCC Bylaw the current Financial Plan will be updated to include DCC projects within the 20-year horizon as shown in the DCC Project List (Appendix B).

Benefiter Pays

The DCC Bylaw considers the impact of infrastructure costs and attributes the cost against those who will use and benefit from the infrastructure, while providing appropriate exemptions listed in the *Local Government Act*...

Fairness and Equity

Recognizing costs should be shared amongst benefiting users, the DCC Bylaw review incorporates mechanisms to distribute costs between existing users and new development in a fair and equitable manner.

Accountability

The establishment of the DCC Bylaw was a transparent process, where all information used to formulate the DCC assessments was accessible and understandable to all residents and stakeholders within the SCRD.

Certainty

Certainty has been built into the DCC process, both in terms of stable charges and orderly construction of infrastructure, to assist the development industry in the planning of their projects, while ensuring sufficient DCC funds are collected to ensure construction of the infrastructure when needed. Even though it's been 17 years since the last review, the proposed changes to the DCC assessments generally reflects increases in construction and related costs since the late 90's.

Consultative Input

A draft DCC Bylaw and this DCC Background Report were presented to the SCRD Board for the first time on July 03, 2014.

Additional details to follow …..

2. Existing DCC Bylaws

Table 1: Existing Development Cost Charges

Land Use	Unit Charged	Water – Bylaw # 437 (Eastern)	Water – Bylaw # 438 (Western)	Water – Bylaw # 439 (Sechelt)
Residential	Per Unit or Lot	$2,450	$3,000	$1,650
Non-Residential	Per Building Unit	$2,450	$3,000	$1,650

This DCC Bylaw review considers the following changes:

- A background report was prepared to provide clarification and direction on how DCC charges were derived;
- Definitions have been added to the bylaw;
- Residential is broken into 4 land use categories and non-residential is broken into 3 land use categories;
- The basis for assessing DCCs has been updated to reflect sustainability principles;
- The benefiting areas have been modified to reflect isolated outlying areas being separate from the primary water system (SCRD Regional Water System);
- Clarification has been added for projects containing more than one land use category;
- Exemptions have been clarified;

- How DCCs are assessed has been clarified and excludes areas used solely for below grade storage, or vehicle parking; and
- Clarification is provided on how DCC credits/rebates are applied.

3. Consultation

OPUS DaytonKnight developed the District's Comprehensive Regional Water Plan which identified SCRD's required capital plans to address water system infrastructure needs in order to accommodate growth to the year 2036. The capital plan includes intensive demand management strategies, source development, source capacities and volumes, treatment capacities and volumes, storage capacities, booster station capacities and transmission and distribution system requirements. A number of upgrades were identified in the Comprehensive Regional Water Plan. The plan was presented at two (2) public open house meetings and subsequently adopted by the Infrastructure Services Committee on June 13, 2013. During this process the need to revise the old DCC Bylaws was identified.

Work began in earnest on preparing a new DCC program utilizing the capital needs identified in the Comprehensive Regional Water Plan in May, 2014. A draft DCC Bylaw and DCC Background Report were presented to the SCRD Infrastructure Services Committee for the first time on July 3, 2014

Additional detail to follow …

4. Bylaw Development

The existing DCC bylaws (three separate bylaws all adopted in 1997) were created prior to the Ministry of Community Service's first published *Development Cost Charges Best Practices Guide (2000)*. The aim of this bylaw review is to ensure consistency with the intent of the Ministry's *Development Cost Charges Best Practices Guide, 2005* (Best Practices Guide) in order to expedite Ministerial approval.

Extent of Application

The extent to which DCCs will be applied within the SCRD Regional Water System, which includes Chapman, Granthams, Soames and Langdale communities, has been considered during this review. The existing bylaws assess water DCCs on an 'area-specific' basis (i.e. Eastern, Western, and Sechelt); however this DCC review combines all properties potentially receiving water from SCRD into a single area, with the exception of Keats Island, Egmont and Cove Cay, as those water systems do not connect, nor are expected to connect, to the primary water supply and distribution systems in the SCRD (Regional Water System). All properties potentially receiving benefit from the planned DCC projects have been included in the draft bylaw.

Water systems within North and South Pender Harbour have not been included in this DCC review as they are their own service functions. Those areas will be addressed in a subsequent DCC review.

Similarly, water systems supplying bulk water to the Town of Gibsons have not been included in this DCC review as those costs will be addressed in the bulk water agreement between SCRD and Gibsons.

Program Time Frame

The time frame for the DCC program was considered during this bylaw review. The existing bylaws have not defined a program time frame. This review considers a 20-year program time frame appropriate for a DCC Bylaw of this nature. This is long enough to ensure sufficient funds are collected to fund growth related capital projects and likely at the limit of reasonable projections for the future. Therefore, the draft DCC Bylaw is based on a "revolving

program", incorporating projects over a 20-year period to support long-term development plans. Future DCC Bylaw reviews will consider projects beyond the 20-year program time frame.

Upon adoption of the proposed DCC Bylaw the Financial Plan will be updated to reflect the projects identified within this report (Appendix B).

Categories of Land Use

Categories of land uses within the existing DCC bylaws are simplified into two groups:

- Residential
- Non-Residential

This bylaw review considers adopting the following land use categories in order to maintain consistency with the draft District of Sechelt DCC Bylaw where the majority of growth is anticipated to occur. Further by splitting residential into four categories there will be an incentive for developers to construct smaller, more sustainable housing while providing greater choice in the market place. The proposed categories of land use are:

- Single family
- Multi-family (Townhouse and Apartment)
- Congregate care
- Commercial
- Industrial
- Institutional

The current bylaws do not address development projects containing more than one land use category. This bylaw review addresses this oversight, as this form of development is anticipated in the future. Mixed-use projects will be calculated separately for each portion of the development attributable to two or more land use categories, being the sum of the DCCs for each type of land use category. Appropriate definitions will be required to support these new land use categories. Congregate care seniors housing will be defined as a multiple unit residential building where there is a restriction to seniors' care and accommodation.

Units for Charges

The proposed DCC bylaw will utilize the following units when applying DCCs:

- Single family → per unit
- Multi-family → per square metre
- Congregate care → per bed
- Commercial → per square metre
- Industrial → per square metre
- Institutional → per square metre

The Best Practices Guide recommends charging DCCs on an area or 'square metre' basis in order to encourage densification and construction of smaller residential units. This DCC review creates new multi-family land use categories and uses the floor area to assess DCCs. DCCs are first calculated on a unit basis, and then converted to square metres based on a current average size unit of 150 m² for townhouse and 80 m² for apartment units, as specific data on types and sizes of multi-family housing is not available. These averages were taken from the District of Sechelt draft DCC bylaw, where the majority of medium density residential development is anticipated to occur within the SCRD Regional water system.

Project Eligibility

DCC projects must directly or indirectly service new development. When considering infrastructure needs to support growth, each potential DCC project was reviewed to verify its applicability. Works that would normally be constructed and paid for by a single developer have been excluded and projects, which would normally be associated with ongoing maintenance and asset replacement due to age, have also been excluded. Further, the Financial Plan contains projects necessary to serve existing residents within the SCRD – those projects have similarly been excluded.

Land acquisition costs were not considered (unless specifically noted in the DCC Capital Program List) when costing eligible projects due to uncertainties with regard to the amount of land and cost required in the future. This aspect should be revisited with future DCC Bylaw amendments.

Even though universal metering gains additional capacity in the water systems, costs will be borne by existing residents and SCRD in order to achieve its goals for water conservation, security of supply and deferment of significant capital upgrades. Further metering costs are typically paid by existing users, or future new service connections, which will have already paid DCCs at the subdivision stage by the developer. There is an indirect benefit to developers through the reduction of overall long-term system upgrades.

Recoverable Costs

Project costs include construction estimates to complete the scope of work in a competitive environment. An allowance has been included to account for planning, engineering design/contract administration, and contingency. These costs are consistent with the Financial Plan.

Interim financing and long-term debt financing have not been considered for DCC recovery with this bylaw review. Further SCRD staff and overhead costs have not been included in the project costs.

Other sources of funding are identified in the DCC calculation where available. In accordance with the Best Practices Guide, even if projects may qualify for grant funding, grant monies are not included until approved.

Municipal Assist Factor

Section 933 (2) of the *Local Government Act* states that the purpose of DCCs is to provide funds to “assist” the local government to pay the costs of municipal parks and infrastructure. By not allowing 100% of the development related costs to be charged to new development, the legislation implicitly requires an “assist factor”. As a matter of Ministerial policy, a requirement exists for local government to provide a level of financial assistance. One percent is considered the lowest acceptable rate of municipal assistance.

No changes to the current DCC Bylaw are contemplated; a 1% municipal assist factor has been applied, which is consistent with the vast majority of DCC bylaws in the province.

Exemptions

Exemptions, consistent with the *Local Government Act,* and which for the most-part were not included within the existing DCC bylaws have been added to the draft DCC Bylaw for the following development applications:

- Exemption for construction of a building, or part, which is used for public worship (consistent with Section 933 (4) (a) of the *Local Government Act*);

- Exemption for residential units 29 m² or less (consistent with Section 933 (4.01) of the *Local Government Act*); and
- Exemption for building permits less than $50,000 in construction value (consistent with Section 933 (4) (c) of the *Local Government Act*).

Collection of charges remains unchanged, as does monitoring, accounting and use of DCC reserve funds. SCRD relies on the Town of Gibsons to collect water DCCs within Upper Gibsons serviced by the SCRD Regional water system. SCRD will prepare an amendment to the bulk water agreement to ensure an equivalent fee is collected from benefiting users within the Town of Gibsons.

Equivalency Factors

The Best Practices Guide recommends calculating separate equivalency factors for each class of infrastructure and land use category.

Table 2: Equivalency Factors - Proposed Bylaw

Utility	Land Use	Existing Equivalency Factor	Proposed Equivalency Factor
Water	Single Family (unit)	1.00	1.00
	Townhouse (unit)	1.00	0.83
	Apartment (unit)	1.00	0.67
	Congregate Care (bed)	1.00	0.42
	Commercial (m²)	0.5	0.003
	Industrial (m²)	0.5	0.003
	Institutional (m²)	0.5	0.003

The proposed equivalency factors are based on recommendations in the DCC Best Practices Guide with the following assumptions:

- Single family = 2.4 ppu
- Townhouse = 2.0 ppu
- Apartment = 1.6 ppu
- Congregate Care is based on 100 beds per hectare

Grace Period

The draft DCC Bylaw incorporates a provision where the proposed new DCC rates would not affect in-stream development applications, provided a complete application has been filed with the SCRD, or the District of Sechelt, for a period of 6 months following adoption of the new DCC Bylaw.

Upon third reading of the DCC Bylaw, the SCRD will place notices in the newspaper, at SCRD offices and on the SCRD's website advising interested stakeholders of the pending DCC Bylaw changes. This background report will be used to communicate the intentions of the new DCC Bylaw, once adopted by the Board. A 6 month grace period would commence with adoption of the DCC Bylaw by the SCRD Board.

5. Growth Projections

An important component of establishing a DCC Bylaw is the consideration of growth opportunities and projections. Creating unrealistically high growth expectations leads to lower than anticipated DCC revenues; conversely, an extremely conservative growth projection may result in qualified projects being left off the DCC project list, to maintain 'reasonable' DCC rates.

In conjunction with this review, sources of information used to determine appropriate growth projections included:

- Comprehensive Regional Water Plan, June 2013
- Building Permit Activity 2005 – 2013, BC Statistics
- 2012 Sub-Provincial Population Estimates, BC Stats, Ministry of Labour and Citizens' Services
- BC Statistics: Population Projections (P.E.0.P.L.E. 34), Ministry of Labour and Citizens' Services
- District of Sechelt draft DCC Bylaw.

The current DCC Bylaws estimated a 3% annual growth in new water connections over a 10 year period. This "aggressive rate of growth" has led to a short-fall in funding projects utilizing DCCs.

BC Statistics tracks growth in most municipalities within the province. According to their information, the population for the Sunshine Coast in 2006 was 27,959 *residents* and 30,589 *residents* in 2012. This represents a compound annual growth rate of 1.5% over the last 6 years, with the strongest increase in the District of Sechelt (2.7%), while the rural unincorporated areas increased by 1.2% over the same period.

BC Statistics: Population Projections (P.E.O.P.L.E. 34) provides anticipated growth projections across the province. For the years 2009 to 2036 (27 years), the growth projected for the Sunshine Coast Regional District (SCRD) are from 29,559 (2009) to 37,966 (2036) which represents a compound annual rate of 1.06**%**; while the average for the province is projected at 37.8% over 27 years or 1.2% compounded annually.

BC Statistics also tracks building permit activity for municipalities across the province – the numbers for SCRD (includes Sechelt and Gibsons) are shown in the table below.

Table 3: Residential Building Permits*

Year	Single Family Units (% single family)	Multi-Family Units	Total Residential Units
2005	272 (70%)	119	391
2006	300 (78%)	85	385
2007	245 (74%)	84	329
2008	180 (84%)	34	214
2009	170 (87%)	26	196
2010	164 (65%)	90	254
2011	132 (77%)	39	171
2012	93 (37%)	156	249
2013	91 (93%)	7	98

***** Source: BC Stats

Based on the above information it is anticipated SCRD's growth over the next 20 years will range from 1.2% to 1.7% annually. It is therefore recommended the DCC Bylaw use a projected annual growth rate of 1.2%.

Based on 1.2% the projected number of new residential units over the next 20 years in the Regional water service area is 5,300 new units calculated as:

30,589 persons @ 1.2% over 20 years =
8,241 persons divided by average 2.0 persons per unit (ppu) =
4,120 new residential units.

It is difficult to estimate the portion of single family versus multiple family units, particularly without the benefit of good historic information. According to BC Stats the portion of multi-housing units over the last 9 years is approximately 25% (these stats include congregate care projects). No data is available with respect to multi-family unit sizes, or number of congregate care beds constructed. As with many urban municipalities within BC, it is anticipated the portion of multiple family and congregate care housing will increase over time.

BC Statistics also tracks non-residential building permit activity for municipalities across the province – the numbers for SCRD (includes Sechelt and Gibsons) are shown in the table below.

Table 5: Non-Residential Building Permits*

Year	Commercial ($000's)	Industrial ($000's)	Institutional ($000's)
2005	8,510	751	2,403
2006	13,635	257	1,006
2007	17,368	1,194	295
2008	2,591	785	157
2009	6,464	1,581	904
2010	8,964	897	67
2011	8,690	2,978	4,116
2012	5,466	1,546	115
2013	4,129	14,634	9,585

* Source: BC Stats

Using building permit data from BC Stats one can average (by removing lowest and highest values due to large fluctuations) the activity for non-residential land uses over the last 9 years. By converting the building permit dollar value to floor area using an average construction value of $2,150/m² ($200/ft²), the following estimate for non-residential uses is derived for the Regional water service area:

- Commercial: 3,700 m²/year
- Industrial: 600 m²/year
- Institutional: 600 m²/year

Non-residential land uses are marginally affected by the influx of seasonal occupants; therefore the growth rate for non-residential land uses should be lower than 1.5%/year. It is assumed the rate of growth for non-residential uses will be 20% lower than historic activity over the previous 9 years. Therefore, the DCC Bylaw assumes the following growth projections for non-residential uses:

- Commercial: 3,000 m²/year over 20 years = 60,000 m²
- Industrial: 500 m²/year over 20 years = 10,000 m²
- Institutional: 500 m²/year over 20 years = 10,000 m²

Table 6a: DCC Bylaw Growth Projections - Regional Water Service Area (20 Years)

Residential (units)	Single Family (units)	Multiple Family (units)	Commercial (m²)	Industrial (m²)	Institutional (m²)
4,120	3,090	1,030	60,000	10,000	10,000

Of the multiple family units projected in Table 6a, approximately ½ are estimated to be townhouse units. In order to convert the number of units to area (square metres) we assume the average townhouse unit will be 150 square metres in size, while the average apartment unit size will be 80 square metres.

It is assumed limited non-residential growth will occur in the Eastbourne and Egmont/Cove Cay benefiting areas. No building permit is available for these isolated communities and BC Statistics does not provide data at this level of detail. The Keats Island Official Community Plan estimates 50 – 80 full time residents on the island; however this grows substantially up to 400 residents when cottagers and weekend residents are included. In order to calculate DCCs the following growth projections are estimated for Keats Island (Eastbourne).

Based on 1.2% the projected number of new residential units over the next 20 years on Keats Island is 54 new units calculated as:

400 persons @ 1.2% over 20 years =
107 persons divided by average 2.0 persons per unit (ppu) =
54 new residential units.

Table 6b: DCC Bylaw Growth Projections - Eastbourne (20 Years)

Residential (units)	Single Family (units)	Multiple Family (units)	Commercial (m²)	Industrial (m²)	Institutional (m²)
54	54	0	100	100	100

Based on 1.2% the projected number of new residential units over the next 20 years in Egmont and Cove Cay is 26 new units calculated as:

150 persons @ 1.2% over 20 years =
40 persons divided by average 2.0 persons per unit (ppu) =
20 new residential units.

Table 6c: DCC Bylaw Growth Projections – Egmont/Cove Cay (20 Years)

Residential (units)	Single Family (units)	Multiple Family (units)	Commercial (m²)	Industrial (m²)	Institutional (m²)
20	20	0	100	100	100

Due to uncertainties inherent with projecting growth over 20 years, the growth assumptions utilized within this report should be monitored and adjusted over time with future DCC reviews.

6. Costs Attributable to Growth

Growth over the next 20 years for purposes of calculating DCCs is estimated to be approximately 10,800 persons. Some DCC projects benefit both existing residents as well as future residents; for those projects the DCC costs/benefits should be shared based on the anticipated population growth and/or anticipated benefit. Each capital project was reviewed to determine the share attributable to growth. The result is shown in the DCC Project List found in Appendix B of this report.

7. Sustainability

The SCRD's Regional Sustainability Plan entitled We Envision: One Coast, Together in Nature, Culture and Community, has established a set of goals for water stewardship for the local community. Stewardship of water is one of 13 different areas of strategic focus in the Regional Sustainability Plan. The goals of water stewardship include: a protected, high quality drinking water supply; a long term goal of all people having access to sufficient high quality drinking water to meet present and future needs; and short term goals including the reduction of water consumption by 33% by the year 2020, plus the increase in supply of potable water to meet the demand of projected population growth and the protection of community drinking watersheds, aquifers and sensitive habitat areas.

To this extent, the SCRD has identified an intensive demand management (IDM) program, a key component under its Comprehensive Regional Water Plan, to target a reduction in water usage throughout its water utility. The IDM program will reduce and defer the need for expensive infrastructure upgrades for source and treatment capacities, as well as upgrades related to the distribution network, which in turn benefits the local development community.

Further, part of building a compact, diverse and "green" community requires the SCRD to consider incentives for lower DCCs when constructing smaller units. To this end, the draft DCC Bylaw creates three new residential land use categories and converts the townhouse and apartment unit charge to create a DCC based on area (square metres). As a result smaller multiple family units benefit through lower DCC assessments and the SCRD benefits through a more sustainable form of development.

8. Offsite and Onsite Improvements

Various development applications submitted to the SCRD, Sechelt or Gibsons may require construction of onsite and offsite improvements. The intent of the draft DCC Bylaw is to capture the most significant projects necessary to support growth; it is not intended to capture all required infrastructure improvements, consequently development applications may require a blend of DCCs and onsite/offsite improvements. The extent of improvements will be governed by the sufficiency of the water system along the development frontage and/or in the vicinity. Developers are encouraged to review the DCC project list, attached to this report, when considering development proposals in order to determine whether their required improvements are eligible for DCC credits or rebates.

9. DCC Projects

Table 7a: DCC Infrastructure Totals - Regional Water Service Area

	Proposed DCC Projects
Water	$25,000,000

Table 7b: DCC Infrastructure Totals – Eastbourne

	Proposed DCC Projects
Water	$525,000

Table 7c: DCC Infrastructure Totals – Egmont/Cove Cay

	Proposed DCC Projects
Water	$300,000

Appendix B contains a detailed listing of each DCC project, plus the amount attributable to growth. These costs will be consistent with the SCRD's Financial Plan.

Table 8a: Net DCC Costs - Regional Water Service Area

Infrastructure	Project Costs Attributable to Growth	Less DCC Reserves	Less Municipal Assist Factor (1%)	Net DCC Costs
Water	$15,730,000	$800,369	$149,296	$14,780,335

Table 8b: Net DCC Costs - Eastbourne

Infrastructure	Project Costs Attributable to Growth	Less DCC Reserves	Less Municipal Assist Factor (1%)	Net DCC Costs
Water	$330,000	$0	$3,300	$326,700

Table 8c: Net DCC Costs – Egmont/Cove Cay

Infrastructure	Project Costs Attributable to Growth	Less DCC Reserves	Less Municipal Assist Factor (1%)	Net DCC Costs
Water	$120,000	$0	$1,200	$118,800

10. Proposed DCC Rates

Table 9a: Equivalent Unit Calculations* - Regional Water Service Area

Land Use	Projected Growth	Equivalent Units - Water
Single Family	3,090 units	3,090
Townhouse Apartment	515 units 386 units	427 259
Congregate Care	129 beds	54
Commercial	60,000 m²	180
Industrial	10,000 m²	30
Institutional	10,000 m²	30
Total		4,070

* The number of equivalent units is derived using the equivalency factors found in Section 4.0

For the Regional Water Service Area benefiting area this bylaw review assumes ½ of the multiple-family units will be townhouse style units, 3/8 will be apartment style units and 1/8 will be congregate care units. Further it is assumed the average townhouse unit will be 150 m² in size, while the average apartment will be 80 m² in size. The SCRD should track the housing types and unit sizes to verify these assumptions.

Table 9b: Equivalent Unit Calculations* - Eastbourne

Land Use	Projected Growth	Equivalent Units - Water
Single Family	54 units	54
Townhouse	0 units	0
Apartment	0 units	0
Congregate Care	0 beds	0
Commercial	100 m²	0.3
Industrial	100 m²	0.3
Institutional	100 m²	0.3
Total		54.9

* The number of equivalent units is derived using the equivalency factors found in Section 4.0

Table 9c: Equivalent Unit Calculations* - Egmont/Cove Cay

Land Use	Projected Growth	Equivalent Units - Water
Single Family	20 units	20
Townhouse	0 units	0
Apartment	0 units	0
Congregate Care	0 beds	0
Commercial	100 m²	0.3
Industrial	100 m²	0.3
Institutional	100 m²	0.3
Total		20.9

* The number of equivalent units is derived using the equivalency factors found in Section 4.0

Table 10a: DCC Calculation - Regional Water Service Area

Infrastructure	# of Equivalent Units	Net DCC Costs	DCC/Equivalent Unit
Water	4,070	$14,780,335	$3,632

Table 10b: DCC Calculation - Eastbourne

Infrastructure	# of Equivalent Units	Net DCC Costs	DCC/Equivalent Unit
Water	54.9	$326,700	$5,951

Table 10c: DCC Calculation – Egmont/Cove Cay

Infrastructure	# of Equivalent Units	Net DCC Costs	DCC/Equivalent Unit
Water	20.9	$118,800	$5,684

Table 11: Proposed 2014 DCC Rates

Land Use	Water - Regional Water Service Area	Water - Eastbourne	Water – Egmont/Cove Cay
Single Family/unit	$3,632	$5,951	$5,684
Townhouse/unit *(per m²)* Apartment/unit *(per m²)*	$3,014 *($20.10)* $2,433 *($30.42)*	$4,939 *($32.93)* $3,987 *($49.84)*	$4,718 *($31.45)* $3,808 *($47.60)*
Congregate Care/bed	$1,525	$2,499	$2,387
Commercial/m² gross floor area	$10.90	$17.85	$17.05
Industrial/m² gross floor area	$10.90	$17.85	$17.05
Institutional/m² gross floor area	$10.90	$17.85	$17.05

Table 12a: Comparison to Existing DCC Rates - Regional Water Service Area

Land Use	Proposed	Existing
Single Family/unit	$3,632	$1,650 - $3,000
Townhouse/unit Apartment/unit	$3,014 $2,433	$1,650 - $3,000 $1,650 - $3,000
Congregate Care/bed	$1,525	$1,650 - $3,000
Commercial/m² gross floor area	$10.90	$3.30 - $6.00
Industrial/m² gross floor area	$10.90	$3.30 - $6.00
Institutional/m² gross floor area	$10.90	$3.30 - $6.00

Table 12b: Comparison to Existing DCC Rates – Eastbourne*

Land Use	Proposed	Existing
Single Family/unit	$5,951	$0
Townhouse/unit Apartment/unit	$4,939 $3,987	$0 $0
Congregate Care/bed	$2,499	$0
Commercial/m² gross floor area	$17.85	$0
Industrial/m² gross floor area	$17.85	$0
Institutional/m² gross floor area	$17.85	$0

*** EASTBOURNE NOT INCLUDED ON EXISITNG DCC MAP**

Table 12c: Comparison to Existing DCC Rates – Egmont/Cove Cay*

Land Use	Proposed	Existing
Single Family/unit	$5,684	$0
Townhouse/unit Apartment/unit	$4,718 $3,808	$0 $0
Congregate Care/bed	$2,387	$0
Commercial/m² gross floor area	$17.05	$0
Industrial/m² gross floor area	$17.05	$0
Institutional/m² gross floor area	$17.05	$0

*** EGMONT/COVE CAY NOT INCLUDED ON EXISITNG DCC MAP**

11. DCC Credits

When assessing Development Cost Charges it is important to consider Section 933. (3) in the *Local Government Act.* That section states DCCs are not payable when the planned development project does not impose a new capital cost burden on the municipality or when the development had previously paid DCCs, unless the planned development project adds new capital cost burdens.

Examples where DCC credits or rebates may be considered:

1. When a business use changes, say from office to retail, both of which are considered commercial uses, the additional impact on the DCC projects is likely negligible, if any; hence no DCCs should be assessed;
2. When a developer converts a large single family parcel into two smaller single family parcels, the capital cost burden results from the creation of one additional residential unit; hence one DCC should be assessed provided the original home has service connection(s);
3. When a developer converts one type of land use to another, the original land use/improvements should be credited against DCCs assessed for the project, assuming DCCs were originally paid. Converting both land uses to equivalent units can assist with applying this type of DCC credit; and
4. When a developer constructs DCC works specifically identified in the DCC Project List found in Appendix B, a credit should be applied up to the maximum of the water DCCs payable OR the project costs identified in Appendix B. The maximum amount of credit or rebate shall be less than or equal to the DCC assessment. In other words a DCC credit cannot exceed the water DCC payable, or the capital project amount listed in Appendix B.

When applying previously paid DCC credits it is important to track how much DCCs have been paid for each parcel and the basis for calculating those DCCs. A historical record is necessary to capture DCC credits as development changes over time – this is particularly important for non-residential land uses.

---- *End of Report* ----

Appendix A

Proposed DCC Bylaw

SUNSHINE COAST REGIONAL DISTRICT
BYLAW NO. 693, 2014

A Bylaw to Impose Development Cost Charges

WHEREAS the Board may, by Bylaw, impose development cost charges (DCCs) on every person who obtains:

(a) approval of a Subdivision; or

(b) a Building Permit authorizing the construction, alteration or extension of a building or structure;

for the purpose of providing funds to assist the SCRD to pay the capital costs of assessing, providing, constructing, altering or expanding water facilities and related works, directly or indirectly, the development for which the charge is being imposed;

AND WHEREAS, in consideration of the Board, charges imposed by this Bylaw:

(a) are not excessive in relation to the capital cost of prevailing standards of service in the SCRD;

(b) will not deter development in the SCRD;

(c) will not discourage the construction of reasonably priced housing or the provision of reasonably priced serviced land in the SCRD; and

(d) are not a duplication of requirements imposed by the SCRD pursuant to development permits or provisions of a subdivision bylaw;

AND WHEREAS, in the opinion of the Board, the charges imposed by this Bylaw are:

(a) related to capital costs attributable to projects included in the Financial Plan of the SCRD; and

(b) related to capital projects consistent with the Official Community Plans of the SCRD;

NOW THEREFORE the Board of the SCRD, in an open meeting assembled, enacts as follows:

1. **CITATION:**

   This Bylaw may be cited for all purposes as **"Sunshine Coast Regional District Development Cost Charges Bylaw No. 693, 2014"**.

2. DEFINITIONS:

"Apartment" means a Multiple Unit building which utilizes a common area(s)/hallway as the primary entrance to each residential Dwelling Unit;
"Building Permit" means a permit issued by the SCRD, or the District of Sechelt that authorizes the construction, alteration or extension of a building or structure;
"Commercial" means a building or development predominantly serving a commercial, business, office or retail function;
"Congregate Care" means a Multiple Unit building that is used or intended to be used as a seniors residence principally for sleeping accommodation, and does not include cooking appliances within each unit, and where common dining areas are provided within the building;
"Development" means a Subdivision and/or Building Permit;
"Dwelling Unit" includes a room, or rooms, or a building or structure that is used or intended to be used as an individual self-contained residence, which must contain cooking appliances and includes accessory uses that are customary ancillary uses to such residences;
"Gross Floor Area" means the total of the horizontal areas of all floors in a building, excluding the basement when used only for storage or vehicle parking purposes, measured to the outside of the exterior walls of the building;
"Industrial" means a building or Development predominantly providing an industrial, business park or related function;
"Institutional" means a building or Development predominantly providing a community service or community benefits or related function;
"Lot" means any parcel of land registered in the Land Title Office;
"Mixed Use Development" means a Development containing a combination of land uses, including but not limited to, Multiple Unit residential, Commercial, Industrial or Institutional;
"Multiple Unit" means any Townhouse or Apartment Dwelling Unit which does not include Single Family;
"SCRD" means the Sunshine Coast Regional District;
"Single Family" means a Dwelling Unit situated on a single parcel, which includes duplex Dwelling Units and mobile homes;
"Subdivision" means a Subdivision of land into two or more parcels under the *Land Title Act* or the *Condominium Act*;
"Townhouse" means a Multiple Unit building which utilizes a separate ground level primary entrance to each residential Dwelling Unit; and
"Zoning Bylaw" means a land use control bylaw adopted by the SCRD, or the District of Sechelt.

3. DEVELOPMENT COST CHARGES:

(1) Every person who obtains:

a. approval of a Subdivision, or
b. a Building Permit

shall have paid at the time of approval of the Subdivision or the issuing of a Building Permit, as the case may be, to the SCRD, the applicable development cost charges (DCCs) as set out in Schedule 'A', attached to and forming part of this bylaw. The charges outlined in Schedule 'A' shall be applied to the lands outlined in Schedule 'B', attached to and forming part of this bylaw.

The charges outlined in Schedule 'A' shall be based on the actual use of the building, and not the zoning category of the property outlined in any Zoning Bylaw. Where there is more than one use, such as a Mixed Use Development, each use is subject to the charge outlined in Schedule 'A' based on the actual use and there may be more than one DCC category applied per building or Development project.

(2) Notwithstanding Section 3. (1), no development cost charge is payable where:
a. a charge is prohibited by *Statute,* or
b. the value of work authorized by the Building Permit does not exceed $50,000, or other amount prescribed by *Statute,* or
c. a development cost charge has previously been paid for the same Development, unless as a result of further Development, new capital cost burdens will be imposed on the SCRD.

(3) The total DCCs imposed pursuant to this Bylaw shall be credited one Dwelling Unit or Lot for each existing fully serviced Dwelling Unit which existed prior to the Subdivision approval, or Building Permit issue.

(4) DCCs shall be payable upon approval of the Subdivision plan for Single Family Development; or for all other types of Development, upon issuance of a Building Permit calculated at the charge applicable at the date of application for Building Permit, provided the application is not older than 12 months.

(5) The calculation of Dwelling Units is determined by the maximum number of Dwelling Units permitted on the site being subdivided or the maximum number of Dwelling Units contained in the Building Permit application, or in the case of Congregate Care, the maximum number of beds contained in the Building Permit application.

(6) For non-residential uses the calculation of floor area is based on the Gross Floor Area contained in the Building Permit application, excluding areas used solely for storage, or vehicle parking.

4. REMAINDER OF BYLAW TO BE MAINTAINED INTACT

In the event that any portion of this Bylaw is declared ultra vires, such portion shall be severed from this Bylaw with the intent that the remainder of this Bylaw shall continue in full force and effect.

5. REPEAL OF PREVIOUS BYLAWS

Sunshine Coast Regional District Development Cost Charge (Eastern) Bylaw No. 437, 1997, Sunshine Coast Regional District Development Cost Charge (Western) Bylaw No. 438, 1997, and Sunshine Coast Regional District Development Cost Charge (Sechelt) Bylaw No. 439, 1997, and together all amendments thereto, are hereby repealed effective 180 days following the date that this Bylaw is adopted, and upon repeal of previous bylaws this Bylaw No. 693, 2014 shall be in full force and effect.

READ A FIRST time the _____

READ A SECOND time the _____

READ A THIRD time the _____

RECEIVED THE APPROVAL of the Inspector of Municipalities the _____

FINALLY CONSIDERED AND ADOPTED the _____

Schedule 'A' to Bylaw No. 693, 2014

Schedule of Development Cost Charges Applicable to Schedule 'B' Lands

Use	Regional Water Service Area	Eastbourne Water Service Area	Egmont/Cove Cay Water Service Area
Single Family /unit	$3,632	$5,951	$5,684
Townhouse /m² gross floor area	$20.10	$32.93	$31.45
Apartment /m² gross floor area	$30.42	$49.84	$47.60
Congregate Care /bed	$1,525	$2,499	$2,387
Commercial /m² gross floor area	$10.90	$17.85	$17.05
Industrial /m² gross floor area	$10.90	$17.85	$17.05
Institutional /m² gross floor area	$10.90	$17.85	$17.05

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SCHEDULE "B", DCC BYLAW NO.693, 2014

REGIONAL DCC MAP

SCHEDULE "B", DCC BYLAW NO.693, 2014

EASTBOURNE DCC MAP

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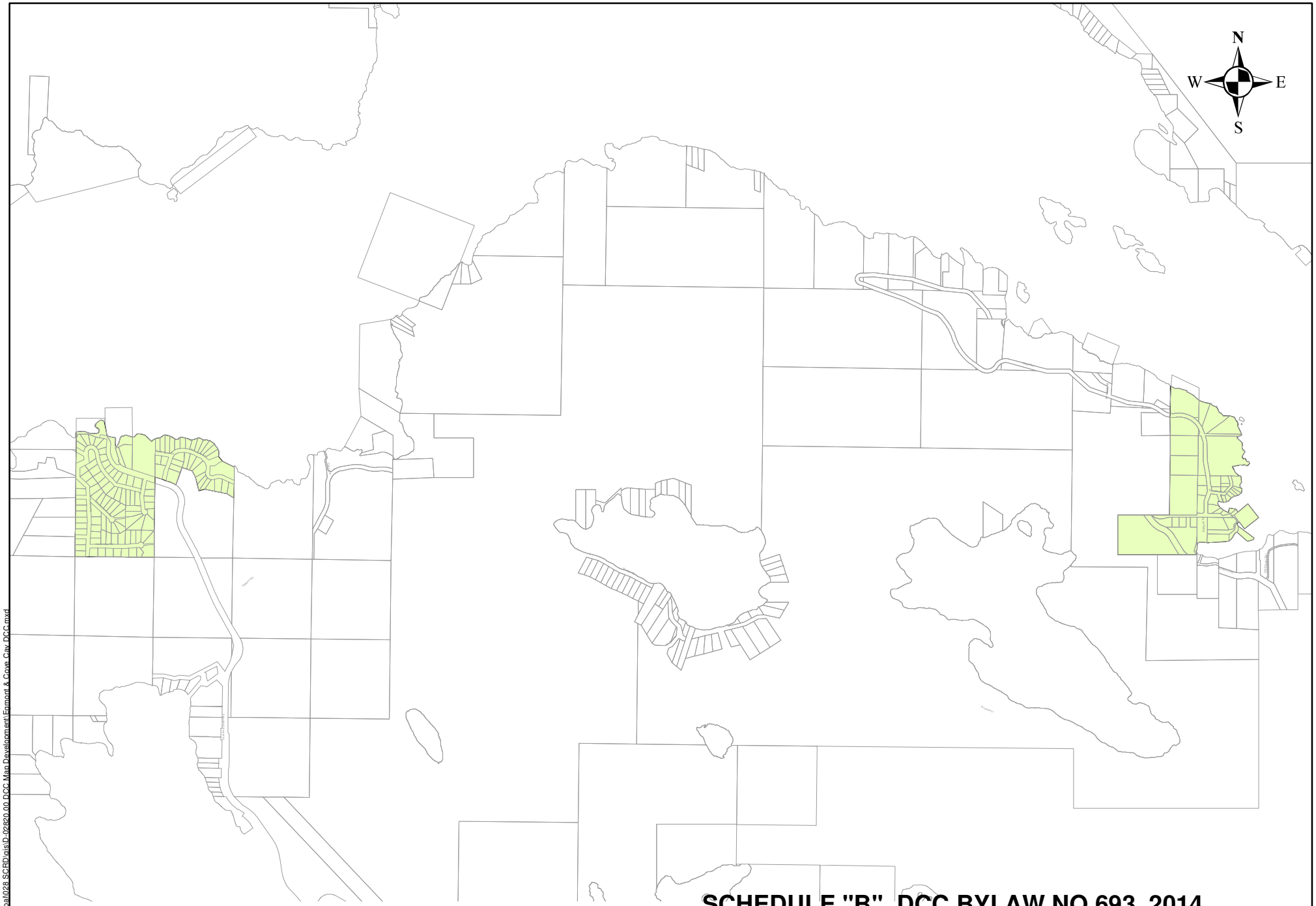

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SCHEDULE "B", DCC BYLAW NO.693, 2014

EGMONT & COVE CAY DCC MAP

Appendix B

DCC Project List

Sunshine Coast Regional District
DCC Project List - Regional

Project	Project Cost	Grant	DCC Portion	DCC Cost	Assist Factor	Net DCC Recovery
Chapman Lake Storage Access	$750,000		100%	$750,000	1%	$742,500
Groundwater Testing	$350,000		100%	$350,000	1%	$346,500
Property Acquisition	$100,000		100%	$100,000	1%	$99,000
Small Systems Assessments	$150,000		40%	$60,000	1%	$59,400
Chapman Water Treatment	$7,000,000		100%	$7,000,000	1%	$6,930,000
Soames Point Well Treatment	$50,000		40%	$20,000	1%	$19,800
Chapman Transmission Main Upgrades	$2,500,000		70%	$1,750,000	1%	$1,732,500
Chapman Fire Protection Upgrades	$12,000,000		40%	$4,800,000	1%	$4,752,000
Chapman Distribution Upgrades	$1,500,000		40%	$600,000	1%	$594,000
Intensive Demand Management Programs	$600,000		50%	$300,000	1%	$297,000
Totals	**$25,000,000**			**$15,730,000**		**$15,572,700**

DCC Project List - Eastbourne

Project	Project Cost	Grant	DCC Portion	DCC Cost	Assist Factor	Net DCC Recovery
Groundwater Testing	$150,000		100%	$150,000	1%	$148,500
Property Acquisition	$50,000		100%	$50,000	1%	$49,500
Small System Assessments	$25,000		40%	$10,000	1%	$9,900
Eastbourne Well Treatment	$50,000		40%	$20,000	1%	$19,800
Eastbourne Distribution Upgrades	$250,000		40%	$100,000	1%	$99,000
Totals	**$525,000**			**$330,000**		**$326,700**

DCC Project List - Egmont/Cove Cay

Project	Project Cost	Grant	DCC Portion	DCC Cost	Assist Factor	Net DCC Recovery
Small System Assessments	$50,000		40%	$20,000	1%	$19,800
Distribution Upgrades	$250,000		40%	$100,000	1%	$99,000
Totals	**$300,000**			**$120,000**		**$118,800**

SCRD STAFF REPORT

DATE: **June 23, 2014**

TO: **Infrastructure Services Committee – July 3, 2014**

FROM: **Rob Williams, Manager of Transit and Fleet**

RE: **Transit Future Plan and 3 Year Expansion MOU**

RECOMMENDATION

THAT the Infrastructure Services Committee receive the report entitled "Transit Future Plan and 3 Year Expansion MOU" for information;

AND THAT the Corporate Officer and Chair be authorized to sign the BC Transit 3 Year Expansion Initiatives and 2014 Service Expansion Implementation Memorandum of Understandings.

BACKGROUND

The purpose of this report is to provide a high level expenditure estimate for the future transit service expansions as outlined in the recently approved Sunshine Coast Transit Future Plan, as well as to receive approval and commitment to sign the BC Transit 3 Year Service Expansion MOU.

The SCRD Board adopted the following resolution at their regular January 23, 2014 meeting:

040/14 **Recommendation No. 2** *Transit Future Plan*

THAT BC Transit provide a draft Transit Future Plan expenditure plan to a future ISC meeting.

Each year BC Transit solicits commitment from local government partners from around the province regarding 3 year service expansions. This is done through the signing of a MOU that outlines high level service details and costs taken from next phase Transit Future Plan priorities. Once execution of the MOU is complete, BC Transit pursues the Province for their share of the expansion costs and starts to work through the planning and finer implementation details. An MOU was signed by the SCRD in 2013 that outlined service expansions for fiscal years of 14/15, 15/16, and 16/17. The 2014 MOU includes fiscal year expansions for 15/16, 16/17, and 17/18. The 2014 Service Expansion Implementation MOU has also been received which summarizes approved current year expansion and timeline details. Signing approval is also required for this MOU.

DISCUSSION

Throughout the Transit Future Plan (TFP) consultation and planning process BC Transit and SCRD staff presented high level service expansion budget figures considering more detailed planning and service costing is required closer to implementing such service expansions in order to obtain actual budget numbers. As such, the final approved TFP document outlines the anticipated resources required to achieve each phase expansion while providing estimated high level budget percentage increases. However, during the January 9th ISC meeting the Committee resolved after the presentation of the final TFP that an expenditure plan be brought back at a later date illustrating dollar values for each TFP service expansion.

Transit Future Plan – Expenditure Plan

The following table summarizes each service expansion phase with projected annual service cost and revenue numbers. Again, these are high level estimates in 2014 dollars and that the time value of money principle has not been applied to these calculations. The total SCRD cost per hour has been calculated by dividing the total SCRD transit budget by total service hours. This provides a total average per service hour cost for both the conventional and custom service considering both services are merged in the SCRD transit budget function (310). Using a total SCRD budget cost per hour to calculate service expansions is a liberal estimate as not all budget line items are likely to increase in proportion for each service expansion. Further, revenue projections have been calculated on 60% of the estimated established ridership demand for each service expansion. Ridership demand varies between routes due to such factors as residential density, demographics, and personal choice. Actual expansion costs in the later years are likely to vary from below due to refined service and operating details.

Table 1. Draft High Level SCRD Transit Future Plan Budget

Fiscal Year Service Expansion	Annual Service Hours	Total Annual SCRD Cost	BC Transit Share	SCRD Share	Projected SCRD Revenue	Net Additional Taxation
Short-term (1 to 3 years)						
2015/2016 Expansion						
1. Service to Chatelech School	200	$28,704	$9,354	$19,350	$3,406	$15,945
2. Pender Harbour service	840	$120,558	$39,288	$81,271	$3,901	$77,370
Total	**1040**	**$149,262**	**$48,642**	**$100,621**	**$7,307**	**$93,314**
2016/2017 Expansion						
3. 30 min peak on Langdale Express	6370	$914,233	$297,930	$616,303	$138,051	$478,252
Total	**6370**	**$914,233**	**$297,930**	**$616,303**	**$138,051**	**$478,252**
2017/2018 Expansion						
4. No expansion due to large 2016/2017 expansion						
Total	**0**	**$0**	**$0**	**$0**	**$0**	**$0**

Fiscal Year Service Expansion	Annual Service Hours	Total Annual SCRD Cost	BC Transit Share	SCRD Share	Projected SCRD Revenue	Net Additional Taxation
Medium Term (4 to 6 years)						
2018/2019 Expansion						
5. 30 min all day on Langdale Express	3100	$444,917	$144,990	$299,927	$67,183	$232,744
Total	**3100**	**$444,917**	**$144,990**	**$299,927**	**$67,183**	**$232,744**
2019/2020 Expansion						
6. Mon-Sat hourly on Halfmoon Bay	2100	$301,395	$98,219	$203,177	$29,257	$173,919
Total	**2100**	**$301,395**	**$98,219**	**$203,177**	**$29,257**	**$173,919**
2020/2021 Expansion						
7. 30 min peak on West Sechelt	820	$117,688	$38,352	$79,336	$13,963	$65,373
8. Intro East Porpoise Bay service	330	$47,362	$15,434	$31,928	$4,598	$27,330
9. Intro Sandy Hook/Tuwanek service	170	$24,399	$7,951	$16,448	$789	$15,658
10. Custom Service Improvements	3200	$459,269	$175,641	$283,628	$12,096	$271,532
Total	**4520**	**$648,718**	**$237,378**	**$411,339**	**$31,446**	**$379,893**

Fiscal Year Service Expansion	Annual Service Hours	Total Annual SCRD Cost	BC Transit Share	SCRD Share	Projected SCRD Revenue	Net Additional Taxation
Long Term (7 years +)						
2021/2022 Expansion						
11. 30 min all day on West Sechelt	1480	$212,412	$69,221	$143,191	$25,201	$117,990
12. Increase Sun/Hol Halfmoon Bay service	410	$58,844	$19,176	$39,668	$5,712	$33,956
Total	**1890**	**$271,256**	**$88,397**	**$182,859**	**$30,914**	**$151,945**
2022/2023 Expansion						
13. Intro Gower Point Road service	3650	$523,854	$170,714	$353,140	$28,251	$324,889
14. 30 min. service to Lower Gibsons/Marine	3870	$555,429	$181,003	$374,426	$53,917	$320,509
Total	**7520**	**$1,079,283**	**$351,717**	**$727,566**	**$82,168**	**$645,398**
2023/2024 Expansion						
15. Increase frequency on Sechelt Arena	800	$114,817	$37,417	$77,401	$11,146	$66,255
16. Service to Port Melon/Hillside	2560	$367,415	$119,733	$247,682	$39,629	$208,053
Total	**3360**	**$482,233**	**$157,150**	**$325,083**	**$50,774**	**$274,308**

3 Year Expansion MOU

As noted above in the Background section, the SCRD has received the 2014 Three Year Expansions MOU from BC Transit (Attachment A). The main difference between the 2013 expansion MOU and this year's is the exclusion of 2014/2015 and the addition of 17/18. The expansion items and projected budget figures outlined in the short-term phase (1-3 years) of Table 1 above make up the 2014 three year expansion MOU. However, the "*Estimated Net Municipal Share*" figures noted in the MOU letter are AOA cost projections and do not represent total SCRD transit budget costs, or do not include other SCRD transit function expenses that BC Transit does not cost-share.

Attachment B is the 2014 Service Expansion Implementation MOU from BC Transit that provides the first year details of the 2013 Three Year MOU. This current year MOU is consistent with the level of service approved through the SCRD 2014 budget process.

BCTransit
Connecting People and Communities

May 26, 2014

Attn: Rob Williams
Manager, Transit and Fleet
Sunshine Coast Regional District (SCRD)
1975 Field Road, Sechelt, BC
V0N 3A1

Re: 3 Year Expansion Initiatives

Dear Rob,

As outlined in our Annual Partner Communications Calendar (APCC), we are writing to seek your commitment on expansion initiatives that have been proposed for your transit system. BC Transit will be attempting to secure expansion funding on your behalf from the Province, and your timely confirmation of these expansion initiatives is critical.

As your transit system has been identified for expansion you will find attached a list of the specific initiatives for the Annual Operating Agreement periods of 2015-2016 through to 2017-2018. Each expansion initiative is primarily derived from recent service plans approved by your local government. A high level costing based on the hourly rates of your system is provided to offer you the scope of transit service initiatives based on the proposed annual expansion hours. More detailed levels of costing would be provided once the expansion is approved and further work is done to define specifics for the expansion, such as routing and schedules.

By communicating proposed expansion initiatives as far in advance as possible we are trying to achieve three important goals:

1. Ensure the proposed 3 year expansion initiatives are aligned with the expectations of your local government.
2. Attain a commitment from your local government that will allow BC Transit to proceed with the procurement and management of resources necessary to implement your expansion.
3. Provide BC Transit with the information necessary to provide local government partners with enhanced 3 year budget forecasts that identify longer term funding requirements.

Upon confirmation of your Board's intent to commit to the expansion and budget accordingly, we will include your request in our Service Plan to the Province in October which seeks the funding required for operating and capital costs. As per the APCC, if the funding request is approved, BC Transit will provide confirmation to you in March of the intent to fund the expansion. As such, we ask that you please review and sign the attached Memorandum of Understanding. However, if confirmation is not provided in time to form part of your request in September, we will be unable to deliver service expansion in your community in the coming 15/16 year.

I look forward to working with you on the continued improvement of your transit service and encourage you to contact me if you have any questions regarding these proposed expansion initiatives.

Yours truly,

M. Moore

Myrna Moore
Senior Regional Transit Manager

Date	May 26, 2014
Expiry	August 29, 2014
System	Sunshine Coast Conventional Transit

Expansion Initiatives Agreement
The following outlines expansion initiatives identified for your transit system along with a high level annual costing based on the hourly rates of your system. Please confirm these initiatives are aligned with the expectations of your local government. Upon confirmation of your local government's intent to commit to the expansion and budget, we will proceed with the request to secure funding from the Province on your behalf.

Proposed Expansion Initiatives					
AOA Period	**Annual Hours**	**Vehicle Requirement**	**Estimated Revenue**	**Estimated Total Costs**	**Estimated Net Municipal Share**
15/16	840	1 Light Duty	$3,901	$108,702	$67,489
	Description: Transit Future Plan recommendations to serve Pender Harbour with paratransit style service.				
	200	None	$3,406	$19,027	$6,738
	Description: Service to Chatelech School by amending Route 2				
16/17	6370	6 Medium Duty	$138,051	$829,856	$397,535
	Description: Remainder of Service Priority 1 in Draft Transit Future Plan - Route 90: Express on half hourly frequency on peak, Route 1: Roberts Creek approximately hourly frequency and Route 5: Lower Gibsons approximately hourly frequency				
17/18	0	0	n/a	n/a	n/a
	Description:				

Approval

On behalf of the Sunshine Coast Regional District, I am confirming to BC Transit to proceed with the request for funding to the province on our behalf and that we are committed to budget accordingly as per the advice provided and with the knowledge a more detailed budget will follow as service details are confirmed.

Name _____ Position _____

Signature _____ Date _____

On behalf of BC Transit, prepared by

Name Myrna Moore Position Senior Regional Transit Manager

Signature  Date May 26, 2014

BCTransit
Connecting People and Communities

Implementation Plan Memorandum of Understanding

Date	June 16, 2014
Expiry	June 30, 2014
Work Order ID	ID#14_11, #14_13, #14_27
System	Sunshine Coast Conventional

Introduction

This is an Implementation Agreement that is to be signed for all service changes. The agreement outlines the objectives of the service change and defines the scope of work to be completed.

Objectives and Deliverables

To proceed with the implementation of service change recommended in the Sunshine Coast Transit Future Plan dated January 2014. It also outlines the dates and changes to be completed to meet the Sunshine Coast's regular seasonal schedule adjustments.

Revenue Hours These service enhancements are forecasted to require approximately an additional 2840 annual revenue hours of service

Fleet Considerations These service enhancements will require the addition of 1 Heavy Duty vehicle.

Infrastructure requirements A number of new stops are required for the proposed routing changes. Local government staff will need to work with BC Transit staff to confirm requirements and install signs prior to implementation.

Financial Considerations These service enhancements are estimated to require an increase annually to the local share of costs before revenue of $ 180,000.

Background

The Sunshine Coast Transit Future Plan (TFP) was approved by the SCRD in January 2014. The plan identified a variety of Quick Wins and Short Term Implementation Priorities that were developed in collaboration with the local community and governing bodies and approved as part of the TFP and 3 year expansion budgets presented to the SCRD Board in 2013. Several of the Quick Wins and Short Term Priorities relating to conventional service are due to be implemented in 2014/15 and include:

Service Improvement	Additional Resources		Estimated Long Term Additional Annual Rides
	Vehicles	Estimated Annual Service Hrs	
Quick Win 1: Increase Transit Coverage to West Sechelt	0	340 hours	6,800*
Quick Win 2: Limited Service to the Botanical Gardens	0	Reallocation of deadhead hours	300**
Part of Service Priority 1: Increase frequency between Sechelt and Langdale	1 x heavy duty	2,500 hours	70,000***

Service Priority 2: Improve Connections	0	0	300[+]

* Based upon an estimated 20 rides per hour as per the average of existing Route 2 (22 rides per hour) and Route 4 (18 rides per hour)
** Based upon an estimated 2 rides per hour
***Based upon an estimated 28 rides per hour taken from the existing Route 1 average.
[+]Assumes an additional 1 ride per weekday
[++]Based upon an estimated 22 rides per hour taken from the existing Route 2 average

In addition, the service would continue to address BC Ferries scheduled seasonal changes. The service hours outlined in the TFP would be refined at each stage of implementation following detailed scheduling work. Albeit Service Priority 3: Serve Chatelech School was considered for introduction in 2014/15, this was reliant upon the extension and completion of Cowrie Street from Pilot Way in downtown Sechelt to Granite Road in West Sechelt. This road has not yet been completed, therefore service to Chatelech School will be delayed until later years.

This MOU provides the refined service hours and detailed costs associated with these expansions as they relate to the 2014/15 fiscal year.

Service Changes to be Implemented and Timeline

Based on the Sunshine Coast's regularly scheduled seasonal changes, the following provides an overall outline of dates and general changes to take place:

May 15, 2014: Seasonal Change

- Change of schedule to match ferry schedule changes

June 25, 2014: Seasonal Change & Expansion/Reallocation

- Change of schedule to match ferry schedule changes
- Provide limited service to Botanical Gardens
    - Conversion of deadhead time to in-service time

September 2, 2014: Seasonal Change & Expansion

- Change of schedule to match ferry schedule changes
- Increase frequency on Route 90 to serve North Road
- Improve connections between Routes 2 and 3 and between Routes 2, 4 and 90/1 as part of re-scheduling
- Amend Route 2 and Route 4 as outlined in Quick Win 1 of the Transit Future Plan to better serve West Sechelt

October 14, 2014: Seasonal Change

- Change of schedule to match ferry schedule changes
- Service levels will be consistent with the September 2014 schedule

December 21, 2014: Seasonal Change

- Holiday service, New Year's Eve Service and additional trips to meet ferry schedule changes

Customers Served

- It is estimated that approximately 46,000 additional annual rides will be generated from the expansions for 2014/15 outlined above. This ridership estimate is expected to grow over the long term to over 77,000 additional annual rides.

Areas of New or Deleted Service

- Additional areas of West Sechelt will be served by these expansions

- North Road will receive additional service from these expansions

Timeline

The implementation Timeline for consecutive seasonal changes and expansion are noted above.

Significant alterations to the service changes outlined in this agreement or sign off not occurring by the expiry date could result in delays or a need to re-initiate a new Implementation Agreement and timeline.

Recommendation

That the Sunshine Coast Regional District agrees to the Implementation of Service Enhancements noted in this Agreement and requests BC Transit to proceed with the implementation of service changes within the timeline noted.

On behalf of the Sunshine Coast Regional District

Name _____ Position _____

Signature _____ Date _____

On behalf of BC Transit

Name Myrna Moore Position Senior Regional Transit Manager

Signature  Date June 16, 2014

SCRD STAFF REPORT

DATE: **June 17, 2014**

TO: **Infrastructure Services Committee – July 3, 2014**

FROM: **Rob Williams, Manager of Transit and Fleet**

RE: **BC TRANSIT 2014/15 AMENDED ANNUAL OPERATING AGREEMENT (AOA)**

RECOMMENDATION

THAT the Manager of Transit and Fleet report entitled "BC TRANSIT 2014/15 AMENDED ANNUAL OPERATING AGREEMENT" be received;

AND THAT the Corporate Officer and Chair be authorized to sign the BC Transit 2014/15 Amended Annual Operating Agreement.

At their regular scheduled of May 1, 2014 the SCRD Board approved the signing of the 2014/2015 BC Transit Annual Operating Agreement (AOA). As noted in the corresponding staff report it was outlined that an amended AOA would be forthcoming including the approved 2014 transit expansions. The Amended AOA has now been received from BC Transit with the noted budget changes for the 2014 service enhancements. Again, these figures are included in the 2014 SCRD budget. Staff are recommending that the Corporate Officer and Board Chair be authorized to sign the agreement.

SCRD STAFF REPORT

DATE: June 18, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Tracey Hincks, Administrative Assistant

RE: **BUS PASSES FOR STUDENTS - REFERRAL FROM COMMUNITY SERVICES COMMITTEE**

RECOMMENDATION(S)

THAT the Administrative Assistant's report dated June 18, 2014 titled "Bus Passes for Students - Referral from Community Services Committee" be received for information.

The following recommendation was made at the Community Services Committee June 12, 2014 and added to the agenda for discussion:

Recommendation No. 20 *Bus Passes for Students*

The Community Services Committee recommended that the topic of bus passes for all School District No. 46 students be placed on the July meeting agenda of the Infrastructure Services Committee.

SCRD STAFF REPORT

DATE: **June 24, 2014**

TO: **Infrastructure Services Committee – July 3, 2014**

FROM: **Rob Williams, Manager of Transit and Fleet**

RE: **2015 Ports [345] Funding**

RECOMMENDATION(S)

THAT the Manager of Transit and Fleet's report dated June 24, 2014 titled "2014 Ports [345] Funding" be received for information.

BACKGROUND

The SCRD Board adopted the following resolution at their regular June 12, 2014 meeting:

325/14 **Recommendation No. 3** *Ports Funding*

THAT the Manager of Transit and Fleet's report dated May 22, 2014 titled "2015 Ports [345] Funding" be received;

AND THAT the topic of Ports Funding be brought back to the July Infrastructure Services Committee meeting for further discussion.

The attached Ports Funding report was presented and discussed at the May 22, 2014 ISC meeting. In order to provide the Board more time to consider the information and options the above resolution was made to refer the Ports Funding topic to the July ISC meeting.

SCRD STAFF REPORT

DATE: **May 22, 2014**

TO: **Infrastructure Services Committee – June 5, 2014**

FROM: **Rob Williams, Manager of Transit and Fleet**

RE: **2015 Ports [345] Funding**

RECOMMENDATION(S)

THAT the Manager of Transit and Fleets' report titled "2015 Ports [345] Funding" be received for information;

BACKGROUND

The SCRD Board adopted the following resolution at their regular April 10, 2014 meeting:

224/14 **Recommendation No. 2** *Funding Ports*

THAT the Manager of Transit and Fleet's report dated March 26, 2014 titled "2015 Ports [345] Funding" be received;

AND THAT a report be brought forward to the June Infrastructure Service Committee providing information on Ports funding apportionment options;

AND THAT the report include how funding of extraordinary capital maintenance costs would be addressed.

224/14 **Recommendation No. 3** *Funding Ports – Area B Islands*

THAT the potential for higher funding apportionment to Area B Islands be included in the Funding Ports report for the June Infrastructure Services Committee.

DISCUSSION

Staff were previously asked to bring forward alternate ports funding options in order to help address the ongoing concern over cost controls for the Ports function. At the regular April ISC meeting staff highlighted possible alternate funding options that could be considered. More detail was requested by the Board regarding options. For consistency and ease of financial management it is recommended that the funding allocation for both operating and capital budgets be the same. The table below outlines several possible funding options with noted pros and cons for each option, examples of options 1-3 are also provided.

As a reminder, the Ports service was established by Bylaw No. 1038, which states that the annual cost of providing the service shall be recovered by:

(a) a property value tax to be levied on the net taxable value of land and improvements; and

(b) the imposition of fees and other charges.

Any change to the apportionment of costs would necessitate an amendment to the establishing bylaw which would require, at a minimum, the written consent of 2/3 of the participants and the approval of the Inspector of Municipalities. If the change was a significant departure from what was contemplated when the service was established, the Minister could order that an elector approval process be undertaken.

Ministry staff have previously advised that while apportionment could be based on percentages or population, etc., the method chosen should be clearly defined (transparent), defensible (using some reasonable statistics) and agreed to by the participants.

Funding Model	Operating & Capital Apportionment	Pros	Cons
1. Fixed Apportionment	Area X pays 60% of budget, Area Y pays 30%, Area Z pays 10%, etc.	Clear concise approach and easy to manage.	There may be challenges fairly apportioning %'s.
2. Set Annual Contribution	All Areas pay a set annual contribution based on the total budget, remaining partners cover the balance based on Assessment.	Clear concise approach and easy to manage.	May be too arbitrary/subjective and not apportion costs fairly.
3. Budget Allocation based on Various Factors	A total budget allocation based on %'s of different factors such as property assessment, population, number of ports in each area, etc.	Considers multiple factors in apportioning costs.	Complicated and challenging to manage.

The following outlines examples of funding options 1 and 2 using current 2014 operating budget figures with the new funding method illustrating the financial impact to each funding partner. The examples do not include annual capital maintenance funding or extraordinary capital expenditures. The allocations noted are based on a user pay approach where those with docks in their area pay a higher % of the costs. The examples are for illustration purposes only and, therefore, the Board may adjust the allocation figures and percentages as deemed necessary.

Example #1 – Fixed Apportionment

Item	Area B (20%)	Area D (10%)	Area E (10%)	Area F (60%)	Total Tax Req (100%)
New Funding Model	$38,051	$19,026	$19,026	$114,152	$190,255
2014 Budget	$55,103	$38,968	$29,178	$67,006	$190,255
Variance	-$17,052	-19,942	-$10,152	$47,146	$0

Example #2 - Set Annual Base Contribution by all Areas + Remainder by Assessment to Areas B & F

Item	Area B	Area D	Area E	Area F	Total Tax Req
New Funding Model	$65,732	$25,000	$25,000	$74,523	$190,255
2014 Budget	$55,103	$38,968	$29,178	$67,006	$190,255
Variance	$10,629	-$13,968	-$4,178	$7,517	$0

It is our understanding that annual capital maintenance and extraordinary capital related budgets (such as additions or improvements) would need to be apportioned using the same formula adopted for the operating budget due to bylaw related restrictions.

While it is understood the short-term goal is to apportion costs more fairly amongst the ports funding partners, we can't lose sight of the overall state and financial status of the function. As discussed at previous SCRD committee meetings, these assets continue to require capital and maintenance repairs to extend their useful life. Recent Board direction has been to only perform emergency or safety related repairs. To prevent asset failure and reduce liability it is essential that the updating of the ports strategic plan be committed to in 2015 in order to provide a long-term sustainable plan for this service. The sustainability of the ports function rests on sufficient annual operating and capital expenditures. It should be noted that the ports capital reserve has a current balance of $229,000 and an operating reserve of $51,000, which is considered low with respect to typical costs associated with major ports repairs as a result of annual engineered inspections, accidents, storms, etc. The total insured value of all 9 ports is $7.3 million dollars.

SCRD STAFF REPORT

DATE: June 19, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Bryan Shoji, General Manager Infrastructure Services

RE: **MANUAL WATER METER READING FEE**

RECOMMENDATION(S)

THAT the General Manager Infrastructure Services' report dated June 19, 2014 titled "Manual Water Meter Reading Fee" be received;

AND THAT staff proceed with the necessary bylaw amendments to include a $25 per read fee, up to a maximum of $300 per annum, to manually read a water meter in place of automatic read meters.

BACKGROUND

The Board adopted the following resolution (in part) at the May 22, 2014, regular Board meeting:

> 316/14 AND FURTHER THAT the meter supply and installation contract for the Pender Harbour Water Metering Project be awarded to Neptune Technology Group with an upset value of $1,331,000 plus GST.

The metering tender included the supply and installation of radio-frequency (RF) read water meters, as per the following Board direction (in part) that was provided after a detailed assessment of the radio-frequency health concerns, operational benefits, and cost benefits (See staff report as Attachment A):

> 328/12 **Recommendation No. 8** *Metering Technology*
>
> AND THAT the SCRD implement Radio Frequency Technology into the rollout of the universal metering program;

The contract is signed and the contractor is preparing to mobilize within the next month.

DISCUSSION

Following the Board decision to proceed with the Pender Harbour universal metering program, the SCRD carried out a comprehensive communications campaign during the month of August 2012 to inform water customers that water meters were going to be installed on every service connection. The results of the campaign and feedback received were found to be generally positive. Details of the campaign and results were presented to the Infrastructure Services Committee on November 22, 2012.

There was very little concern communicated to the SCRD about the RF technology selected for meter reading. Although Health Canada has firmly stated that there are no health concerns related to RF water meter technology, and the fact that the water meters will be installed at property line within a meter box below grade, we are still anticipating some concerns as we proceed to installation. Studies from other water utilities have noted even after customers have been provided with information to address the health concerns, as well as the many safety and conservation related benefits that radio read meters provide to the utility and customer, up to 1% of customers will still opt to have manual read meters installed even with a surcharge to account for the increased operational costs.

The current water service rates and charges bylaw schedules do not have a provision for manual read meter costs. Should the Board wish to provide customers with an option to install a manual read meter in place of an RF meter, it is recommended that a fee be implemented to account for the increased operating costs to manually read the meter and enter the data into the management and billing systems. This fee will need to be formalized in a timely manner so that it could form part of the communication package presented to the customers prior to the meters being installed.

Based on a comparison of fees from other municipalities and an internal estimate of time and labour, a fee of $25 per meter read is considered reasonable for the SCRD system. Other municipalities charge up to $50 per read. Although it is anticipated that the billing frequency would be quarterly at the most, it is projected that the meters will be read at least monthly in order to obtain adequate operational data for both the utility and the customer. This would translate to an annual fee of up to $300 for the manual read meter option.

SCRD STAFF REPORT

DATE: **August 22, 2012**

TO: **Infrastructure Services Committee – September 6, 2012**

FROM: **Monte Staats, Engineering Technician**

RE: **WATER METERING TECHNOLOGY**

RECOMMENDATION

THAT the Engineering Technicians report entitled "Water Metering Technology" be received for information;

AND THAT the SCRD implement Radio Frequency Technology into the rollout of the universal metering program.

BACKGROUND

The following resolution (in part) was adopted at the July 12th, 2012, Regular Board meeting:

276/12 **Recommendation No.4** *Water Metering Communications*

AND FURTHER THAT a decision on the *meter technology* for the meter system be decided as soon as feasibly possible.

DISCUSSION

This report provides a background on water meters and discusses water meter technology options, health implications associated with Radio Frequency meters, and fiscal implications for the Pender Harbour water system in the interim and ultimately for the Regional water system.

Brief Background on Water Meters

A water meter is a device used to measure the volume of water usage from a particular user. Typically, water meters, along with their batteries, have a 20 year lifespan. Installation usually occurs in a meter box at the property line or in a building (home or commercial unit). The Sunshine Coast Regional District's (SCRD) current practice is to install meter boxes at property lines.

Meter Reading Technology Options

There are two general meter reading technology options used to collect consumption, diagnostic and status data for water users: Touch technology and Radio Frequency (RF) technology. Both technologies are described below followed by metering examples from other water suppliers and a brief case study on universal metering in the City of Kamloops.

Touch Technology

With Touch technology, water meter data is collected from the meter by physically touching a read probe, or wand, in close proximity to a reading coil enclosed within the touchpad. Once the 'touch' is made, the probe is triggered to send a signal to the touch module to collect the meter data.

Radio Frequency (RF) Technology

With RF technology, data is transmitted via RF pulses (typically, 0.007 seconds every 14 seconds) using frequency-hopping, spread-spectrum technology, which is a method of transmitting radio signals among several frequency channels. These meters broadcast on frequencies at approximately 900 MHz. For every 24 hour period, a total of 60 seconds of RF is transmitted. Data transmitted by RF can be received by:

> **Handheld Devices:** "walk-by" devices can read meters up to 2 km away (depending on line of site) at a maximum speed of approximately 30km per hour. No vehicle upgrades are required.
>
> **Mobile Devices:** "Drive-By" devices can read meters up to 5 km away at a speed of approximately 80km per hour. These devices require a kit that can be installed into any vehicle.
>
> **Fixed Networks:** Fixed devices are permanently installed at a central location to capture meter readings. This report does not consider fixed network technology due to the Sunshine Coast's challenging topography.

Table 1: Meter technology examples from other water suppliers

Touch	Radio Frequency (RF)
Town of Gibsons Points: 550 Read time: 6 Person Days	**Town of Gibsons** Points: 750 Read device: Handheld Time to read: 3 Hours
Corporation of Delta Points: 1500 Read time: 8 Person Days	**Corporation of Delta** Points: 2000 Read Device: Mobile Read time: 6 Hours (flat topography)
SCRD Points: 130 Read time: 3 Person Days	**District of West Vancouver** Points: 13,000 Read device: Mobile Read time: 3 Hours (hillside topography)

Case Study – City of Kamloops

The City of Kamloops is currently in the process of implementing universal metering. Both the Touch and RF technologies were considered and the final decision was in favour of the RF meters. One of the factors in the decision to use RF was based on the operational costs to read 20,000 points (number of meters) quarterly. City staff estimated the operational costs for the Touch to be $200,000 per year, while the estimated operational cost for the RF technology was estimated at $5,000 to $10,000 per year.

Health Implications Associated with RF Meters

After reviewing Health Canada's Safety Code, and related health safety standards from the US Federal Communications Commission (FCC), it was concluded that RF water metering technology does not pose a health hazard to Sunshine Coast residents as the meters:

- are typically powered by low voltage DC batteries (lithium) as used in households;
- broadcast intermittently for a total of 60 seconds daily;
- are located at the property line, far enough from the home and residents as to render exposure to RF virtually negligible; and
- transmit RF far below the Health Canada safety limit.

According to Health Canada's Safety Code 6, which is a safety code outlining the limits of human exposure to RF, the level of electromagnetic energy emitted from RF water meter devices is not harmful to humans as exposure will not exceed 6 minutes of constant energy absorption. As stated previously, RF meters broadcast on frequencies at approximately 900 MHz and for every 24 hour period, a total of 60 seconds (0.007 seconds every 14 seconds) of RF is transmitted, which is far less than the acceptable limits outlined by Health Canada. Furthermore, many of the RF meters available are from American companies; therefore, those devices must also be certified under Part 15.247 of the US Federal Communications Commission (FCC), which states that the operation of the device must not cause harmful interference nor accept any interference received, including interference that may cause undesired operation. Also, in order to maintain compliance with the FCC requirements, the antenna and any radiating elements should be installed to ensure that a minimum separation of 20cm is maintained from the general population. As the devices will be situated at property lines and below grade, there is no reasonable likelihood for someone being exposed to RF levels that exceed Canadian or American regulations.

Fiscal Implications

Capital Costs

The upfront capital cost for the RF meters is estimated at approximately $200 more per unit than the Touch meter. This is a high end estimate based on correspondence from two water meter suppliers. Using the $200 additional cost for RF meters, the total additional cost to install RF meters in the Pender Harbour area (approximately 1400 points) is estimated at $280,000. Installing RF meters in the Regional Water Service Area (RWSA) (approximately 9000 points) is estimated to cost an additional $1.8 million. With the RF devices a mobile unit (program software, car kit etc.) would be recommended and is estimated to cost between $15,000 and $40,000 depending on the supplier. For the purposes of this report, the cost the mobile device is not considered a significant influence on the long-term financial implications of the universal metering program, and as such, is nominal relative to the full cost of the project.

Operational Costs

The time required to read RF meters in the Pender Area is estimated to be a maximum of one person day (7 hours), while the time required to read Touch meters is estimated at 15 person days. For the RWSA, it is estimated that it will take 5 person days to read RF meters and 115 person days to read touch meters. The estimated time to read touch meters is based on the time it currently takes the Town of Gibsons to read their touch meters (approximately 90 meters per person day). Note that the SCRD water service area is more rural in nature and spread out than the Gibsons water service area, so read time for touch meters will likely take considerably longer. Refer to the table below for a cost comparison on Touch versus RF.

The cost comparison is based on the following assumptions:

- Labour time will cost $230 per day (7 hours @ $33 per hour & includes benefits)
- All labour costs are based on 2012 pay rates
- With Touch meters, an average of 90 points will be read per day
- With RF meters, an average of 2000 points will be read per day (conservative estimate)
- Meters will be read quarterly for billing purposes
- RF Meters will be read using mobile devices

Table 2: Estimated operational cost comparison

	Touch	Radio Frequency
Pender Harbour (1400 points)		
Person Days to Read	15	1
Quarterly read costs	$3450	$230
Annual Cost	$13,800	$920
Regional Water Service Area (9000 points)		
Person Days to Read	100	5
Quarterly read costs	$2300	$1150
Annual Cost	$92,000	$4600
Total Annual Operational Cost	**$105,800**	**$5520**

Life Cycle Cost Analysis

Although the total upfront capitol cost for the RF meters is approximately $2.08 million more than the touch meters, the total cost (capital and operational) for the RF device over a 20 year lifespan is substantially less. The table below highlights the life time cost savings for RF meters using an inflation rate of 1.5% (low end) and 3% (high end). Note that the cost of fuel and vehicle maintenance is not included.

Table 3: Lifecycle cost comparison

Estimated wage & benefit annual increase	Lifetime operational cost (20 years) Touch	Lifetime operational cost (20 years) RF	Difference	Savings less RF Capital Costs ($2.08M)
1.5%	$2.946 Million	$136,000	$2.81 Million	**$730,000**
3%	$3.452 Million	$160,000	$3.293 Million	**$1.2 Million**

Additional Benefits with Radio Frequency Water Meters

Further to the significantly low operational costs associated with RF meters, additional benefits include:

- Ability to detect leaks, tampering, and backflow;
- Opportunity for water managers to monitor usage and collect consumption data on a regular basis (i.e. taking monthly readings);
- Can easily increase reading frequency to obtain more management data;
- Data can be reconciled and reported on in a more timely manner rather than waiting a number of weeks for all meters to be read (i.e. would not be working from dated data)
- Opportunity to retrofit a vehicle with mobile device so meter reading can be coupled with other job duties that require region wide travel on a regular basis;
- Additional savings on fuel and vehicle maintenance;
- Fewer green house gas emissions from vehicle travel;
- Increased safety because the person reading the meter does not have to leave the vehicle; and
- Meter read vehicles using a mobile device are able to travel at marked speed limits while reading all meters within range (i.e. will not have to slow down in any areas to read).

Conclusion

This report considers the two main options available for water meter technology to be used in the SCRD's universal metering program: Touch and Radio Frequency (RF). RF technology is more commonly being used by other water suppliers in British Columbia due to low operational costs. Based on the estimated fiscal implications, the total costs (capital and operational) over a 20 year lifespan for the RF meters is expected to be at least $730,000 less than that of the Touch pad. Furthermore, RF meter's offer several additional benefits that are not available with the Touch Pad.

With the information provided in this report, it is recommended that the SCRD install mobile read RF meters in pits at property lines at all water service connections as part of the Universal Metering Program for the North Pender area in the interim and ultimately for the entire Regional Water System.

SCRD STAFF REPORT

DATE: June 19, 2014

TO: **Infrastructure Services Committee** – July 3, 2014

FROM: **Beth Brooks, Environmental Technician**

RE: **Review of Forest Practices Board Special Investigation Report on Community Watersheds**

RECOMMENDATION

THAT the Environmental Technicians' report dated June 19, 2014 titled "Review of Forest Practices Board Special Investigation Report on Community Watersheds" be received for information.

BACKGROUND

The Forest Practices Board (FPB) undertook an investigation of community watersheds, identified in the Forest and Range Practices Act (FPRA), to determine if the objectives for water quality, quantity and timing of flow under the community watershed designation are being met. It focused on licensees required under FRPA to have a forest stewardship plan (FSP) (See Attachment A).

Of the 131 designated community watersheds, 48 were considered in this investigation of which 12 were selected for a field assessment. Haslam and McNeill (South Pender Harbour source) were included in the investigation but not field assessed. Chapman Creek watershed was one of those selected for field assessment and is labeled watershed #2 in the report. The field assessments were conducted to determine if the objectives for the community watershed designation under FPRA were in compliance with the forest and range activities on the ground.

The investigation was based on the following seven questions:

1. Is the objective for community watershed and the practice requirement for drinking water quality in the FPPR clear and achievable?
2. Are results or strategies in the FSPs measureable or verifiable, do they provide meaningful content and are they consistent with the community watershed objective?
3. How does government establish consistency between results or strategies specified in an FSP and FRPA's objective for community watersheds?
4. Are licensees complying with FRPA's planning and practice requirements?
5. Are there current or past land use issues within the community watersheds that are affecting elements of FRPA's objective including water quality, quantity or timing of flow?
6. How does government monitor achievement of the community watershed objective?
7. How does government decide which watersheds warrant community watershed designation or delisting?

DISCUSSION

The following is a brief summary of the key findings of the Forest Practices Board investigation.

1. Is the objective for community watershed and the practice requirement for drinking water quality in the FPPR clear and achievable?

Board Findings

Under the Forest Planning and Practices Regulation (FPPR) the Board found "the objective for community watersheds is unclear or too limited in scope". For water quality it applies to water after it has been treated, thereby implying that the focus is more on treatment than source water protection. Section 8.2 (FPPR) states that the "cumulative hydrological effects of primary forest activities" should not negatively impact the quantity, timing of flow to waterworks or introduce substances harmful to human health. Protection of water quality is also included in Section 59, 60 and 61. The Board found that there is not a clear understanding by government staff and forest licensees of what the requirements are to protect drinking water ex. what substances and in what concentration are deemed unacceptable.

Section 12.32 (FPPR) allows for an exemption to the above objective pertaining to "cumulative hydrological effects on water quality affecting human health in community watersheds" if the licensee submits a plan that contains results and strategies for the community watershed. The Board found that government staff and licensees did not have a clear understanding of the exemption.

2. Are results or strategies in the FSPs measureable or verifiable, do they provide meaningful content and are they consistent with the community watershed objective?

Board Findings

Licencees must propose a result or strategy for the community watershed objective; licencees can commit to complying with given practice requirements. 47 FSPs were examined; 3 of these were not included in the analysis because they did not include results or strategies for the community watershed objective. Of the 44, 26 were found to include results and strategies for the community watershed objective that were measurable or verifiable, 14 partially measureable or verifiable, and 4 not measurable or verifiable.

3. How does government establish consistency between results or strategies specified in an FSP and FRPA's objective for community watersheds?

Board Findings

In the FSP approval process government staff consider other factors if the results and strategies proposed are not fully consistent with the community watershed objective (cumulative effects, water quality, water quantity and timing of flow) as defined under FRPA and FPPR. "Results or strategies are not necessarily required to be consistent with each element of the objective, but rather with the objective as a whole."

As an example the FSP may commit to completing a hydrological assessment but does not provide a clear definition of what that assessment includes and whether the result is measureable or verifiable; government staff will make assumptions about what is required to complete the assessment based on personal experience. Other factors that are considered include the licencees past performance, current activities and information from submitted documentation.

4. Are licensees complying with FRPA's planning and practice requirements?

Board Findings

A total of 31 professional assessments were completed as not all licencees were required to complete an assessment based on their FSP. The government does not review or approve the assessment but only verifies it has been completed when required. The Board provided two analyses of the completed assessments i) overview from the entire sample group and ii) detailed analysis for the field verified sample group of 12 watersheds (including Chapman Creek).

Given that there is no clear definition of a "professional assessment" in the regulations the Board found a wide range of content. 6 of the 31 made reference to cumulative effects, water quality, water quantity and timing of flow and impacts to the licensed waterworks. Most included content on peak flows, surface erosion, channel conditions and riparian condition but did not relate these to the requirements or impacts to the licensed waterworks.

Assessment of Chapman Watershed

The Chapman Watershed was not identified as having non-compliant or unsound practices during the field assessment. The practice requirements assessed that apply to community watersheds were "i) enhanced riparian retention for streams, lakes, wetlands ii) ensure drinking water not affected by sediment from trails iii) road distance from spring >100m iv) no fertilizer use near waterways or waterworks v) correct culvert and bridge size for peak flow and vi) notification of water purveyors." The practice requirements assessed that apply for watersheds were "i) prevent landslides ii) maintain natural surface drainage iii) protect drinking water quality iv) protect licensed waterworks and v) build, maintain or deactivate roads."

5. Are there current or past land use issues within the community watersheds that are affecting elements of FRPA's objective including water quality, quantity or timing of flow?

Board Findings - Assessment of Chapman Watershed

Sedimentation, streamflow and hydrogeomorphic hazards were assessed for their risk to water quality, water quantity, timing of flow, and infrastructure of licensed waterworks.

In its current condition the sedimentation hazard for Chapman Watershed was found to be moderate to high; land use was given a high rating for contributing to sedimentation. Streamflow hazard was high; land use was given a low to moderate rating for contributing to stream flow. The natural terrain is attributed to the high rating for streamflow. Hydrogeomorphic

hazard is rated as high; land use was given a high rating for contributing to the likelihood of an event that would damage or destroy water intakes and treatment infrastructure.

6. How does government monitor achievement of the community watershed objective?

Board Findings

The Forest and Range Evaluation Program (FREP) is used to evaluate forest and range practices. Since this monitoring does not specifically apply to drinking water quality or community watersheds the government does not have a way to evaluate if the requirements under FRPA are sufficient to meet the objective for community watersheds i.e. to protect water quality, water quantity and timing of flow.

7. How does government decide which watersheds warrant community watershed designation or delisting?

Board Findings

Interim draft guidelines to designate, amend or cancel a Community Watershed were published in 2008 (the SCRD is currently investigating if these draft guidelines are still applicable in order to obtain the Community Watershed designation for Garden Bay Lake and Hotel Lake).

CONCLUSION

The FPB concluded that there are issues with the requirements of FRPA and FPPR meeting the community watershed objective. In the reviewed FSPs the results and strategies required for community watersheds were not included or were insufficient in detail to be measurable. Since there is no clear framework or scope for professional assessments, the assessments did not refer back to the objectives for community watersheds, include content committed to in the FSP and/or determine cumulative hydrological effects.

Under section 131(2) of FRPA the Forest Practices Board has submitted their report with their recommendations to the government and the Association of BC Forest Professionals and Association of Professional Engineers and Geoscientists of BC, requesting an implementation timeline by October 1, 2014.

Chapman Creek

The high rating for the sedimentation, streamflow and geomorphic hazard indicates there are areas of concern in the Chapman Creek watershed. The Ministry of Forest, Lands and Natural Resource Operations (Ministry of Forests) has invested a significant amount of time and effort to rehabilitate and decommission roadways on the west side of Chapman Creek. The Chapman Creek Source Assessment Response Plan has identified hazards to water quality and quantity from forestry activities and provides action items to undertake to reduce the risks.

Forest Practices Board

Community Watersheds: From Objectives to Results on the Ground

Special Investigation

FPB/SIR/40

April 2014

Table of Contents

Board Commentary

Community watersheds are regulated by government under the *Forest and Range Practices Act* (FRPA) because special forest management is required to protect the quality and amount of water available to users who rely on it for drinking. The findings of this investigation suggest that the designation of community watershed is inappropriate in some watersheds, and where it is warranted, the protection provided is inadequate.

The investigation found issues at all levels of the FRPA framework, from objectives through to practices on the ground, and the Forest Practices Board (the Board) has made recommendations on how these issues could be addressed. However, FRPA does not regulate users of community watersheds other than forest and range licensees. Currently, it is only those FRPA licensees required to have forest stewardship plans that are involved with assessing the risks to drinking water associated with forest development. Clearly, a more integrated approach to drinking water protection in community watersheds is required.

The Board does not believe that it is a lack of policy and legislative planning tools that limit government's ability to take such an integrated approach. Many planning tools already exist in a number of provincial statutes (e.g., FRPA and the *Drinking Water Protection Act*) and we understand that new planning tools are included in the proposed *Water Sustainability Act*. Government needs to commit the necessary resources to move ahead with a more integrated approach to planning in community watersheds, especially where watersheds are at risk, and ensure that recommendations in those plans are fully implemented within a reasonable timeframe.

Finally, as seen in this investigation and other Board audits, most licensees are meeting or exceeding requirements for retention in riparian areas—areas adjacent to streams, lakes and wetlands, which are vital for the protection of drinking water and many other values. The Board believes that a culture of good riparian protection is now entrenched in forest management. The Board encourages all parties with responsibilities in road construction, maintenance and deactivation to foster a similar culture for the management of sediment and source water protection. We believe this could yield significant benefits to water quality.

Executive Summary

Drinking water is of paramount concern to British Columbians. Government regulates the safe and reliable supply of drinking water primarily under the *Drinking Water Protection Act.* However, additional laws are in place to protect drinking water while carrying out activities like mining, forestry, range use and oil and gas development on Crown land. The law that regulates forest and range activities on Crown land is called the *Forest and Range Practices Act* (FRPA).

In the FRPA legislation, government sets rules that apply to all forest and range activities on the ground. Most harvesting in the provincial forest is conducted by licensees with a government approved forest stewardship plan (FSP). In the FSP, licensees propose results or strategies consistent with government's objectives.

This special investigation is about how well forestry and range use provides for the protection of drinking water as required under FRPA. The investigation focuses on how the requirements for drinking water are being met in a sample of 466 designated areas, referred to as community watersheds. These areas are designated because government decided the watersheds require special forest management for the protection of drinking water.

The investigation sampled 48 of the 131 community watersheds where some amount of forest harvesting has occurred under FRPA. Investigators examined how each forest licensee working in those watersheds and required to have an FSP, addressed government's community watershed objective and followed through with the commitments in their plans. In 12 of the 48 watersheds in the sample, investigators field-assessed watershed condition and determined whether forest and range practices complied with rules on the ground. In this investigation, the Board also explored whether the legislation provides clear direction to forest and range users; whether government is monitoring forest and range practices on the ground; and how government decides which watersheds need special forest management.

The Board's investigation found several significant weaknesses and some positive aspects in how drinking water is protected in community watersheds.

Clarity of FRPA's requirements and approval of forest stewardship plans by government

- Some legal requirements for the protection of drinking water in FRPA are too limited in scope or unclear.
- When government approved the FSPs examined in the 48 sample watersheds, it did not always ensure the content of the plans related to community watersheds met the requirements of FRPA. For instance, 3 of the 47[1] approved FSPs examined did not address the community watershed objective. Also, not all commitments made in the plans were measurable or verifiable as required. This means it may be difficult for government to enforce adherence to these commitments.

[1] There were 47 FSPs that applied to the 48 community watersheds in the sample.

Commitments made in forest stewardship plans

- Most forest licensees retained a professional to complete some type of watershed assessment prior to harvesting or road construction. However, deficiencies were identified in those professional assessments. Of the 31 assessments in the Board's sample: 11 did not follow the content for the assessment as described in the FSP; 26 considered, to varying degrees, the hydrological effects of FRPA and pre-FRPA forest activities over the entire watershed; and only 6 considered the potential effects of planned forest development on water quality, quantity or timing of flow in relation to the licensed waterworks—key elements of the community watershed objective.
- Investigators found most results and strategies provided meaningful content because they were intended to assess hydrological responses associated with planned forest harvesting. However, for 41 of 44 FSPs, [2] the results or strategies were not sufficiently detailed for investigators to conclude if they were consistent with the community watershed objective.

Compliance with drinking water-related practice requirements[3] on the ground (field sample of 12 community watersheds)

- Investigators found that woodlot licence holders and range agreement holders met the requirements of the legislation.
- Forest licensees[4] met the requirements to retain buffers adjacent to streams, lakes and wetlands, and to provide water licensees with at least 48 hours notice of planned road construction or deactivation. However, on forest roads, investigators observed little evidence of measures to minimize erosion and control sediment deposition into streams. In 3 of 12 watersheds, investigators found those practices to be unsound. In 4 of 12 watersheds, licensees did not meet all of the requirements that provide for protection of drinking water quality, including prevention of landslides, road maintenance and maintenance of natural surface drainage patterns.

Monitoring achievement of the community watershed objective

- While, government has a program to monitor water quality, it does not specifically monitor the effectiveness of forest and range practices to protect drinking water quality generally or in community watersheds.

Designation of community watersheds and use for drinking water

- Government has draft guidelines for designating or delisting community watersheds. Since 2004, six community watersheds were designated and one was delisted.
- In 16 of the 48 community watersheds, the source of drinking water has changed from a stream to a well or lake. Of the 16 community watersheds, 7 still maintain the stream intake as an emergency back-up supply.

[2] Three of the 47 FSPs did not include results or strategies as required, therefore, the 3 FSPs were not part of the analysis.
[3] Practice requirements are rules that forest and range licensees must meet on the ground.
[4] In this report, a forest licensee refers to a licensee required to have a FSP before commencing forest activities.

In 7 of the 12 community watersheds that were field-assessed, the condition of the watersheds is being affected primarily by pre-FRPA forest harvesting and, to a lesser extent, FRPA-related activities and other land uses like mining, activities on private land and recreation, such as off-road vehicle use.

The special investigation has identified several weaknesses in FRPA and how it is being implemented by forest licensees. Issues related to the requirements of FRPA, approval of FSPs, monitoring of drinking water and plans and practices undertaken by licensees were identified. Together, these issues have the potential to compromise the effective achievement of government's objective for community watersheds.

The Board makes recommendations to:

- strengthen FRPA's requirements for the protection of drinking water;
- strengthen the content and approval of FSPs;
- ensure the content of professional assessments is meaningful;
- monitor the protection of drinking water; and
- update the status of community watersheds.

Introduction

Purpose

A safe and reliable supply of drinking water is of paramount concern to British Columbians and is often the subject of public complaints to the Board.

The water we rely on for drinking originates in thousands of watersheds located across the province and most of those watersheds occur on Crown land, which is available for a variety of activities including forestry, range use, mining and recreation. For some land uses, the activities are regulated and some may include requirements that provide for the protection of drinking water. Government regulates forestry and range use on Crown land under the *Forest and Range Practices Act* (FRPA). The legislation includes requirements that directly or indirectly provide for the protection of drinking water, including in specially designated areas identified as community watersheds.

This investigation examines how drinking water is being protected in community watersheds under FRPA's requirements for forest and range activities. For planning, the investigation focuses on forest licensees that are required under FRPA to have a forest stewardship plan (FSP) (most harvesting on Crown land in BC is done under an FSP). This is because only licensees required to have an FSP must propose and carry out results or strategies consistent with government's objectives as stated the *Forest Planning and Practices Regulation* (FPPR) (the community watershed objective is described on page 8 of this report). For practices, the investigation examines all forest and range activities on the ground.

The Board has previously audited forest and range practices in individual community watersheds. However, this investigation is the Board's first comprehensive, province-wide examination of forest planning and practices in these areas. As such, this investigation of community watersheds is intended to provide further insight into how FRPA functions toward achieving good stewardship of our forest and range lands in community watersheds.

Specifically, the investigation examines the following seven questions:

1. Is the objective for community watersheds and the practice requirement for drinking water quality in the FPPR clear and achievable?
2. Are results or strategies in FSPs measurable or verifiable, do they provide meaningful content and are they consistent with the community watershed objective?
3. How does government establish consistency between results or strategies specified in an FSP and FRPA's objective for community watersheds?
4. Are licensees complying with FRPA's planning and practice requirements?
5. Are there current or past land use issues within the community watersheds that are affecting elements of FRPA's objective including water quality, quantity or timing of flow?
6. How does government monitor achievement of the community watershed objective?
7. How does government decide which watersheds warrant community watershed designation or delisting?

Approach to the investigation

Investigators examined forest planning in a representative sample of 48 community watersheds out of the 131 community watersheds (i.e., 37 percent) where forest harvesting or road construction has occurred under FRPA (the sample also represents 10 percent of the total 466 community watersheds located across the province) (see Figure 1). For each community watershed, investigators examined the results or strategies in FSPs and, when applicable, the content of professional assessments. In 12 of the 48 community watersheds, investigators field-assessed watershed condition, compliance with FRPA's requirements and made observations of other land uses on Crown and private land.[5] Investigators also interviewed government staff that had current or prior knowledge about community watershed management, government staff responsible for reviewing and/or approving FSPs, forest licensees and water purveyors obtaining water from community watersheds.[6]

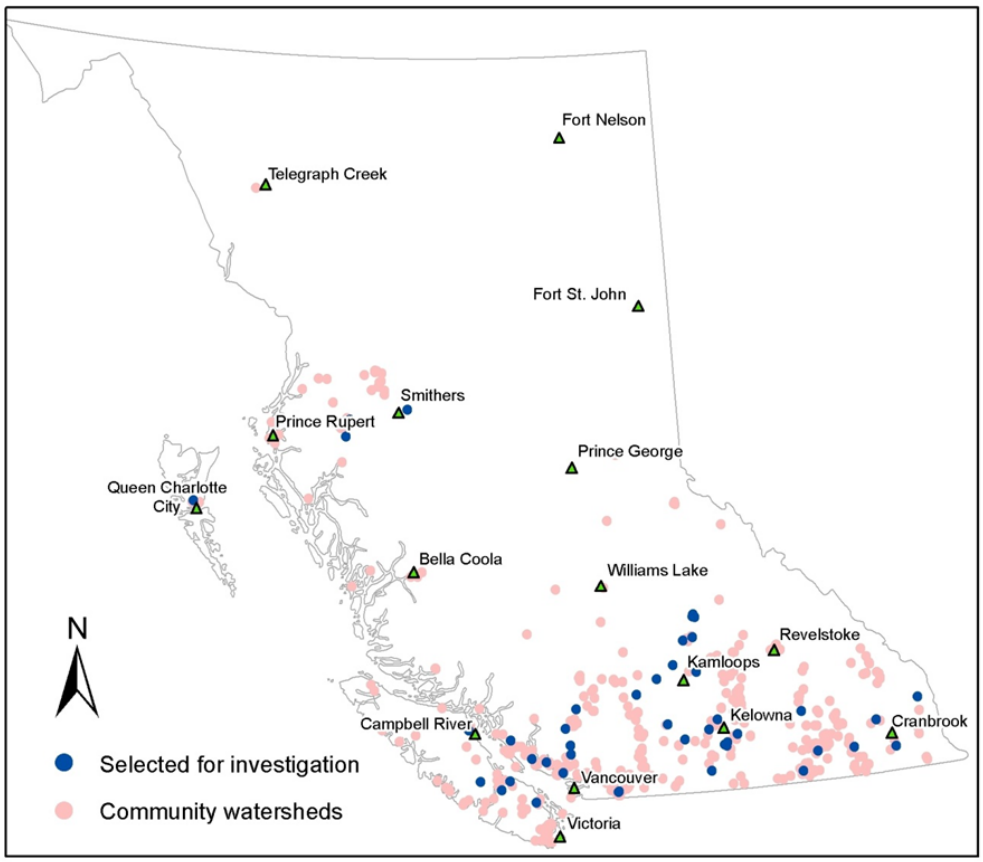

Figure 1. Location of all 466 community watersheds in British Columbia and the location of the 48 community watersheds selected for the investigation.

[5] While investigators observed non-forestry land uses in the 12 field-assessed community watersheds (e.g., private land used for agriculture, residential development or other similar uses), they did not examine whether the land uses are impacting water quality, quantity or timing of flow.

[6] Appendix 1A includes criteria used to select the sample of 48 community watersheds and the 12 watersheds selected for the field assessment. Appendix 1B names the watersheds selected for the investigation and the location and size range of community watersheds provincially. Appendix 2 provides a detailed description of the methods used to carry out the investigation.

Background

How is drinking water regulated in BC?

There are more than 12 different laws in BC that regulate or enable the regulation of water on Crown or private land. Two of the primary laws are the *Drinking Water Protection Act* (DWPA) and the *Water Act* (WA). The DWPA provides the regulatory authority to set requirements for drinking water quality and the WA[7] regulates the allocation of water for various uses. Other laws are in place to regulate various land uses, such as mining, forestry and oil and gas development, which often include requirements to protect drinking water.

The law that regulates forest and range activities on Crown land is called the *Forest and Range Practices Act* (FRPA). The requirements of the legislation that directly or indirectly provide for the protection of drinking water in community watersheds are the focus of this investigation.

What is a community watershed and how many are there?

A community watershed is a watershed grandparented into FRPA (from the former *Forest Practices Code*) or established under FRPA because government has decided that special forest management is required in the watersheds to protect water used for drinking.[8]

When FRPA was enacted in 2004, all 461 community watersheds designated under the former *Forest Practices Code*, were brought under the legislation. Since 2004, 6 new community watersheds have been designated and 1 has been delisted (see Appendix 4). Currently, there are 466 community watersheds provincially with a total area of 1 413 543 hectares, or about 1.5 percent of the total area of the province (see Figure 1 on page 5).

What land uses are permitted in community watersheds?

About 26 percent of the roughly 1.4 million hectares of total land area in BC's 466 community watersheds is private land,[9] reserve or treaty area lands held by First Nations, or provincial and federal parks and reserves. The remaining 74 percent (1 million hectares) is provincial Crown land available for a variety of tenured and non-tenured land uses including forestry, mining and recreation.[10] Currently, there are more than 1500 non-forestry tenures granted under the *Land Act*, *Range Act* and *Mineral Tenures Act*, with 18 different purposes, that overlap the 466 community watersheds.

[7] The WA will be replaced by the *Water Sustainability Act*, which was given second reading on April 1, 2014.
[8] A community watershed is not the same as a domestic watershed. A domestic watershed is used to describe any watershed in BC that provides drinking water, but is not designated as a community watershed.
[9] Of the 466 community watersheds, 42 have more than 90 percent of the land area in private land and 24 of those watersheds are 100 percent private land. Seventy-one community watersheds have more than 40 percent of the land area in private land. FRPA does not apply to private land, unless the land is included in a tree farm licence or woodlot licence.
[10] For a few community watersheds, like Capilano and Seymour in the lower mainland, the land is owned by municipalities or is Crown land subject to 999-year lease agreements (this type of lease is no longer granted). In these watersheds, the owners or lease holders have exclusive rights to the land base and restrict land uses because the sole purpose of the land is to provide drinking water for users.

How much forest harvesting has occurred in community watersheds?

Of the current 466 community watersheds, 295 had harvesting activity prior to their designation in 1995 (under the Forest Practices Code) (see Table 1). The amount of forest harvesting that took place in those 295 watersheds, prior to 1995, accounts for almost 70 percent of the total area harvested in community watersheds (the remaining 30 percent of area harvested occurred between 1995 and 2012). Under FRPA, Crown land forest harvesting has occurred in 131 of the 466 community watersheds. However, about half of the area harvested was in 10 community watersheds.[11]

Table 1. Number of community watersheds with forest harvesting from 1950 to present.

Period	Event	Community Watersheds with Forest Harvesting
1950-1994	Prior to community watershed designation	295
1995-2005	Forest Practices Code era	183
2006 to present	FRPA era[12]	131

How can forest and range activities affect water used for drinking?

The disturbance of forest by harvesting, roads, fire, insects or disease can result in a variety of hydrological effects within a watershed. Depending on site conditions, this disturbance can alter the amount of snow accumulation, the infiltration of rainfall and the rate of snowmelt. In some cases, high rates of disturbance can result in channel erosion, debris flows and floods, which affects the quality, quantity and timing of water reaching the intake where it is diverted for human consumption. Although a variety of forest disturbances can affect watershed hydrology, forest licensees can only control forest harvesting and access roads.

Water quality can also be affected by fine sediment, mostly from forest roads but also from natural sources. When sediment enters a stream, the water becomes turbid, increasing the risk that pathogens[13] from wild and domestic animals (e.g., livestock) and human sources will attach to the sediment particles. When water from the watershed reaches the intake, it must be treated so it is safe for human consumption. If the water is highly turbid, the treatment of water through ultraviolet light, chlorination and/or filtration is less effective.

Range use has the potential to affect water quality in two ways. Livestock use can damage riparian vegetation and stream banks, reducing the effectiveness of riparian areas to filter water and causing erosion. Livestock can also cause pathogens to enter streams from fecal matter. If the pathogens are carried downstream to the intake, it can compromise the quality of drinking water.

[11] The majority of the harvesting in the 10 watersheds was likely undertaken to salvage pine beetle affected trees.
[12] Although FRPA had legal effect in 2004, most forest licensees did not transition to the new legislation until 2006.
[13] Human pathogens are micro-organisms like viruses, bacteria and protozoa that pose risks to human health.
Source: Ministry of Health, *Drinking water treatment objectives (microbiological) for surface water supplies in British Columbia*, Version 1.1, November 2012 (document available for download at: http://www.health.gov.bc.ca/protect/dw_treatment-objectives.html).

What are FRPA's requirements for the protection of drinking water in community watersheds?

FRPA's requirements for the protection of drinking water vary by the activity (i.e., a forest practice or a range practice), and by the type of licence. For example, forest licensees who must prepare an FSP have different requirements than forest licensees who hold a woodlot licence. Some requirements may only apply to community watersheds while others may apply generally to all watersheds. Each activity has rules contained in a applicable regulation, including objectives and practice requirements for various values.[14] The objectives define what government wants to achieve for the protection of specific values and the practice requirements are rules that must be followed on the ground.

The FSP must address each of government's objectives,[15] including an objective for community watersheds. To do this, licensees write commitments in their plans referred to as results or strategies. All forest licensees, including those not required to have an FSP, must follow the applicable practice requirements.

1. Community Watershed Objective

The objective in section 8.2 of the FPPR that applies to the Crown forest landbase (if present) in 460 of 466 community watersheds is to (paraphrased):

> Prevent the cumulative hydrological effects of primary forest activities[16] within the community watershed from resulting in:
>
> a) a material adverse impact on the quantity of water or the timing of the flow of the water to the licensed waterworks,[17] or
>
> b) the water from the licensed waterworks having a material adverse impact on human health that cannot be addressed by water treatment required under
>
> (i) an enactment, or
>
> (ii) the licence pertaining to the waterworks.

The objective applies to the extent that it does not unduly reduce the supply of timber from British Columbia's forests (the objectives that apply to 6 of 466 community watersheds can be found in Appendix 4).

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[14] These regulations include the *Forest Planning and Practices Regulation* (FPPR), the *Woodlot Licence Planning and Practices Regulation* (WLPPR) and the *Range Planning and Practices Regulation* (RPPR).

[15] The objectives are in the FPPR and may also be designated under the *Government Actions Regulation* (GAR), other objectives established as higher level plan orders under the Forest Practices Code (and transitioned to FRPA), objectives under the *Land Act* and, on Haida Gwaii, objectives established by the Haida Gwaii Management Council. For about half of the objectives in the FPPR, licensees can include results in their FSPs or strategies to address the objective or they may chose to follow specific practice requirements.

[16] The FPPR defines a 'primary forest activity' as timber harvesting, silviculture treatments or road construction, maintenance and deactivation.

[17] FRPA defines a licensed waterworks as a water supply intake or water storage and delivery infrastructure that is licensed under the WA or authorized by an operating permit under the DWPA. The definition excludes a well serving one household or a surface water diversion for human consumption, where no WA licence has been obtained by the user.

2. Practice Requirements

For FRPA licensees and agreement holders, there are practice requirements that directly or indirectly provide for the protection of drinking water and some rules only apply to community watersheds (requirements that apply to forest licensees can be found in Table 3, page 18).

The primary practice requirement for the protection of drinking water is contained in section 59 of the FPPR.[18] This rule requires forest licensees to ensure that practices do not cause material harmful to human health to be deposited in, or transported to, water that is diverted for human consumption by a licensed waterworks (e.g., petroleum products, fertilizers). Under section 60(1), forest licensees must also ensure their practices do not cause damage to a licensed waterworks. Both requirements apply to all 'licensed waterworks', whether or not they are located within or outside a community watershed.

Findings and Observations

The findings are organized according to the seven questions examined in the investigation (see page 4).

Is the objective for community watersheds and the practice requirement for drinking water quality in the FPPR clear and achievable?

All laws, including FRPA and its regulations, should be sufficiently clear that those who are subject to the laws know what is expected of them. Board investigators examined government's objective for community watersheds and the primary water quality practice requirement in the FPPR to assess if they are sufficiently clear and achievable.

Findings and Observations

Investigators found the FPPR's objective for community watersheds, the exemption conditions and the water quality practice requirement, are too limited in scope or unclear. As it pertains to water quality, the objective only applies after the water is subject to treatment (if treatment is required), which implies more emphasis is placed on treatment than source water protection. Also, the primary drinking water practice requirement does not necessarily include sediment as material harmful to human health.

Government's objective for community watersheds

The following observations were made about the interpretation or implementation of government's objective for community watersheds:

1. The objective is to limit the cumulative hydrological effects of primary forest activities within community watersheds. Along with an objective for fish habitat that applies in most fisheries sensitive watersheds, they are currently the only objectives established under FRPA that require cumulative effects to be considered.

[18] Section 47 of the *Woodlot Licence Planning and Practices Regulation* (WLPPR) and section 33 of the RPPR include a similar practice requirement for the protection of drinking water quality.

FRPA requires forest licensees operating under an FSP to achieve the results and carry-out the strategies within a forest development unit,[19] which in some cases might only be a portion of a community watershed. Forest licensees told investigators they believe the context of how the term cumulative is used in the objective, requires them to only consider cumulative effects of primary forest activities to the area of the forest development unit within the community watershed. The Board believes this interpretation is too narrow and is not consistent with government's intent for addressing cumulative effects of primary forest activities *within community watersheds* or with conventional approaches for addressing cumulative effects at the watershed scale.

1. The objective applies to water quality "from" the waterworks and water quantity and timing of flow "to" the waterworks.[20] It is unclear what government intended by setting the objective of water quality "from" the waterworks. The result, however, is the objective seems to emphasize water treatment at the waterworks instead of source water protection. In other words, if the objective stated "to the waterworks" there would be an implied emphasis on protecting source drinking water before it reached the waterworks.

2. The objective is limited to circumstances where "…water is *being* diverted for human consumption…" However, information obtained from holders of licensed waterworks in several sample watersheds confirms they have identified an alternate source of water, but wish to retain the water licence and infrastructure as an emergency back-up (see page 24). As the water is not currently *being* diverted, it raises the question of whether government intended for the objective to apply in situations where the water may be used for drinking water at some point in the future.

Conditional exemption to the drinking water quality related practice requirements

For government's objective for community watersheds, the following exemption to the practice requirements is provided (section 12.32 FPPR, paraphrased):

> An agreement holder who is required to prepare a forest stewardship plan is exempt from sections 59, 60(2) and 61 as they pertain to *cumulative hydrological effects* on water quality affecting human health in community watersheds…

Through the course of this investigation, Board investigators spoke with government staff and licensees about the exemption. Most were unclear about the meaning or intent of the exemption or how it would apply when conducting forest practices. The uncertainty stems from the fact that sections 59, 60(2) and 61 of the FPPR make no reference to *cumulative hydrological effects*.

[19] A forest development unit (sometimes referred to as an FDU) is an area identified in a FSP where the holder may undertake forest development activities. The term is defined in the FPPR.

[20] It should be noted that the GAR order establishing water quality objectives for the Mellott Creek community watershed, and the practice requirement in the WLPPR (section 58.1) include the wording "….a material adverse impact on the quantity of water or the timing of flow of the water *from* the licensed waterworks ….". This wording is also problematic because a reliable quantity of water and timing of flow is required *to* the licensed waterworks, not *from* the waterworks.

Protection of drinking water quality practice requirement

Some government staff and forest licensees told Board investigators they are unsure about the meaning of the FPPR's requirement to protect drinking water (section 59). For example, they are not certain about which substances, and in what concentration, are deemed to be harmful to human health and whether the harmful substance must reach the intake to be non-compliant.

Most forest harvesting involves the construction of new or upgraded access roads and can create soil disturbance within cutblocks. Often, access roads and cutblocks cross, or are situated adjacent to, streams, lakes and wetlands, increasing the risk that sediment from the exposed soils will enter waterways, particularly during rainfall events. If sediment reaches the intake of a licensed waterworks, it has the potential to affect drinking water quality. But it is not the sediment itself that is particularly harmful to human health; rather, it is the human pathogens that can adhere to sediment particles and be transported to the intake that are harmful. Sediment does have the potential to disrupt or overload drinking water treatment processes such as filtration, chlorination and ultraviolet light.

Although sediment is likely the most common risk to drinking water quality that can be caused by forestry operations,[21] the section 59 requirement is not contravened unless the sediment contains human pathogens and is likely to reach the intake. Investigators identified numerous instances where sediment was being deposited into streams (see pages 17-19), but did not try to establish whether the sediment contained pathogens harmful to human health.

The Board believes the issues with the community watershed objective and primary drinking water quality practice requirement have the potential to compromise the protection of drinking water quality and, to a lesser extent, the quantity and timing of flow to the licensed waterworks.

Are results or strategies in FSPs measurable or verifiable, do they provide meaningful content and are they consistent with the community watershed objective?

FRPA's Requirements

To be approved, results or strategies in an FSP must be measurable or verifiable and consistent with the objectives. There are some exceptions. For about half of the objectives in the FPPR, licensees can chose to propose a result or strategy or, may commit to complying with certain practice requirements. The community watershed objective is one of the objectives where forest licensees must propose a result or strategy.

The requirement to be consistent with the objectives is particularly important in the results-based framework of FRPA. This is because licensees are not required to achieve government's objectives, rather, they are required to implement results or strategies in their FSPs which, once approved, are deemed by government to be consistent with the objectives.

[21] If not properly managed, chemicals used in forest operations, like herbicides and fertilizer, may affect water quality.

Findings and Observations

There were 47 FSPs applicable to the 48 community watersheds in the sample. Of the 47 FSPs, 3 did not include a result or strategy for the community watershed objective as required and should not have been approved by government.[22] As a result, these 3 FSPs could not be included in the analysis of results and strategies. Table 2 includes the findings of the Board's assessment of results and strategies in the 44 FSPs examined.

Results or strategies in FSPs that apply within the Okanagan Shuswap district.

The investigation did not include a formal comparison of FSP results and strategies between MFLNRO districts. However, Board investigators did observe that FSPs for licensees operating in the Okanagan Shuswap District contained results or strategies for community watersheds that were consistently measurable or verifiable.

Table 2. Assessment of results and strategies in FSPs for the community watershed objective**.**

Results or strategies	Number of FSPs (total = 44)
Measurable or verifiable	26
Partially measurable or verifiable (see footnote for example)[23]	14
Not measurable or verifiable (see footnote for example)[24]	4

For 43 of the 44 FSPs, licensees included a result or strategy that commits to having a professional complete an assessment of planned forest harvesting or road construction. For 13 of the 43 FSPs, the commitment was subject to certain conditions.

For all 44 FSPs, results or strategies were highly variable among FSPs.[25] Board investigators found most results and strategies provided meaningful content that was intended to assess hydrological responses associated with planned forest harvesting. However, for 41 of 44 FSPs, the results or strategies were not sufficiently detailed for Board investigators to conclude if they were consistent with the community watershed objective.

[22] For the community watershed objective, the three FSPs made a commitment to "undertake to comply" with certain practice requirements. However, since they were approved, Board investigators did not assess the licensees who hold the FSPs as being non-compliant with FRPA.

[23] For example, the result or strategy reads, in part, "recommendations in the hydrological assessment *may be* followed." The result or strategy would be fully measurable or verifiable if the commitment stated "recommendations in the hydrological assessment *will be* followed."

[24] For example, a licensee's result or strategy commits them to not exceeding an equivalent clearcut area (ECA) of 30 percent "considering important elevation bands." Although ECA is measurable or verifiable, it is unclear if the 30 percent ECA is intended to apply to each "important elevation band" or is to be averaged over all "important elevation bands." Clarifying the way ECA is calculated would ensure the result or strategy is fully measurable or verifiable.

[25] Note: variability in results or strategies is an anticipated and potentially positive outcome of FRPA's results-based framework. If monitored, variability can lead to identifying approaches that yield more positive results on the ground.

How does government establish consistency between results or strategies specified in an FSP and FRPA's objective for community watersheds?

FRPA's Requirements

When a licensee submits an FSP for approval, government must apply several approval tests. The approval test is set out in section 16 of FRPA, sections 25 and 25.1 of the FPPR and applied by a delegated decision maker (usually the district manager) within the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO). A key aspect of the approval test is for the decision maker to establish whether results or strategies are consistent with government's objectives.

Findings and Observations

Board investigators found that when government considers an FSP for approval, it does not always ensure the results or strategies for the community watershed objective fully meets the approval test in FRPA or the FPPR. Rather, sometimes it considers other factors that may compensate for deficiencies in the results or strategies. This situation creates a potential gap in transparency and accountability under FRPA because, once approved, the public expects the plans to meet all content requirements and that the plans are fully enforceable by government. Government staff provided Board investigators with the following reasoning about the assessment of FSP content related to community watersheds.

Factors considered when applying FRPA's approval test for FSPs

When examining consistency of proposed results or strategies, government staff said they do not necessarily consider consistency with each element of the community watershed objective (cumulative effects, water quality, water quantity and timing of flow). In their view, results or strategies are not necessarily required to be consistent with each element of the objective, but rather with the objective as a whole.

Staff said they sometimes make assumptions about whether a result or strategy is measurable or verifiable and based, in part, on key terms in the FSP, even if the terms are not always defined. For example, a result or strategy may commit the licensee to completing a hydrological assessment but the term is not defined in the FSP. In reviewing the FSP for approval, staff may make assumptions about what is required to complete a hydrological assessment based on their own experiences. However, since there is no standard definition of 'hydrological assessment,' the licensee's assessment could range from a simple equivalent clearcut area calculation to a more sophisticated assessment of watershed condition.

Staff also said they are mindful of the challenges required to strike a balance between promoting innovation in FSPs, while requiring results or strategies detailing the innovative approach to be measurable or verifiable. They say the challenge exists because licensees assume greater risk when proposing innovative approaches, and it is sometimes difficult to express the approaches in a measurable or verifiable way.

Challenges when considering an application to extend an FSP

When a licensee submits an application to extend an FSP, government staff are generally reluctant to ask the licensee to make revisions if the results or strategies in the previously approved FSP are now viewed by government as being somewhat deficient. The reluctance stems from the view that, since the original FSP was deemed to have met all the requirements and the approval test did not change, only a compelling reason should require the licensee to make changes to the FSP.

Other factors considered by government staff

In some cases, government staff said they consider other factors that are not part of the FSP approval test to provide clarity and/or simply have confidence that the licensee's intended results or strategies are consistent with the objectives. Some of the factors reported by government staff include: the licensee's past performance; current knowledge about the licensee's activities; and information contained in FSP supporting documentation. Government staff acknowledge there are risks in relying on other factors when reviewing whether a result or strategy is consistent with the objective.

Are licensees complying with FRPA's planning requirements?

Section 21 of FRPA requires forest licensees to achieve the results and carry-out the strategies in their FSPs. This includes commitments such as having a professional prepare an assessment prior to undertaking planned activities.[26]

Findings and Observations

Board investigators found 3 of the 47 FSPs reviewed did not include results or strategies for the community watershed objective.

All licensees retained professionals to complete assessments when committing to doing so in their FSP. For the 47 FSPs, a total of 31 professional assessments were prepared.[27] (The Board's overview analysis of these assessments is found in Part 1. Part 2 includes the Board's detailed analysis of the 6 professional assessments completed for the 12 watersheds field-assessed by Board investigators.)

What is a 'professional assessment'?

For the purposes of this investigation, a 'professional assessment' is an assessment completed by a professional engineer, geoscientist or forester, with experience in forest hydrology, who is employed or retained by a forest licensee. The assessment provides advice to forest licensees about planned forest harvesting and/or road construction.

[26] Once an FSP is approved, government may verify if the assessment was done, but staff do not review or approve the assessment. As well, under FRPA, assessments are not required to be made publicly available for review and comment.
[27] Professional assessments were not completed for every watershed in the sample. This is because licensees may not have committed to completing a professional assessment in their FSP or made a determination, in accordance with their results or strategies, that a professional assessment was not required under the circumstances.

Part I - Overview analysis of thirty-one professional assessments

Of 31 professional assessments, 11 did not include content as committed to in the FSPs.[28] This finding does not necessarily mean the professional assessments were not adequate under the circumstances. However, when an assessment is not carried out as prescribed in an approved FSP, there is a risk that certain issues or values may not be addressed by the professional completing the assessment.

Professional assessments varied widely by name and content, from full-scope watershed assessments to simple assessments limited to a calculation of ECA.[29] Few assessments included all five suggested components of a conventional watershed assessment (i.e., scoping, assessment, synthesis, management solutions and adaptive management).[30] In the assessments, there was limited content related to adaptive management, which is an on-going process of implementing, monitoring and revising practices as needed, including forward-thinking actions required to address conditions like climate change.

Of 31 assessments 26 considered, to varying degrees, the hydrological effects of FRPA and pre-FRPA related forest activities over the entire watershed. But none of the assessments fully evaluated the cumulative hydrological effects of all forestry related activities, such as FRPA and pre-FRPA forest harvesting and associated road networks, and their potential effect on surface and groundwater flows. About half of the professional assessments (i.e., 15 of 31) recognized other land uses in the watersheds. For 7 of 31 assessments, the methodology used was not adequately described; therefore, Board investigators were not able to fully evaluate watershed elements examined by the professional. The Board notes that FRPA does not define cumulative hydrological effects and the associations representing professionals who complete the watershed-type assessments, do not provide guidance to their members on assessing cumulative hydrological effects.

Only 6 of 31 assessments included content related to water quality, quantity and timing of flow to the licensed waterworks—the primary element's of government's objective for community watersheds. For most professional assessments, the focus was on factors and conditions such as peak flows, surface erosion, channel condition and riparian condition. However, the assessments do not link the assessed factors and conditions and the requirements or limitations of the licensed waterworks. For example, a professional may assess the anticipated effects of forest harvesting on peak flows, but does not determine whether the peak flows will affect the amount of water required by the licensed waterworks at certain times of the year (e.g., peak demand during summer months).

[28] The investigation examined whether the assessments *followed* the content of the FSP as opposed to whether the assessments *complied* with the content of the FSP. This distinction is made because not all licensees chose to describe the content of the assessment in the FSP; or when the content was described, the language used was not always enforceable. Therefore, Board investigators did not undertake an evaluation of compliance with individual professional assessments.
For 4 of 31 professional assessments, the corresponding FSPs did not define the content of the assessment. Therefore, they were not included in the analysis.

[29] The ECA is defined as the area that has been clearcut, with a reduction factor to account for the hydrological recovery due to forest regeneration. In some cases it was the only assessment completed by the licensee in the watershed.

[30] Source: R. Pike et al. 2009 (see Appendix 2 for full citation).

Part II - Detailed analysis of six professional assessments

Methods used in the professional assessments

Five of six professional assessments used a hazard-based approach while one used a risk-based approach.[31] Two of the five that focused on hazards used ECA as a surrogate for watershed condition, with little consideration to site conditions. In both cases, ECA in the watersheds was below 12 percent (well below levels where measurable effects on runoff and streamflow would be expected). However, the results of the Board's field assessment of the two watersheds indicate that sedimentation, streamflow and/or hydrogeomorphic hazards in the watersheds are high to very high. This highlights the risk of using ECA, or other factors like road density, as the primary means of assessing and managing watershed condition.

Key findings in the professional assessments related to current watershed condition[32]

Water-related issues in interior community watersheds include exposure of waterworks infrastructure to potentially damaging hydrogeomorphic events, sediment generation and delivery from roads (some from non-status roads[33]), and moderate to high streamflow hazards associated, in part, with mountain pine beetle infestation. On the coast, road issues outweighed other factors with respect to negative effects on watershed condition. Roads of all types (FSR, licensee permitted and non-status) were identified as chronic sediment sources as a result of running surface erosion, natural and forest practice induced landslides, and other types of hillslope erosion, mostly the result of drainage diversion and concentration of flows.

Nature of recommendations made in the professional assessments

Board investigators did not examine whether recommendations made in the professional assessments were appropriate. However, assessments that involved more than an analysis of ECA included recommendations to address current and future watershed condition issues. Board investigators did note that none of the recommendations were written in a way that strongly emphasizes the need for implementation, or were site-specific (e.g., most assessments include phrases like …."the licensee should consider").

[31] A hazard-based approach examines sources of *potential harm* to resources at stake, like water quality, and uses ratings to express the likelihood of hazard occurrence. The hazard approach assumes all resources are created equal and are susceptible in similar ways, which is not always the case. A risk-based approach combines the hazard assessment with an assessment of the consequence of *actual harm* to determine the real risk to the resource(s) at stake. Note: For the 12 field-assessed watersheds, Board investigators used a risk-based approach, involving the assessment of three hazards to describe watershed condition.

[32] Because of the variability in methods used in the professional assessments, Board investigators did not compare outcomes between the professional assessments and its own assessment of watershed condition.

[33] Non-status roads are roads built before 1995 and have been out of use since then. Non-status roads are not covered by legislation, and responsibility for their maintenance or deactivation rests with government.

Are licensees complying with FRPA's practice requirements?

Background

All licensees and agreement holders under FRPA must comply with practice requirements—rules that must be followed on the ground—as specified in regulations. A few of the requirements, some of which only apply within community watersheds, are directly related to the protection of drinking water. Other practice requirements, like preventing landslides, do not specifically refer to the protection of drinking water. However, if not prevented, landslides have the potential to adversely affect source drinking water quality.

Findings and observations

All 12 field-assessed watersheds had forest harvesting, road construction or road deactivation regulated under the FPPR. Seven of the 12 community watersheds include a range tenure and 1 watershed has multiple woodlot licences. In those 8 watersheds, Board investigators found range and woodlot licence practice requirements were in compliance with the WLPPR and RPPR respectively, and no unsound practices were identified.

Note about interpreting the Board's findings in the 12 field-assessed watersheds

Selection of the 12 watersheds for field assessment considered several factors like geographic location and input from government staff and water purveyors. As a result, the findings for the 12 watersheds should not be extrapolated to all 131 community watersheds where some amount of harvesting has occurred under FRPA.

Board investigators found high levels of compliance with practice requirements that specifically apply to operations in community watersheds. However, some other practice requirements that apply both within and outside of community watersheds were found to be non-compliant in 4 of 12 community watersheds. In 3 of 12 community watersheds, Board investigators observed unsound[34] practices resulting from multiple deposits of sediment into streams from roads regulated under FRPA (see Table 3, which presents findings of compliant, non-compliant and unsound practices in the 12 field-assessed watersheds). [35]

[34] An unsound practice means a licensee is complying with the law but the Board believes the practice is likely to harm personal safety or the environment.

[35] This investigation does not attribute non-compliant practices to named watersheds. However, the reader may wish to cross-reference watershed identifiers on pages 18, 20, 21 and Appendix 6.

Board investigators assessed compliance on the ground with FRPA's practice requirements. None of the results or strategies stated in FSPs for the 12 field-assessed watersheds made commitments about practices that would be conducted on the ground. Also, Board investigators did not determine whether the MFLNRO's compliance and enforcement program was either aware of or had taken action with regard to the identified non-compliances.

Table 3. Assessment of forest licensees' compliance with drinking water quality related practice requirements in the 12 field-assessed watersheds.

Requirements in the FPPR that provide for the protection of drinking water[36]	Field-assessed watersheds with non-compliant or unsound practices
Practice requirements that apply only in community watersheds	
Provide enhanced riparian retention adjacent to streams, lakes and wetlands s. 47-52	0[37] See Figure 2 showing compliant practice
Ensure sediment from excavated or bladed trails does not affect drinking water s. 61	0
Avoid building a road within 100m of spring s. 62	0
Avoid fertilizer use near streams & waterworks s. 63(1)	0
Size culverts & bridges to pass peak flows s. 74(1)	0
Notify water purveyors s. 84[38]	0
Practice requirements that apply within and outside of community watersheds	
Prevent landslides s. 37	1 (#6)* (see Figure 3 showing non-compliant practice)
Maintain natural surface drainage s. 39(1)	2 (#7 & #11)
Protect drinking water quality s.59	0 non-compliant 'Unsound' practices in 3 watersheds (#9, #11, #12) (see Figure 4)
Protect licensed waterworks s. 60	0
Build, maintain or deactivate roads s. 79(6), 81	1 (#12) (see Figure 5 showing compliant practice)

** The watershed identifiers in this table correspond to watershed identifiers used on pages 20 and 21 and Appendix 6.*

In 2 of 12 watersheds, non-compliant practices likely had, or are continuing to have, a significant impact on source drinking water quality. In watershed #6, a forest licensee did not sufficiently maintain a road, which led to a landslide about four hectares in size (see Figure 3). The water purveyor told Board investigators that the landslide caused highly turbid water to reach the intake, resulting in service interruptions for about 800 water users. In watershed #12, Board investigators found multiple incidents of FRPA regulated roads that did not meet the requirements for maintenance or deactivation. Poorly placed cross ditches and inadequate dispersal of surface water, resulted in higher concentrations of flows over potentially unstable terrain, and a general lack of soil erosion control resulted in sediment deposition into stream channels. In some cases, the practice resulted in hill-slope destabilization.

[36] Presented as paraphrased text—consult the applicable regulations for the full wording.

[37] In its audits of forest licensees' compliance with FRPA's requirements, the Forest Practices Board has also found generally good compliance with requirements to retain trees adjacent to streams, lakes and wetlands.

[38] See Appendix 5 for additional findings and observations made about the notification requirement.

Figure 2. Compliant practice: In this cutblock, trees have been retained along some streams even when there is no requirement to do so.

Figure 3. Non-compliant practice: This 4 hectare landslide originated from a road located near the top of the photo. A forest licensee did not sufficiently maintain the road which led to this landslide. The landslide likely had a material adverse effect on source water used for drinking.

Figure 4. Unsound practice: This figure shows a section of road that was deactivated, including the removal of stream crossing structures. Investigators observed that soil was placed immediately adjacent to the channel. Some of the soil had been eroded into the stream.

Figure 5. Compliant practice: This road was constructed for winter access to a cutblock. Following harvesting, the road was revegetated, reducing the potential for sediment to be eroded into streams.

Are there current or past land use issues within the community watersheds that are affecting elements of FRPA's objective including water quality, quantity or timing of flow?

Government's objective for community watersheds in the FPPR only applies to forest licensees required to have an FSP. However, other regulated and non-regulated land uses in the watersheds can individually or cumulatively affect elements of the objective, including water quality, quantity or timing of flow. A hydrologic assessment of watershed condition examines risks to water quality, quantity and timing of flow, regardless of the type of land use or the legislation that regulates the land use.

In this investigation, watershed condition was assessed in each of the 12 community watersheds in the field sub-sample. Conditions are described in terms of three hazards[39] (sedimentation, streamflow and hydrogeomorphic) that have the potential to negatively affect elements at risk, and the land use contribution to that risk. For this investigation, the elements at risk include water quality, water quantity, timing of flow and the infrastructure of the licensed waterworks (see Appendix 2 for detailed methodology).

Findings and Observations

In the 12 field-assessed watersheds, current or past land uses on private and Crown land, are, to varying degrees, having a cumulative effect on watershed condition. These land uses may also be affecting water quality and, to a lesser extent, water quantity and timing of flow. While current forest practices are regulated under FRPA, in some of the field-assessed watersheds they account for a small amount of land use (Appendix 6 shows the land uses that were observed by Board investigators in the 12 field-assessed watersheds).

The investigation made three important findings related to the assessment of sedimentation, streamflow and hydrogeomorphic hazards and how they may be affecting watershed condition.[40]

1. In 7 of 12 watersheds, current sedimentation hazard (affects water quality) is rated as "moderate to high" or "high" and is having a negative effect on source water quality. In these 7 watersheds, recent and past land uses contribute to the sedimentation hazard in a significant way.

Sedimentation hazard	Hazard rating (by field-assessed watershed identifier)*											
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Current condition	Mod to High	Mod to High	Mod to High	Mod	Low	High	Low	Mod	High	Mod	High	Mod to High
Contribution from land uses	Mod to High	High	Mod to High	Mod	Low	High	Low	Mod	High	Mod	High	Mod to High

** The watershed identifiers in this table correspond to watershed identifiers used on pages 18, 21 and Appendix 6.*

[39] A hazard is a source of potential harm, or a situation with the potential for causing harm, in terms of human injury; damage to property, the environment, and other things of value. Source: Canadian Standards Association (CSA), 1997. Risk Management: Guidelines for Decision-Makers. Etobicoke, Ont. Can/CSA-Q850-97.

[40] Additional findings and observations made in the assessment of watershed condition are found in Appendix 7.

2. With only one "high" rating in the streamflow hazard category, water quantity and timing of flow does not appear to be a substantial problem in most field-assessed watersheds. This finding is consistent with information from water purveyors who say the amount of water available at the intake is usually sufficient to meet demand. Where the hazard is high, the contribution from land uses is low to moderate, suggesting that the situation is largely the result of natural processes (e.g., steep, flashy, coastal watershed that naturally goes dry in the summer).

Streamflow hazard	Hazard rating (by field-assessed watershed identifier)*											
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Current condition	Low	High	Mod	Low	Low	Mod	Low	Mod	Mod	Low	Low	Mod
Contribution from land uses	Low	Low to Mod	Low to Mod	Mod	Low	Mod	Low	Mod	Low to Mod	Mod	Low	Low

** The watershed identifiers in this table correspond to watershed identifiers used on pages 18, 20 and Appendix 6.*

3. In 8 of 12 watersheds, current hydrogeomorphic hazards[41] are rated as "high." This means the likelihood of occurrence of a hydrogeomorphic event capable of damaging or destroying water intakes and primary treatment infrastructure is high. In 5 of the 8 watersheds, land uses are contributing to the situation in a significant way.

Hydrogeomorphic hazard	Hazard rating (by field-assessed watershed identifier)*											
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Current condition	Mod	High	High	Low	Low	High	Low	High	High	High	High	High
Contribution from land uses	Low	High	Mod to High	Low	Low	Mod	Low	Mod to High	High	Mod to High	Low	Mod

** The watershed identifiers in this table correspond to watershed identifiers used on pages 18, 20 and Appendix 6.*

[41] Hydrogeomorphic hazards include flooding, debris floods and debris flows that can damage or destroy a water intake and primary treatment infrastructure. Hazard ratings reflect the likelihood of hazard occurrence, and land use contribution ratings describe the role of current land uses in that situation.

Case Studies – How Land-Based Investments Can Improve Watershed Condition

Deactivating non-status roads in a community watershed

In one of the field-assessed watersheds (#9), the MFLNRO was completing a five-year watershed restoration project. The project involves permanently deactivating about 150 kilometres of non-status roads with the intent of reducing the sedimentation hazard in the watershed over the long-term. The permanent deactivation involves re-contouring the road to the natural slope gradient and removing all culverts and bridges (see Figure 6). Around 4.4 million dollars has been spent completing this project. Monitoring will be required to assess whether the investments will reduce the sediment hazard.

Figure 6. This photo shows a segment of road in watershed #9 that has been permanently deactivated by MFLNRO.

Benefits of a collaborative approach to managed recreation in a community watershed

In the Okanagan Shuswap district, staff from Recreation Sites and Trails BC developed a collaborative partnership with the Okanagan Trail Riders Association to manage off-highway vehicle recreation at the 35 000 hectare Bear Creek Recreation Site—the largest recreation site in BC. This recreation site, which was established under section 56(1) of FRPA, is situated in the Lambly Creek community watershed, near Kelowna, BC. Prior to stakeholder and government management, the area had a long history of unmanaged motorized vehicle use which led to soil erosion and impacts to water quality, as well as damage to grasslands.

Board investigators assessed the recreation site and found numerous examples where trails previously causing soil erosion were being rehabilitated; off-road vehicle access to a stream used for drinking water had been eliminated and range developments, like water troughs, were installed to keep livestock away from riparian areas. The collaborative approach applied to this recreation site demonstrates that managed motorized recreation can be compatible with the protection of drinking water quality.

How does government monitor achievement of the community watershed objective?

With the FRPA model, government evaluates the effectiveness of forest and range practices in achieving management objectives for 11 values, including water quality, using monitoring conducted under its Forest and Range Evaluation Program (FREP). FREP monitors water quality using the water quality effectiveness evaluation (WQEE) protocol. The protocol measures the loss of sediment from roads and cutblocks with the potential of entering a stream and possibly affecting water quality.

Findings and Observations

While FREP monitors water quality generally, it does not specifically monitor water quality used for drinking, nor does it monitor whether the objective for community watersheds is being achieved. As a result, government does not know if practices under FRPA are contributing to the protection of water quality, water quantity or timing of flow in community watersheds.

Can FREP's water quality data provide information about how well forest activities are protecting drinking water quality?

Between 2008 and 2011, FREP WQEEs were completed at 3681 randomly selected sites throughout BC. Of those, 366 sites (about 10 percent) were completed upstream of a domestic water intake– many of which are used for drinking water. The majority of evaluations (3315 or about 90 percent) were completed on sites where no water intake was located downstream. For this investigation, FREP compared the WQEE scores between the 366 sites located upstream of a water intake and the 3315 sites where no intake was located downstream. The three site rankings used to predict the quantity of fine sediment that may be deposited into a stream are:[42]

1) very low to low (<0.2 to 1 cubic metres);
2) moderate (>1 to <5 cubic metres); and
3) high to very high (5 to >20 cubic metres).

The comparison of the WQEE data revealed no difference in the predicted quantity of fine sediment entering upstream of drinking water intakes and at sites where no intake was located downstream For example, FREP data revealed that about 30 percent of all sites assessed upstream of a water intake received a 'moderate' score, meaning that over the past year, each site was potentially contributing between one and five cubic metres of fine sediment. Similarly, about 23 percent of all sites assessed—where no licensed waterworks was located downstream—also received a moderate score. These results run counter to the expectation that greater care and attention would be taken by forest licensees to ensure practices were minimizing fine sediment deposition into streams, particularly when operating upstream of a drinking water intake.

[42] The predicted quantity of fine sediment is calculated by combining the total sediment contribution from mass-wasting (like slides, slumps and road surface riling) that has occurred over the past year (primarily since snowmelt) and the potential quantity of fine sediment from surface erosion that is likely over the next year.

How does government decide which watersheds warrant community watershed designation or delisting?

Findings and Observations

Community watershed designation or de-listing

Currently, government has interim draft guidelines[43] for designating or delisting (cancelling) community watershed designations that compliment criteria that must be met in FRPA. For designations, the guidelines include six categories of eligible licensed waterworks and five criteria that may be considered. Also, a minimum of 2500 gallons per day of consumption is required from the licensed waterworks within the proposed community watershed.

To amend or delist a community watershed, the guidelines require one of five criteria to be met. In addition to the five criteria, staff applying the guidelines are required to take into account important fisheries values. This is because it is government policy to withhold delisting a community watershed with important fisheries until a fisheries sensitive watershed designation can be made over the same area.[44]

The interim draft guidelines were written in 2008. Since then, one new community watershed has been designated (Mellott Creek) and one has been delisted (Blueberry Creek[45]).

Changes in how water is being sourced from community watersheds

Through the investigation, Board investigators found that many changes have taken place in how water is being sourced in the 48 sample community watersheds since they were first designated under the Forest Practices Code. In 16 of the 48 sample watersheds:[46]

- 5 water purveyors have moved the water source from a stream to a well within the community watershed.
- 11 no longer obtain the primary water source from *within* the community watershed, instead obtaining water from a well, lake, or river located *outside* the watershed. Seven of the 11 purveyors continue to use the community watershed as an emergency back-up source.

None of the FSPs that apply to the 16 community watersheds refer to changes in how water is being sourced in the community watershed in which the forest licensee operates. Also, Board investigators are not aware of any instances where a delegated decision maker has provided a forest licensee with an exemption from proposing a result or strategy in an FSP because special management is no longer required in the community watershed (see section 8.2(4) FPPR).

[43] Ministry of Environment, 2008. Interim Guidelines and Procedures on the Designation, Amendment and Cancellation of Community Watersheds under the *Forest and Range Practices Act*. Draft.
[44] The policy is discussed in a Decision Note, approved by the Deputy Minister (dated June 18, 2010) about delisting the Blueberry Creek community watershed (ministry file: 77900-20).
[45] In June 2010, the Minister of Environment rescinded the designation of one community watershed (Blueberry Creek) on application of the former water purveyor who is no longer using the watershed for source water.
[46] Board investigators did not determine why water purveyors in the 16 community watersheds chose to locate alternate sources of water either within or outside the community watershed.

Conclusions

This special investigation examined whether forest planning and practices undertaken by forest licensees and range agreement holders subject to FRPA, are likely to contribute to achievement of government's objective for community watersheds. For planning, the investigation focused on FSPs in 48 community watersheds that were required to address government's objectives in their plans. The practices of all licensees and agreement holders subject to FRPA were assessed on the ground in 12 community watersheds.

Board investigators found that government's objective for community watersheds and the primary water quality practice requirement are not sufficiently clear or achievable. The objective emphasizes water treatment over source protection and the water quality practice requirement does not necessarily include sediment deposited into streams (a primary risk of forestry operations) as a substance harmful to human health. At the same time, government does not always ensure that FSP meet the requirements set out in FRPA.

Some weaknesses were found in FSP content related to community watersheds. Three of the 44 FSPs examined did not include results or strategies as required. For the remainder of the FSPs assessed, results or strategies were either partially (12 of 44) or not (4 of 44) measurable or verifiable, meaning that the commitments in the plans may not be enforceable. Also, results or strategies for the majority of FSPs lacked sufficient detail for Board investigators to conclude whether they were consistent with government's objective—a FRPA requirement for FSP approval.

In the majority of FSPs, licensees included a commitment requiring them to retain a professional to complete an assessment of planned harvesting in the watershed. While licensees are not required to make such commitments, Board investigators did find some problems with the professional assessments completed. In particular, 11 of 31 assessments did not include content as described in the FSP, increasing the risk that certain issues or values identified in the FSP may not be addressed by the professional completing the assessment. Twenty-six of 31 assessments considered, to varying degrees, the hydrological effects of FRPA and pre-FRPA related forest activities over the entire watershed. However, the assessments either did not fully evaluate the cumulative nature of those hydrological effects, or methodologies were not sufficiently detailed to determine if such an evaluation was done. Also, only 6 of 31 assessments included content related to water quality, quantity and timing of flow to the licensed waterworks—the primary element's of government's objective for community watersheds.

In 12 field-assessed community watersheds, Board investigators found forest licensees were in compliance with requirements specific to community watersheds, like retaining wider forested buffers adjacent to streams, lakes and wetlands. However, non-compliance with requirements that indirectly provide for the protection of drinking water were found in 4 of 12 watersheds. These include the prevention of landslides, maintenance of natural surface drainage patterns and requirements for road construction, maintenance and deactivation. In 3 of 12 watersheds, licensees' activities caused sediment to be deposited into streams. The Board found these practices to be compliant, but unsound, meaning the practice is not in keeping with good forest stewardship. All range and woodlot practices were found to be compliant with FRPA's requirements.

Board investigators observed a variety of land uses are contributing to the condition of the 12 field-assessed watersheds. In 7 of 12 watersheds, sedimentation from land uses is having a negative effect on source drinking water. While current watershed condition does not seem to be affecting water quantity or timing of flow in most watersheds, waterworks infrastructure is at risk in 8 of 12 watersheds, due mostly to the natural terrain conditions. Although FRPA regulated activities are present in all 12 watersheds, it is the legacy of pre-FRPA and, in particular, pre-Forest Practices Code activities that are having the greatest impact.

The investigation also found that the designation or delisting of community watersheds by government has not kept pace with changes in how water is being sourced from community watersheds. In 16 of 48 watersheds, the surface drinking water source has changed meaning that the watersheds may no longer meet the criteria for designation. Also, government's monitoring of water quality on the forest landbase was found to be lacking because it currently does not monitor the effectiveness of practices to protect water used for drinking either within or outside of community watersheds.

The special investigation has identified several weaknesses in FRPA and how it is being implemented in community watersheds. Issues related to the requirements in FRPA, approval of FSPs, monitoring of drinking water and plans and practices undertaken by licensees were identified. Together, these issues have the potential to compromise the effective achievement of government's objective for community watersheds.

Recommendations

Under section 131(2) of the *Forest and Range Practices Act*, the Board makes the following recommendations to address key findings of the investigation:

1. **Strengthening FRPA's requirements for the protection of drinking water.** Government should undertake a review of FRPA's requirements for the protection of drinking water generally, and in community watersheds specifically. The review should include:
    - revising government's objective for community watersheds with the intent of emphasizing the importance of source water protection;
    - revising the water quality practice requirement, in all applicable FRPA regulations, to address the inherent risk to human health associated with sediment;
    - clarifying the meaning and scope of cumulative hydrological effects including whether the assessment and management of these effects is appropriate within the confines of FRPA or should be implemented under a different process; and
    - examining the appropriate use of specific water quality objectives under the *Government Actions Regulation* and provisions under the *Drinking Water Protection Act*, where watershed condition is at risk.
2. **Strengthening the content and approval of forest stewardship plans.** Government should provide clear direction to delegated decision-makers that ensures results and strategies in FSPs pertaining to the community watershed objective are measurable or verifiable.

3. **Ensuring the content of professional assessments is meaningful.** The Association of BC Forest Professionals and the Association of Professional Engineers and Geoscientists of BC should develop guidance for their members on the appropriate content of a watershed or hydrological assessment. This should include:
    - the elements necessary to address government's objective for community watersheds, including where the surface water source has changed to a groundwater source;
    - procedures for considering cumulative hydrological effects at the watershed scale;
    - integration of the needs of licensed waterworks; and
    - examples of recommendations providing clear direction for implementation.
4. **Monitoring the protection of drinking water.** Government should expand its monitoring of the effectiveness of forest and range practices in protecting water quality to include water used for drinking both within and outside of community watersheds.
5. **Updating the status of community watersheds.** Government should undertake a comprehensive review of the status of community watersheds and determine which watersheds warrant designation and require special management.

The Board requests that government advise it of progress made and timelines for implementing recommendations #1, #2, #4 and #5 by October 1, 2014. The Board requests that the Association of BC Forest Professionals and the Association of Professional Engineers and Geoscientists of BC advise it of progress made and timelines for implementing recommendation #3 by October 1, 2014.

Appendix 1A: Criteria Used to Select the Sample Community Watersheds

Forty eight community watersheds were selected out of the 131 community watersheds (i.e., 37 percent) where forest harvesting or road construction has occurred under the *Forest Range and Practices Act* (FRPA) (the 131 community watersheds comprise the 'sample population' and the 48 community watersheds comprise the 'sample'). The watersheds were selected primarily based on the occurrence of forest harvesting undertaken under authority of FRPA (2006 to January 2012). Additional selection criteria included:

- regional distribution, with the intent of including as many resource districts as possible. The sample represents 5 of 7 the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) regions and 13 of 18 districts which have at least one community watershed (see Appendix 1B which shows community watersheds by MFLNRO region and district);
- additional watersheds were selected in resource districts having a high proportion of community watershed (e.g., South Island, Okanagan Shuswap, Selkirk, Chilliwack);
- watersheds with an extensive history of forest harvesting and watersheds with single vs. multiple forest development units; and
- suggestions made by water purveyors or government staff from various ministries (e.g., drinking water officers).

Criteria used to select the field sub-sample

Of the 48 watersheds in the sample, 12 were selected for field assessment (referred to as the field sub-sample). Selection criteria included:

- regional distribution, with the intent of including as many resource districts as possible. The field sub-sample represents 5 of 7 MFLNRO regions and 8 of 18 districts which have at least one community watershed (see Appendix 1B which shows community watersheds by MFLNRO region and district);
- adjacent community watersheds if they form a part of the water supply for a community (e.g., via diversions and other infrastructure); and
- suggestions made by government staff from various ministries.

Consistent with Board policy,[47] watersheds were not selected for field assessment if the Board had audited the licensee within the previous five years.

[47] Forest Practices Board, *Policy for the Audit Frequency of a Given Licence or Licensee*, 2004. Available at: www.fpb.gov.bc.ca.

Appendix 1B: Community Watersheds (CWS) by MFLNRO Region and District, Including Watershed Selected for the Sample

MFLNRO Region/District	No. of CWS in District	Total Area (hectares) of CWS in District	CWS Selected for the Sample (*watersheds in **BOLD** were selected for the field assessment*)
Cariboo			
100 Mile House	1	6 632	0
Cariboo-Chilcotin	4	26 549	0
Quesnel	1	9	0
Kootenay/Boundary			
Selkirk	96	222 796	Caribou, Hanna, Rover, **Sanca**
Rocky Mountain	24	100 481	Boivin, Gold, Mark
Northeast			
Fort Nelson	0	0	0
Peace	0	0	0
Omineca			
Fort St. James	0	0	0
Mackenzie	0	0	0
Prince George	1	653	0
Vanderhoof	0	0	0
South Coast			
Chilliwack	77	85 999	Ascaphus, Fin, **Norrish**
Metro Vancouver-Squamish	23	25 228	Brew, Mashiter, Pemberton, Stawamus
Sunshine Coast	27	36 486	**Chapman**, Haslam/Lang, McNeill Lake
Skeena			
Kalum	19	28 031	Gossen, Hatchery, Kleanza (Singlehurst)[48]
Nadina	0	0	0
Skeena Stikine	13	42 935	**Canyon**
Thompson/Okanagan			
Cascades	31	57 056	Dillard, Kwinshatin, Murray
Thompson Rivers	20	130 574	**Hascheak**, Jimmies, Leonie, **McDougall**, Nelson, Tranquille, Paul Lake, Peterson, **Russell**
Okanagan Shuswap	57	356 845	**Chute**, Hydraulic, Lambly, **Naramata**, Newsome, Olalla, **Robinson**, Sicamous, Trepanier
West Coast			
Campbell River	8	103 945	John Hart
Haida Gwaii	4	3 288	**Honna**
North Island	9	16 545	0
South Island	51	169 491	**China**, French, Holland, Sproat
Totals	**466**	**1 413 543**	**48 CWS in sample/12 field-assessed**

[48] An objective for these three watersheds was established under the Order Establishing Land Use Objectives in the Kalum SRMP Area (see Appendix 4 for more details).

Appendix 2: Methods Used in the Investigation

Evaluation of results or strategies in forest stewardship plans (FSPs)

All applicable FSPs[49] within the 48 sample community watersheds were retrieved from the FSP Tracking System. Government databases, including the Forest Tenure Administration System and spatial datasets (accessed through BC government web-based mapping services - iMapBC or MapView) were used to identify FRPA licensees in community watersheds.

The section of the sample FSPs that apply to community watersheds was assessed to determine if:

- the FSPs meet the content requirements of *Forest Range and Practices Act* (FRPA) including the identification of community watersheds and proposing intended results or strategies;
- the results or strategies are consistent with the objective;
- results or strategies are measurable or verifiable;
- results or strategies make commitments for undertaking assessments and, if so, when the assessments would be conducted, who would do the assessments and the content of the assessments; and
- results and strategies are meaningful in relation to the objective.

Three references published by government were used, in part, to assess whether results and strategies in FSPs are measurable or verifiable:

- Ministry of Forests and Range, *Guidance to C&E program staff on the assessment of measurable or verifiable results or strategies within a Forest Stewardship Plan*, 2006. C&E Program Staff Bulletin #12, Revised June 26, 2006. Victoria, BC. Weblink: http://www.for.gov.bc.ca/ftp/HTH/external/!publish/web/frpa-admin/frpa-implementation/bulletins/CE_Guidance_MeasurVerify_2006.pdf
- Ministry of Forests and Range, *Administrative guide for Forest Stewardship Plans*, 2009. Volume I: Preparation and approval of an FSP. Version 2.1. Victoria, BC. Weblink: http://www.for.gov.bc.ca/ftp/hth/external/!publish/Web/frpa-admin/agFSP/AGFSP-I-ver-2_1-final.pdf
- Ministry of Forests and Range, *Administrative guide for Forest Stewardship Plans*, 2010. Volume II: Operating under an approved FSP. Version 1.1a. Victoria, BC. Weblink: http://www.for.gov.bc.ca/ftp/hth/external/!publish/Web/frpa-admin/agFSP/AGFSP-II-ver-1_1a.pdf

[49] FSPs were included in the sample if they had a forest development unit within the 48 sample community watersheds and if harvesting or road construction was undertaken within the community watershed between January 2006 and January 2012.

Evaluation of professional assessments identified in FSPs

When an FSP included results or strategies committing the licensee to completing some type of assessment within the community watershed (usually prior to forest harvesting and/or road construction), Board investigators requested copies of the assessments from licensees (and updates if applicable) and completed an evaluation to determine if:

- assessments were completed as specified in the FSP;
- assessments included the five suggested components of a conventional watershed assessment (i.e., scoping, watershed assessment, synthesis, management solutions and adaptive management);[50]
- the scope of the assessments and underlying assumptions of risk;
- the assessments included the components necessary to address water quality, quantity and timing of flow; and
- fully implemented, whether recommendations arising from the assessments would likely contribute to government's objective for community watersheds.[51]

Each assessment was evaluated to assess content criteria developed by two consulting hydrologists and reviewed by a government hydrologist. Fourteen questions were applied to each assessment completed within the 48 sample watersheds and an additional 15 criteria were applied to assessments completed for the 12 field sub-sample watersheds. For purposes of reporting the findings and observations, the content criteria were condensed and some were amalgamated. For all assessments, 5 criteria are reported.[52] For the assessments completed in the 12 field-assessed watersheds, an additional 3 criteria are reported.

Assessments undertaken in the 12 field-assessed watersheds

The field investigation component employed a rapid assessment approach for each of the 12 community watersheds selected in the field sub-sample. The investigation team included one and sometimes two Board investigators; a consulting engineer specializing in forest roads; and, a consulting forest hydrologist. In each watershed, the investigation team spent between two to five days examining compliance with FRPA's planning and practices requirements, as well as overall watershed condition.

[50] Source: Pike, R.G, T.E. Redding, D.J. Wilford, G.I. Moore, M.L. Reiter and D. A Toews. 2009. Chapter 16: Detecting and Predicting Changes in Watersheds *in* Compendium of Forest Hydrology and Geomorphology in British Columbia R.G. Pike et al. (editors). B.C. Ministry of Forests and Range, Research Branch, Victoria, B.C. and FORREX Forest Research Extension Partnership, Kamloops, B.C. Land Management Handbook No. 66. pgs. 527-551. Available for download at: http://www.for.gov.bc.ca/hfd/pubs/docs/lmh/Lmh66.htm.

[51] For the 12 field-assessed watersheds, Board investigators did not determine compliance with the recommendations made in the corresponding professional assessments. This is because some of the assessments were not available prior to Board investigators conducting the fieldwork.

[52] When examining whether the professional assessments included content as described in the FSP, Board investigators did not examine 4 of the 31 sample assessments. This is because the FSP did not define the contents of the assessment.

In 6 of the 12 community watersheds, the investigation team conducted an aerial overview flight of the watershed before commencing field work. The overview flight was deemed necessary because access to all parts of the watersheds was not available for a variety of reasons, including access through private land was not possible, poor road condition, bridge structures removed or roads which were deactivated and no longer drivable.

The following conditions were assessed in each of the 12 community watersheds:

- compliance with FRPA's practice requirements related to activities that may have a direct or indirect effect on water quality, quantity or timing of flow;
- riparian protection adjacent to streams, lakes and wetlands;
- protection of water quality on permitted, deactivated roads and wilderness roads;
- past forest practices (pre-FRPA), including harvesting and non-status roads that may be affecting achievement of government's objective;
- other tenured and non-tenured activities on Crown land and private land use; and
- watershed condition. Conditions are described in terms of natural hazards[53] (sedimentation, streamflow and hydrogeomorphic) that have the potential to negatively affect elements at risk and the land use contribution to that risk. For this investigation, the elements at risk include water quality, water quantity, timing of flow and the infrastructure of the licensed waterworks.

Definition of terms used in the assessment of watershed condition

Hazard: A source of harm, or a situation with the potential for causing harm to elements at risk. Hazards can involve natural processes, land use related disturbances, or a combination of the two. Relevant hazards in this investigation include sedimentation, streamflow and hydrogeomorphic.

Consequence: The effect on human-health and infrastructure that may result from hazard occurrence.

Risk: The chance of injury or loss, defined as a measure of the probability and the consequence of an adverse effect on human health and infrastructure.

Sedimentation hazard: Involves naturally occurring sediment sources or those created through land use activity that result in stream sedimentation to an extent that negative effects on the licensed waterworks are realized (including degradation of water quality and/or damage to the intake). Forest practices have the potential to create or contribute to sedimentation hazards through road erosion, landslides, and destabilization of stream channels.

Streamflow hazard: Naturally occurring or land use induced variations in the quantity or timing of flow that have negative effects on water supply. Forest practices have the potential to create or contribute to streamflow hazards through reductions in forest cover, particularly in snowmelt dominated systems; increased drainage density from road construction; and creation of vigorous second growth conditions that have the potential to use more water than old-growth. Reductions in forest cover and increased drainage density can contribute to increases in peak flow and advanced

[53] A hazard is a source of potential harm, or a situation with the potential for causing harm, in terms of human injury; damage to property, the environment, and other things of value. Source: Canadian Standards Association (CSA), 1997. Risk Management: Guidelines for Decision-Makers. Etobicoke, Ont. Can/CSA-Q850-97.

runoff timing. Increased moisture uptake by rejuvenating stands can result in less water available for runoff and a corresponding reduction in low flows.

Hydrogeomorphic hazard: A naturally occurring process in a watershed, including debris flows, debris floods and or other damaging flood events. These processes are influenced by the characteristics of a watershed including its hydrology, landforms and soils. Land use activities can contribute to the occurrence of hydrogeomorphic events through increases in peak flow that result from forest cover removal, sediment loading from landslides and other types of erosion, and landslide impact on stream channels.

Interviews with licence holders and government staff

Water Licence Holders (Water Purveyors)

In each of the 48 sample community watersheds, Board investigators contacted the water purveyor by phone (usually a local government staff member) to determine: whether the watershed was still being used for source water; the infrastructure used to divert water from the waterworks; whether the authority has experienced challenges with regard to water quality, quantity and timing of flow at the waterworks; and whether the authority was receiving the required notifications from forest licensees in advance of road construction or deactivation. For each of the 12 community watersheds in the investigation sub-sample, Board investigators met with the water system operator to gather additional information about the source watershed, water infrastructure and method for water treatment.

Government Staff

Board investigators conducted interviews with staff from the MFLNRO and the Ministry of Health (including drinking water officers located in the five regional health authorities). During the interviews, enquiries were made about the history of community watershed designations, current management approaches for community watersheds and how drinking water officers consider source water protection.

To assess how government considers FSPs for approval, Board investigators interviewed either a tenures forester, stewardship forester or district manager in each district where 1 or more of the 12 field-assessed watersheds were located. In the context of government's objective for community watersheds, government staff were asked about processes for reviewing FSP submissions and how results and strategies were deemed to be measurable, verifiable and consistent with government's objectives (with specific reference to the community watershed objective).

Forest Licensees

Board investigators interviewed a select number of forest licensees required to have an FSP and who operate within 1 of the 48 community watersheds in the sample. The purpose of the interviews was to either seek clarification on the results or strategies in their FSPs, to hear views on appropriate forest planning and practices in community watersheds and how the licensees' practices may vary depending on whether they are working within or outside a community watershed.

Analysis of land use in community watersheds

The following spatial layers were accessed to provide information on the extent of land uses in community watersheds (data found at https://apps.gov.bc.ca/pub/geometadata/): community watersheds, ownership, tenures, ungulate winter range, wildlife habitat areas, old growth management areas and scenic areas.

Analysis of forest harvesting in community watersheds was prepared by the Board from a combination of 2007 Vegetation Resources Inventory history records, reporting of forest harvesting to the RESULTS system and satellite image change detection conducted by the Forest Analysis and Inventory Branch of MFLNRO.

Appendix 3: Linkages Between FRPA, the Drinking Water Protection Act, Water Act and the Ministry of Environment's Water Quality Objectives

The investigation examines the protection of water by forest and range licensees operating under FRPA within community watersheds. However, the requirements under *Forest Range and Practices Act* (FRPA) are linked, both directly and indirectly, to the *Drinking Water Protection Act* and the *Water Act* as follows:

- Requirements of the *Drinking Water Protection Act* are in addition to FRPA's requirements.
- The *Drinking Water Protection Act* includes authority to assess impacts to source drinking water, including forest and range practices regulated under FRPA.
- The protection of water under FRPA pertains to a licensed waterworks, which includes a water supply intake or water storage and delivery infrastructure, licensed under the *Water Act* and/or requires an operating permit under the *Drinking Water Protection Act*.

Drinking Water Protection Act (DWPA)

The DWPA, which came into force in 2003 (and was amended in 2005), is the predominant legislation that governs the protection of drinking water in BC, whether the source is surface or ground water, from private or Crown land.[54] The DWPA makes no reference to community watersheds. Rather, legislative requirements are primarily based on the number of users served by the water supply system as follows:

- ***1 household water connection*** – not defined as a "water supply system." Users are not subject to most parts of the Act, including the requirement to obtain an operating permit.
- ***> 1 but < 500 household water connections*** – defined as a "small water system." An operating permit is required. Small water systems have greater flexibility in meeting requirements (e.g., using in-home treatment devices).
- ***> 500 household water connections*** – must provide potable water to all users. An operating permit is required. Some health authorities require system operators to undertake a comprehensive assessment of source water and implement source protection planning.

Although specific requirements of the DWPA vary based on the number of users served by the water source, section 23 of the DWPA generally prohibits the introduction of any substance into a drinking water source or water system that results or likely to result in a drinking water health hazard. The DWPA also includes authority to require water system operators to conduct comprehensive assessments of source water (Part 3) and to implement source protection planning (Part 5).

Comprehensive assessments of source water, often referred to as source-to-tap assessments have been completed, or are in the process of being completed, in a number of source watersheds that generally supply more than 500 water users (some of the assessments have been completed in community

[54] The Ministry of Health is the provincial lead agency responsible for safe drinking water. The *Drinking Water Protection Act* is administered by drinking water officers in five health authorities (Fraser, Vancouver Island, Northern, Vancouver Coastal and Interior). More information on the Act and the Ministry of Health's drinking water program, can be found at http://www.health.gov.bc.ca/protect/dw_index.html.

watersheds, but the designation is not a factor in deciding if the assessment is required). The assessments include the identification of hazards within source watersheds, including from practices subject to FRPA and other land uses that may affect water quality.

As of March 2009, there were 4550 water systems permitted by the health authorities. The vast majority of these (73 percent, n=3328) have fewer than 15 connections and an additional 357 water systems serve First Nations on reserve.[55] About 10 percent of the total number of water systems are located within community watersheds. However, government does not track the number of water users served by water systems located in community watersheds.

Water Act (WA)

The WA regulates water resources, primarily by making decisions on licences to divert and use water in streams (water allocation); construct works or make other changes in and about a stream; and any change or transfer to water licences. Water management planning, water allocation planning and drought management are also included in the WA.

A WA licence is required for most surface water diversions (e.g., stream, spring, lake, etc.), whether the purpose is for irrigation, domestic (drinking) use or any other use.[56] Currently, the WA does not licence groundwater.[57] However, a licence is not required for domestic (household) water use on a stream that is not recorded (meaning that water rights on the stream have not already been allocated to another user(s)).

Ministry of Environment's Water Quality Objectives

The Ministry of Environment has established water quality objectives for a range of water quality parameters in about 150 water bodies across the province, including some community watersheds. In some reports, the ministry makes reference to water quality objectives under FRPA. However, unless established by order as water quality objectives under section 8.2 of the *Government Actions Regulation*, the objectives are not legally binding under FRPA. To date, none of the ministry's water quality objectives have been legally established as water quality objectives under FRPA.

In 2003, the Forest Practices Board reported on the potential for adopting the Ministry of Environment's water quality objectives under FRPA. The Board concluded that water quality objectives are a useful tool for setting water-quality goals, measuring water-quality trends, evaluating the effectiveness of the regulatory regime, and guiding future resource management decisions.[58]

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[55] Office of the Provincial Health Officer, *Progress on the Action Plan for Safe Drinking Water in British Columbia 2011*, 2012, http://www.health.gov.bc.ca/pho/pdf/drinking-water-report-2011.pdf.

[56] *Water Act* purpose definitions for human consumption can be found at: http://www.env.gov.bc.ca/wsd/water_rights/licence_application/cabinet/purpose_definitions_nov-2012.pdf

[57] The *Water Act* includes measures to safeguard groundwater, but not to licence its use. The *Water Act* will be replaced by the *Water Sustainability Act*, which was given first reading on April 1, 2014. The proposed *Water Sustainability Act* will regulate groundwater use.

In some areas of the province, the Ministry of Environment has issued *Water Act* licences for wells, even though use of groundwater does not currently require a licence under the legislation. As a result, for those wells that have been issued a *Water Act* licence, it is unclear if they are deemed to be 'licensed waterworks' under FRPA.

[58] Forest Practices Board, *A Special Report on the Use Of Water Quality Objectives under Forest Practices Legislation: Lessons for the Future*, 2003. The report is available for download at: www.fpb.gov.bc.ca.

Appendix 4: Government's Objectives that Applies to 6 of 466 Community Watersheds

Objective established under the Land Act that applies to five community watersheds in the Kalum Sustainable Resource Management Plan Area

This objective is established under section 93.4(1) of the *Land Act* as a land use plan order. It applies to forest licensees required to have an forest stewardship plan who have operations in the Rosswood, Usk, Kleanza, Gossen or Hatchery community watersheds (located near Terrace, BC):

> Maintain the quality, quantity, and natural flow regimes of water in watersheds identified as newly established community watersheds. Ensure a clearcut equivalency of less than 20 percent of the watershed area in sub-basins larger than 250 hectares, unless a different threshold is determined as being more appropriate as a measure of maintenance of natural flow regimes.[59]

Objective established under the Government Actions Regulation that applies to one community watershed

The Mellott Creek community watershed, near Kamloops, BC, is the only community watershed with a water quality objective established by order under the *Government Actions Regulation*.
The objective includes similar wording as government's objective for community watersheds in the *Forest Planning and Practices Regulation*, but applies to all licensees and agreement holders under the *Forest Range and Practices Act*. It is a planning requirement under the *Forest Planning and Practices Regulation* and a practice requirement under the *Woodlot Licence Planning and Practices Regulation* (section 58) and *Range Planning and Practices Regulation* (section 34).

[59] The Kalum Sustainable Resource Management Plan order can be viewed at: http://archive.ilmb.gov.bc.ca/slrp/srmp/north/kalum/plan/Kalum_SRMP.pdf.

Appendix 5: Additional Observations Regarding Notification of Affected Water Licensees

The investigation found that forest licensees are complying with the requirement under section 84 of the *Forest Planning and Practices Regulation* to provide 48 hours notification to water users prior to road construction or deactivation in a community watershed. However, in assessing compliance with the requirement, the investigation made several observations about the notification process required under the *Forest Range and Practices Act* (FRPA), which does not require forest licensees to consult with potentially affected water licensees, only to notify them of upcoming activities related to road construction or deactivation).

For most community watersheds, staff employed by the holders of a licensed waterworks (e.g., a municipality) told Board investigators they receive required notifications from licensees proposing to construct or deactivate roads in community watersheds. However, for some community watersheds, staff responsible for the delivery of drinking water said they had not received the notifications, most likely because they were not being forwarded to them by their own administration.

Staff in five community watersheds said that they do receive the notifications but are unsure about their intended purpose. Further, they said the notifications do not allow them to provide meaningful input into planned road construction or forest harvesting.

In 2010, government published a FRPA bulletin providing direction for applying the requirements for notification.[60] The bulletin describes the intended purpose of the notification:

> "The purpose of the notification is to provide the water licensees or water purveyors and their client's sufficient time to assess and prepare for any potential temporary interruption of service or access to or from their residences or water intakes. Interruption of service in this situation concerns the *temporary interruption of water delivery or water quality*."

The Board notes that a potential gap exists between the intended purpose of the 48 hour notification and the water quality practice requirement in the *Forest Planning and Practices Regulation* (section 59). The potential gap exists because the practice requirement does not permit "the temporary interruption of water delivery or water quality."

[60] FRPA General Bulletin (Number 23) – Providing Notice of Road Construction or Deactivation Activities in a Community Watershed. Available for download at: http://www.for.gov.bc.ca/ftp/hth/external/!publish/Web/frpa-admin/frpa-implementation/bulletins/frpa-general-no-23-providing-notice-of-road-construction-or-deactivation-activities-in-a-community-watershed-apr-1-2010.pdf.

Appendix 6: Occurrence of Current and Past Land Use Activities Observed by Board Investigators in the 12 Field-Assessed Watersheds

Land Use Activity Observed by Board Investigators	Occurrence of Land Use Activity (by field-assessed watershed identifier*)											
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
CROWN LAND												
FRPA regulated – forestry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRPA regulated – range	✓	-	-	✓	✓	-	✓	✓	-	✓	-	✓
FRPA regulated - woodlots	✓	-	-	-	-	-	-	-	-	-	-	-
Highway	✓	-	-	-	-	-	-	-	-	-	-	-
Pre-FRPA forest harvesting including non-status roads	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mine development and associated access roads (past and current)	✓	✓	✓	-	-	-	-	-	-	-	-	-
Power generation or transmission and associated access roads	-	-	-	-	-	-	-	✓	✓	✓	-	-
Recreation – regulated	✓	✓	-	-	-	-	-	✓	-	✓	-	✓
Recreation – motorized, non-regulated	✓	✓	✓	✓	-	✓	-	✓	✓	✓	-	✓
Waterworks infrastructure other than the intake – including reservoirs, diversion channels, access roads, pipelines etc. managed by the water purveyor.	-	✓	✓	✓	-	✓	-	✓	✓	✓	-	-
PRIVATE LAND[61]												
Agriculture	✓	-	-	-	-	-	-	✓	-	-	-	-
Managed forest land (regulated)	-	-	✓	-	-	✓	-	-	-	-	-	-
Power generation or transmission	-	-	✓	-	-	-	-	-	-	-	-	-
Residential (dwellings)	✓	-	-	-	-	-	-	✓	-	-	-	-
No. of observed land uses in the watershed	**10**	**6**	**7**	**5**	**3**	**5**	**3**	**9**	**5**	**7**	**2**	**5**

** The watershed identifiers in this table correspond to watershed identifiers used on pages 18, 20 and 21.*

[61] It was beyond the scope of this investigation to assess whether First Nations, provincial or local governments regulate private land use in community watersheds. However, Board investigators are aware that some private lands managed for forestry, including land in community watersheds, may be subject to legislation administered by the Private Managed Forest Land Council.

Appendix 7: Additional Findings and Observations of the Watershed Condition Assessment

Sedimentation Hazards

- On the coast and steeper interior watersheds, natural sources of sediment are key contributors to the sedimentation hazard.
- The type of land use that has contributed to sedimentation hazards varies between watersheds assessed. On the coast, forest road erosion, landslides related to pre-*Forest Range and Practices Act* (FRPA) forest harvesting, ineffective road deactivation, channel destabilization from pre-Forest Practices Code harvesting in riparian areas, forest development on private land, recreation, and waterpower development are contributing factors. In the interior, forest road erosion, mining, range, and recreation are contributing factors. Sediment input to streams from forest road erosion is the common theme among watersheds assessed and issues occur on all types of roads (e.g., forest service roads, road permit roads, non-status roads and roads on private land).
- In 3 of the 12 field-assessed watersheds, moderate to high sedimentation hazards, combined with infrastructure limitations, affect the ability of the licensed waterworks to meet users' demand. Problems relating to demand are regarded as a high consequence and where alternative supply is not available to fully meet demand, particularly peak demand that coincides with low flow, a high or very high risk situation exists (this is the situation for all three watersheds). Pre-FRPA forest development is a problem in all three watersheds but in two of the three watersheds, FRPA-era forest practices are a contributing factor. In 1 watershed, additional factors include unmanaged off-road vehicle use and the expansion of an electrical transmission line.
- In the remaining watersheds with moderate to high sedimentation hazards, the potential consequence and resulting risk is being addressed through advanced water treatment facilities and/or an alternative supply (usually a lake or well source) used during periods of poor water quality. This finding suggests there is a reliance upon water treatment infrastructure and alternative sources to address water quality issues rather than dealing with problems at the source (i.e., within the watershed).
- In 2 of the 12 watersheds, good forest road construction practices were found to contribute in a positive way to the protection of water quality. Erosion on forest service roads and road-permit roads in 5 watersheds, and chronic road erosion issues and landslides related to licensee activities in 2 watersheds, contributed in a negative way to the protection of water quality. In 3 watersheds, the licensee's activities likely had no effect on government's objective for community watersheds because the scale of FRPA-era activities was insignificant relative to watershed size and other land uses.

Streamflow Hazards

- Streamflow hazard is high in one field-assessed watershed as a result of natural conditions.
- Low hazard ratings occur in field-assessed watersheds where attenuation is present (natural storage and regulation achieved through lakes and wetlands or reservoirs created by owners of licensed waterworks). Moderate hazard ratings occur in field-assessed watersheds including either dry belt areas where water supply is limited by precipitation or steeper, wetter, and better drained watersheds that are naturally prone to dramatic high and low flow events. The high hazard rating occurs in a watershed with steep, well drained soils and high runoff response (i.e., 'flashy').
- The land use contribution to streamflow hazard is most significant in areas affected by mountain pine beetle where changes in the timing of flows are expected, or in watersheds with extensive and vigorous regeneration that could affect water yield and water supply.
- Low risk situations from a supply and timing of flow perspective include large systems supplying few people or those with storage and/or back up to deal with supply during low flow/high demand periods. Higher risk situations result from systems that are vulnerable to natural fluctuations in water supply and there is no alternative water source or storage (i.e., reservoirs). In two watersheds with water storage, forest harvesting (primarily salvage harvesting) has the potential to make more water available over the short to medium term. A similar increase in water yield is possible in one other field-assessed watershed but no storage is present so benefits may not be realized. The contribution of licensee activities to water quantity and the timing of flow are insignificant in the other nine field-assessed watersheds as a result of a limited amount of forest harvesting, large watersheds supplying few users, or attenuation provided by storage.

Hydrogeomorphic Hazards

- Low to moderate hydrogeomorphic hazard conditions occur in gentler watershed types (four watersheds), where flooding is the dominant process. Hydrogeomorphic hazards are high where evidence of contemporary debris flood or debris flow deposition was observed where non-forest values are at risk (public safety, private property, and infrastructure). The land use contribution to current hazard levels is moderate to high where forest development and other land use related landslides have occurred recently or are anticipated because of site conditions.
- In 10 watersheds, licensed waterworks are vulnerable to damage from hydrogeomorphic events. In 3 of the 10 watersheds, a high to very high risk situation exists because, if the licensed waterworks are damaged, alternative sources of water are either not available or an alternate supply may be insufficient to meet demand. In 2 watersheds, current forest practices contribute in an incremental way to hydrogeomorphic hazards. In those watersheds, FRPA-era landslides have occurred or appear imminent. Mountain pine beetle related damage to mature forest and subsequent salvage in 3 watersheds may also have an incremental effect on hydrogeomorphic hazard and potential damage to licensed waterworks.

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SCRD STAFF REPORT

DATE: June 18, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Tracey Hincks, Administrative Assistant

RE: **CHAPMAN LAKE STORAGE ACCESS STUDY - REFERRAL FROM REGULAR BOARD MEETING**

RECOMMENDATION(S)

THAT the Administrative Assistant's report dated June 18, 2014 titled "Chapman Lake Storage Access Study - Referral from Regular Board Meeting" be received for information.

The following resolution was adopted at the regular Board Meeting of May 22, 2014 and added to the agenda for discussion:

Pump Station	**It was moved and seconded**
295/14	THAT the topic of the floating pump station be added to the July 2014 Infrastructure Services Committee agenda.

CARRIED

SCRD STAFF REPORT

DATE: June 19, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Jeremy Valeriote, Manager of Waste Reduction and Recovery

RE: **AVICC SOLID WASTE MANAGEMENT MEETING**

RECOMMENDATION(S)

THAT the Manager of Waste Reduction and Recovery's report dated June 19, 2014 titled "AVICC Solid Waste Management Meeting" be received;

AND THAT one Director and one staff member attend the AVICC meeting on solid waste management, and that the meeting costs be funded from the general government function.

BACKGROUND

At the February 13, 2014 regular Board meeting, the following resolution was adopted:

098/14 ***Recommendation No. 11*** *Solid Waste Management on Vancouver Island*

THAT the correspondence dated January 29, 2014 from AVICC regarding a request to arrange either a stand-alone meeting or a Convention session on the topic of solid waste management on Vancouver Island be received;

AND THAT a letter be sent to AVICC requesting clarification on whether the topics of this meeting are exclusive to Vancouver Island AVICC members;

AND THAT the letter convey the SCRD's interest in discussions on the topic of solid waste in our Coastal Community Region.

DISCUSSION

The Chair and the Manager of Waste Reduction & Recovery participated in a June 10 conference call with AVICC members to discuss the potential of convening a meeting of elected officials and senior staff on solid waste management in AVICC regional districts. The call was chaired by the CAO of the Comox Valley Regional District.

After listening to the proposed agenda (Attachment A) and discussion, the SCRD made a tentative commitment for a contribution of up to $1000 to share meeting costs, and indicated that select Directors and senior staff would likely attend. The confirmed meeting date and location is September 4 in Nanaimo, which is the same date as the September ISC meeting.

A budget for the meeting should include the meeting contribution ($1000), travel and expenses for the selected number of attendees ($200 per person), and Director remuneration ($330 per Director).

RECOMMENDATION

That one Director and one staff member attend the AVICC meeting on solid waste management, and that the meeting costs be funded from the general government function.

SOLID WASTE MANAGEMENT
VANCOUVER ISLAND AND COASTAL COMMUNITIES
September 4, 2014
Location – to be determined
9:00 a.m. to 4:00 p.m.

Page

1. CVRD Hosts introduction: Chair Edwin Grieve and Vice Chair Jon Ambler
2. Solid waste management plan presentations – (five minutes for each regional district)
   - Alberni-Clayoquot Regional District
   - Capital Regional District
   - Comox Valley Regional District
   - Cowichan Valley Regional District
   - Powell River Regional District
   - Regional District of Mount Waddington
   - Regional District of Nanaimo
   - Strathcona Regional District
   - Sunshine Coast Regional District
3. Ministry of Environment
   - Land fill criteria update
4. AECOM
   - Financial modeling – Comox Valley RD
   - Capacity – Comox Valley RD

LUNCH

5. Facilitated session – (facilitator to be determined)
   - Discuss opportunities and challenges
     - Shared interests
     - Shared resources
     - Shared challenges
     - Shared opportunities
   - Next steps

SCRD STAFF REPORT

DATE: June 19, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Robyn Cooper, Zero Waste Coordinator

RE: **RESIDENTIAL WASTE COMPOSITION AUDIT TIMELINE**

RECOMMENDATIONS

THAT the report entitled "Residential Waste Composition Audit Timeline" be received for information.

BACKGROUND

At the Regular Board meeting held on June 12, 2014, the following resolution was adopted:

> **Recommendation No. 8** *Residential Waste Composition Audit*
>
> *THAT the Zero Waste Coordinator's verbal update on the residential waste composition audit be received;*
>
> *AND THAT a report be provided at the July 3rd Infrastructure Service Committee identifying the timeline for the residential waste composition audit.*

DISCUSSION

Below is the estimated timeline for the residential waste composition audit.

Item	Timeline - 2014
Request for Quotation - Issue	June 24
Request for Quotation – Close	July 8
Select Proponent	July 11
Audit to commence pending consultant availability	Late July
Report finalized	September

SCRD STAFF REPORT

DATE: June 26, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Administrative Assistant, Infrastructure Services

RE: **MONTHLY REPORT FOR JUNE 2014**

RECOMMENDATION(S)

THAT the Administrative Assistant, Infrastructure Services' report titled "Monthly Report for June 2014" be received.

BACKGROUND

This report is prepared monthly as information for the Infrastructure Services Committee.

UTILITIES DIVISION

WATER TREATMENT PLANT

In May the Chapman Water Treatment Plant produced and supplied 399,934 m^3, a 0.3% decrease over the five year average.

WATER DISTRIBUTION SYSTEM

- 5 water meters were installed in May.
- Staff provided significant assistance to the Town of Gibsons with field operations and logistics in order to isolate the Town's water system and provide emergency water supply during their boil water advisory condition starting on June 6th. The Town has been entirely serviced by SCRD water since June 12th as the Drinking Water Officer requires the Town to maintain a chlorine residual in their distribution system and they have no other means to disinfect their system. The SCRD has agreed to supply water to the entire Town until July 1st, at which time it is hoped that the Town will have their disinfection system up and running.

CAPITAL WORKS

The South Pender Water Treatment Plant will begin delivering clean, treated drinking water to residents by the end of June. Staff is working on communications to the South Pender Harbour water customers.

Mains Replacement Program

- The Beach Avenue Mains upgrade is 80% complete.
- The Kenyon Road Water Main upgrade is completed.

TRANSPORTATION AND FACILITIES DIVISION

TRANSIT

The September schedule is being finalized and work has started on the October schedule.

PORTS

Scheduled maintenance and safety inspections have been completed on Gambier Island, Keats island, and Hopkins. The remaining inspections at Thormanby Island and Halfmoon Bay have been scheduled for early July.

FLEET

The 4 replacement Nova buses have now been transitioned into service. The retired buses that have been replaced will be returned to BC Transit shortly.

JOINT WATERSHED MANAGEMENT ADVISORY COMMITTEE MEETING MINUTES

May 26, 2014

MINUTES FROM THE JOINT WATERSHED MANAGEMENT ADVISORY COMMITTEE MEETING HELD AT SUNSHINE COAST REGIONAL DISTRICT OFFICE AT 1975 FIELD ROAD, SECHELT, B. C. MONDAY, MAY 26, 2014

PRESENT:

Sechelt Indian Band:	Chief	Calvin Craigan
	Councillor	Garry Feschuk
	Councillor	Christopher August
	Councillor	Randy Joe
	Rights and Title Department	Jasmine Paul
	Rights and Title Researcher	Kelly Boras
SCRD:	Director, Halfmoon Bay (Area B)	Garry Nohr
	Director, West Howe Sound (Area F)	Lee Turnbull
	Director, Pender Harbour (Area A)	Frank Mauro (Chair)
	Director, Roberts Creek (Area D)	Donna Shugar
	Alternate Director, District of Sechelt	Doug Hockley
	Chief Administrative Officer	John France
	GM Infrastructure Services	Bryan Shoji
	Recording Secretary	Susan Hunt

CALL TO ORDER 10:01 am

AGENDA

The agenda for the Joint Watershed Management Advisory Committee meeting was adopted as presented.

MINUTES

The minutes of the Joint Watershed Management Advisory Committee Meeting held on February 24, 2014 were received as presented. The following comments were made:

- Item 1 – Staff advised that a joint staff report regarding how to restructure the Joint Watershed

Protocol Agreement has not been not acted on at this time. The item New Community Watersheds was added to New Business section on the agenda.

- Item 3 – Clarification was made with a new recommendation.

Recommendation No. 1 – *SCPI Chapman Watershed Risk Classification Map*

The Joint Watershed Management Advisory Committee recommended that the Sechelt Indian Band provide the Sechelt Community Projects Inc's Chapman Watershed Risk Classification map to the next meeting.

REPORTS

Recommendation No. 2 – *Joint Watershed Management Advisory Committee Terms of Reference Amendments*

The Joint Watershed Management Advisory Committee recommended that the Report from the General Manager of Infrastructure Services regarding the Terms of Reference Amendments be received;

AND THAT the amended Joint Watershed Management Advisory Committee Terms of Reference be adopted as presented

Recommendation No. 3 - *Community Watershed Designation Process for Hotel and Garden Bay Lakes*

The Joint Watershed Management Advisory Committee recommended that the report from the SCRD Environmental Technician be received;

AND THAT an application be submitted to the Province requesting the Community Watershed designation for Hotel Lake and Garden Bay Lake.

NEW BUSINESS

Recommendation No. 4 – *New Community Watersheds*

The Joint Watershed Management Advisory Committee recommended that the Sechelt Indian Band meet with their Council and Staff to discuss the potential to expand the Joint Watershed Protocol Agreement to include other drinking watersheds within the shíshálh territory, including the goals to be achieved and criteria for inclusion.

AND THAT the Sechelt Indian Band distribute the watershed criteria prior to the next Joint Watershed Management Advisory Committee meeting;

AND THAT the subject of expansion of the Joint Watershed Protocol Agreement to include other drinking watersheds be referred to the July Infrastructure Services Committee Agenda for discussion;

AND FURTHER THAT any recommendations concerning the expansion of the Joint Watershed Protocol Agreement resulting from the July Infrastructure Services Committee Meeting be sent to the Sechelt Indian Band for consideration.

The Sechelt Indian Band representatives advised the committee that it was brought to their attention that AJB Investments plan to build a logging road to initiate harvesting of their private lands within the Chapman watershed. Concerns were discussed regarding the proximity of the Chapman Watershed and the intake.

Recommendation No. 5 – *AJB Lands*

The Joint Watershed Management Advisory Committee recommended that the Sechelt Indian Band and the Sunshine Coast Regional District write a joint letter to the Private Managed Forest Lands Council and Ministry of Forest to obtain more information on the forest stewardship plans and requirements for the AJB property;

AND THAT the SCRD Planning Department review the zoning for the AJB property (i.e. watershed protection zone in OCP) to identify what activity is permitted;

AND FURTHER THAT Sechelt Indian Band and the Sunshine Coast Regional District jointly inquire to AJB Investments to clarify the logging plans for their property.

ADJOURNMENT 10:28 am

SCRD STAFF REPORT

DATE: June 25, 2014

TO: Infrastructure Services Committee – July 3, 2014

FROM: Tracey Hincks, Administrative Assistant

RE: **JOINT WATERSHED PROTOCOL AGREEMENT EXPANSION TO INCLUDE OTHER DRINKING WATERSHEDS**

RECOMMENDATION(S)

THAT the Administrative Assistant's report dated June 25, 2014 titled "Joint Watershed Protocol Agreement Expansion to Include Other Drinking Watersheds" be received.

This report is provided to address the items included in the following recommendation from the May 26, 2014 Joint Watershed Management Advisory Committee:

Recommendation No. 4 – *New Community Watersheds*

> *The Joint Watershed Management Advisory Committee recommended that the Sechelt Indian Band meet with their Council and Staff to discuss the potential to expand the Joint Watershed Protocol Agreement to include other drinking watersheds within the shíshálh territory, including the goals to be achieved and criteria for inclusion.*
>
> *AND THAT the Sechelt Indian Band distribute the watershed criteria prior to the next Joint Watershed Management Advisory Committee meeting;*
>
> ***AND THAT the subject of expansion of the Joint Watershed Protocol Agreement to include other drinking watersheds be referred to the July Infrastructure Services Committee Agenda for discussion;***
>
> ***AND FURTHER THAT any recommendations concerning the expansion of the Joint Watershed Protocol Agreement resulting from the July Infrastructure Services Committee Meeting be sent to the Sechelt Indian Band for consideration.***

SUNSHINE COAST REGIONAL DISTRICT
PUBLIC WHARVES ADVISORY COMMITTEE
June 2, 2014

DRAFT MINUTES FROM A PUBLIC WHARVES ADVISORY COMMITEE MEETING HELD AT FRANK WEST HALL, 1224 CHASTER ROAD, GIBSONS, BC.

PRESENT	PWAC Members	Nancy Donaldson, Chair
		Tony Flynn
		Roger Sayer
		Kate-Louise Stamford
ABSENT WITH REGRETS		Bruce Wallis
ALSO PRESENT	Manager of Transit and Fleet	Rob Williams
	Manager of Transit and Ports	Jose Martinez
	Facilities Maintenance Technician	Jesse Agnew
	Recording Secretary	Rob Williams

CALL TO ORDER 10: 30 a.m.

AGENDA The Agenda was adopted as circulated.

MINUTES

The following amendment was made to the minutes of March 31, 2014:

- *Page 2, Section Ports Strategic Plan – Local Island Resources line 3: Replace "$250.00 to $120.00 or less".*

By general consensus, the Public Wharves Advisory Committee adopted the meeting minutes of March 31, 2014 as amended.

REPORTS

Keats Landing Crank Handle Management

Mr. Williams reported that Recommendation No. 3 from the March 31, 2014 Public Wharves Advisory Committee minutes was not approved as per the May 1, 2014 Infrastructure Services Committee minutes. The current crank handle management system will remain as is.

NEW BUSINESS

Utilization of Local Island Resources

Mr. Williams reminded the Committee that the utilization of local island resources is an ongoing topic of discussion in order to help identify processes and people to increase efficiencies with ports maintenance.

Mr. Flynn expressed that it would make sense that only emergency repairs be done by qualified Island residents.

Committee members indicated they would send qualified local Island contractor contacts to the SCRD to follow up on.

Keats Landing Wharf Work

The Facilities Maintenance Technician gave an update on recent repairs at Keats Landing, including removing the door from the shed, installing a non-slip walking path, removing the bollard insert, and installing three speed bumps (3").

Ms. Donaldson noted that the speed bumps are too large and that kids have tripped on them and golf carts have trouble moving over them. It was also stated that someone had cut out the middle of the speed bumps.

The Facilities Maintenance Technician mentioned he would be on the island later in the week and would review the situation.

Mr. Flynn commended the Facilities Maintenance Technician for the work that he had done recently and asked that an extra rung be added to the top of the ramp.

Ms. Donaldson and Mr. Flynn asked if the community could paint the shed. Mr. Williams indicated that a formal response would be provided.

A quarterly inspection by SCRD of the public docks was scheduled to be held in the near future. Some members indicated they would attend visits on their island.

It was noted that there is room for a second member from Gambier on the Committee. Mr. Williams mentioned he would take a look at the Committee terms of reference and report back.

Ms. Donaldson conveyed that she would see if the Camp could remove overgrown shrubs from around the signs at the start of the dock.

Keats Island Community Information Meeting Update

The Committee agreed to wait to see the notes from the recent Keats Island Community Information Meeting before making further recommendations on Keats Landing wharf work.

Gambier Island Community Information Meeting

No community information meeting was scheduled at this time.

Ms. Stamford reported she attended the SCRD Protocol meeting with the Squamish First Nation, where the New Brighton Dock was discussed.

Old Pilings

Recommendation No. 1 *Removal of old pilings*

The Public Wharves Advisory Committee recommended that in the future the SCRD look at removing all old pilings.

Herring Nets

Recommendation No. 2 *Support for herring populations at docks*

The Public Wharves Advisory Committee recommended that staff look into installing herring nets at all docks to support herring populations.

ROUNDTABLE

NEXT MEETING September 22, 2014

ADJOURNMENT 11:36 a.m.

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

Coast Garibaldi/Bella Bella/Bella Coola Health Services
Box 78, 494 South Fletcher Road
Gibsons, BC V0N 1V0
Tel: 604-886-5600
Fax: 604-886-2250

From the Office of the Medical Health Officer

June 4, 2014

Bryan Shoji
General Manager, Infrastructure Services
Sunshine Coast Regional District
1975 Field Road
Sechelt, BC V0N 3A1

Dear Mr. Shoji,

Re: Request for Vancouver Coastal Health Support for Initiation of a Drinking Water Protection Plan for Chapman Creek Watershed

Thank you for your letter dated January 24, 2014 which asked for Vancouver Coastal Health (VCH) support in your request to the Provincial Health Officer to proceed with initiation of a Drinking Water Protection Plan (DWPP) for Chapman Creek watershed, as per Section 31 of the Drinking Water Protection Act.

Consideration for initiating a Drinking Water Protection Plan begins when monitoring or assessment results indicate a threat to drinking water that may result in a drinking water health hazard, and no other practicable measures are available under the Act to address or prevent the hazard. All other options available under the Act to resolve the potential threats must be exercised before a request for such a plan can be made to the Provincial Health Officer (PHO) for consideration.

Our office commends the SCRD for the excellent work in watershed protection undertaken so far including the detailed Source Assessment, and the Source Assessment Response Plan (SARP). Seventy (70) ranked action items are identified and included in the SARP along with timeframes to completion, organization responsible, and a preliminary cost estimate for completion. Based on our consultation with experts in the field, as well as understating past precedent for other DWPP requests, we feel it is important to allow an adequate opportunity for implementation of the action items in the SARP prior to placing a request to the Provincial Health Officer to initiate a DWPP.

In order to move a request forward to the Provincial Health Officer for consideration, a compelling case for a DWPP must include:

- Identifying the work and progress on SARP action items undertaken so far by the SCRD.
- Which of the SARP action items have been attempted by the SCRD, but have shown that there is a significant failure to reach meaningful progress? In this case, what are the barrier(s) to progress?
- Has there been a failure of significant progress for SARP action items which have other organizations (outside of the SCRD) assigned as responsible? Again, what are the barrier(s) to progress?

- A convincing case would also have to be made that establishes there are imminent health hazards that cannot be addressed by other watershed management planning efforts, and existing water treatment infrastructure.

In summary, our office is not opposed to the initiation of a Drinking Water Protection Plan. However, our understanding of acceptance criteria is that development of the SARP in August 2012 is not enough, on its own, to warrant a request for a DWPP.

Please do not hesitate to contact our office for clarification. I can be reached at 604-886-5600.

Yours truly,

Paul Martiquet, M.D.,C.M.,CCFP.,M.H.Sc.,FRCP(C)
Medical Health Officer

cc: Darren Molder, Environmental Health Officer
Steve Chong, Manager, Environmental Health