Internet Access in the Powell River Regional District: 2011 Refresh

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Introduction

To better understand the state of Internet access in the Powell River Regional District, a comprehensive report was commissioned by the District Office in November 2009[1]. The report helped identify connectivity gaps in the region, where many rural residents lacked access to affordable broadband Internet[2]. Solutions for closing these gaps were discussed, and different technologies were examined for suitability in the area.

Much has changed in the 15 months since this report was first published, both nationally and at home. This brief update will summarize the most significant changes, and is designed to compliment (rather than replace) the original report.

[1] *Internet Access in the Powell River Regional District*, available from District Office or online. www.powellriverrd.bc.ca

[2] As in the original report, we define broadband as any type of Internet access that operates at 1.5 Mbps (Megabits per second) or faster, a generally accepted standard in this country. Unless otherwise noted, all technical terms and assumptions in this update will follow the same guidelines as the original report, and any disclaimers continue to apply. All trademarks mentioned are the property of their respective holders, and are used for illustrative purposes only.

Summary of Changes: Broadband on the Rise

Rural Internet access in Canada was a popular topic in 2010, drawing significant and sustained attention from the federal government and the opposition parties, as well as extensive coverage in the national media. The question was a grand one: *Should broadband Internet be a universal right for all Canadians?* An idea that was impossible just a few years earlier was now an open possibility. Countries like Australia[3] and Spain[4] had already made such a decision. And in September 2010, the Broadband Commission's report to the United Nations[5] declared that:

> *"Broadband networks must be regarded as vital national infrastructure, similar to transport, energy and water networks, but with an impact that is even more powerful and far reaching."*

By the beginning of 2011, the concept of universal, affordable broadband had been discussed to a higher level then ever before. Despite such detailed coverage, lasting polices and solutions have yet to manifest. While the value of broadband Internet is no longer in question, there are significant differences of opinion as to the role of government in facilitating this process.

If progress on the national front could be summarized as "grand but inconclusive", progress in the Powell River Regional District (PRRD) would be "modest but tangible". Changes have been incremental, with a number of small improvements to connectivity in the region. Prices are a sore point, with the cost of service increasing in many cases; interestingly the small, locally based service providers have kept prices steady.

Several future technologies & improvements have also edged closer to deployment. All too often, novel solutions remain a few years in the future, never quite making the jump to reality. In Powell River, better connectivity options are closer in 2011 than they were in 2009, and the state of Internet Access today has generally improved.

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[3] Australia's National Broadband Network www.dbcde.gov.au/broadband/national_broadband_network

[4] CBC News, November 18 2009: *Should Canada enact a universal-broadband policy like Spain's?* *www.tinyurl.com/cbc-universal-spain*

[5] *A 2010 Leadership Imperative: The Future Built on Broadband,* by The Broadband Commission for Digital Development. *Page 13 of the plain-text report* • *www.broadbandcommission.org/outcomes.html*

National Issues

CRTC Broadband Hearings

In March 2010, the CRTC[6] announced plans for a public hearing on the future of rural broadband[7]. For the first time, the commission would consider making broadband Internet a fundamental service, to be regulated in the same way it governs the country's telephone infrastructure. Scheduled for October and November, the spring announcement gave telecom companies fair warning that Internet service could face regulatory controls. If the private sector could not adequately close the connectivity gap soon, there was a real chance that the government would act.

The hearings commenced October 27 in Timmins, Ontario. In his opening remarks, chair Konrad von Finckenstein noted that many residents of rural Canada have few if any options for affordable broadband, with relatively slow & expensive satellite access as the only typical choice[8]; this agrees with conclusions made in our original report[9].

Provincial carriers MTS Allstream and SakTel both spoke in favour of a regulatory environment. "It's simply unrealistic to claim market forces will do the job," MTS president Kelvin Shepherd said in a statement[10]. He proposed a 1-2% increase in national telephone bills to pay for the significant costs of broadband expansion, which he estimated could reach $700 Million a year for ten years.

> *"Not only do we think this [funded expansion] is workable, we think this is the only way universal broadband can be achieved that assures rural and remote Canada can get up to speed and stay up to speed with the rest of the country."* - MTS Allstream President Kelvin Shepherd

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[6] Canadian Radio-television and Telecommunications Commission

[7] CRTC Notice of Consultation www.crtc.gc.ca/eng/archive/2010/2010-43-1.htm

[8] CBC News, *CRTC holds hearings on rural broadband* www.cbc.ca/technology/story/2010/10/27/crtc-riural-broadband.html

[9] Finding the Gaps. *Internet Access in the Powell River Regional District,* Page 14

[10] IT World Canada, *$7-billion rural broadband plan put to CRTC* m.itworldcanada.com/story.aspx?id=141817

National carriers Bell, Rogers, Shaw, Telus, and Xplornet spoke out strongly[11] and sometimes vehemently[12] against the idea, calling it "unadulterated nonsense", "ludicrous", and "beyond outrageous". These carriers argued passionately against broadband regulation, saying that technology and service improvements would soon close the gap without government intervention.

Another contentious point involved defining the percentage of Canadians who lack affordable broadband access. Both the CRTC and the telecommunications carriers used a national figure of 5%[13]; some advocacy groups believe this is understated. Studies published by the Alberta Association of Municipal Districts and Counties (AAMDC) show that 15% of all Albertans lack access to affordable broadband[14]. Looking only at rural Albertans, the number without access is an astonishing 40%.

A similar disagreement in gap size was noted during our 2009 connectivity survey, where our real-world findings were at odds with official cellular coverage maps of the area. National coverage maps are often built with simple mathematical calculations (mean distance from nearest cellular tower, or presence on a street listed as covered), which simplify access considerations and may lead to an overstatement of coverage. Detailed local surveys can identify resident access on a case-by-case basis. The federal government has solicited voluntary survey results from Canadians in the past, but this may still not be enough to guarantee accuracy.

Despite best intentions, it is possible that the number of Canadians who lack affordable broadband access is understated by government and industry, perhaps even by 2-3 times as indicated in the AAMDC report. Regardless of the measure, the number certainly draws more attention when urban residents are removed. Using the Alberta results as a basic model for Powell River, are we comfortable with 40% of rural residents lacking broadband access? Suddenly the issue seems larger than the 5% being discussed on the national stage.

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[11] Toronto Sun, *Telecoms oppose mandatory broadband coverage*
www.torontosun.com/money/2010/11/02/15915931.html

[12] IT World Canada, *Carriers fire broadsides at CRTC hearing*
www.itworldcanada.com/news/carriers-fire-broadsides-at-crtc-hearing/141872

[13] Cnews, *Telecoms oppose mandatory broadband coverage*
cnews.canoe.ca/CNEWS/MediaNews/2010/11/02/15914596.html

[14] AAMDC Refutes Statements Made by Telecoms and CRTC on Rural Broadband Coverage (PDF)
tinyurl.com/aamdc-pdf

As the broadband hearings continued, the CRTC heard vigorous and disparate opinions from both sides. The situation required a strong and independent moderator, but recently the CRTC has faced unique challenges to that role. Some legal experts questioned the commission's right to even regulate Internet service, although the general legal consensus supports this[15].

Other CRTC decisions raised national controversy, and recent government intervention in the commission has fostered an atmosphere of uncertainty. A decision to block wireless carrier Globalive (aka Wind Mobile) from operating in Canada was overturned by federal cabinet. In the lawsuit that followed, the CRTC was found to have acted correctly by Canada's foreign ownership rules; by that point Wind Mobile was already well established in Canada but technically operating without license[16]. These types of embarrassing regulatory situations can create severe uncertainty in the industry, and can undermine the ability of the CRTC to make tough decisions.

In a controversial move, the CRTC recently allowed national ISPs to impose Usage Based Billing (UBB) on smaller carriers across the country. Rather than simply leasing the connection, UBB permits large carriers to sell bandwidth by the megabyte, which could significantly increase costs faced by the smaller operators. In Powell River, Shaw and Telus represent the infrastructure holders, while smaller operators like Uniserve, GBIS, and Twincomm all buy their connectivity from these players. The CRTC decision to essentially penalize smaller ISPs at the benefit of larger providers sparked national outrage, with over 450,000 names collected in an opposing petition[17]. The decision raised the national profile of the CRTC in a bad way, and brought promises from the federal government to revisit or completely overturn the plan. The CRTC has reopened discussions on this issue[18].

Rural broadband hearings ended in November, with a decision excepted later in 2011. It is clear that any leadership in this area will require a full-fledged battle, one that may

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[15] Yahoo! Canada Finance, *Expert doubts CRTC jurisdiction in Internet regulation* ca.finance.yahoo.com/news/Expert-doubts-CRTC-capress-1694703097.html

[16] CTV News, *Wind Mobile ruling backs CRTC over government* www.ctv.ca/CTVNews/Canada/20110204/mobile-mobile-court-decision-110204/

[17] The Open Media Petition lists 463,695 names as of Feb 14, 2011; online petitions are open to some manipulation and should not be considered audited. • openmedia.ca/meter

[18] Vancouver Sun, *CRTC billing about-face* www.vancouversun.com/business/technology/CRTC+billing+about+face/4250241/story.html

not be politically tenable for the CRTC to fight at this time. On the other hand, a strong and popular decision could restore public confidence in a commission battered by recent events. The possibility of an upcoming federal election will bring new pressures from policy makers eager to show their support for universal broadband. For now, Canada's rural broadband strategy hangs in the balance.

Broadband over Power Lines

The possibility of transmitting Internet through BC Hydro's power lines continues to tantalize. Listed as a Novel Technology in our 2009 Internet Access report, Broadband over Power Lines (BPL) enjoyed heightened interest recently. During the 2010 Winter Olympics in Vancouver, local innovator Corinex brought a limited form of BPL to several olympic sites[19]; the company is headquartered in Vancouver. BC Hydro is in year three of a 20 year infrastructure upgrade, bringing the province to a fully modernized Smart Grid[20]. Smart grids generally include a BPL component, and many industry experts state that BPL is an essential part of the smart power grid[21]. BC Hydro has made no public comments, timelines, or commitments regarding broadband over power lines.

Xplornet 4G Network

Announced a month before our original report, the Xplornet Jupiter satellite system remains on schedule for widespread availability in 2012. This availability is expected to bring heightened speeds and lower costs to rural residents. Meanwhile the company has introduced a terrestrial (land-based) component ahead of the launch, bringing next-generation 4G wireless to rural Quebec via new cellular towers. Plans are in place for additional 4G towers coast to coast, possibly getting the drop on more established players like Bell, Rogers, and Telus. The combination of cellular towers and overhead satellites will bring 4G speeds (25 to 100 Mbps, very fast) and enhanced coverage to "bridge the broadband divide"[22]. Leveraging cutting edge technologies like WiMax and HTS (High-Throughput Satellite), Xplornet is poised to bring very real improvements to

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[19] Corinex press release • tinyurl.com/corinex-olympic

[20] BC Hydro Fact Sheet: Smart Grid • tinyurl.com/bchydro-smartgrid

[21] ELP article: *Are utilities looking hard enough at Smart Grid's communications backbone?* *tinyurl.com/smartgrid-bpl*

[22] Xplorenet Press Release. www.xplornet.com/4g.aspx

rural broadband in Canada[23]. In the CRTC hearings discussed above, the company promoted this strategy as evidence that connectivity gaps will close without government intervention. While Powell River won't begin to see these upgrades until 2012 at the earliest, current Xplornet users in the area should see network congestion ease as customers across Canada start migrating to the new system, freeing up space on the older satellites that currently serve our area[24].

[23] Winnipeg Free Press, *Barrett Xplore launches 4G network for high-speed Internet in rural Canada* tinyurl.com/wfp-bx

[24] Based on discussions with local Xplornet installer Glen Roscovich of Roscomm, Feb 2011.

Local Issues

Dial-Up Continues to Fall Behind

In 2009, the fastest consumer broadband available in Powell River was a whopping 446 times faster than dial-up. If that number seems hard to grasp, today it is *four times larger.* A dial-up Internet user can expect speeds 1,785 times slower than Shaw Nitro; what a Nitro user can download in one minute would take about 29 hours on dial-up.

Of course, Shaw's flagship Internet package costs more than a dial-up account[25]. Nonetheless, Nitro stands as a stunning example of how large the gap between slowest and fastest has grown. Those with high-speed access can expect regular connectivity improvements, while dial-up continues to age beyond obsolescence.

Cellular Internet: Hits & Misses

Telus and Bell introduced a new kind of cellular Internet to Powell River in late 2009[26], at speeds rivalling the fastest wired connections. Since then, many rural residents have switched to this technology. Rogers also offers this speed now. Suitable for light to medium Internet use, 3G cellular Internet remains prohibitively expensive for heavy users due to a staggering $50 per gigabyte fee[27]. Basic email and web surfing is fine, but don't try to download a high definition movie - your overage cost could be $150 for just one show[28]. At first only Telus charged this much; later Bell and Rogers followed suit. All three carriers have normalized their monthly rates, making service quotes between them almost identical at this time. Aside from the draconian overage rate, regular monthly costs are low and tend to have dropped [29].

In the Malaspina Rd, Okeover area, some users reported strange problems with their new Telus or Bell 3G sticks. After working normally in the first part of 2010, the

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[25] Shaw Nitro costs about five times more than Telus Unlimited Dialup.

[26] A type of advanced cellular technology known as "Evolved High-Speed Packet Access" or HSPA+, this is almost marketed under the more generic 3G or 3.5G moniker. Older 3G technologies are outclassed by HSPA+, often by a huge margin.

[27] Conditions for overage fees can differ based on account types. On a typical flex plan offered by any of the 3 providers, overage kicks in once you pass 5GB per month.

[28] Using leading Internet movie provider Netflix as an example, 3 GB for a 2 Hour HD movie.
Streaming Media Blog, *Detailing Netflix's Streaming Costs* • tinyurl.com/netflix-stream-cost

[29] See Appendix A in this document for details.

coverage area seemed to shift and exclude many homes. Carriers eventually switched some customers back to older 3G technology based on CDMA[30]. No other areas in the district reported this strange problem; of course, some areas never had reliable cellular access in the first place. Cellular boosters may be purchased to improve borderline cellular performance in the home or vehicle; RosComm now offers these products locally (see below).

Cellular Internet has made a positive difference for many basic Internet users, and uptake in the region is increasing. The service is not a perfect solution due to somewhat limited coverage and disproportionately high cost for heavy use; rural residents that avoid those two categories are benefitting well.

Gillies Bay Internet Society Waits for Funding

Construction of the new Mt. Pocahontas transmission tower was one of the most exciting stories carried in our original 2009 report. Today the tower stands unfinished as the Gillies Bay Internet Society (GBIS) waits for its next round of funding. The tower site is not accessible to cranes, so final assembly work will proceed by helicopter when funding comes through. The tower will stand 100 feet (30 meters) tall and must endure high wind conditions, necessitating an expensive construction process. The anchor points are set and the tower's lowest section now stands. A shed has been built on site for the redundant power system, designed to keep the tower operational through an extended (multi-day) blackout.

The society applied for additional grants in November 2010; they expect word by April 2011. If the applications are approved in full, funds will complete the main tower and two additional towers as well. One tower will be built near the Oasis neighbourhood (between Van Anda and Gillies Bay), while the second will cover the Bell Rd area. These towers can work as repeaters, extending the GBIS coverage area to more residents (around eighty new homes).

Unlike the larger carriers, GBIS has not raised their rates. Recent equipment upgrades are gradually increasing speeds (1.8 Mbps was a recent average). Director John Dove highlighted their exceptional upload speed, which at 1.4 Mbps is faster than, for example, Shaw Extreme's upload speed[31]. Download speeds are the most important,

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[30] Based on resident reports, 2010-2011.

[31] Information on hardware updates and increased speed tests courtesy of GBIS director John Dove.

but having a superior upload speed is still a great advantage, benefiting video conferencing, content providers (website designers, YouTube contributors), and other Internet applications.

The new tower on Mt. Pocahontas will accommodate a variety of antennas and transmitters. As exclusively identified in the 2009 Internet Access report, much of Powell River's mainland shore is in range of this tower. Area C (south of town) remains largely underserved for broadband; Texada could play a key role in bringing access back to the mainland. This is beyond the scope of GBIS: the society's mandate comes from Texada, and the logistics of supporting a customer base separated by a ferry ride does not appeal.

Instead, GBIS invites any like-minded mainland society to come forward and assume this role. Such a society could rent space on the tower and bounce signal back to the mainland. The most likely scenario involves leasing a mainland connection from Telus, transmitting that signal to Mt. Pocahontas, and relaying that signal back to Area C customers in range of the tower.

Area C residents should monitor this situation closely. Once the Pocahontas tower is operational, a partnership with GBIS should certainly be explored. The tower represents an enormous opportunity for anyone in range; steadily improving wireless technologies are improving that range every month.

Twincomm Mulls Broadband Expansion

While national service providers continue to gradually raise prices, local ISP Twincomm is still charging the same fees today as in 2009[32]. Some speed increases are planned for later this year as well.

The company is planning to grow its service area in 2011, based on user input. Twincomm generally serves islands and coastlines but has considered inland areas in the past. Some of their service territory lies outside the PRRD (Cortes and Quadra Islands, for example), so the expansion might not take place in this area. Interested parties can email president Constantinos (Dino) Tsakonas at dino@twincomm.ca; he will consider all user input carefully in planning this next expansion. Based on our 2009 connectivity survey, PRRD Area A (north of town) likely has the best chance of

[32] See Appendix A in this document for details.

expanded service. The best way to improve service is to ask for it; underserved residents shouldn't hesitate to contact Tsakonas.

RosComm Offers Cellular Boosters Locally

FIrst identified in the 2009 Internet Access report, cellular boosters have become a vital technology for many rural residents. These boosters take a weak, hardly-there cellular signal and upgrade it to something more reliable and fast, helping residents who live on the edge of cellular service. Properly installed boosters can improve both voice and data quality, and cost a few hundred dollars. At the time of our report these products were not carried locally, after it was published we encouraged local contractors to step up and meet that need. As a result, Glen Roscovich of RosComm now offers a comprehensive line of Wilson boosters for local purchase and installation[33]; the move has allowed RosComm to diversify their offerings from satellite to cellular. The company also sells cellular routers, allowing customers to share a single 3G connection with multiple computers. RosComm continues to offer Xplornet satellite installation, and is monitoring Xplornet's 4G network expansion with interest.

Closing Thoughts

The connectivity gaps identified in our original report are smaller today, although much work still lies ahead. Local efforts will continue to address these gaps in modest ways, while national decisions and next-generation technologies advance closer to reality.

User satisfaction in the PRRD seems significantly higher today than in 2009. We found that even in gap areas, residents feel much better about their chances of gaining access in the future[34]. Our 2009 report sent a clear message that concerns were being heard in the region, and gave residents concrete goals to look forward to. More connectivity options exist than before, and residents are better informed about them.

This year, every major political party and level of government has expressed respect for broadband access. The concerns of rural residents are our concerns, Canada's concerns. This is not an issue that will be forgotten.

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[33] RosComm: 604-414-3890 • www.roscomm.ca

[34] Based on resident reports, 2009-2011.

Appendix A: Changes in Monthly Access Prices

Shaw and Telus have typically raised prices by around 10% since 2009. Strangely, Telus dial-up users faced the highest increases by percentage (up to 20%); this is discussed in detail below. Local carriers Twincomm and GBIS have not increased rates, nor has Xplornet; boutique reseller Uniserve has actually reduced rates significantly. Meanwhile, the 3 national wireless carriers appear to have harmonized their pricing structure, making quotes between the three basically identical.

The inflation rate during this time was 1.7%[35], or nominal; differences shown are not adjusted for inflation.

Bell Mobility costs bucked the trend by dropping 5-24% as they moved to match Telus. However, they also adopted the higher overage fees favoured by Telus, an increase of 40%. This bodes well for light users, but has implications for heavy use[36].

Lasqueti Internet Access Society (and Gillies Bay Internet Society) prices remain largely unchanged[37]. Real-world account speeds tend to be increasing, as local hardware updates continue[38].

Rogers Mobility costs have shown minor increases & decreases (+/- ~10%) as the company normalized plan pricing. Overage costs have increased by 40%. As with Bell, this has implications for heavy use. Rogers flexible pricing is almost identical to Bell and Telus, with the addition of an extra $1.96/month system access fee[39].

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[35]Canada Inflation Rate, Nov 2009 to Dec 2010
http://www.tradingeconomics.com/Economics/Inflation-CPI.aspx?Symbol=CAD

[36] Bell Flexplan. $35/month 500 MB, $70/month 5GB. Overage @ $50/GB
www.bell.ca/shopping/en_CA_BC.Mobile-Internet-Flex-plan/TSFLEXA.details

[37] Lasqueti Wireless Rates. $40/month or $400/year. • www.lasqueti.ca/services/broadband#rates

[38] Information on hardware updates and increased speed tests courtesy of GBIS director John Dove.

[39] Rogers Flexible Plan, $36.96/month 500 MB, $71.96/month 5GB. Overage @ $50/GB.
tinyurl.com/rogersplans2011

Shaw Communications prices have increased by 2-12%. A new Shaw Nitro plan has been introduced. The Shaw Warp plan has been doubled in speed for a mere 2% price increase, other plans are holding at the same speeds[40].

Telus Dial-up costs have increased by 13-20%[41]. Accounts are priced fairly low, so this is only a few additional dollars per month. Still, users are troubled by any price increases, as they point out that dial-up speed, performance, and quality of service are generally stagnant or even declining[42]. We did not contact Telus for comment on these increases, due to the limited nature of this update. A possible reason for the price changes is a shrinking dial-up user base, with declining economies of scale.

Telus High Speed Internet (ADSL) has seen price increases of 8-17%. Telus High-Speed Lite is now 4 times faster at 1 Mbps (up from 256 kbps)[43]. This is excellent, but the company is falling behind Shaw in terms of higher speed options for the area.

Telus Mobile Internet costs have shown minor increases & decreases (+/- ~15%) as the company normalized flex plan pricing. Overage costs are the same, too high for heavy use. Pricing is at the moment identical to Bell[44].

Twincomm prices and plans remain largely unchanged[45].

Uniserve prices have dropped by 11-27%, a significant and laudatory change[46].

Xplornet (Barrett Xplore) is unchanged for typical connectivity prices[47].

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[40] Shaw Internet Plans. 1 Mbps $35, 7.5 Mbps $47, 15 Mbps $57, 50 Mbps $107, new 100 Mbps $160. www.shaw.ca/Internet

[41] Telus Dial-Up Plans. $18 for 12 hours, $31 Unlimited. • telus.com/content/internet/dialup/

[42] Based on resident reports, 2010-11.

[43] Telus ADSL Plans. 1 Mbps $30, 6 Mbps $39, 15 Mbps 52. • telus.com/content/internet/

[44] Telus Flexible Plan, $35/month 500 MB, $70/month 5GB. Overage @ $50/GB. www.telusmobility.com/en/BC/flex_plan/index.shtml

[45] Twincomm Services. 512 Kbps $39, 1 Mbps $59, 1.5 Mbps, $89 • www.twincomm.ca/services.html

[46] Uniserve Plans. 3 Mbps, $29.95. 6 Mbps, $39.95. www.uniserve.com/residential/internet/high-speed-internet/

[47] Xplornet Services. 1 Mbps $59.99, 1.5 Mbps $119.99, etc. www.xplornet.com/packages-home.aspx | www.xplornet.com/packages-business.aspx