



Ragged Edge Community Network Society

Progress Report – May 31st, 2008

Community Champion:
Community Futures Development Corporation of Mount Waddington

Project Design, Management and Implementation:
Kevin R. Battersby, Sea Star Solutions Ltd.

Introduction

September 2007 through May 2008 has been a period of rapid growth in the Ragged Edge Community Network.

The most significant projects were sponsored through grants to expand service into the communities of Coal Harbour, Quatsino First Nation, Zeballos and the adjacent Ehattesaht First Nation reserve. These expansions were made possible by grants from Coast Sustainability Trust, Island Coastal Economic Trust and Western Economic Diversification. In-kind donations were provided by Community Futures Development Corp. of Mount Waddington and the Quatsino First Nation.

Service was extended to the Kwicksutaineuk/Ah-Kwaw-Ah-Mish First Nation on Gilford Island, portions of Mitchell Bay and to Hecate Cove in Quatsino. These expansion have been funded through the normal operation of the Ragged Edge Community Network and through the Kwicksutaineuk/Ah-Kwaw-Ah-Mish First Nation.

Background

The Ragged Edge Community Network Society (RECNS) came into being in November 2005 with network operation starting in April 2006. Prior reports covered up to the fall of 2007.

http://www.seastarsolutions.com/recn/RECNS_Report_20060930.pdf

http://www.seastarsolutions.com/recn/RECNS_Report_20071031.pdf

http://www.seastarsolutions.com/recn/RECNS_Report_20080531.pdf (current)

Reconnecting and Reassessing

Fund raising for the major expansions into Coal Harbour and Zeballos proved to be a long and at times cumbersome process. During this time doubts had arisen in the communities that the promised high speed Internet service was ever to arrive.

Once the project started in September the first objective was to re-establish contact with the communities. This began with the community champions, community organizations and local government. With the help of these contacts

community meetings were arranged and interest in the projects rekindled. Although scepticism remained until actual construction began the continued desire for service



was evident.

One effect of the long delay in starting these projects is believed to be a decrease in early adopters. Although this effect has now mostly been overcome, it added a challenge to the project.



Concurrent with fostering interest in the communities was the validation and testing of the technical plans. Although the plans were essentially sound, many adaptations were needed to accommodate changes in attitude towards the project or new policy within certain organizations. Notably, Western Forest Products, which had shifted the approval for land use from the local level to the company board level and then to their funders. In the case of Coal Harbour, this

necessitated changing the technical plans in major ways at least three times.

Testing and retesting of potential radio lines-of-sight took place during September and October. Care during this step was essential due to the problems inherent with construction of wireless networks during the winter months. It has been the downfall of many networks constructed during the winter to have these networks fail once summer growth reduces or eliminates radio signals. To date this problem has been avoided.

Agreements

Agreements were needed with property owners and local government organizations to facilitate the placement of equipment. Seven agreements were needed to cover the various sites. Due to the potential problems associated with moving back-haul connections in the future, these were placed in the local fire halls which have a low likelihood of moving. This also offers the possibility of connecting essential emergency services directly to the main gateway if this is desired in the future. Two relay sites are located on private property and the remainder are co-located with local government facilities or public service organizations such as the local fire halls. With the exception of one hotel, which reversed an earlier decision to host a tower and site, there was good support for the project and a willingness to help. Signing off on the various agreements did take a fair amount of time for various logistical reasons with the final agreement being put into place in February.

Zeballos and Ehattesah First Nation

Access to this community during the winter can be difficult and at times dangerous. It was decided to begin the build-out in Zeballos as early as possible to avoid heavy

construction during the worst of the winter weather. This strategy was only a partial success. Heavy snow, ice and rain impeded the construction of the main tower and certainly added to the risks involved.



Construction of the main tower foundation was completed by early December. The tower itself was raised on the 18th of December.



Telus completed installation of the back-haul connection by the end of December. Installation of the wireless equipment to service the main part of Zeballos and Ehattesaht First Nation community proceeded during the first week of January. The first customers went online during this period. The remaining areas of the community were brought online early in February with the installation of one relay site and a second access point site.

The system in this community is operating well according to reports from customers. Early adopters of the service include the Village of Zeballos, the Volunteer Fire Department, the Ambulance Service, the Health Clinic and the Library.

Despite the weather, being the most significant obstacle, this installation went smoothly and has been a great success.

Coal Harbour

Work in the community began in January with preparations at the fire hall for the new fiber back-haul. The original plan for Coal Harbour was to service the community from one tower located across the bay on Western Forest Products property. This became impractical due to time constraints imposed by new WFP policy. An alternate plan was devised using three access points. To compensate for cost changes the tower was eliminated and an arrangement made with the management of the wharf to use existing lamp posts on the wharf to house the first access point and repeater site. This avoided potential problems and expenses that new construction would have entailed. The change required custom mast extensions and other parts, which were fabricated by local machine shops and installed with the services of one of the larger electrical contractors in the area.



By the end of the first week of February the first access point and the back-haul were put into service. The two remaining access points were placed on private property with long term agreements in place with the owners. One of those sites also serves as a relay to the Quatsino First Nation installation. The first of these sites was in service by the 18th of February and the second by the 10th of March.

Some trouble was experienced with faulty grounds, which is believed to have caused a couple of radio failures. Since this was corrected no further problems have been

encountered.

Quatsino First Nation

The most challenging community was the last to be connected. With the loss of the originally planned tower in Coal Harbour, went the most direct line of sight into the Quatsino First Nation reserve. A subsequent site was arranged with Koprino Logging but this also fell afoul of lease clauses with Western Forest Products. A third plan was devised, which required two towers be erected to span the 1.5 km between Coal Harbour and the reserve. A thirty meter heavy duty tower was placed on the highest available land on the northern side of the reserve and a twenty meter tower in Coal Harbour.



Tower construction on the reserve was greatly aided by the acting band manager and by members of the community. From the time the order for the tower was placed and ground broken for the foundation, until it was standing ready for use, was less than five weeks.

Adoption of the new Internet services has been very good in this community. The K'ak'ot'tats'i School with the assistance of the First Nations Education Steering Committee has connected to the RECN network on a dedicated 5.8 GHz link, which has provided a marked improvement over the previous satellite service. The Band Office, Health Center, Treaty Office and Economic Development Corp. have also adopted the new service.

One problem that has been noted in this community is a distinctly higher level of interference from portable phones and other wireless devices that use the public ISM frequencies. Compared to the other communities served by RECNS this is an anomaly. Working with IT staff from the reserve and feedback from the customers this interference has been minimized. Plans are also being implemented to bring a greater awareness to community members of what types of devices will exist harmoniously within a dense radio environment. Also under consideration are options that would help rid the community of outdated wireless equipment and expand install coverage to every residence on the reserve.

Kwicksutaineuk/Ah-Kwaw-Ah-Mish First Nation - Gilford Island

Early in 2007 Sea Star Solutions Ltd. was approached to do a follow-up assessment regarding the feasibility of providing Internet service to this community. This service being needed to provide ongoing monitoring of water treatment and related infrastructure trials underway there, in addition to provide improved connectivity for the community. The existing satellite connection was unable to be used for this purpose due to high latency.



Following the evaluation of several possible wireless shots to the community a test was proposed to determine if connectivity could be established from the RECNS network to the community. The test, conducted in November, proved successful and a link was installed in January. This 27 km link is the longest in the RECNS network.

Funding for this project came entirely through the Kwicksutaineuk/Ah-Kwaw-Ah-Mish First Nation.

Although there remains some work to do on the Gilford Island side of the link it has proven to be reliable and has remained in constant operation since its installation in January.

Sointula and Holberg Upgrades

Growth has been steady in these areas and with it has come some congestion in available bandwidth to the customer. This has been expected and an upgrade of the access point radios had been planned for. The next generation of Waverider radios was released in December with the main benefit of four times the air bandwidth than the previous generation.

Implementing the new system involved upgrading the firmware of all the installed customer modems and then replacing the access point radios. The firmware upgrades and radio replacements took approximately three weeks to complete. A few customers, less than ten, needed on site visits to complete the software changes and get them connected to the new system.

Overall the upgrade went very smoothly, with customers reporting noticeable improvements in speed and performance.

These upgrades were funded by RECNS as a part of normal operation.

Mitchell Bay – Malcolm Island & Hecate Cove - Quatsino

RECNS has received numerous requests for service in these two areas. Although the total number of potential customers is small, an opportunity presented itself in April to move ahead with the expansions.

To service the northern side of Mitchell Bay, which is in a radio shadow from existing access points, a 2.4 GHz repeater was installed.

The Hecate Cove expansion was made possible by the efforts of the local installer in Quatsino, Andy Hansen, who did the ground work testing to confirm previous work and who secured access to power and a site for the repeater.

Quatsino was not upgraded to the latest generation of radios due to issues related to self powered sites. Some older access points became available following the equipment upgrades in the Sointula and Holberg areas. These were to have been returned to Vecima Networks as part of the upgrade package. However, Vecima kindly allowed two of the units to remain, one as a spare for Quatsino and one to allow the expansion into Hecate Cove.

Although there have long been plans for these expansions, the funding had previously not been available. The necessary funds and equipment to complete these projects became available as a result of RECNS growth into larger communities. Expansions such as these have been part of RECNS mandate and goals since its inception.

Summer Hazards – Cruise Ship Fade

In May 2007 a new problem arose. This was the unexpected failure of the Telus back-

haul for Sointula and the surrounding area. After a long summer of outages and much troubleshooting by RECNS and Telus the problem was determined to be caused by cruise ships passing through the microwave shot between Sointula and Port McNeill.

Telus initiated a project to redirect this shot to Alert Bay verses Port McNeill. This project was completed, as far as RECNS is concerned, on the 26th of May. This being the date that the RECNS back-haul was moved to the new microwave circuit.

The Future

With over two years of successful operation behind it RECNS is now an established service provider. Initial growing pains have been overcome and a great deal of experience gained. Looking to the future RECNS is in an ideal state to seek further expansion areas. Telegraph Cove is a possibility and expressions of interest have been received from other areas and organizations. The recently completed expansions and upgrades have added significantly to the customer base of the organization which will help provide more stability and viability going forward.

Contact Information

Ragged Edge Community Network Society
#14-311 Hemlock St.
Port McNeill, B.C., V0N2R0
250-956-2220
info@recn.ca
<http://www.recn.ca>

Evelyn Clark
Community Futures Development Corp. of Mt. Waddington
#14-311 Hemlock St.
Port McNeill, B.C., V0N2R0
250-956-2220
evelyn@recn.ca

Kevin Battersby
Sea Star Solutions Ltd.
401-110-174 Wilson St.
Victoria, B.C., V9A7N7
250-514-2063
kevin@seastarsolutions.com