

Newport Wireless Mesh 2022 Annual Report

The mission of Newport Wireless Mesh is to improve our neighbors' quality of life through better access to the digital world,

to promote education, independence, upward mobility and self-confidence,

to model the sustainability of an alternative community project that is less reliant on government and large corporations,

and to build community through shared ownership.

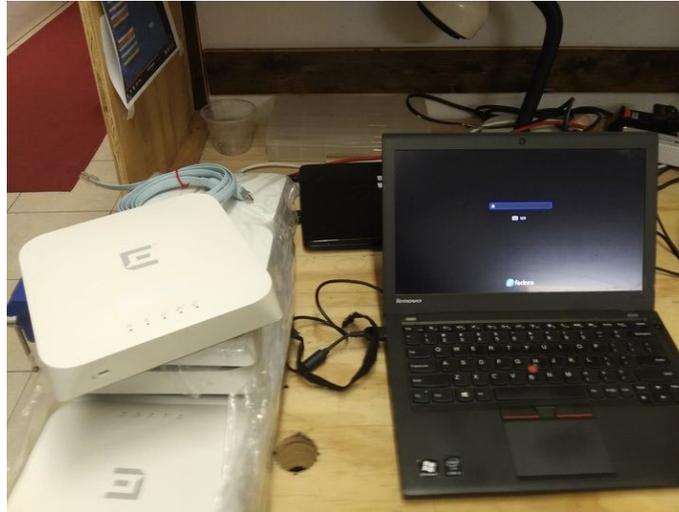


Subscriber Kimberly Durant

Overview

2022 focused on improving service for our subscribers. Our goal is to meet our subscribers' needs for internet access at a cost they can afford. Most of our subscribers use the mesh to stream television, whether it is how-to and informative videos on the YouTube channel, old movies that are a pleasant companion for seniors, news, music and games for single individuals or family entertainment for subscribers with children. Many stay in touch with distant family and friends via social media. When there's no money for phone minutes, social media may be their only way to contact others. Some subscribers need the internet to attend group meetings or medical appointments. Others need to access services online.

Our subscribers, whether seniors on social security, disabled people or working people on tight budgets, don't need and can't afford expensive internet plans. Wireless service, with its low infrastructure cost and potential for implementation by community groups with volunteer labor, is admirably suited to the needs of these individuals. On the other hand, wireless presents technical difficulties not found in wired systems. For that reason, Newport Wireless Mesh is working every day to devise ways to deliver the best possible experience for our subscribers.



Extreme Networks WS-AP3825i

Technical Improvements

Following last year's upgrade of all the routers to Cisco Merakis, this year we upgraded the firmware to the 2022 latest version of Openwrt. Due to a difference in the configuration of the older firmware and the upgrade, Martin had to devise a work-around which solved the problem. The updated firmware corrects for process failures within seconds. Martin also developed a procedure for flashing routers that will allow greater flexibility in modifying the firmware. This year we gained the expertise of two new volunteer software engineers, Scott and Cayal. Our volunteers put together a script to reboot routers before they fail due to low memory. All the routers now have an Openwrt package installed to restart the mesh interface when routers have routing protocol issues. These improvements have eliminated all common router problems, reduced the number of reboots and increased download speeds bringing better service for subscribers and reduced administration time.

We are exploring the many uses for the Prometheus monitoring system and Scott installed Grafana to graphically represent Prometheus data. We have just begun placing Extreme Networks routers with four times the memory of the Merakis, in subscribers homes and will be continuing with that project in 2023.

Chuck has been working to get our equipment at the United Church organized, streamlined and more secure. We will be doing the "switch over" to the new setup in early 2023.

Thanks to a grant from Vermont Electric Coop, we were able to install a new access point on Prospect Street, completing it in December. This brings our total to eleven.

Volunteers

Our volunteers logged 85 hours of in-person time in the office and in the field, plus dozens of hours of help on the phone, by email, and via remote access provided by our technical advisors.

Sadly we lost volunteer installer, all around handyman and good friend Tom Farrow in January of 2022, to Covid 19. Roland Blais has stepped in to shoulder most of the responsibility for installations, while Thadd Beebe has put in many hours working on the antennas on the Merakis and installing Meraki boards in outdoor cases for our access points. Christine Carrington helped with clerical work. Our technical advisors Fred Wiseman, Martin Kennedy, Scott Grimes, Cayal Walker and Chuck Newton and, helping with the website, Peter Lewis (a.k.a Lewisone) were always there to lend their expertise.



Secrets of the Mesh: Modem vs. Router

Education

We completed twelve more educational videos on internet topics which are distributed to mesh subscribers monthly as well as being made available on YouTube at "Secrets of the Mesh". We also helped numerous subscribers and non-subscribers with problems with their use of the internet on their computers and phones throughout the year.

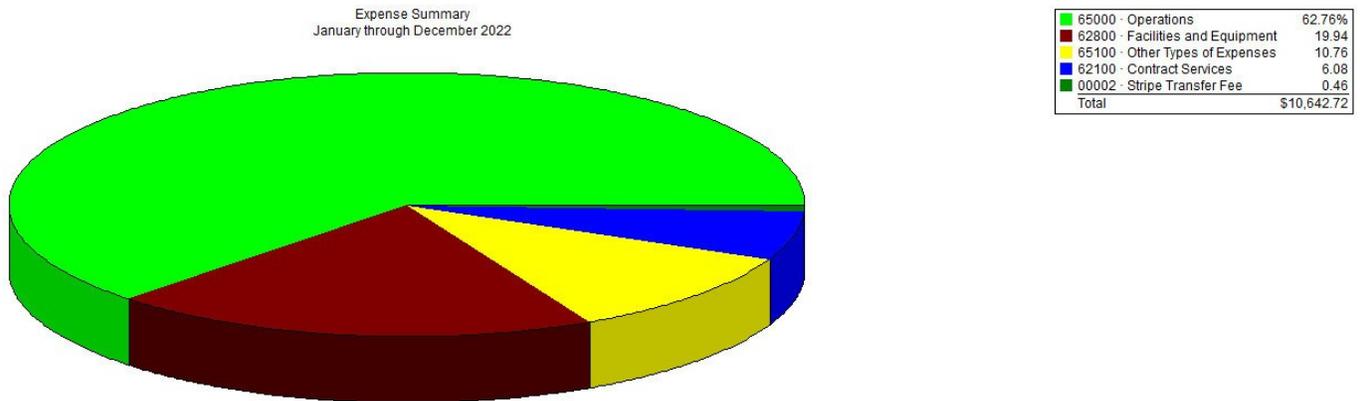
Visitors

In 2022 we had 769 visits from community members needing to use a computer, needing help with using the internet, printing, reading the newspaper, checking out books or just stopping by to chat or have coffee.

Board Changes

Christine Carrington stepped in to serve as a board member and treasurer early in the year, despite her many other volunteer activities. Colleen Moore de Ortiz left the board after many years of service, having been on the original Organizing Committee in 2015. Martin Kennedy, who has been a technical advisor to the project for several years, joined the board. Our newest member taking over the treasurer position from Christine is Graham Rae who brings many years of expertise in both accounting and community service. Martin and Graham join our continuing board members, Peter Lewis, Tammy Monfette, Paul Dreher and myself. We truly appreciate the time and expertise our board members contribute making the mesh a success.

Staying Afloat



Expenses 2022

Towards the end of the year we reached our goal of sufficient subscribers to cover the cost of our backhaul. Since subscribers come and go we will need to add more subscribers in 2023 to maintain this, as well as getting a start on covering our other expenses.

Expenses this year totaled \$10,643 of which 57% was the cost of our fiber optic backhaul. Income totaled \$11,091, of which 40% was contributed by subscribers and the remainder from private donations and a grant from Vermont Electric Coop.

In-kind Donations

Martin Kennedy donated routers and other equipment for the mesh. United Church members Chuck Newton and Fred Rittenshausen provided equipment and did electrical wiring for our new equipment cabinet. Our office space, equipment and utilities are donated by the Project Coordinator. Our access point hosts, the United Church of Newport, Rene Cotnoir, Eleanor and Albert Leger, Frank Knoll, Shane Lantagne, Gerardo Ortiz, Rural Edge, Memphremagog Rentals, Tammi Smith, Scott Grimes and Butterfly Kisses Childcare Center contributed space on their buildings and paid for the electricity to run the routers. We want to thank all these people for their generosity without which the mesh could not continue to grow.

Looking to the Future

In 2023 we will continue to upgrade or firmware with deployment of the Extreme Networks routers where applicable. We will also increase our subscriber base to cover all our cash expenses. This will involve both construction of new access points and getting the word out about the Mesh. We will also return to extending the Mesh to Newport's Main Street, a project that was put on hold to focus on upgrading our firmware and decreasing service interruptions. A third area of focus for 2023 will be decreasing administration time by using software that prevents and mitigates network problems with less human intervention. All of these areas of focus will lead to improved service with less volunteer administration time and effort.

