

# Connecting People to Opportunity



“When we reconnected the customer, they were first pleased at how fast the link went up. Then they saw the higher throughput and performance and were even more amazed.”

- BOB ZAKARIAN,  
PRESIDENT AND CEO  
COMMUNITY WISP  
SYSTEMS

## Challenge

### **BROCKTON HOUSING AUTHORITY (BHA) DEDICATES THEIR**

efforts to providing an environment where families who are experiencing hardship can find a safe and secure environment to provide a home. Their innovative and highly successful programs include their Family Self-Sufficiency Program, which gives residents an opportunity to learn, earn and save with home ownership being the goal. In today’s world, opportunity requires connectivity.

In late November, on the Thanksgiving Day holiday, an equipment failure took out the main link that connected the BHA multi-dwelling units where more than 100 administrative staff were working at processing resident cases. The outage lost email and web browsing, and it also disconnected the billing and data transfer functions of the offices also located in multiple buildings. Because of the heavy administrative functions on the 100 staff workers, any downtime would require that the work load would have to be completed by the staff on overtime.

BHA tried to contact their service provider and alternative providers, but there was no response. Then they called Boston-based Community WISP.

## Solution

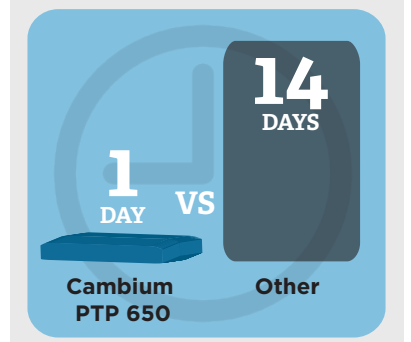
### **COMMUNITY WISP HAS BEEN PROVIDING WIRELESS BROADBAND SOLUTIONS TO THE**

Boston area since 2002. “Many end users at first don’t realize that wireless is an option,” says Bob Zakarian, President and CEO of Community WISP. “For them, we describe our solutions as a “bridge in the sky” and we deal with the technology. Once they have seen what we can do, they never forget us.”

The Community WISP team responded quickly by understanding the specific locations of the broadband source and destination location at the multi-dwelling units. They then used the Cambium Networks LINKPlanner tool to model the connection, suggest a specific product, and preview the link performance.

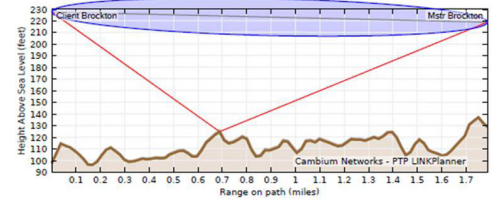
Starting with the main link to the multi-dwelling unit, BHA was so delighted with the high speed and low latency that they ordered a second link to connect another building on their housing campus.

### LINK RESTORATION TIME



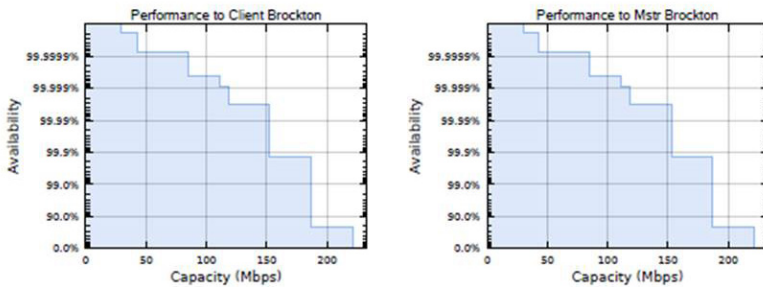
## Plan for Performance

THE LINKPLANNER TOOL PROVIDED ALL THE DETAILED information that Community WISP needed to restore connectivity. The system provided a top down view of the network, a full tabular report of the anticipated performance of each link, and also a path profile side view of the link to identify elevation challenges or obstructions. With this information, Community WISP was able to implement a connection that they knew would work right the first time and perform over the long haul.



LINKPlanner Path Profile

### Performance Charts



Source: LINKPlanner

## Results

“COMMUNITY WISP HAS BEEN WORKING WITH Cambium Networks equipment since 2002, back when they were a part of Motorola,” says Zakarian. “We have done video surveillance projects for the police department, leased line replacement for government offices and connected resorts on Cape Cod with their equipment. It just works.”

Seeing is believing, and the PTP 650 provides a detailed view into the live performance of the system. The system can be monitored 24/7, showing real time and historical performance of the link.

“One of the links is performing at 256QAM (Quadrature Amplitude Modulation) and the other at 16QAM. I know that from the real time reports that I can access anytime. The customer doesn’t need to know that. They can focus on their business,” says Zakarian. The connectorized link operating at 16QAM will be aligned to bring the link up to 256QAM during scheduled downtime in the spring when the weather improves.

Spectrum optimization charts show the performance of available spectrum in the area. The PTP 650 will automatically shift to an available frequency if better performance is available, while continuously monitoring across the spectrum.

## Why Community WISP chose Cambium Networks:

- **Fast deployment time** – the links could be planned rapidly using the Cambium Networks LINKPlanner tool, and equipment could be installed quickly.
- **High performance** – the PTP 650 provides up to 450 Mbps of throughput at low latency.
- **Reliability** – With Dynamic Spectrum Optimization (DSO)<sup>™</sup>, the PTP 650 continuously monitors link performance and provides the best available link. Equipment performs well under harsh conditions.

A system status report shows real time link performance with:

- Transmit power
- Receive power
- Link loss
- Transmit data rate
- Receive data rate
- Transmit modulation mode
- Receive modulation mode

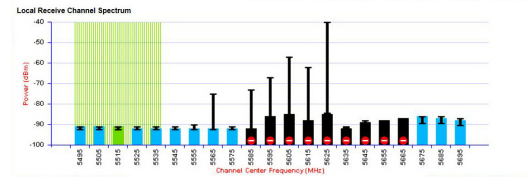
Equipment			Wireless		
Attributes	Value	Units	Attributes	Value	Units
Link Name	Goddard - Campello		Wireless Link Status	OK	
Site Name	Campello Connector		Maximum Transmit Power	-4	dBm
Software Version	50650-01-01		Remote Maximum Transmit Power	-4	dBm
Hardware Version	B0P04-03-C		Transmit Power	-4.0, -4.0, -15.0	-4.0 dBm
Regulatory Band	FS - 4 GHz - United States		Receive Power	-65.4, -72.3, -110.0	-71.1 dBm
Elapsed Time Indicator	00:11:39		Vector Error	7.2, -14.4, -21.7	-17.5 dB
Ethernet / Internet			Link Loss	113.2, 99.4, 0.0	113.1 dB
Main PSU Port Status	Online Link Up		Transmit Data Rate	118.08, 103.44, 0.00	118.08 Mbps
Main PSU Port Speed And Duplex	100 Mbps Full Duplex		Receive Data Rate	118.08, 102.23, 0.00	117.56 Mbps
MAC Address	ADDRESS		Link Capacity Variant	Full	
Remote MAC Address	ADDRESS		Link Capacity	236.16	Mbps
Remote Internet Address	ADDRESS		Transmit Modulation Mode	16QAM 0 87 (Dual) (45 MHz)	
			Receive Modulation Mode	16QAM 0 87 (Dual) (45 MHz)	
			Link Symmetry	1 to 1	
			Receive Modulation Mode Detail	Limited By The Wireless Conditions	
			Range	3.0	km
Status Page Refresh Period	6000	Seconds	Update Page Refresh Period	Reset form	

## Next Steps

### BHA NOW HAS A SOLUTION THAT CONNECTS THEIR TWO

**BUILDINGS.** More important, they have a solution provider who can grow with them as their demand increases and their needs evolve.

For Community WISP, they are glad to connect another organization via a “bridge in the sky” and continue to provide wireless broadband solutions for municipalities, public safety agencies, and enterprises in Massachusetts.



Dynamic Spectrum Optimization results

## Profile:

Brockton Housing Authority provides more than housing. They are motivated to provide a home environment where people can raise their families. They are a vital component to the City of Brockton, Massachusetts community. <http://www.brocktonhousingauthority.com/>

Community WISP (CWISP) provides wireless backhaul and access solutions for the greater Boston area, including Cape Cod and Western Massachusetts.

**Challenge** – Restore high speed communications as quickly as possible over a holiday weekend to minimize system downtime and employee overtime costs.

**Solution**– PTP 650 links were installed to restore connectivity. The network was planned and installed in a matter of days.

The PTP 650 links also provided a dramatic increase in throughput and reduction in latency.