

Bridging the School – Home Internet Divide



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GOAL

Enable every K-12 student in Arizona to take part in teacher led classes from anywhere in the state

CARES ACT

- One of the stated purposes of the CARES Act Funding was to provide a funding mechanism to provide internet to homes enabling students without internet access to be “Connected” to their teachers and schools. In order to accomplish that, you need to bring 100M internet to the home.
 - The FCC minimum definition of Broadband is no longer acceptable (25/3

PROBLEM

- March 15, 2020 Arizona Schools closed due to COVID-19 pandemic
- 150,000 students without any way to communicate with their school / teachers and creating an even larger homework gap (ESH estimate is 209,000)
<https://digitalbridgek12.org/toolkit/assess-need/connectivity-map/>
- 200,000 students have no access to a computer at home
- Fiber-based networks are only available to 25% of the country
https://broadbandnow.com/Fiber?utm_source=sendgrid&utm_medium=email&utm_campaign=Newsletters
- Many Urban as well as Rural areas of Arizona do not have access to Broadband (Defined by the FCC as 25M download and 3M upload)
- In many cases, even with broadband is available, it is not affordable to many families
- ADE issued 200 Verizon “Hotspots” across 5 rural school districts and found only 10% were ever put into use

POTENTIAL OPTIONS

- Satellite, available to 99% of the America population, has proven to be a disaster. [Satellite is plagued by low speeds, high latency, low data caps, massive prices, and inconsistent connections.](#)
** See note
- Fiber-based networks are only available to 25% of the country
https://broadbandnow.com/Fiber?utm_source=sendgrid&utm_medium=email&utm_campaign=Newsletters
- While fiber optics deliver blazing fast upload and download speeds, fiber-based networks are only available to [25% of the country.](#)
- [Cable](#) networks, a hybrid of fiber and coaxial wires, are relatively ubiquitous across the country, although absent in many sparsely populated rural and remote areas. Cable offers amazing download speeds, which is great for streaming videos and social media, but disappointing upload capability, which is necessary for most business. Cable networks also slow down as more people use the network.
- Digital Subscriber Lines (DSL), provided by telephone companies, are most common in rural areas. These networks suffer from neglect, cannot match the speeds of cable or fiber, and experience signal degradation after three miles from the central point of access. [One study](#) found that the median download/upload speed of DSL was 10mbps/1mbps, far below the FCC's current broadband benchmark of 25/3.

Source: Benton Institute for Broadband & Society

** Geosynchronous Satellite

SOLUTIONS

- 100M Internet to the home
 - 2 Phased Approach
 - Phase 1 - Hardware
 - 200,000 Students do not have access to a computer at home
 - » Purchase 200,000 Chromebooks and distribute accordingly (Chromebooks do not have a monthly subscription, no operating system, no hard drive, low maintenance)
 - 150,000 students do not have access to internet at home
 - » Purchase 5,000 hotspots, provide them to the libraries across the state to check out as they would a book (Vendor would be determined by geographic area).
 - Phase 2 – Internet to the Home
 - Use CARES funding to create networks to extend broadband services to homes utilizing CBRS technology
 - <http://www.broadband4arizona.com/bridging-the-internet-divide.html>

EXAMPLES include

- Santa Cruz County
 - Smallest County in Arizona (1,200 sq miles)
 - \$2.5M to provide internet to 90% of the homes in need today
 - Extremely supportive School Superintendent Office and Board of Supervisors would greatly increase the odds of success
- Supai, Az
 - Most remote town in the Continental US
 - No Internet at any of the 75 homes

Santa Cruz County

- 2500 Students do not have internet access at home
- 1,200 square miles
- County School Superintendent and Board of Supervisors willing to use County assets to provide services
- CARES Funding available and can be used to provide internet to the home
- Current provider does not provide broadband to the home in Santa Cruz County

Santa Cruz County – Cont.

Cost Breakdown (CBRS Technology)

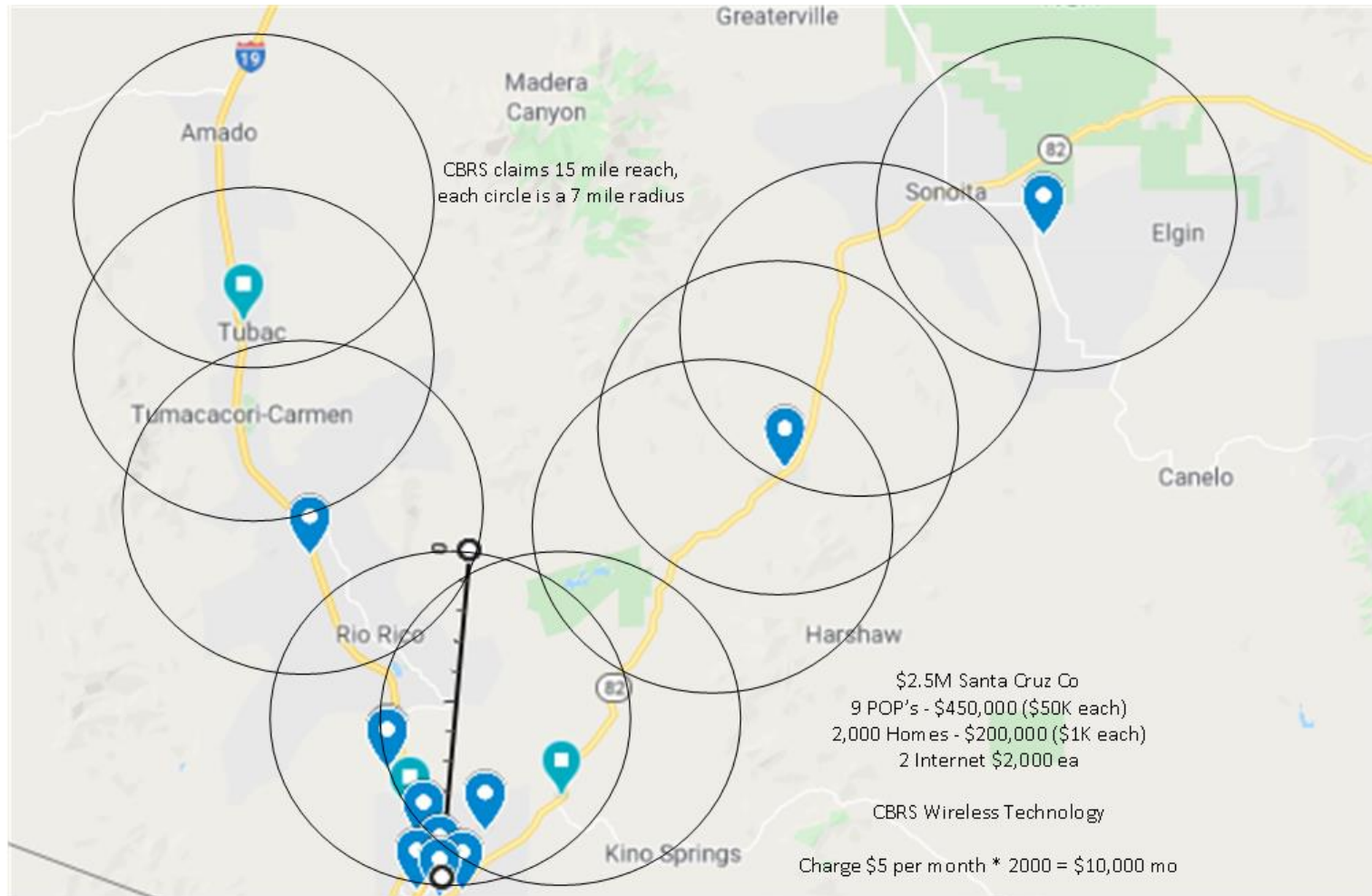
- Capital
 - Hub Locations 6 * \$50K ea = \$250,000
 - Home Installs 2500 * \$750 ea = \$1,875,000
 - Tower Installs 4 * \$10,000 ea = \$40,000
- Monthly Recurring
 - Internet 2G @ \$4,000 MRC
 - Maintenance 2500 units @ \$3 ea = \$7,500 MRC

Total installation: \$2,165,000

Monthly Recurring Cost: \$11,500 (\$4.60 per home)

Bridging the Internet Divide

Santa Cruz County



Supai, Az (Havasupai School District)

- 70 students
- 1.7 square miles
- Worst grades of the 183 BIE schools
- BIE CARES Funding available and can be used to provide internet to the home
- No internet to the homes
- Internet to the school is poor and expensive \$15,000 per month and provided by BIE
- Serves K-8 with 20% high school graduation rate
- 75 homes in Supai
- In 2017, 9 families filed suit against the BIE for failing to provide a proper education for the students
- **MOST remote town in the Continental United States** and can only be reached via helicopter, hike or mule train

Supai, Az – Cont.



Supai, Az.

Cost Breakdown (Cambium 900M Radios)

- Capital
 - Hub Locations 1 * \$30K ea = \$30,000
 - Home Installs 75 * \$1,000 ea = \$75,000 (100M)
 - Tower Asset installs 5* \$5,000 ea = \$25,000
- Monthly Recurring
 - Internet 1G @ \$15,000 MRC
 - Maintenance 75 units @ \$0

Total installation: \$130,000

Monthly Recurring Cost: \$15,000 (Gigabit Internet)



DISCUSSION

- There are no “one size fits all” solutions
- Provide affordable (\$5 per month) broadband internet access for all students across the state to enable distance learning.
- Post an RFP and requirements or build it as a state project with subcontractors?
- Can a county re-sale services if they are not a WISP?
- Statewide contract or handled at the County level?

RFP

- RFP review committee
 - Composed of the following (Must be people NOT attached to a vendor):
 - Milan Eaton
 - Karen Ziegler
 - Stan Goligoski
 - Procurement staff
- Post an RFP with strict requirements:
 - Cost not to exceed \$10 per month
 - Minimum 100 / 20 (4X FCC minimum)
 - Management Options
 - Capitalize the initial costs then hand over to the county to run as a utility?
 - How do we pay the ongoing MRC for maintenance and ISP?

OFFERING SUPPORT

- ADOA Director Andy Tobin
- Santa Cruz County Board of Supervisors Bruce Bracker
- ACC Commissioner Lea Peterson
- Representative Becky Nutt
- Santa Cruz County School Superintendent Rafael Lopez
- Santa Cruz County Chief Deputy Chris Young
- Apache County School Superintendent Barry Williams
- ADOA Public Safety Administrator Karen Ziegler
- Yavapai County Associate Superintendent Stan Goligoski