

BROADBAND ACTIVITIES

NM Broadband Program

Department of Information Technology

December 2020

Originally this document was to keep our NM Homework Gap Team apprised of our collected activities yet has spawned into something a bit larger. Given requests, an informal Distribution List has been cobbled together. If anyone has any additions, please send to me. They'll be included in the next Activity List. Since this document is turning into a mini dissertation; we are considering posting it and providing the link. In addition, if anyone has information important to share to this community, please email Gar Clarke (George.clarke@state.nm.us).

The following is not a comprehensive list of Broadband Activities yet does provide some understanding of the level of effort being provided directly to and/or statewide inclusive of Tribal Country. Of note, all these activities have entailed a strong, passionate, collaborative structure among many agencies, non-profits, and individuals. The following list of activities are in no order except stratified by Current, Planned, and Completed.

Current Activities

- **NM Homework Gap Team (NM HGT):** A group consisting of NM Public Education Department (NM PED), NM DCA/State Library (NMSL), NM Indian Affairs Department (NM IAD), Public Schools Facility Authority (PSFA), Santa Fe Indian School (SFIS), Navajo Nation, Community Learning Network (CLN), a Regional Digital Inclusion Advocate, Center for Internet as Infrastructure, and the NM Department of Information Technology (NM DoIT) was created to coordinate statewide activities in support of narrowing the Homework Gap. The NM HGT has informally formalized with weekly meetings. Due to the generosity of CLN the NM HGT has a website full of information. An addition, there is a link to our meeting notes that are not complete, yet provide our discussion lines.
 - NM HGT: <https://www.communitylearningnetwork.org/homework-gap-team.html>
 - NM HGT Meeting Notes: [Homework Gap Team Google Folder - Google Drive](#)
- **Student/Family Surveys/Resources:** Currently there have been three surveys since school left for the Summer. If you are interested in these surveys, please note the links following. We are in the midst of understanding the immediate need and the trends. Note that the first link has questions that follow an emerging national standard that we wish to mimic and expand upon. Lastly we have implemented a pilot in collaboration with others (CLN, NM PED, NM DoIT, and participating schools) yet using a special student project team from Worcester Polytechnic Institute to collect more granular information inclusive of the relationship between teacher and student and student to student. This may morph into a statewide initiative to identify students/families in need. Their survey instrument is linked below, yet also a video that demonstrates the incorporation of a Speed Test. Anyone can take this survey. Your data will be valued.
 - CLN CCSSO Survey: <https://survey123.arcgis.com/share/9a8d478329fc4462ae15cf1ed3fb6d92>

- First Survey Results: <https://docs.google.com/spreadsheets/d/1eJRBaYEPmFdAgg819PIYsr-HIY15lzJ6ngUqYpNINrA/edit#gid=1862637568>
- Second Survey Results:
- Third Survey: [Survey Non-Connected Students - New Item \(state.nm.us\)](#)
- WPI/CLN Survey Instrument: <https://survey123.arcgis.com/share/68d27334374a48d7bad2804725df5d5d>
- WPI/CLN How To Video: <https://youtu.be/TJ6cXePVtYY>
- **ITDRC Project Connect and Hotspot Mapping:** As a result of CLN efforts New Mexico was graced with a team from the Information Technology Disaster Resource Center (ITDRC) that has deployed over 150 Public WiFi Parking Lot Hotspots within the state. The ITDRC responds to disasters that normally involve hurricanes and wildfires, yet to have them in New Mexico is a fabulous honor. They deploy these hotspots at no cost and when they walk away, the facility owns the hardware. We with the support of the Governor's Office we were planning an in-person press release thanking ITDRC for their generosity, yet as many of you know the spiking changed plans. Regardless, the sites have been posted on the NMBBP Map and will continue to add. However, an easier to read/access location map has been built by CLN. This site works well on a smart phone, and if the site is down or issues includes a simple survey form to collect that information. Additional information and the CLN Hotspot Map can be found at –
 - CLN Hotspot Map: <https://www.communitylearningnetwork.org/hotspots.html>
 - CLN/ITDRC: <https://www.communitylearningnetwork.org/itdrc-project-connect.html>
 - Hotspot Request: <https://survey123.arcgis.com/share/3b61c508459e42b8928574f99f7afcf>
 - FAQ: <https://docs.google.com/document/d/1ZiO5BM4ANyBIAQ-KKX2zXZ3W5VGCeSEpnlCZN1M95t8/edit#>
 - ITDRC Info: <https://www.itdrc.org/>
- **Student Mapping Contest:** Though not a direct broadband initiative, yet is an opportunity for our students to learn more about the online mapping environment through entering a nice contest. The State of New Mexico Public Education Department has acquired free Mapping SchoolBundles from Esri, a leader in Geospatial Technology. Anyhow, in partnership with NM Community Learning Network (CLN), the designated state coordinator, they are launching the New Mexico 2021 ArcGIS Online Competition for grades 4-12. Not all School Districts have adopted the “Bundle”, yet families and students can request their district to participate in accessing the free software. A great educational opportunity as this technology touches all of the parts of STEAM. Contacts and info in the following clicks that includes a fun link including a speedtest:
 - Contest About: www.teachingwithGIS.com/contest [[teachingwithgis.com](http://www.teachingwithgis.com)]
 - Contacts Jennifer Case Nevarez/John DiRuggiero: info@teachingwithgis.com
- **Hotspot Mapping:** DoIT NM Broadband Program (NMBBP) continues to reach out to local government and providers for hotspot locations to be pushed into the NMBBP Online Map and in turn inform the CLN Map. Currently we have over 550 locations within New Mexico. The issue is these are “Parking Lot” spots and winter will be challenging to families. Earth Data Analysis Center (EDAC) under contract with DoIT to build and maintain the NMBBP Online Map has created a feature service that both CLN and others can consume into their online maps.
 - NMBBP Map: <https://nmbbmapping.org/mapping/>

- **BB4S:** The Broadband for Students (BB4S) Initiative is in full swing. We have pulled the 126,000 “Potentially Unserved Locations” as identified in our NM Broadband Strategic Plan (link below), subset those locations from NM PED Student Data to identify near 20,000 students who are “unserved”. We have taken those locations and offered them to NM Internet Service Providers under Non-Disclosure Agreements to quote on each address in bringing them broadband within ten days of notice to proceed. The response was positive. NM DoIT built a protected BB4S Portal that can be accessed by School Districts to “Shop” for the best balance of cost and funding for their students. In addition, we incorporated Internet Service Provider (ISP) “Statewide Offers” that were not address/location based. One can access these offers on the front page of the BB4S Portal, yet the student address offers are confidential. (see link below). The School Districts will be using Governor Emergency Education Relief (GEER) funds initially, yet not enough. We hope for other sources.
 - Statewide Offers: <https://solutions.doit.nm.gov/PED/Broadband4Students/LoginPage.aspx?ReturnUrl=%2fPED%2fBroadband4Students>
- **DoIT Support:** The Department of Information Technology is actionable in a number of fronts. Currently they are working on an Request for Proposals (RFP) that will engage Internet Service Providers to provide construction services accessible by public agencies for internet infrastructure development. Details are being worked out, yet the DoIT understands the need to engage ISP and communities to provide capacity. In addition, the DoIT was awarded a \$1.5M grant from the U.S. Economic Development Administration. This EDA investment will support providing technical assistance for broadband development to local, tribal, and other government entities across New Mexico. The program will offer customized technical assistance to eligible applicants with high needs for broadband infrastructure and services.
- **Device Analytics:** To assist in the proper placement of mobile devices, the NMBBP conducted an overlay analysis of Mobile Wireless Services by Address Points for the entire state. The data informs by nearly one million addresses what type (2G, 3G, 4G, etc) of wireless service and from what Service Provider (T-Mobile, Verizon, AT&T, CellulareOne, etc) are available. These points were then subset by School District, pushed into a spreadsheet, and made available to the school in the placement of residential hotspots. In one case the points were subset by a county. T-Mobile is offering a great deal for a free hotspot device, subscription, and 100meg capacity to any student that qualifies for the Federal Free and Reduced Lunch Program (one per household). New Mexico has been allocated 12,747 of these devices. To properly place these devices DoIT worked with T-Mobile to prepare a Statewide T-Mobile Signal Strength Analytic inclusive of a “layered” map that informs on signal strength good within a home, in a car, or outside. The link to obtain this information follows. Very generous of this company.
 - T-Mobile Signal Strength: http://edacftp.unm.edu/gvalentin/T_Mobile_Signal/T-Mobile_Signal_By_School_District/
 - Address/LTE by School District: http://edacftp.unm.edu/gvalentin/AddrPoints_FCCMobile_bySchoolDistrict_Excel/
- **LMS:** NM PED is expanding their Learning Management System (LMS – Canvas) capabilities to be inclusive of the survey instrument noted previously and geospatial learning elements. This is an amazing tool for teachers that the State is providing.

- **Navajo:** The Nation has received over \$30M of funding towards broadband connectivity that added to another \$12M will assist families/students. These are primarily CARES Act funds.
- **Navajo Water Settlement:** A water pipeline build funded by the U.S. Bureau of Reclamation from Farmington to Yah ta Hey that includes 96 strands in supporting a smart pipeline system with extra strands being apportioned to Navajo Tribal Utility Authority and City of Gallup (Aprx \$1.1B – Status Unknown)
- **Pueblo Connect:** The Pueblos of Santa Clara, Pojoaque, Tesuque, and Ohkay Owingeh have been selected to receive equipment and training towards the implementation of TVWS technology that will provide WiFi access into their communities. This \$1.3M National Science Foundation (NSF) Grant to the University of Santa Barbara currently has a pilot constructed in Santa Clara Pueblo (Status Unknown). Other sites are on hold due to a number of reasons and one being especially the Covid Disruption. Regardless, they may be looking for other sites within New Mexico.
- **TVWS for Tribal Libraries:** This project being directed by San Jose State University ran into delays due to the Covid Closures of Tribal Lands and restricted travel. However they were granted an extension to December 2021. The implementation is to provide TVWS converted to WiFi spectrum at “Kiosk” sites that can be accessed by the community. The targeted tribal libraries are Acoma, Torreon, Mescalero, and Jicarilla. Currently Torreon is up and running, and Acoma is ordering equipment. Mescalero and Jicarilla opted out. This is an approximately \$250K grant funded by the Institute of Museums and Library Services (IMLS).
- **BIE Schools:** Jemez Day School is scheduled for a broadband connection as a result of a collaborative effort.
- **Libraries:** The State Library received \$1M, hired an E-Rate coordinator, and is in the process of lighting up public libraries. In addition, they are applying for grants to support distant learning and support services for libraries. Currently, over 60 percent of our public libraries are connected to fiber.
- **WiFi Spectrum:** The FCC has granted the first licenses to tribes for the 2.5GHz. All of New Mexico Tribes that had available spectrum in their air space applied and were granted. The list includes: Fort Sill Apache, Jicarilla Apache Nation Power Authority, Mescalero Apache Tribe of the Mescalero Reservation, Ohkay Owingeh Tribal Council, Pueblo de San Ildefonso, Pueblo of Acoma, Pueblo of Laguna, Pueblo of Nambe, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of Tesuque, Pueblo of Zia, Santa Clara Pueblo, Taos Pueblo Utility Service, Zuni Tribe of the Zuni Reservation, Navajo Nation, and Pueblo of Jemez. A big bonus for NM Tribes. If you wish for a visual of these awards click below:
 - Tribal Spectrum: <https://fcc.maps.arcgis.com/apps/webappviewer/index.html?id=b51c97987df5452da4a2b37ec6c28d09>
- **Support Data:** The NMBBP Mapping project continues to add value to the online map. If interested in using this tool, please click below.
 - NMBBP Map: <https://nmbbmapping.org/mapping/>

Planned Activities

- **EDA Grant:** The DoIT NMBBP was recently granted an Economic Development Administration (EDA) Grant of \$1.5M to build a technical assistance program that will support local governments, tribes companies, and utility cooperatives to inform, coordinate, plan evaluate, and create proposals to implement broadband projects.

- **Navajo Nation:** The DoIT NMBBP has secured allocated funds of \$3M to support matching requirements on the NM side for an approximately \$55M E-Rate funded fiber project. In addition, NM State Library is engaging NN for a longer term development strategy for Chapter Houses to qualify as NM State Recognized Libraries.
- **Cochiti Pueblo:** The DoIT NMBBP is in the process of allocating funds to the Pueblo of Cochiti to bring fiber to their residential communities (Aprx \$2.875M).
- **Sierra County:** The DoIT NMBBP is allocating funds to Sierra County to enhance broadband access and capacity (Aprx \$2.1M). Per the website following, there are 439 unserved students in Sierra County that may be helped by this project.
 - Sierra County: <https://digitalbridgek12.org/toolkit/assess-need/connectivity-map/>
- **Plateau/XTO:** The DoIT NMBBP is allocating funds to Plateau/XTO to expand broadband in areas east of Carlsbad to southern Jal. (Aprx \$1.1M)
- **ENMR/Plateau:** Plateau was granted a USDA Reconnect grant of \$19.2M to expand broadband into patches within Central/East NM. (See NMBBP Online Map)
- **PVT:** Penasco Valley Telephone Cooperative was awarded \$3.2M to expand broadband in SE NM. (See NMBBP Online Map)
- **Acoma Pueblo:** The Pueblo of Acoma was recently awarded nearly \$1M from the USDA Reconnect Grant to connect their residential community. (See NMBBP Online Map).
- **NCNMEDD:** “Pass Through” legislated funds from NM DoIT to North Central NM Economic Development District for broadband expansion (Aprx \$260K).
- **Broadband Contracts:** Due to many requests the DoIT is posting previous and existing contracts/amendments that have a broadband focus. Currently in progress, yet one can access these documents at:
 - DoIT BB Contracts: <https://www.doit.state.nm.us/broadband/transparency.shtml>

Completed Activities

- **Devices:** NM PED has distributed CARES Act Funding directly to school districts based on a formula. Those funds have been expended in different strategies to assist students and to support bulk purchasing with the Cooperative Education Services (CES). PED/IED allocated funds that resulted in the purchase of approximately 700 Residential Hotspots (Navajo - distributed), 101 facility/mobile hotspots (allocated to all tribes – in process with assistance from ITDRC). Also 6200 Chromebooks were allocated to all tribes and schools. These have been distributed, yet additional purchases for all students are being planned. NM PED is currently pricing out additional purchases
- **NMBBP Study:** NM DoIT has just completed the update of the New Mexico Broadband Strategic Plan that includes a Rural Area Assessment. In addition, a “Federal Funding Guide” was also completed. To link to these:
 - NMBBP Plan: https://www.doit.state.nm.us/broadband/reports/nmbbp_strategic_plan-20200616.pdf
 - NMBBP Funding Guide: https://www.doit.state.nm.us/broadband/reports/federal_broadband_funding_guide-202006.pdf
- **Funding:** The DoIT NMBBP in cooperation with Senator Udall’s Office has just completed webinars to educating local and state governments in the availability of federal funds. In addition, a similar hosting to ISPs regarding FCC RDOF/Auction 904 (Rural Development Opportunity Funds) applications. Very useful information.

- Federal Funding Webinar Slides: https://www.doit.state.nm.us/broadband/reports/nmbbp_connect_new_mexico_broadband_funding_webinar-2020-07-08.pdf
- Webinar Recording: <https://www.doit.state.nm.us/broadband/news.shtml>
- **Legislation:** [Senate Bill 10](#) requesting \$25M from the Covid Relief Fund to NM DoIT to provide matching grant funding to public entities did not make it. However, Broadband Legislation is being considered for next year's session. NM DoIT and NM PED with others have been asked to present/discuss with legislative committees (LESC, STTC, LFC, and so on).
- **NMBBP BB4E:** After nearly four years essentially all public schools inclusive of public schools on tribal lands are connected with fiber using primarily E-Rate funding. Currently NM has received over \$65M that has cost the State approximately \$5M. A collaboration with PED, State Library, PSFA, and DoIT.
- **MRGTC:** The Middle Rio Grande Tribal "Broadband" Consortium connected with fiber the Pueblos of Santa Ana, San Felipe, Santo Domingo, and Cochiti by accessing Library E-Rate Funds and matching with State Library Go-Bonds. Collaborators included the Four Pueblos, Amerisk, State Library, PED, PSFA, and DoIT.
- **Jemez-Zia Consortium:** Similar model that connected the MRGTC Fiber with the Pueblos of Jemez and Zia using Library funds as match. Collaborators included the Two Pueblos, Amerisk, State Library, PED, PSFA, and DoIT.

Considerations

- **Students/Families:** Finding where the students live and what they need has uncovered some logistical and data issues. For good reason, confidentiality of our kid's location is extremely important, yet we have found a need to standardize address information with all 89 School Districts. Something NM PED is looking deeply into is modeling address standards to those used by National Public Safety within most states. In fact, mashing data together will be so much more economical if all agencies modeled addresses in this way.
- **Remote Learning:** The big lift now is the changed paradigm of learning and teaching within a remote environment. A challenge to the NM Homework Gap Team is the planning and even engineering a fabric of networks that include a Remote Learning Center for teachers at their schools that provide a virtual learning hub where students can access from home. Those without connectivity we need to provide an option that may include Satellite Classrooms within existing facilities (senior centers, libraries, community centers, recreational facilities, etc.) that have space to outfit with social distanced computers and good backhaul to the Remote Learning Center.
- **Community Connectivity:** Though in many areas there is fiber readily available yet the big lift is getting the capacity into the homes and businesses. However our Anti-Donation Clause limits direct behavior, yet there are a number of mechanisms that can be used and are being used that include alternative technologies and creative funding strategies. Though dated the following Community Broadband Guidebook has some great structural advice:
 - Master Planning: https://www.doit.state.nm.us/broadband/reports/NM_Broadband_Guidebook_v1_1_final.pdf
- **ROW:** Right of Way permitting is a huge issue. Sometimes can take over a year and meantime funding is lost or contractors move on. The need to streamline this process is very important. During the ARRA Stimulus days, the DoIT NMBBP sped up the Right of Way process by providing all land stewards with the project design and scope, invited

everyone into one room to provide an overview and etch out issues, define each requirement in that there be no surprises during the review process, and schedule or estimate when permits will be awarded. This was never formalized, yet functioned in a collaborative manner due to the “shovel ready” nature of these projects.

- Match Funds: Given the funding there are a number of avenues to provide additional capacity. The easiest is to leverage federal funds that provide a competitive space and a nod towards ISPs winning those awards to expand their business while riding public dollars, not a P3. There are a number of instruments we can use to move public funds: E-Rate, Healthcare Connect, USDA (Distance Learning/Telemedicine/ReConnect/etc.), EDA, IMLS, and so on. Grant writing support to smaller companies who do not have the capital to proceed needs to be a consideration. In addition, small study awards to companies such as Electric Cooperatives to get into the business.
 - Electric Utility BB Guide:
https://www.doit.state.nm.us/broadband/reports/NMBBP_FiberGuide_ElectricUtilities.pdf
- Policy: Besides ROW and P3 legislation there is a ton of small stuff that the State can legislate to speed up the game. They include dig once, climb that pole once, cap on private ROW fees, cooperative requirements for existing pole use, alternative funds to toss in extra conduit during an E-Rate project, and so on. Be good to investigate these.
 - Policy Considerations:
https://www.doit.state.nm.us/broadband/reports/BB4B_CTC_Report_Policy_Considerations-final20170117.pdf