

NWCCOG Broadband and DOLA Technical Assistance April 2021 Monthly Report

Project THOR

Network Accomplishments

- Network continues to add customers including smaller ISPs
- Waiting for Platte River Power Authority and WAPA agreement to make this emergency use availability permanent, then we will negotiate a formal agreement for use from Granby to Denver
- Developing engineering design for connection between Project THOR and Region 10 network. Options include leveraging existing Project THOR hardware and potentially extending Project THOR presence to Rifle. Target implementation Q4 2021
- DOLA grants for Pitkin County Roaring Fork Valley Fiber Project and the Region 10 Project were approved. Target implementation Q4 2021
- Working with Pitkin County and other Roaring Fork communities on Holy Cross IRU agreement and MOU

2021 Objectives

- Develop plan with Colorado Broadband Office and OIT to better meet the needs of state agencies by creating a firewalled port to port connection to the state network
- Service Level planning to allow MMCs to double or quadruple available bandwidth have been implemented and are generating results
- Update Project THOR contracts and operating guidelines to manage network based on service connectivity levels and not dedicated bandwidth
- Examining opportunities to leverage the Project THOR infrastructure in Denver to lower internet costs, support more providers and interconnections
- Integrate Hudson CDOT and CenturyLink Connections in Denver when they are ready
- Support for FRGP interconnection through Colorado Mountain College to support other education institutions connected to Project THOR
- Develop plans with Project THOR Stakeholders for Project THOR 2.0 deployment in 2021

Local Broadband Initiatives – Updates

Eagle County

Eagle County

- HR Green has completed the broadband study report of unincorporated Eagle County area
- Town of Eagle implemented a fiber run to connect Eagle County building to Project THOR

2021 Objectives

- Conversations to support Holy Cross Energy on Project THOR may result in additional access to Eagle County infrastructure and facilities in Gypsum, El Jabel and other areas across Eagle County

Town of Eagle

- Town of Eagle continued its contract with Uptown Services to assist them in engineering and deploying fiber across town
- Town was awarded DOLA grant application to expand their meet me center and broadband infrastructure to support multiple service providers as they pursue their local strategy
- Town worked with NWCCOG and Visionary Broadband to support a new cell site in the lower Eagle River valley.
- At the request of NWCCOG, Town of Eagle and Colorado Parks and Wildlife is working with an ISP to help connect Silvan Lake State Park to improved broadband
- Town Board has approved plans for Town owned fiber build and Town ISP deployment plan pending bond issue approval
- Town is working with a local bank to fund broadband ISP bond
- Comcast continues to build out fiber throughout town

2021 Objectives

- Town of Eagle continues to work on their fiber deployment engineering and pre-RFP work for a last mile broadband network. These steps and others are the precursors to a presentation to the town board for a bonding decision

Town of Vail

- Affordable bandwidth will allow expanded broadband services by last mile service providers and allow Vail to support new service providers coming to the market

2021 Objectives

- Town of Vail is engaging with local ISPs to leverage town owned fiber and Project THOR connections to providing affordable, resilient broadband to residents and businesses
- Working with OIT, Vail Dispatch and Aspen MMC to interconnect to dispatch centers and DTRS radio system consoles

Town of Gypsum

- Comcast fiber crews are building fiber to the premise throughout town

2021 Objectives

- Comcast construction obtains full deployment

- NWCCOG will continue to support Gypsum through broadband program and knowledge exchange between NWCCOG members
- Support and work with Holy Cross Energy (HCE) as they look to pursue dedicated support for HCE operations

Grand County

- NWCCOG and the Project THOR teams have been working with Grand County on numerous communications projects to support Grand County response and recovery efforts from the East Troublesome Fire
- Grand County ad hoc Broadband Working Group is working with WRC, (Wireless Research Council) on their plan to create a for profit – for community benefit – company with local investors to support middle mile fiber
- NWCCOG continues to engage with the broadband working group to address broadband issues
- Nate Walowitz continues to work with WRC to help them in business planning, Project THOR support, and technical network design
- Ciena has provided WRC with a network design to support a county-wide fiber network and allow them to bring affordable broadband to communities across Grand County. A meeting will be held in early April between WRC potential funders, cellular infrastructure companies, NWCCOG and key county stakeholders to assist in gaining wireless infrastructure deployment in the county
- Mountain Parks Electric is working to build out their USDA match funded fiber network. They will sell access to dark fiber to providers to assist in the deployment of broadband throughout the county
- Mountain Parks Electric will also assist in supporting connectivity to Estes Park long term
- NWCCOG worked with Estes Park and Platte River Power Authority to reconnect the WAPA fiber through the Adams Tunnel prior to the large March snowstorm. This emergency connection was pressed into service for just under 2 weeks when the primary fiber path serving Estes Park and all providers failed due to the storm. Project THOR at the request of Estes Park expanded the bandwidth allocation for the town to 10 gigs to accommodate their peak traffic. Estes Park primary fiber path was restored on March 25th.
- Introduced Arcteris to WRC and their need for funding for their IRU with Mountain Parks Electric and funding the Forestry Center of Excellence and Workforce training integrated programs

Grand County Project THOR Meet Me Centers – Middle Park Health (MPH)

- Middle Park Health is the Meet Me Center host in Grand County with MMCs in both Granby and Kremmling. They are investing in broadband and Project THOR to not only support their needs, but to support the needs of the communities they service

Granby

- MPH has bandwidth available for interested last mile service providers to purchase
- Middle Park Health is working with Mountain Parks Electric to connect them to the MMC in Granby
- Mountain Parks Electric and WRC are working together to determine how to move broadband forward in the county

Kremmling

- Visionary Broadband is leveraging the Middle Park Health MMC in Kremmling to deliver wireless broadband services to unserved Kremmling with plans starting at \$60 for 50 Mbps service.
- Visionary Broadband is deploying local fiber to the premise in Kremmling which will bring higher speeds and reliability to residents and businesses
- Additional bandwidth is available for purchase by last mile service providers

Fraser and Winter Park Meet Me Center

- The current plan to expanding Project THOR to Winter Park and Fraser will be accomplished leveraging the Mountain Parks Electric fiber to Fraser and Winter Park and building a Meet Me Center in Fraser at the new Middle Park Health facility in 2022.

2021 Objectives

- NWCCOG to continue to support Grand County through Project THOR and knowledge exchange between NWCCOG members
- Support and coordinate communications and information exchange with Mountain Parks Electric as they look to pursue a middle mile fiber strategy throughout their service territory
- In the Grand County Innovation/WRC plan, NWCCOG through Project THOR will assist Middle Park Health, Mountain Parks Electric, and Grand County promote, attract and support service providers in the county by being the middle mile network operator for the county-wide fiber deployment
- WRC is including a fiber build between Kremmling and Silverthorne in their plans. This will connect Grand County to Project THOR without having to depend exclusively on leased fiber circuits from CenturyLink. NWCCOG will align all partners to take advantage of this fiber build for both transportation, local and regional broadband support
- Make the connection between Estes Park and Granby on WAPA fiber available permanently for emergency and eventually commercial use

Pitkin County

- Pitkin County received notification that they were awarded DOLA matching funds for the Roaring Fork Valley Fiber project
- The county continues to construct their county-wide communications tower project to expand broadband to unserved portions of Pitkin County and adjacent counties

- Pitkin County is supportive of NWCCOG partnering with Holy Cross Energy to bring new Project THOR meet me centers or smaller meet points connecting communities in Pitkin County using Holy Cross Energy fiber
- Pitkin County will leverage Project THOR to support a consolidated Meet Me Center in Basalt. A fiber loop will be constructed to support the main business corridors and Community Anchor Institutions in town

City of Aspen

- Aspen continues to be a leader in leveraging Project THOR to support their community
- Aspen continues to directly engage with Community Anchor Institutions and local broadband providers leveraging their existing fiber network
- Aspen continues to evaluate and attract wireless providers and support for 5G in their community
- Taking advantage of the Holy Cross Energy fiber, City of Aspen will expand connectivity to additional areas of interest that need broadband service in support of City services

Town of Snowmass Village

- NWCCOG is supporting the towns' interest in improving broadband. DOLA Grant application submitted and received DOLA approval for fiber build in partnership with Holy Cross Energy
- Town is partnering with Pitkin County to also support Pitkin County communications towers that are within the future fiber footprint

Town of Basalt

- Holy Cross Energy has assisted Basalt with a fiber build design for the town.
- Pitkin County is partnering with the town to support their need for a Meet Me Center to support broadband deployment using the new fiber build

2021 Objectives

- Finalize regional engagement with Holy Cross Energy
- Continue support for Aspen, Pitkin County, Snowmass Village, and Basalt deploying Project THOR services
- Light Project THOR services across Pitkin County Roaring Fork Valley fiber network
- Continue NWCCOG and City of Aspen initiatives with large ISPs who have the need for diverse network transport to Denver through Project THOR

Summit County

Project THOR

- Project THOR continues to provide service through Summit County in multiple communities including Breckenridge, Frisco and Silverthorne
- They are actively engaging their local municipal governments to drive creation of county-wide network connectivity for public safety, county services, and education institutions

- Copper Mountain Metro District plans to build fiber to connect to Project THOR along I-70 and creating a community Meet Me Center to deliver true broadband to residents, visitors, and businesses

Breckenridge

- Breckenridge has received a DOLA broadband grant to assist them in the next phase of middle mile fiber construction to extend broadband to additional businesses, schools, consumers and to 4 town owned income qualified multitenant housing buildings including Alta Verde

Frisco

- NWCCOG is working with Town of Frisco and CDOT on a conduit, fiber and fiber access solution to allow the town to connect community anchor institutions and improve broadband to residents and businesses
- The Highway 9 Gap Project is in it's 2nd year. Once complete, this effort will allow the town to support ISP fiber initiatives and connection to Project THOR

Dillon

- Town of Dillon requested and received information from Nate Walowitz to understand how they can manage requests from wireless carriers for microcell and 5G deployments
- Nate Walowitz provided the town with a number of legal and technical resource to assist them
- NWCCOG continues conversations about connecting the town to Project THOR

Silverthorne

- Town of Silverthorne is connected to Project THOR and supports NWCCOG fiber connectivity to Project THOR
- Town will continue to deploy conduit as additional roadway improvements are completed

Copper Mountain Metro District

- NWCCOG, Summit County, and CDOT are working with Copper Mountain Metro District to investigate connecting to Project THOR I-70 fiber in the future to support Summit County Public Safety and other agencies
- Copper Mountain Metro District has finalize their fiber paths across CO 91 and Project THOR connection points
- They will initially contract with Summit County and NWCCOG to connect to Project THOR with the vision to become a full Meet Me Center in the future

2021 Objectives

- Continue work with Copper Mountain Metro District plans for 2021 THOR 2.0 buildout

- Continue coordination with Grand County and Summit County to build fiber along Highway 9 and CDOT to support all users along with Project THOR. State broadband funds will be needed to assist in project affordability as this is approximately \$5 -6 million
- Attempting to pursue a long term relationship with Lumen to explore obtaining dark fiber access along Highway 9 to expand Project THOR support in Grand County, Estes Park and northern Front Range broadband networks
- Work with Summit County, Summit County Schools and other communities to build out middle mile fiber and wireless facilities to ensure that students have access to affordable, reliable broadband.

Rio Blanco County

- Project THOR continues support for Rio Blanco County
- RBC continues to add new customers to their network and they continue to increase their bandwidth purchases on Project THOR
- Conversations are underway with Mammoth Networks and then RBC to work on increasing bandwidth into Meeker.
- Introduced Arcteris to Rio Blanco County and their need for funding for expansion of their wireless broadband network to move from 72% coverage to somewhere around 90%. They are focused on opportunities where the investment will result in revenue neutral services

Routt County

Steamboat Springs, Hayden, Northwest Colorado Broadband

- Project THOR serves Steamboat Springs, and Hayden
- YVEA continues to apply to the Broadband Deployment Board for grant funding to serve unserved areas of North and South Routt County with fiber and wireless broadband solutions
- YVEA is deploying their last mile fiber network to deliver broadband service to the Town of Hayden and Yampa Valley Regional Airport. The connection to the airport will support increased airline services and enhance aviation safety at the airport
- NWCCOG is working with YVEA to understand how DOLA funded middle-mile infrastructure could assist in overcoming the challenges of limited capital for middle mile fiber deployment
- NCB continues selling additional bandwidth on Project THOR to small and large ISPs to bring them independence from unreliable single connections from CenturyLink

2021 Objectives

- NWCCOG to continue to support YVEA and other local ISPs through Project THOR services
- Support YVEA to construct middle mile fiber from Hamilton through Craig and Hayden to Steamboat Springs leveraging a partnership with NCB and DOLA

Moffat County

- Project THOR serves Craig through a partnership with YVEA
- YVEA continues to apply to the Broadband Deployment Board for grant funding to serve unserved areas of Moffat County with fiber construction in Craig and extending to Maybell

2021 Objectives

- NWCCOG will continue to support YVEA and other local ISPs efforts to bring broadband to Moffat County

City of Glenwood Springs

- DOLA and NWCCOG worked with Glenwood Springs and will partner to support both the connection of Region 10 Network and the new Pitkin County Regional Fiber project via City fiber and rack space
- City is deploying a fiber to the premise network to deliver affordable broadband to most homes and businesses in their community
- Glenwood Springs is working with other Meet Me Center Hosts and Project THOR to explore obtaining additional competitive bandwidth for network users. This will help improve affordability of internet access on the network

Colorado Mountain College

- NWCCOG continues to work with Colorado Mountain College to creatively connect to the Front Range GigaPop (FRGP) through an existing connection until Region 10 and NWCCOG get funding for an independent connection. This will allow other educational institutions on Project THOR to connect to FRGP
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DOLA Statewide Activities

Town of Hudson

- Advising Town of Hudson on their town owned fiber network and diverse connectivity to Project THOR network in Denver to deliver reliable connectivity to support their community and a broadband service provider that has agreed to lease fiber from the town
- Hudson received approval from DOLA for their matching broadband grant for middle mile fiber construction
- Town working on negotiating final construction and leasing agreements

2021 Objectives

- Contract with CDOT through NWCCOG
- Build fiber and light network in 2021

State of Colorado DTRS Console Interface

- Work continues with State radio techs and Eagle County Radio techs to connect Vail Dispatch Center consoles to State Digital Trunked Radio System using Project THOR
- This will help support public safety across the entire west slope by providing a reliable, secure connection

Public Safety Answering Point Backup and Data Connectivity

- Project THOR is available for PSAPs in Clear Creek, Summit, Eagle, Pitkin, Moffat, and Steamboat Springs to use as a backup connection. This will help with regional interoperability and regional resilience

Connection to Ft. Collins

- 10 gig connection between Project THOR and the Ft. Collins Connexion network at 910 15th Street in Denver has been completed as part of the Estes Park Emergency Communications Path project
- Working to research availability of dark fiber north of Ft. Collins to Cheyenne WY

2021 Objectives

- Put this connection under contract and agreement for permanent implementation using new hardware to enable mutual backup support

Just Transitions

- Conversations with Yampa Valley Electric are in process on their next plan to expand buildout in Moffat County

2021 Objectives

- Additional conversations with RECs and DOLA to match needs with programmatic and financial parameters
- YVEA has plans to build fiber to serve Maybell and west to ensure the western most portions of their service area have access to affordable broadband
- WAPA fiber access in Steamboat Springs and Hayden would be most helpful to continue to provide more robust and affordable broadband pricing

Arcadian Infracom

- Work with OIT, Region 9, and other areas across Colorado to leverage Arcadian dark fiber running from SW Colorado to Denver to support expansion of Project THOR and Region 10 network to support additional communities across the state
- Met with Arcadian and CO Department of Parks and Wildlife to determine where they need connectivity and identify splice point locations along Arcadian fiber build to support needs
- Awaiting future conversations with Arcadian once they have their agreements with CDOT finalized and a timeline for deployment

2021 Objectives

- Waiting for Arcadian to complete negotiations with CDOT, Ute and Ute Mountain Ute to get right of way access
- Waiting for Arcadian to provide us with dark fiber and lit fiber service pr
- Attempting to reach out to service providers and broadband/cellular infrastructure firms to identify funding/anchor partner to financially support moving this construction forward
- Finalize plans with Arcadian once they advise us they are ready to go

Bison West Network Connection

- Continuing to work with UCAR about creating broader statewide alliance to connect educational and research institutions together statewide
- This connection to the Front Range Giga PoP (FRGP) allows additional access to Internet 2 and extensive research services
- This alliance will leverage additional CDOT and other infrastructure to help create an integrated statewide network for both education and commercial institutions
- Introduced UCAR to Colorado Broadband Office will be scheduled for other statewide efforts

2021 Objectives

- Work with UCAR to establish final connection
- Examine UCAR QUILT network connections for additional affordable bandwidth for network

Colorado Broadband Program Office Coordination

- Coordinating activities with Colorado BPO to consult on statewide broadband initiatives, and recommendations on guidance, public private partnerships, broadband mapping fine tuning and broadband funding
- Work with Ed Mills to support state broadband and on the ground deployment knowledge needs

Custer County Broadband Tower on Colorado State Land Board property

- Spoke with Custer County representative on approach points to State Colorado Land Board to placement of a Custer County DOLA funded broadband tower on State Land Board property
- Colorado Land Board agreed to terms and this project is moving forward as access and construction plans are approved

2021 Objectives

- Custer County has received approval in early November from the State Land Board for an affordable land lease rate. The County also received approval for their desired location on state property to support tower deployment
- Custer County is negotiating with an adjacent land owner for access to the tower site. This should be concluded in the next month or so

Broadband Legislation Support – Bridge Act – Senator Bennet

- Bridge Act was introduced but not considered during the last Senate session
- Jon Stavney and Nate Walowitz continue working with NWCCOG Council and our local jurisdictions to provide support for federal broadband legislation

Western Area Power Authority (WAPA) Fiber

- Working with WAPA and PRPA to obtain permanent access to WAPA dark fiber between Granby and Estes Park initially for Emergency use
- Based on March 11 conversations with Estes Park, PRPA, and CenturyLink regarding the pending forecast snow storm (Up to 7 feet was initially projected), I recommended it would be prudent to request that WAPA repatch the fiber connections should it be needed.
- WAPA completed their work and connection was tested the afternoon of March 12
- On March 14 at approximately 11 AM, the Estes Park primary fiber connection failed, customers on the Estes Park broadband network noticed no change in service. CenturyLink customers unfortunately did see an interruption in service due to their own issues
- Service was maintained until Thursday March 25, when WAPA was able to finally able to complete repairs on the primary fiber connection

2021 Objectives

- WAPA and PRPA are finalizing an agreement to make this connection available for emergency use without the need to repatch the fiber every time
- Once this connection is available, I will be working to gain access to federal and state funding to purchase and maintain government owned equipment to permanently light this connection and have it be managed by an intergovernmental group
- I am in the process of gathering information to work with WAPA, state, and federal officials to work with U.S. Department of Energy to issue guidance to WAPAt to make their fiber available for commercial use

Eastern Plains COG

- Conversations and emails with Eastern Plains COG resulted in Nate Walowitz recommending a meeting with community leaders, school IT Directors and ISPs to identify and understand their needs and how NWCCOG can assist. One potential beneficial initiative would be to light CDOT fiber along I-70 and build small meet points to allow access to affordable, resilient broadband
- Meeting held in early December with ISPs, education, and hospital representatives
- Greg Winkler and I talked with Greg Etl about what he is hearing from local governments and the broadband concerns they have. It was suggested that conducting community surveys would be beneficial to document the current state of user experiences before deciding how to move forward
- Nate will be reaching out to CDOT to determine their I-76 fiber construction plans and potential splice point locations
- Along I-70, reaching out to coordinate plans with ECBOCES to determine when bandwidth could be available for these communities

2021 Objectives

- Hope to pull together additional conversations with Eastern Plains governments to assist their communities and providers
- Reaching out to ECBOCES to discuss leveraging their new I-70 100 gig broadband transport network for use by local governments and healthcare providers along I-70 east of Denver

Town of Firestone

- Conversation in early January 2021 with town broadband advisory consultant on ways they can improve broadband in the community. While they are eligible for DOLA grant funding, I will support them as they work with ISPs and town staff to help develop policies and contracts on behalf of their communities

2021 Objectives

- No further actions needed at this time

Town of Limon

- Conversation in early January 2021 about needs of the community. Talked through possible solutions provided by middle mile fiber and connection to CDOT fiber available at I-70. Town is holding meeting with local ISPs and other potential providers. Nate Walowitz recommended dig once and small cell policies and a town conduit/fiber plan. Suggested they look at pre-engineering study broadband report that Town of Hudson put together as a basis for consolidating information prior to a meeting with the town.

2021 Objectives

- Working to coordinate plans with ECBOCES to determine when bandwidth could be available

Woodland Park

- Woodland Park has fiber that is along Highway 24 just outside of town
- Town staff raised questions about best way to access this fiber and suggestions for use to improve broadband access in community
- Suggested first step would be to conduct a survey of town residents and businesses to learn their current broadband user experiences, needs, and expectations
- Nate sent town a few surveys that have been used in other communities to accelerate this process

2021 Objectives

- Waiting to learn next steps with the town as they put together their plans and next steps

Rural Douglas County

- Residents in western and southern portions of the county are reporting that they are struggling with their current broadband providers and they are asking for assistance to improve their situation
- Have had a few email exchanges with the Special Projects Manager at the county to explore options

2021 Objectives

- Awaiting response to set up a meeting

Jefferson County School District – Mountain Area Fiber Project

- Nate and Clay Brown met online with Jefferson County School District is looking to ensure reliable, more competitively priced, higher speed broadband to enhance learning at their mountain area schools
- Their plan is to build fiber along a number of state and county highways to connect their mountain area schools similarly to how their lower elevation schools are connected; via School District owned fiber.
- Current district fiber connected school network was built in partnership with county, CDOT and other local governments
- Plan has been developed to build the network and also pass community anchor institutions along the way and connect them as well.
- Pointed out that challenges to any potential DOLA funding would be that Jefferson County has NOT opted out of Senate Bill 152 and there is currently no county broadband plan

2021 Objectives

- Nate will support as needed to provide advice as appropriate. Clay can also provide limited support as requested

Region 10 NWCCOG Coordination

- Nate and Virgil continue to work together on cross regional projects and knowledge exchange
- NWCCOG will support connection between Region 10 network with Project THOR. We will sell them and do some bandwidth exchange based on actual need to respect their budgets

2021 Objectives

- The awarded DOLA grant to Region 10, CDOT's partner completing fiber in mid-late 2021 and Region 10 anticipating award of an EDA grant will make this project a reality by the end of 2021

Conversation with Greg Etl

- Greg asked about constructing fiber from I-76 from Sterling east to support Haxtun, Holyoke, Yuma, Eckley and Wray. This fiber would support Community Anchor Institution broadband, 911 backup, and education in these communities. It could also be used to support local ISPs to deliver broadband to residents and businesses.

COVID-19 Statement

- Limited face to face meetings with new communities are beginning to occur as are conversations. While this is not insurmountable, it does impede the expansion of broadband technical support in new communities in Northern Colorado area
- As things move to COVID-19 dial Level Green, I will be restarting travel and face to face meetings as needed.