CONNECTED NATION℠

Proposal for

Broadband Technical Services

April 15, 2020

Prepared for:
Lake Cities, Texas

Presented by:
Chris Pedersen, Vice President, Development & Planning
202.255.6098
cpedersen@connectednation.org

Connected Nation, Inc.
P.O. Box 3448
Bowling Green, KY 42102
270.781.4320

Executive Summary

Background

Connected Nation (CN) is an organization dedicated to expanding the access, adoption, and use of broadband and broadband-enabled technologies. Since 2001, CN has been providing community broadband planning services to states and municipalities across the country. Though terminologies and focus areas may change over time, the pillars of an effective community broadband assessment process have consistently involved:

- the engagement of local leadership, pre-planning, and identification of expectations;
- public events designed to build awareness and inform and educate local citizens;
- community-wide and sector-specific data collection and benchmarking;
- data analysis and review, including a snapshot of the local broadband ecosystem; and
- drafting, reviewing, finalizing, and publicizing the community's strategic broadband plan.

CN has provided highlights of its extensive experience in state and community broadband planning in the Company Information section of this proposal. It's with the experience and expertise that CN proposes supporting Lake Cities with assessing their broadband issues and opportunities and developing steps to improve the technology landscape for their residents, businesses, and institutions. The proposal is organized to focus on various technical services options for consideration. Each option includes detail of the scope, time, cost, deliverable and an example of similar work, if applicable.

Statement of Need

Technology plays a pivotal role in how businesses operate, the types of services consumers expect, how institutions serve the community, and where consumers choose to live, work, and play. The success of any community has also become dependent on how broadly and deeply the community adopts technology resources, which includes access to reliable high-speed networks, digital literacy of residents, and the use of online resources locally for business, government, and leisure.

Despite the growing dependence on technology, recent discussions with Lake Cities Broadband Committee revealed that the community may not have the level of broadband access as defined and reported by the Federal Communications Commission. The Digital Divide could be much greater not only in terms of access but also with respect to how residents, businesses and institutions are adopting and using online resources in the community. The following proposal provides various service options for the Committee to consider in addressing these gaps. The Lake Cities community, referenced as "community", is comprised of four communities: Corinth, Hickory Creek, Lake Dallas and Shady Shores as defined by boundary data maintained by Denton County. The aggregate area represents 197.7 road miles and 17.8 square miles.

Project Options

1. Field Validation, Mapping and Data Analysis

Scope: CN will build upon its statewide broadband data collection and mapping activity and the input from the Lake Cities Broadband Committee to conduct a targeted broadband access field validation and audit. The broadband field validation and outside plant audit will be performed to test and confirm provider service boundaries, deployed infrastructure assets, broadband speeds, and delivery platforms. CN's Engineering & Technical Services (ETS) staff will utilize a variety of resources for validation support, including provider coverage maps, FCC databases, public feedback on the broadband maps, and voluntary provider data submissions. Based upon initial analysis, CN has identified the following internet service providers as offering services in the community:

- AMG Technology Investment Group (Nextlink)
- CenturyLink, Inc.
- Charter Communications
- Frontier Communications
- Grande Communications
- Skybeam, Inc.
- Southwestern Bell (AT&T)
- Speed of Light

Validation will include wireline and fixed wireless platform types and include the road miles defined in the previous section. CN's validation and verification methodologies have undergone stringent reviews that are based on industry accepted standards to reduce the risk of overstating broadband coverage and to develop products to inform and promote data-driven decisions that will expand broadband access. CN will document findings using these methodologies in a field report and aggregate the validated infrastructure data in an interactive map. In the course of field validation activities, CN will also identify strategic vertical assets that are not included in existing Lake Cities databases that could be leveraged for broadband expansion. Asset attributes will not be collected. Travel is required and will be dependent upon any national or state travel restrictions or guidance being lifted.
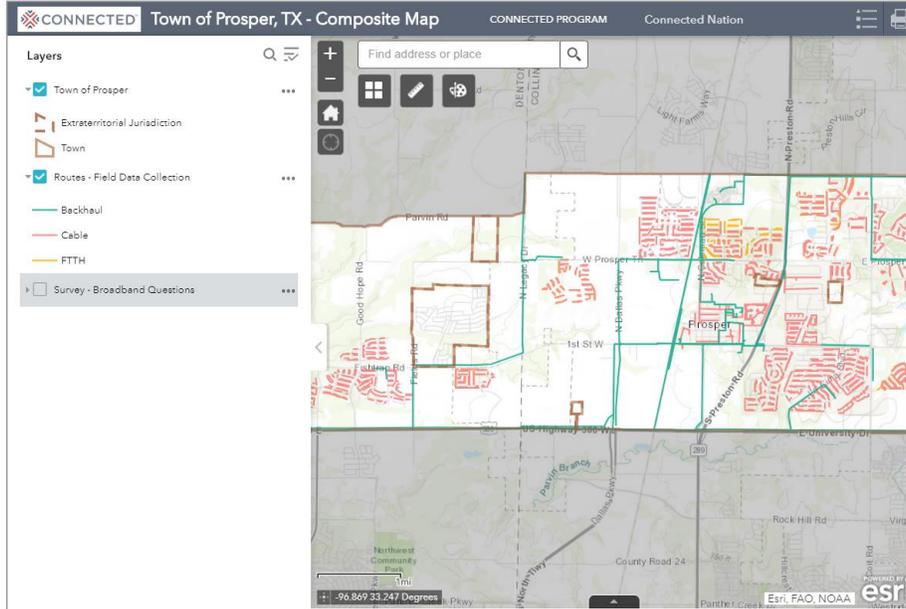
Time: 2 months

Cost: $25,000 (includes travel cost)

Deliverables:

1. An interactive map of the community with data layers representing the validated broadband infrastructure data.
2. Field audit report and data analysis

Example: http://connectmycommunity.org/prosper-tx-infrastructure/

2. Demand Survey

Scope: CN will develop a customized online survey portal, to be made available for Lake Cities' residents, businesses, and institutions. The survey will examine the broadband supply and demand landscape in the community across households, businesses, and community anchor institutions including healthcare, libraries, schools, public safety, and others. The survey data will allow the examination of several metrics related to the community's barriers and opportunities to broadband and technology use in the community. This survey will ultimately help gauge the gaps in access, adoption, and use of broadband and define potential expansion opportunities based on the demand analysis.

CN will calculate sample sizes and breadth of survey distribution required to ensure that the data is useful and sufficient for analysis. Lake Cities leaders and community stakeholders will be responsible for promoting completion of the online survey. No travel is required.

Time: 3 months

Cost: $9,500

Deliverables:

1. An executive summary of the survey results and corresponding data analysis.
2. An interactive map with survey respondent data to target areas of most significant broadband demand.
3. An interactive data portal with survey results and benchmark data to other communities.

Example: http://connectmycommunity.org/prosper-tx/

3. Asset Inventory

Scope: CN will work with Lake Cities stakeholders to identify assets within the community that can be leveraged to accelerate or enhance broadband infrastructure deployment.

Vertical assets will include, but are not limited to, structures such as towers less than 200' which may not be registered in the FCC's ASR database, grain elevators, silos, water towers, or other tall structures that could be leveraged to develop a fixed wireless broadband system. This inventory will seek to identify the asset, asset owner, exact location, and other pertinent information. Upon a first pass collection of this data, CN will employ a process to conduct quality assurance on the data culminating in an on-the-ground review of assets, to ensure the completeness of the data collected and to answer any outstanding questions that might exist after the initial data inventory is conducted. Utility or other poles can also be integrated into the database and map provided that the community provides the geographic data in a shpfile, kmz file or other usable format in addition to the corresponding attribute data.

Horizontal assets will include, but are not limited to, dark and lit fiber, long haul and metro fiber, conduit and/or other assets that can be used to support network deployment. The horizontal asset inventory will primarily be developed through desktop research, access to subscription based data, and integration of data provided by the community. Travel is required and will be dependent upon any national or state travel restrictions or guidance being lifted.

Time: 3 months

Cost: $16,000 (includes travel cost)

Deliverable: An interactive map with the comprehensive asset inventory and the ability to isolate various data layers.

Example: http://connectmycommunity.org/nemcog-vertical-assets/
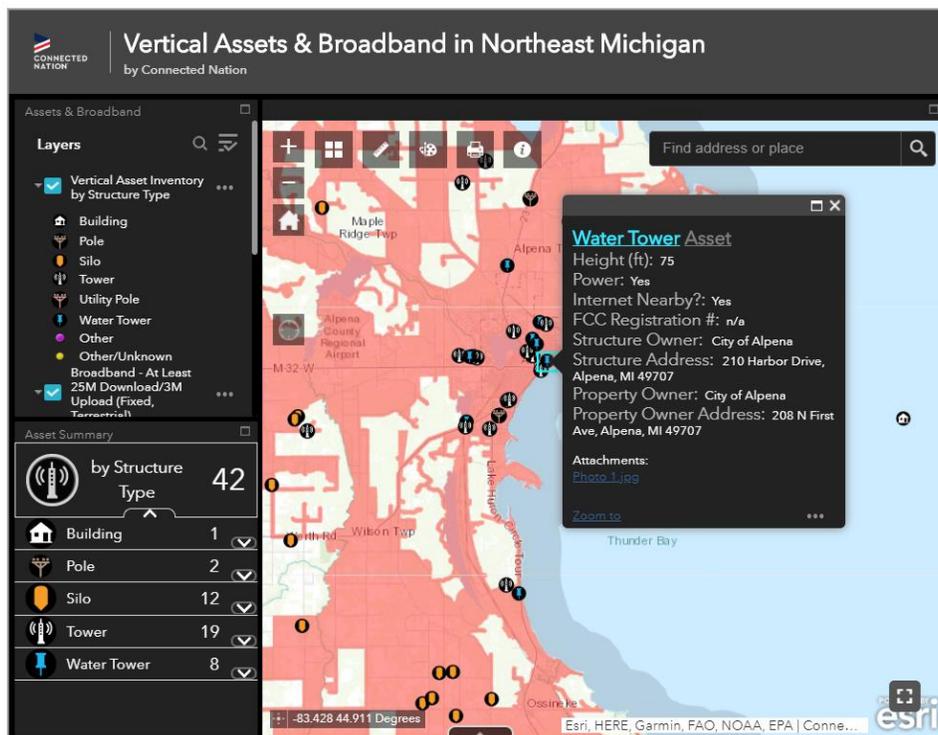
4. Strategic Plan

Scope: If the community selects to pursue and complete the project options described in sections 1 and 2, CN will use the broadband data captured in the infrastructure audit and validation process and demand survey to develop a comprehensive assessment and broadband strategic plan. The plan will include a set of recommended actions that must be edited and prioritized by the Broadband Committee. Once prioritized, CN will develop a comprehensive assessment and plan with an implementation matrix. This body of work will detail next steps for addressing any deficiencies or opportunities for improving the local technology ecosystem. The plan and implementation matrix will serve as a blueprint to coordinating at federal, state, and local levels and leveraging technology to advance economic, social, and educational opportunities for families, businesses, and institutions in the community.

Deliverable: A comprehensive strategic plan document estimated to be 25-40 pages delivered in electronic pdf format.

Time: 2 months after completion of mapping and demand survey.

Cost: $9,000

5. Mobile Broadband Policy Analysis and Coverage Planning

Scope: CN will examine the federal, state, and local rules that influence the deployment of small cells and 5G infrastructure in the community. Analysis will include reviewing the regulations pertaining to size, shape, and placement of wireless network equipment as well as pertinent fee caps and agreements. CN will work the Broadband Committee and other local stakeholders to identify strategies to accelerate investment and deployment of next-generation technologies by wireless carriers throughout the community. No travel is required.

Time: 2 months

Cost: $6,000

6. Broadband Planning Support Services

Scope: CN will remotely attend regular Broadband Committee meetings and provide updates on federal, state, and local broadband activities, best practices, or innovations which may be relevant to Lake Cities' strategic goals. CN will also make available subject matter experts in GIS, policy, research, and engineering to follow-up on requests or inquiries in order to keep the Lake Cities Broadband Committee on the leading edge of broadband developments and opportunities. Any requests beyond 10 hours per month will need to be approved and invoiced at an hourly rate of $200. No travel is required.

Time: Monthly

Cost: $2,000

Key Personnel

Jennifer Harris – State Program Director, Connected Nation Texas
Ms. Harris is responsible for managing the development and implementation of broadband strategies throughout the state of Texas. She creates and maintains partnerships by engaging with communities, local municipalities, and state and federal government. This includes working to close the Digital Divide in rural parts of the Lone Star State. Ms. Harris also serves on the Governor's Broadband Development Council. Having worked in state government since 2005, Ms. Harris has held a wide range of jobs in the public sector. Her professional experience includes legislative, public policy, communications, and government affairs work with the Texas Legislature, and policy and communications work for the Florida Department of Education. She holds a master's in public service and administration from Texas A&M University and a bachelor's of business administration in marketing from The University of Texas at Austin.

Charles (Chip) Spann - Director, Engineering & Technical Services
Mr. Spann performs engineering oversight of mobile drive testing, site plans, cost models, and radio frequency propagation map analysis. He develops drive testing methodologies used by the Universal Service Administration Company for Federal Communication Commission (FCC) Auctions 901 and 902 funding recipients and also conducts field verification, mobile drive testing, and outside plant audits of Native American tribal lands. He created field validation and wireless design models which were adopted as best practices by the FCC and National Telecommunications and Information Administration (NTIA) during the federally-funded State Broadband Initiative (SBI) grant program from 2010-2014. Mr. Spann, considered by many as a pioneer in the development of 2-way, digital, and high-speed data services during the 1990s, has 32 years of multiple discipline experience in executive leadership roles within the telecommunications industry.

John Determan - Sr. Broadband Field Engineer
Mr. Determan performs mobile drive testing, broadband service verifications, and radio frequency propagation map analysis. He also performs field verification for Federal Communications Commission (FCC) Auctions 901 and 902 funding recipients and conducts mobile drive testing and outside plant audits of Native American tribal lands. Mr. Determan assisted in creating field validation and wireless design models which were adopted as best practices by the FCC and National Telecommunications and Information Administration (NTIA) during the federally funded State Broadband Initiative (SBI) grant program from 2010-2014. Mr. Determan has been involved with the radio frequency communications industry since the late 1980s, deploying communications access across licensed and unlicensed frequencies during his 32 years of technical and engineering roles within the telecommunications industry. Mr. Determan has designed, built, and/or maintained networks from analog to digital across multiple wireless and wired platforms.

Ashley Hitt – Director, GIS Services
Ms. Hitt oversees the day-to-day operations of the Geographic Information Systems (GIS) team. She is responsible for developing strategies using GIS to provide data visualization solutions that impact policy, economic development, and the digital divide. She is a certified

Geographic Information Systems Professional (GISP) and holds a master's in geoscience and bachelor's in geography with meteorology emphasis from Western Kentucky University. Ms. Hitt was voted URISA's Young GIS Professional of the Year in 2011 and received the 2017 URISA Leadership Award.

Brian Dudek – Senior GIS Analyst

Mr. Dudek is responsible for activities promoting broadband access, adoption, and use through a Geographic Information System (GIS) as delegated by the Director of GIS Services. He uses this technology to develop and derive data-driven products to assist in bringing about solutions to help connect the unserved and underserved areas in the digital divide. Mr. Dudek conducts advanced data analyses, develops custom tools, manages geospatial and tabular data, and performs static and dynamic cartography in this effort across the nation. He is a certified Geographic Information Systems Professional (GISP) and holds a master's and bachelor's in geography from the State University of New York.

Eric Frederick - Vice President, Community Affairs

Mr. Frederick is responsible for managing the development and implementation of CN's Connected Community Engagement Program (Connected^{SM}), across the United States. He develops and maintains Connected partner relationships in support of Connected Nation's mission. In addition, he provides primary management, oversight, and support for Connect Michigan's state strategy as a context for advancing methodologies relevant to Connected. In this role, he has developed relationships with statewide, national, and international groups that are partnering with Connected Nation to solve problems of connectivity and to bolster the value of internet connections. He also led a nationally recognized team that produced the nation's first certified Connected community. Mr. Frederick holds a master's in urban and regional planning from Michigan State University and a bachelor's in urban planning and GIS from Northern Michigan University.

Chris McGovern, Director of Research Development

Mr. McGovern is responsible for managing the production of Connected Nation research deliverables and the daily operations of the Connected Nation research staff. Mr. McGovern works with internal staff and external stakeholders to develop research and provide critical analysis supportive of the Connected Nation mission. He uses qualitative and quantitative techniques to interpret data, formulate reports, and make substantiated recommendations based on research findings. Mr. McGovern holds a master's in economics from Murray State University and bachelor's in political science from the University of Illinois at Chicago.

Lindsay Conrad – Director, Public Policy

Ms. Conrad is responsible for monitoring and seeking to understand all current and forecasted federal and state broadband public policy legislation and initiatives. She develops recommendations on the strategic direction and development of Connected Nation policy studies and messaging to stakeholders. She supports and guides Connected Nation's broadband planning, research, and policy agendas. Prior to this role, she served as a Community Technology Specialist for Connect South Carolina. Ms. Conrad is a certified Project Manager Professional (PMP) and holds a master's in economics from Vanderbilt University and bachelor's in economics from Maryville College.

Jessica Denson – Director, Communications

Ms. Denson is an Edward R. Murrow and Emmy award-winning journalist who still enjoys the challenge of presenting stories in interesting and thoughtful ways. She has worked in communications for several nonprofits, overseeing a wide range of projects including magazine writing and planning, creating engaging social media platforms, handling website redesign, and mining stories and story development for outreach to donors, the public at large, and media outlets. Ms. Denson handles internal and external communications for multiple state offices and programs within Connected Nation. Her duties include organizing media outreach such as press releases, guest bookings, and interviews. Ms. Denson mines stories and case studies within the organization to support its mission and demonstrate impact. Ms. Denson holds a bachelor's in mass communications from the University of Central Oklahoma.

Company Information

Connected Nation (CN) was originally founded on February 19, 2001, as the Center for Information Technology Enterprise (CITE) in Bowling Green, Kentucky, to promote technology expansion in Kentucky. CITE evolved into ConnectKentucky, a public-private initiative focused on conducting broadband mapping research and grassroots community-level planning statewide. ConnectKentucky led community planning efforts in all 120 Kentucky counties which helped to expand the use of the emerging technologies of the early 2000s. Other states began to seek that same type of guidance, and, to facilitate a multi-state consultancy, Connected Nation was formed in 2007.

CN has nearly 20 years of experience providing strategic consulting and advisory services at the federal, state, and local community levels in order to accelerate and expand broadband access. CN's strategic consulting and advisory services provide a multi-discipline view of the broadband landscape by providing broadband and telecommunications research, policy insights, mapping, engineering, and federal, state, and local strategic planning services.

CN has experience and a process to inform and develop a comprehensive plan with measurable outcomes that is representative of multi-sector stakeholders. Evidence of state-level engagement and comprehensive plan development include the production of the Nevada State Broadband Action Plan and Puerto Rico's Gigabit Island Plan. A recent example of a community-level engagement and technology action plan is available via the following link for Ward County, Texas: http://connectmycommunity.org/ward-county/

13 state-based broadband public-private partnerships from Alaska to Puerto Rico under the SBI program impacting 1,150 counties

Library-focused initiatives in 20 states in partnership with the Bill & Melinda Gates Foundation

1,500+ unique broadband provider relationships through data collection and processing

Broadband availability mapping across more than 40% of the U.S. landmass

Connectivity surveys and mapping for 128,000 Community Anchor Institutions

60,000+ school children provided laptops and digital skills training

230+ digital literacy training centers established in partnership with local libraries and community colleges

CN enjoys a strong policy staff that fully understands the telecommunications industry, drawing on years of experience working with states on broadband issues and having experience in Washington both with the FCC and with our nation's legislators. This experience allows for robust development of policy and programs that can help pave a mutually agreeable path toward greater availability and expansion of broadband services.

CN has facilitated the development of state-level task forces or similar governance committees in 11 states focusing on strategic planning initiatives related to broadband. Examples include, but are not limited to:

- Alaska Broadband Task Force
- Connect Iowa Advisory Committee
- Kentucky Steering Committee
- Michigan Collaborative Broadband Committee

- Minnesota Governor's Task Force on Broadband
- Nevada Broadband Task Force
- Ohio Technology Association
- Puerto Rico Broadband Task Force
- Connect South Carolina's Broadband Advisory Council
- Connected Tennessee Steering Committee
- Texas Broadband Task Force

Under the U.S. Department of Commerce's State Broadband Initiative grant program administered under the National Telecommunications and Information Administration, Connected Nation became the single most prolific broadband data collection and planning entity in the country. Links to several State Broadband Initiative final grant reports are provided below:

Connect Alaska: http://www.connectak.org/ak-final-grant-report
Connect Iowa: http://www.connectiowa.org/ia-final-grant-report
Connect Michigan: http://www.connectmi.org/final-grant-report
Connect South Carolina: http://www.connectsc.org/sc-final-grant-report
Connected Texas: http://www.connectedtx.org/tx-final-grant-report
Connected Tennessee: http://www.connectedtn.org/tn-final-grant-report