

**2021 Broadband Infrastructure Engineering Study**

**Door County, Wisconsin**

**PROJECT SCOPE AND SPECIFICATIONS**

This section outlines the study and report requirements.

**Section A – Current assessment and market demand**

* Review of the competitive environment
  + - Complete an inventory of existing fiber networks and all other Broadband providers and services within the county, including ownership and availability for use by other network providers.
    - Provide an overview of current broadband providers’ services, pricing strategies and coverage area.  To the extent possible, determine and analyze the investment and deployment plans of incumbent providers.
    - Map existing the location of existing fiber and broadband-related electronics and available broadband speeds available by provider.   This information should be provided in a format usable by the County GIS systems.
    - Provide an assessment of the services available to our existing and prospective businesses and how that impacts our economic development efforts.

Data Deliverables

1. A list of all the providers of broadband services in Door County, to include wired, fixed wireless, cellular and satellite
2. A coverage map for each provider and a consolidated map showing all the providers’ coverages.
3. Services and rates (including data caps) available from each provider in each of their coverage areas. The service availability needs to be confirmed, not just claimed. Speeds available need to be confirmed by specific area. For example, DSL speed available is much slower (or not available at all) as the distance to certain equipment increases. A speed of 15 Mbps available at 1 mile is of no use to a user further out. Or, houses below a bluff might not have line of sight to a fixed wireless signal from a tower only a half mile away as the crow flies.
4. Address lists contained within each defined coverage area. Practical limits apply – e.g. satellites can claim the whole county, detail not required.
5. Physical location maps for all broadband structures (e.g. towers) and cables. For cables, are they above ground or buried, cable or fiber optic?
6. If possible, estimates of how much unused capacity is installed by type (cable, fiber, fixed wireless, etc.)

**Section B – Technology options**

* Determine the best technology path for our county
  + - What are the broadband capacities and considerations that are necessary now and in the future that will enable our county to be economically competitive?  What technologies can provide broadband services at those speeds?
    - What are the technologies best suited to the various areas of the County based on geography and demographics? What are the pros and cons of each technology?
    - What opportunities exist to provide a protected-ring fiber network that would connect businesses and anchor institutions such as schools, libraries, hospitals, public safety, cities, institutions of higher education and community support organizations?
* Options for services provision to include:
  + - Mix of technologies and phased build out plans with multiple platforms scalable to 1 gigabit and include wireless, fiber, ARMER, cell, and other towers/structures, cable, etc.
    - Options should include scenarios using what already exists within the County, with a minimum service level of (25/3, 100/100, Gb, symmetrical and asymmetrical options (county must choose)).
    - Business models and pro forma to be analyzed to include but not be limited to:
      1. Build on existing networks: Options to combine or collaborate with existing providers to provide middle and last mile coverage to the underserved and unserved, with special emphasis on leveraging CAF2 and other Federal agency dollars.
      2. Create new networks:
      3. Open Access: The County would finance and contract to build the network and invite other service providers to contract to deliver services over the network.
      4. Proprietary Network:
         1. The County would build and operate the network, with or without private sector operating partners
         2. The County would incent a private sector partner, including existing cooperatives, the creation of a new cooperative, or other entity to invest, build and operate a network by using development powers as necessary.
      5. Other options that might involve multiple local entities or other scenarios as contractor sees appropriate.
* Conduct pre-engineering study(s) at sufficient depth to estimate costs and approximate implementation timeframes for full network implementation.
  + - This evaluation should include an assessment of all available mainstream high-speed technologies either alone or in combination and include an assessment and consideration of both Fiber to the Premise (FTTP) and wireless technologies.  All parts, materials, and service proposed must be currently available on the market and in continuing production (no discontinued manufacturers or parts).
    - Assessment of primary and redundant backhaul connection options between local network and the Internet.
    - Define the proposed service area and create a conceptual fiber route and high level design to provide the greatest coverage, showing businesses and publicly owned facilities passed within ½ mile on both sides of the fiber route.
    - Use algorithmic tools to combine the map data with historical cost data to provide an estimated cost to offer scalable broadband service for all options identified.  Costs will be calculated by service area and anticipated route miles to determine capital costs for fiber optic mainline, access equipment, cell tower backhaul, routers, and switches.  Costs should be all inclusive of any design, initial configuration and installation costs.

**Section C – Partnership options**

* Provide examples of who might be a prospective partner with a brief summary of how each relationship would function.
* What sectors, groups and individuals may help our county achieve the broadband goals?  Please identify synergies and sharing opportunities that exist with local businesses/providers and customers to include but not limited to:
  + - ISP Providers, Telecoms, Cooperatives, Statewide telecom networks, Government entities, NGO’s, K-12 and higher education, including library systems, Healthcare providers and the industry and business community
    - If no local businesses/providers available, what might be possible to set-up?

**Section D – Financing and Legal Considerations**

* Provide financing options to include, but not limited to general obligation bonds, revenue bond, public/private partnerships, USDA RUS, other state and federal funding and others where appropriate.
* Provide an assessment of legal requirements, risks and regulations relevant to the building or operation of a network and partnership arrangements.
* Prepare financial projections for at least two project scenarios as selected by the project steering team:
  + - Options Identified
    - Operational Cash flow for expenditures
    - Breakeven projections for various levels of adoption
    - One Time and Recurring Capital Expenses
    - Business and technical expertise needed
    - Staffing requirements for operation, maintenance including equipment and inventory required
    - Organizational support
    - Community Support