Waggoner Engineering, Inc.
And Madison County Board of Supervisors
Task Order Form

Task Order No. 4-A	
Additional Pages Attached: __10___	
Date of Task Order:_____, 2021	

TASK ORDER TO THE GENERAL SERVICES AGREEMENT BETWEEN WAGGONER ENGINEERING, INC. AND MADISON COUNTY, MS BOARD OF SUPERVISORS

This Task Order to the General Services Agreement between Waggoner Engineering, Inc. and Madison County Board of Supervisors dated ___July 6, 2020, is a part of, and is subject to all the terms and conditions of the Agreement unless specifically provided otherwise herein.

1. **Project Name:** Madison County Broadband Initiative

2. **Project Number:** WEI Project #021151.000

3. **Project Manager for Client:** County Administrator
   Shelton Vance

4. **Project Manager for Waggoner:** Darion Warren, CFM

5. **Method of Compensation:** Lump Sum

6. **Task Order Compensation:** $206,000

7. **Scope of Work (see additional pages attached):** See attached Scope of Work, Schedule, and Budget associated with Program Element 1, Broadband Assessment. Services associated with Program Element 2, Selection of Third-Party Vendor and Program Element 3, Program Implementation will be prepared by Waggoner upon receipt of subsequent task orders issued by Owner.

8. **Schedule of Performance (see additional pages attached):** 12 WEEKS

9. **Approved Subconsultants:** Foresite Group

10. **Special Provisions:** n/a

IN WITNESS WHEREOF, the parties hereto have caused this Task Order to be executed by their duly authorized representatives effective as of the date set forth above.

MADISON COUNTY BOARD OF SUPERVISORS	**WAGGONER ENGINEERING, INC.**
_____	_____
By:_____	By:_____
Title:_____	Title:_____

Madison County Board of Supervisors

Madison County Broadband Initiative

Madison County, MS **September 2021**

Background and Objectives

The Madison County Board of Supervisors (MCBOS) has identified the need for provision of fiber to home (FTH) broadband service to a largely rural area in the northeast portion of the county, roughly proscribed by U.S. 51 on the west, the county line on the east, Natchez Trace Parkway on the south, and Loring and Honeysucker Roads and MS 43 on the north. Initial estimates are that the area identified includes approximately 2,600 residents along 285 road miles. The MCBOS has indicated the intention to allocate a portion of funds from its anticipated American Rescue Plan Act (ARPA) appropriation to meet this need, identified as the Madison County Broadband Initiative (the Program).

The MCBOS has engaged Waggoner to provide assistance with defining the scope and requirements of the Program, procuring a third-party vendor to provide the facilities and service, and implementing the Program, all in accordance to and in compliance with the guidelines associated with ARPA and other potential sources of capital funding.

Following is the Waggoner Program Delivery Team's (PDT) proposed scope, schedule and budget for assisting Madison County with the initial element of the Program, consisting of Broadband Assessment. Upon completion and delivery of this initial element to the County, the PDT will provide a detailed scope, schedule, and budget for remaining elements of the Program, to be authorized via subsequent task order(s).

Program Element 1, Broadband Assessment

The purpose of this element of the Program is to assist the MCBOS by identifying, evaluating, and recommending the most effective alternative, financially and operationally, for providing broadband service to the target area, in accordance with the objectives of the Program. This initial Program element will consist of three tasks, as follows.

<u>Task 1 – Community Engagement</u>

1.1 Strategy Session

The PDT will facilitate a Strategy Session as a kickoff to the project, to include representatives of the MCBOS, county staff as required, and other community stakeholders if identified by the MCBOS.

The Strategy Session is the foundation for establishing relationships between key stakeholders and gathering critical data that sets the entire process's scope and tempo and

should be structured as an interactive, in-person working time to communicate opinions, ask questions, and share knowledge. During the meeting, participants will review project goals and guidelines for communications, tracking, and deliverables. Outcomes from this session and subsequent decisions at each Task are critical to determine logistics for the project.

The PDT will collaborate with the MCBOS to develop a list of current and proposed stakeholders, identifying each role and responsibility. The PDT will function in both advisory and educational roles for the duration of this project. Project stakeholders should take full advantage of the PDT resources to pose questions and gain insight into telecommunications processes and technologies.

The PDT will rely on MCBOS for information related to facilities and infrastructure. This may include access to employees of the County who can assist with data collection and access to GIS data or shapefiles containing infrastructure details. The PDT will also rely on MCBOS to foster communication between other beneficial parties that can contribute to the project's success.

1.2 Mapping Tool

The PDT shall use different software solutions and processes throughout the lifetime of the program. Because of its versatility and functionality for gathering, managing, and analyzing information represented in a geospatially accurate graphic interface, the PDT will begin by creating and populating a Geographic Information Systems (GIS) database. The PDT will coordinate closely with the County's existing GIS-based personnel and assets in order to make the most and best use of available data, as well as to facilitate beneficial use of the data by County staff post project.

Based on the County's and Program stakeholders' specific needs, upon request the PDT will either select or create the best GIS database suited to the use of this unique broadband program. The implementation may include an industry-standard commercial product, a custom-designed platform developed with a software partner, or a combination of the two, as best suited to Program needs.

1.3 Local Broadband and Telecommunications Assessment

The PDT will evaluate current broadband infrastructure and services available from incumbent competitive telecommunications service providers in market, including wireline and local and regional middle-mile telecommunications infrastructure and services. This shall also include a survey and assessment of technology applications being utilized by the county, local businesses, and residents including non-profit agencies, schools, churches, and other groups to identify the technical and functional objectives of the Program.

1.4 Gap Analysis

As part of the examination from the PDT, many different aspects of a community will be evaluated. Broadband-based services are key components to not only improving the tax base and revenue of a community, but also for promoting stability through growth and quality of living for the residents. The PDT shall provide observations related to the community as viewed through the lens of broadband, limited to challenges that can be improved through better broadband solutions. With each challenge, or gap, the PDT will recommend actionable solutions that can reduce the impact of the problem or resolve the challenge.

After reviewing demographics, economics, policy, and budget, the PDT will identify gaps in the community that can be improved through broadband solutions. The gap analysis and recommendation section of the report will address each deficiency and offer possible solutions that can be implemented.

1.5 Assessment of Regulatory Environment

The PDT will perform a review and assessment of potential regulatory requirements or restrictions that may become applicable or impactful to Program objectives. This may include:

- current and anticipated federal and state legislative actions or legal requirements that may impact decisions;
- application and certification requirements through the Federal Communications Commission (FCC) necessary to create an FCC Registration Number (FRN) if the County determines an interest in attaining Tier 1, Tier 2, or Tier 3 service provider status; and/or
- utility registrations with Federal, State, County, and City agencies for placement of infrastructure encroaching the public Right of Way or access to other utility infrastructure including joint-use agreements with the pole owner (or owners), electrical cooperative, telecommunications company, or municipality.

Task 2 – Preliminary Planning

2.1 Data Collection

Collect and Incorporate Local Data

Data from utility companies (power, water, gas, sewer), public entities (City, County, State, or Federal), or other open sources will be combined into the GIS platform. This data incorporation may include a geospatial realignment process for inaccurate data. The time to complete this task is dependent on the accuracy, currency, and accessibility of the required data. The PDT will rely on the County to provide as much available utility data as possible, as

well as GIS, such as census information, parcel data, municipal buildings, County-owned real estate, etc.

Address Verification

Because serviceable locations account for the value of the network through revenue generation, a thorough address verification process is one of the most critical imperatives for Program success. Even with support from public entities (such as county parcel data), utility billing information, and other third-party sources, existing address data typically is inaccurate and incomplete. This may apply to address types and geographic locations for residences, businesses, municipal services, other utility services, and candidate small cell or wi-fi locations as designated during the strategy session and planning phases. This is an essential aspect of creating an expandable and sustainable long-term strategy.

The PDT will depend on the County to provide or assist in obtaining the most accurate and current address data available.

Real Estate Review

Whether applicable to the placement of a large data center or a small cabinet to support the network, the site location and acquisition of private or public property is a commonly overlooked aspect. Addressing and assessing real estate needs and options at the forefront of the project is a key component of the project's overall success.

The PDT will depend on the County to provide or assist in obtaining the most accurate and current property location and ownership data available.

2.2 Network Architecture and Requirements

The PDT will collaborate with the County to define the preferred network architecture, minimum service thresholds, and fiber testing and network validation standards. Based on experience working with the Incumbent Local Exchange Carriers (ILECs) and partnering with telecommunications equipment and technology vendors, the PDT has a thorough understanding of the evolution of different network architectures (point-to-point, active ethernet, GPON, NGPON2, XGPON, etc.), and insight in the latest products and processes available.

2.3 Schema Creation

The PDT will further develop the schema and data dictionary for new features that will be incorporated into the GIS database. Features with attributes may be incorporated through both LiDAR collection and extraction, and through a software-supported "Boots on the Ground" (BOG) process. With features added through the preliminary and detailed design process, this information can be stored and delivered in KMZ, SHP, or GDB formats and would be geo-referenced to use with private or public GIS data.

2.4 Conceptual Design

As part of a value engineering process, the PDT will develop a conceptual design to best enable a data driven analysis of the costs and major impacts of various deployment strategies including:

- Route planning for network architecture and constructible path;
- The amount of fiber, material, and equipment needed;
- Optimal construction methods to maximize deployment speed and savings;
- Active electronic equipment and sites;
- Long lead permit avoidance;
- Minimization of necessary traffic control;
- Ease of maintenance; and/or
- Minimization of utility strikes.

The conceptual design will reside in the GIS database, where it can be both desktop- and field-assessed, and will be revised as needed throughout the duration of the planning, serving as the foundation for the execution of the subsequent detailed design, construction packages, and permit and make ready engineering documents.

2.5 Pre-Construction Ride Out (Pre-CRO)

Based on initial conceptual design output, the PDT will perform a Pre-Construction Ride Out (Pre-CRO) to analyze outside plant infrastructure placement for constructability, cost, and schedule efficiency. Due to costs, weather conditions, accessibility, or physical obstructions, there are inherent limitations to the implementation of LiDAR-collected field data. Therefore, the PDT may employ traditional field data collection commonly referred to as "Boots on the Ground" (BOG). To maintain speed, accuracy, and uniformity in its comprehensive field data collection, the PDT will use a variety of tools and processes during BOG activities (such as field-noting editable features and attributes in a tablet-based remote-access GIS application) so that the final data are consistent in content and format in the GIS database.

2.6 Make Ready Assessment (MRA)

The Pre-CRO may also include Make Ready Assessment (MRA), a high-level visual check of poles for proposed strand attachment or overlash. This process is intended to classify poles into a category to best determine total make ready effort and costs. Make Ready classification can be adjusted based upon information from the local market during the Strategy Session. Classification of poles could fall into the following categories:

- Green – No moves required, ready for attachment;
- Yellow – Communication moves required;
- Blue – Power violations, multiple communication moves and possible power rearrangement;
- Red – complete pole change-out, possibly including major power equipment reconfiguration;
- Black – High cost / prohibitively problematic.

2.7 Permit Review

Throughout the route planning and conceptual design process, the PDT will take note of potential roadblocks or opportunities as a result of needing access to public Right-of-Way (ROW), areas that require special application or abnormally long durations, or private easement avoidance.

- Standard Right of Way (ROW) - This may be applicable to encroachment permits for underground construction and installation or for temporary use of the ROW for aerial construction and installation. The PDT will research the requirements of the approving agency and will perform an initial desktop route review, incorporating available utility data, planimetric data, and parcels into the detailed GIS design database.
- Long Lead - This may be applicable to work areas for entities requiring specialty or long lead approval permits, including agencies such as the Mississippi Department of Transportation (MDOT), Railroads, bridge or water crossings, Centralized Business District (CBD), or protected environmental habitats. Though the PDT uses due diligence and value engineering during the conceptual design phase to avoid these areas if possible, by selecting an alternative construction path, long lead or special permits are typically unavoidable throughout an entire market area.

Information obtained through the Pre-CRO, MRA, and Permit review processes will be used to enhance and improve the Conceptual Design.

<u>Task 3 – Evaluation of Business Models</u>

The PDT will develop and evaluate up to two (2) alternatives models for network implementation. Comparative evaluation of the alternatives will include such factors as capital expense, operational and maintenance expense, level of service, accessibility to customers and other considerations relevant to the County’s decision process.

3.1 Materials and Labor

The PDT will use the preliminary modeling of the proposed conceptual networks to calculate required material units and provide general information regarding projected capital requirements as applied to current unit costs and pricing for optical cable, conduit, active electronics, and other associated structures and hardware.

Cost of construction and engineering labor for various build methods (aerial construction, directional bore, open trench, micro trench, etc.) will also be factored into the cost analysis for various potential routes to maximize value engineering throughout the network.

This information shall be incorporated into a Preliminary Bill of Materials (Pre-BoM) for use in assessing projected values and duration for mobilization and procurement.

3.2 Schedule Creation

The PDT will create a Master Program Schedule to establish projected durations for critical milestones required to support the Program goals, predicated on applicable prerequisite and subsequent phases, steps and tasks including, but not limited to:

- Licensing and certifications;
- Detailed Design activities;
- Permitting creation, submission, and approval;
- Make ready engineering, submission, and approval;
- Make ready construction;
- Concurrent and scheduled projects being deployed by the County or other utility infrastructure projects that may impact the overall schedule (and opportunities to leverage cost savings through joint use /joint trench agreements);
- Construction packages;
- RFPs, vendor assessment, and contract development;
- Material procurement;
- Network infrastructure construction;
- Hubsite engineering, site development and construction;
- Final documentation; and/or
- Service activation.

The Master Program Schedule will be used throughout the lifetime of the Program to guide, forecast, and evaluate progress and completion.

3.3 Service Model

Governance and Ownership Strategy

The telecommunications industry is migrating away from the traditional model where a Tier-1 ILEC dictates all aspects of broadband network planning, design, construction, deployment, utilization, service offering and billing with a pure focus on short-term return on investment, to municipal-based broadband programs with a focus on long-term investment to support the changing needs of the community they serve. The PDT can explain different models for network ownership, operation, and service provisioning – detailing the different impacts and benefits of each aspect to create a comprehensive connectivity solution.

Upon completing the previous tasks, the PDT will collaborate with the County and other qualified stakeholders to recommend alternatives for the network owner, operator and service providers. Because each role is a critical component that impacts the final Business Plan and Proforma, this decision must be made prior to commencement of subsequent elements of the Program.

Supplemental Funding Sources

The PDT will consider possible funding sources for the Program, including federal, state and local programs, municipal bond opportunities, grant money, philanthropic sources, private equity investors, and other sources. This will also include research and analyze into available and applicable public and private sector grant opportunities.

3.4 Proforma

The PDT will utilize the information collected throughout the Strategy Session and Preliminary Planning Task to establish a cost analysis for required investment, including capital expenses, operational expenses, and projected revenues. The PDT will collaborate with the County to develop a market proforma to establish a projected model for return on investment and forecasted profit generation.

3.5 Presentation and Report

The PDT will facilitate a work session with representatives of the MCBOS to present the results of the comparative evaluation of alternatives and recommendations for implementation. Upon the County's approval of the presentation findings and adoption of an approach for implementation, the PDT will prepare a final report for submittal to MCBOS, to include next steps, budget for pre-implementation, and the Master Program Schedule developed earlier.

Program Element 2, Selection of Third-Party Vendor – To be Determined

The purpose of this element of the Program is for the PDT to assist MCBOS with procurement of a third-party vendor, including preparation of the request for proposals (RFP) and related documentation, evaluation of respondents, and recommendations for award. A detailed scope of work for this element of the Program, including schedule and budget, will be prepared in a subsequent task order, upon approval and acceptance of Program Element 1.

Program Element 3, Program Implementation – To be Determined

Depending on the Program scope as included in the RFP and the approach of the selected third-party vendor, the PDT may provide MCBOS with a portion or all of the planning and design for installation of the physical facilities of the Program, in addition to construction phase administration and resident project review. A detailed scope of work for this element of the Program, including schedule and budget, will be prepared in a subsequent task order, upon approval and acceptance of Program Element 1.

Schedule for Program Element 1

The PDT will perform and complete all work associated with Program Element 1 twelve (12) weeks following the approval of Task Order 4-A. See Attached Schedule.

Budget for Program Element 1

The PDT will perform the services for Program Element 1 described above on a Lum Sum basis. Individual task amounts are for budgeting purposes only and may vary within the total budget amount. Any additional services and reimbursables will be billed on an hourly basis. The estimated cost for the work described above is as follows:

Task	Compensation Terms	Proposed Budget
Program Element 1 – Broadband Assessment		
• Task 1 – Community Engagement		$41,290
• Task 2 – Preliminary Planning		$112,095
• Task 3 – Development of Business Model		$52,615
Total	**Lump Sum**	**$206,000**

Madison County Broadband Initiative
Program Element 1 - Broadband Assessment
Schedule for Completion

ID	Task Name	Duration	Start
1	**Notice to Proceed from MCBOS**	0 days	Mon 9/27/21
2	Task 1 - Community Engagement	1 wk	Mon 9/27/21
3	Task 2 - Preliminary Planning	5 wks	Wed 9/29/21
4	Task 3 - Evaluation of Business Models	3 wks	Wed 10/27/21
5	Presentation of Findings and Recommendations to MCBOS	0 days	Wed 11/17/21
6	MCBOS Review and Adopt Recommendations	2 wks	Wed 11/17/21
7	Program Delivery Team Finalize Report	2 wks	Wed 12/1/21