CITY OF WATERLOO

BROADBAND STRATEGY AND ACTION PLAN

Prepared For: Wendy Bowman
Communications Director
City of Waterloo

Prepared By: Magellan Advisors
Contact: John Honker
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999 18th Street, Suite 3000
Denver, CO 80202

Letter of Transmittal

Dear Mrs. Bowman,

Magellan Advisors is proud to respond to the City of Waterloo's Request for Proposals for the Broadband Feasibility Study Project. Magellan is the Country's leading municipal broadband development firm with clients in 30 states, including Iowa. We assist communities plan, engineer, launch and manage broadband services in the municipal environment, with over 50 active municipal broadband networks in operation today.

We take an ecosystem approach to broadband that incorporates not only high-speed internet into the planning, but also smart city technologies and municipal communications that are critical to how municipalities will conduct business in the future. We help you prepare for the internet of things by integrating broadband and smart city technologies into your long-term plan, helping you ensure that Waterloo is prepared to take advantage of all future wired and wireless applications.

Magellan has worked significantly with Iowa communities on broadband development. We understand the local environment, broadband markets and Iowa Utilities Board statutes that are pertinent to these projects. We have worked with the City of Waverly to plan and launch their gigabit Internet services to homes and businesses. We provided teams of expert to assist Waverly at key stages of their development, including:

- Comprehensive broadband feasibility study with ground-up community outreach and support
- Engineering design and costing for the network to cover 100% of the community
- Broadband business plan, giving the City a strategic roadmap for their fiber services
- Financing support with Waverly's bond council and financial advisors

Magellan also provided similar services to the City of Indianola by crafting community and economic development focused strategies in their business plan to guide their deployment of broadband services.

Finally, Magellan developed the City of Davenport's broadband feasibility study that educated city management and council on the most appropriate broadband strategies. This work lead to the recent partnership with Metronet, a regional provider that is now building out fiber to the home in Davenport under a master development agreement with the City.

In all three cases, Magellan's work lead to significant improvement in local broadband services for Iowa communities and we propose to do the same for the City of Waterloo.

We will do the same for Waterloo. We will develop an action plan for Waterloo to immediately move forward and make broadband improvements to the community, focused on retaining and attracting new businesses, improving residential services and making Waterloo a high-tech community.

Unlike other consulting firms, Magellan only recommends real-world, achievable solutions based on our assessment of the City's capabilities, funding environment and requirements of the community. We give you clear side by side comparisons of the feasible options and roadmaps showing the City how to deploy each option. Finally, we provide strategic recommendations on the most feasible options, build consensus with your team and present the findings to City leadership and Council.

If you have any questions or we can be of assistance in any way, please feel free to contact me with any questions or comments. You can reach me directly at 786.208.8952 or Jhonker@magellan-advisors.com.

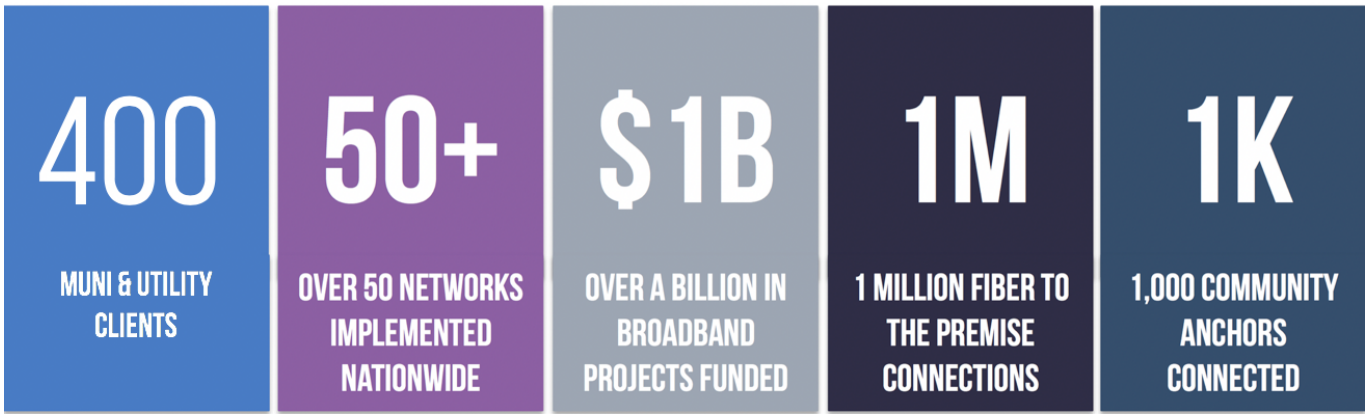
Sincerely,

John Honker, President & CEO, Magellan Advisors

Overview of Magellan Advisors

Magellan is the only firm that provides comprehensive broadband planning, implementation and project management services, enabling our clients with a turnkey consulting partner that helps them through every step of the process. Our project teams are comprised of professionals with significant operational experience in the broadband, public utility, local government, smart city and information technology sectors.

Unlike many consulting firms, we have deep business and operational expertise planning, building and managing networks, skills that are paramount to helping our clients plan and implement their own broadband networks and smart city initiatives by creating effective internal and external partnerships. Our consultants develop real-world, actionable strategies that organizations can rely on to support the development of their broadband and smart city initiatives. No other firm in the industry has these combined capabilities.



Our combination of unmatched broadband, telecom, business and operational experience creates actionable strategies that communities use to realize their broadband and smart city objectives. We have led the planning, funding, construction and management of over 50 fiber to the premise networks passing over 1 million homes and connecting more than 1,000 schools, hospitals, government offices and community organizations. Our work has resulted in over $1 billion in new broadband investments nationwide. Magellan has helped more communities successfully plan, implement and manage gigabit broadband networks than any other firm in the market.

Magellan uses a customized approach in every project based on the needs of our clients and their communities. We develop innovative solutions that allow public and private organizations to best utilize their strengths to expand broadband and develop smart city applications. Magellan is at the forefront of public-private partnership development, working to negotiate and forge these partnerships between public organizations and private broadband providers. Conquering broadband issues often takes the participation of multiple parties that are aligned around common goals. Magellan helps communities recruit innovative providers and form strategic partnerships that benefit providers and the communities they serve.

Portfolio of Services

Fiber & Wireless Engineering

Our broadband design and engineering services provide the latest technical designs for fiber-to-the-premise, backbone, metro and long-haul networks. Our wireless design and engineering services develop effective fixed wireless, microwave and WiFi networks to cover the most challenging terrain. Our services cover all aspects of broadband design and engineering, from outside plant fiber and wireless, to equipment, to services and content, to BSS/OSS and systems integration.

- FTTH, FTTP, Metro & Long-Haul Fiber
- Fixed Wireless, Microwave & WiFi
- GPON, Active Ethernet & WDM
- Routing, Switching & MPLS
- Internet, Voice & Video Integration
- BSS/OSS & Network Management

Feasibility & Business Planning

Magellan helps public organizations and broadband operators determine reasonable expectations for deploying fiber to the premise networks. We develop comprehensive feasibility studies that assess the current broadband environment and determine the opportunities to deploy advanced broadband networks. Our feasibility studies are real world tested and based on the latest broadband industry trends that provide strategic direction for communities to achieve their broadband and smart city goals. Magellan helps public organizations and broadband operators determine reasonable expectations for deploying fiber to the premise networks. We develop comprehensive feasibility studies that assess the current broadband environment and determine the opportunities to deploy advanced broadband networks. Our feasibility studies are real world tested and based on the latest broadband industry trends that provide strategic direction for communities to achieve their broadband and smart city goals.

- Community Needs Assessments
- Market Analysis
- Network Analysis & Inventory
- Business Models & Financial Planning
- Design & Engineering
- Opportunity, Risk & Benefit Analysis

Funding & Grant Writing

Magellan provides extensive financial planning services for organizations looking to invest in advanced broadband networks. Our extensive financial plans help government organizations and private operators understand the opportunities and risks and the most feasible financial strategies to achieve their goals. Our plans are investment ready and are routinely used to support funding with bond underwriters, banks, private equity firms and grant programs. Magellan also maintains a portfolio of financing partners and grant programs that we bring to communities to help them acquire funding.

- Investment-Ready Financial Plans
- Funding Development
- Partner Recruitment
- Broadband Grant Writing & Management
- FCC, E-Rate, CAF & State Programs
- Economic Development Grant Programs

Network Implementation

Magellan helps operators, utilities and government organizations implement next-generation networks and smart city initiatives. We provide turnkey project and construction management services that enable these organizations to maintain resources that cover every aspect of deploying broadband networks, from fiber and wireless network deployment, to equipment and content integration, to marketing and sales, to operations and management. Magellan provides the only turnkey solution that enables these organizations to deploy their networks in a timely manner and launch their networks with the confidence to achieve the best results in their communities.

- Procurement & Contract Negotiation
- Construction Management
- Network Commissioning & Certification
- Content Acquisition & Agreements
- Sales & Go To Market Strategy
- Business & Operations Management

Business & Operations

Magellan provides ongoing retail operations for munis and utilities that want the expertise of a seasoned telecommunications partner. Magellan Broadband Solutions provides ongoing operations for fiber and wireless networks, including sales, marketing, network operations, finance, accounting and general management. Magellan becomes an extension of your organization, fulfilling specific functions with teams of seasoned experts that have been operating broadband networks for more than 50 years.

- Ongoing Sales & Marketing
- Business Management
- Project & Construction Management
- Network Expansion
- New Services Launch
- Network Operations
- Field Operations
- Engineering

Additional Services

Magellan provides a wide range of supplementary services in information technology and security, smart city planning and networking technology fields. Many of our services complement one another, allowing Magellan to provide a one-stop-shop for our clients' full range of broadband, smart city, IT and security needs. Magellan's experts lead the industry in planning and deploying the latest technology solutions to meet a wide range of business needs. As the Internet of Things transitions from concept to reality, Magellan helps its clients adapt to the rapidly changing world and prepare communities to thrive in the digital domain.

- Information Technology
- Smart City Consulting
- Public Safety CJIS Consulting
- Utility Security & SCADA Consulting
- PCI Compliance & Implementation
- Information Security Consulting

Business Models & Partnerships

Magellan is on the forefront of emerging business models and partnership development within the broadband industry. We successfully plan, negotiate and execute partnership agreements between public organizations and private operators, leveraging the strengths of each organization to benefit the community. We have a stellar record of recruiting broadband providers to local communities and helping these organizations make their communities Gigabit Ready.

- Dark Fiber, Open Access, Triple Play
- Feasibility Analysis of Business Models
- Public-Private Partnerships
- Partner Recruitment & RFQs
- Advocacy & Negotiation in Partnerships
- Opportunity, Risk & Benefit Analysis

Policy Development

Magellan maintains knowledge of best practice in policy development and organizational structure for implementing and operating broadband networks and smart city initiatives. We help municipalities and utilities organize and refine internal business processes for improved communications, project management, financial management and policy development. We provide our clients a knowledgebase of zoning, right of way management and wireless policies for enabling and facilitating the development of broadband infrastructures and smart city initiatives. Our commendations generate business processes and workflows that improve internal and external partnerships for streamlining ongoing expansion of broadband and smart city deployments.

- Right of Way Management Ordinance
- Wireless Ordinance & Guidelines
- Fiber Ordinance & Guidelines
- Dig Once & Joint Trench Policies
- Telecommunications Master Funding
- Internal & External Working Groups

Project Team Bios

John Honker: President & CEO

John is a seasoned broadband and telecom executive with 20 years' experience across public and private sectors. His first 10 years were spent with Columbus Networks planning and managing broadband networks across 20 countries in the Americas region. Under his leadership, Columbus' Internet Services grew from $0 to $100 million in annual revenue over 7 years. As a key founder of Magellan, John has managed over 100 public and private broadband projects across the U.S. from concept to completion, helping dozens of communities' plan and deploy FTTH networks. John's role has been to guide the business, strategy and financial aspects of these projects to ensure his clients understand how to deploy FTTH networks in a fiscally responsible and cash-flow driven methodology that supports long-term financial sustainability.

Courtney Violette: Chief Operating Officer

Courtney has led over one hundred municipal broadband planning and implementation projects across the country. He is a Certified Fiber-To-The-Home Professional and holds several technical certifications in broadband, information technology and information security. Prior to joining Magellan, he spent seven years as the CIO for the City of Palm Coast. During this time, he planned and built the first true City-owned open-access network in the Southeast. Through his leadership, the network grew to serve government, business, education and healthcare needs across the City, saving these organizations millions of dollars and providing gigabit connectivity to meet the community's needs. Courtney holds an MA in Information Technology Management and a BS in Computer Science from Webster University.

Greg Laudeman: Project Manager

Greg Laudeman is a leader in innovative, talent and technology-based economic development strategy, research, and implementation. He is the Executive & Founder of Eduity, LLC, which provides talent- and technology-based economic development services and is applying social media to transform workforce planning and development. Greg's diverse experience as an analyst, communicator, facilitator, and organizer has always focused on how technology can make communities and organizations more competitive, innovative, and productive. For over a decade Greg led community technology outreach efforts for the Georgia Tech Enterprise Innovation Institute. Greg has a doctorate in Learning and Leadership from the University of Tennessee at Chattanooga, has master's degrees in public policy from Georgia Tech and Telecommunications from Michigan State, and a bachelor's degree in mass communication from UTC.

Matthew Southwell: Telecommunications Analyst

Matthew has over 10 years in the telecommunications field. Matthew's career began as a U.S Army Sergeant where he worked on emergency operations communication systems, Sat-Com radio systems, and deploying weekly COMSEC key changes OTAR (Over the Air Rekeying) with newly deployed radio systems during two Operation Enduring Freedom deployments. Matthew's private sector work includes work with a Motorola radio distributor and contractor where he supported many Federal, State, and local County entities to include: Department of Homeland Security, Immigration and Customs Enforcement, Drug Enforcement Administration, Florida Highway Patrol, Greater Orlando Airport Authority, Orange County Sheriff's Office, and the Lake County Sheriff's Office.

Mark Lane: Sr. Technical Consultant
Mark Lane has over 30 years of experience in enterprise IT, carrier network operations, and technology consulting. While serving as CTO for Bristol Virginia Utilities OptiNet, he helped provide the strategic direction and practical implementation responsible for their fiber-to-the-premise (FTTP) network build-out and broadband service deployment for eight counties in Southwest, VA. His vision and leadership contributed to Bristol, VA being selected as an Intelligent Community Forum Top 7 Intelligent City in 2009. Mark received a bachelor's in computer science from the University of Tennessee.

Ashley Poling: Project Management Analyst
Ashley has been a member of the Magellan Advisors team since 2014, initially in the capacity of Business Development Manager and most recently as a Project Management Analyst. She has been integral in supporting Magellan in sourcing business through the request for proposal and proposal process, and now supports the Southeast Team in project management, client engagement, and deliverable development. Ashley has a BA degree in Education with a minor in Political Science.

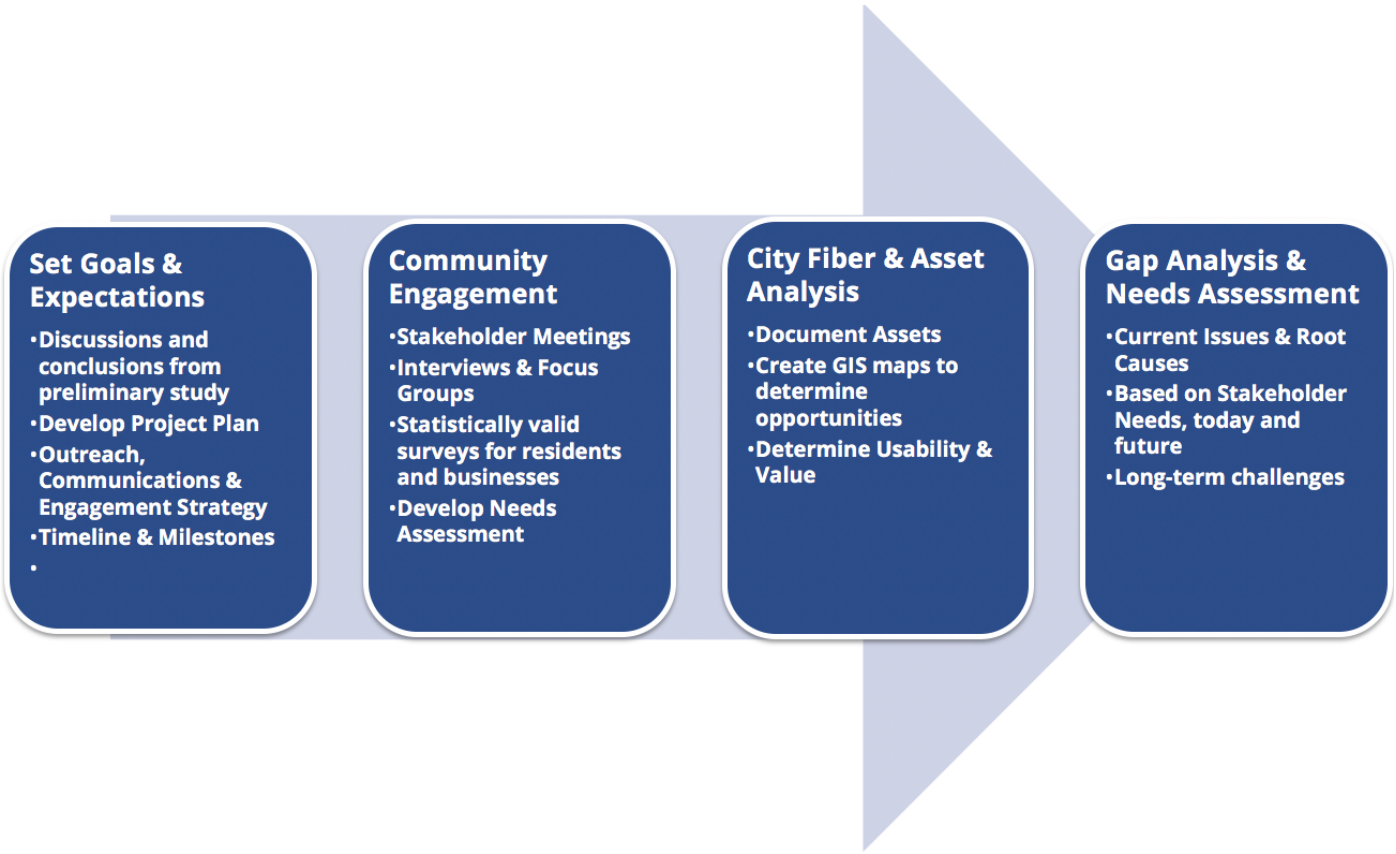
Key Customers

Customer	State	Customer	State
City of Tuscaloosa	Alabama	City of Winter Park	Florida
Salt River Project	Arizona	City of Winter Haven	Florida
Pima Area Council of Governments	Arizona	City of Fort Lauderdale	Florida
City or Rancho Cucamonga	California	City of Bartow	Florida
Rancho Santa Fe	California	City of Lakeland	Florida
City of Huntington Beach	California	Orlando Utilities Commission	Florida
City of Manhattan Beach	California	City of Winter Garden	Florida
City of Mission Viejo	California	Charlotte County	Florida
City of Santa Ana	California	Seminole County	Florida
City of Fairfield	California	City of Ketchum	Idaho
City of Ventura	California	Rock Falls Utilities	Illinois
City of Oxnard	California	City of Davenport	Iowa
City of La Mesa	California	Waverly Utilities	Iowa
City of Chula Vista	California	Indianola Municipal Utilities	Iowa
City of Hayward	California	City of Minden	Louisiana
City of Concord	California	Boone County	Missouri
City of Alameda	California	City of Missoula	Montana
City of Glendale	California	Missoula County	Montana
City of Rancho Cucamonga	California	Niagara County	New York
City of San Leandro	California	Butler County	Ohio
City of Davis	California	Stark County	Ohio
City of Davis	California	Hudson Utilities	Ohio
City of Woodland	California	City of Hamilton	Ohio
City of Winters	California	City of Hillsboro	Oregon
City of West Sacramento	California	Marion County	Oregon
Ventura County	California	Pierce County	Oregon
Sonoma County	California	Jefferson Public Utility District	Oregon
Napa County	California	Johnson City Energy Authority	Tennessee
Alameda County	California	Holston Electric Cooperative	Tennessee
Yolo County	California	Sequachee Valley Electric	Tennessee
South Bay Council of Governments	California	Appalacean Electric Cooperative	Tennessee
City of Boulder	Colorado	Middle Tennessee Electric Cooperative	Tennessee
City of Golden	Colorado	Duck River Electric Membership Cooperative	Tennessee
City of Centennial	Colorado	Newport Utilities	Tennessee
City of Loveland	Colorado	Tennessee Valley Authority	Tennessee
City of Fort Collins	Colorado	Lenoir City Utilities	Tennessee
City of Yuma	Colorado	Morrisville Utility Systems	Tennessee
City of Wray	Colorado	City of Mont Belvieu	Texas
City of Fort Morgan	Colorado	City of Dayton	Texas
Yuma County	Colorado	City of Portsmouth	Virginia
City of Clermont	Florida	City of Newport News	Virginia
City of Jupiter	Florida	City of Walla Walla	Washington
City of Palm Coast	Florida	Whitman County	Washington

Project Approach

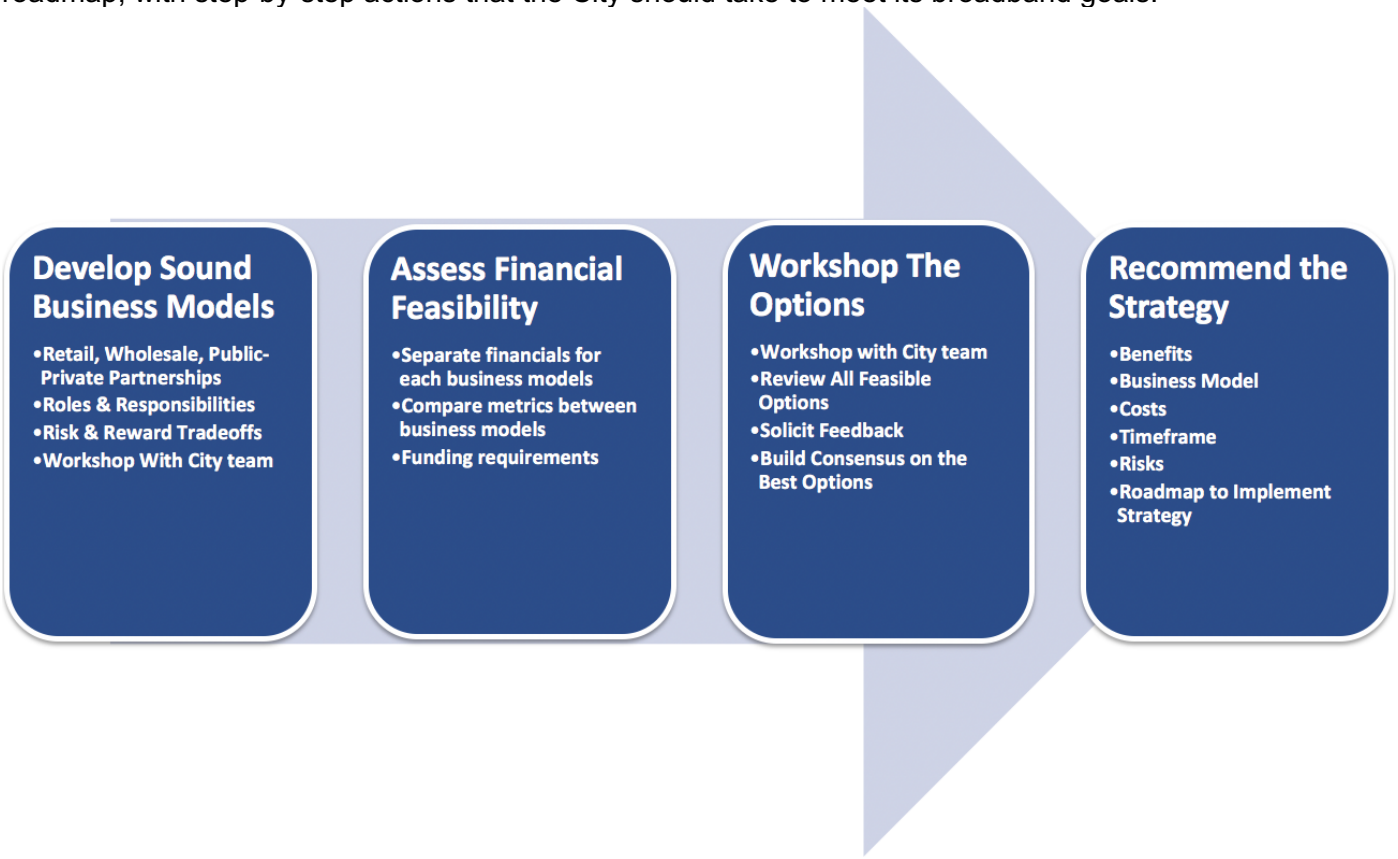
Phase 1.

Magellan believes that the most effective approach to this Study will be through engagement with the Waterloo community to determine their needs and develop broadband strategies that will meet those needs, now and in the future. Phase 1 of the project will assess current broadband needs in Waterloo, determine gaps and identify infrastructure needed to fill those gaps. We will engage with the Waterloo community to understand local needs and plan citywide infrastructure improvements to address needs over time. A summary of phase 1 is shown below.



Phase 2.

Phase 2 will determine the City's most viable opportunities to expand broadband infrastructure to meet the community's needs. It will develop infrastructure designs, cost estimates, financial pro formas and business models that the City could utilize to expand broadband. Magellan proposes to workshop these options with the City in detail to facilitate understanding of each business model and build consensus on the best approach for the City to carry out the broadband mission. Based on the most achievable option(s), Magellan will provide a full roadmap, with step-by-step actions that the City should take to meet its broadband goals.



Process Steps & Timelines

Task 1. Kick-Off Meeting, Project Charter & Goals

Our team will begin the project by conducting an onsite kickoff meeting with the City project team. The purpose of this meeting is to develop a project charter with clear goals and objectives. This will ensure alignment of our team with yours' and that the final deliverables will meet your expectations. Magellan will also develop a project plan and timeline to meet your schedule.

Task 2. Broadband Needs Assessment & Demand Planning

Statistically-Valid Surveys

Magellan will determine the current broadband environment in Waterloo by understanding what residents and business utilize today. We propose to utilize a statistically-valid survey of residents and businesses to understand the current services that they use, what they pay and what they desire in their internet services. Magellan's conjoint survey methodology will answer the following questions for the City to help educate City leaders on the State of Broadband in Waterloo:

1. What services are available to residents and businesses?
2. How many providers do residents and businesses have access to in Waterloo?
3. Is there a digital divide in Waterloo and to what degree?
4. Where are the territories of each provider and do they compete?
5. What do residents and business pay today?
6. What speeds do residents and businesses receive today?
7. Are residents and businesses getting what they pay for?
8. What market share does each provider hold today?
9. If the City provided services directly or through a partnership, what take rates could it expect?
10. What prices, speeds and packages are most demanded by residents and businesses?

Magellan will conduct separate residential and business surveys of the Waterloo community.

Stakeholder Outreach

Magellan proposes to hold interviews with key community organizations to gain an understanding of their current and future broadband and technology needs. We believe that engaging your key stakeholders is important to educate the community and make broadband planning an inclusive process with the community. The surveys mentioned above will provide important quantitative data; the stakeholder outreach process provides important qualitative data. It will involve Waterloo's key public organizations to determine community-wide needs for broadband. We would suggest including:

- City departments
- School district
- Local business associations or the chamber of commerce
- Residential representatives, opinion leaders or home owners associations
- Major healthcare associations or organizations

Magellan proposes to hold sessions with community organizations to gain an understanding of their current and future broadband and technology needs. We find the most effective format for these interviews to be in group settings where participants are encouraged to share open, honest feedback with our team. Magellan will collect information from these organizations to help the City understand the needs of its major stakeholders.

Market Analysis

The market analysis will determine the services that are available, providers, service level, pricing, and access. We will document all publicly-owned and privately-owned networks in the City and build a comprehensive broadband map to illustrate how the City is served by broadband providers today. The market analysis will also provide a gap analysis, using data from the surveys, to determine where the areas of greatest need are in the City, illustrate where the digital divide may be most apparent and identify key regions of the City where economic development could be bolstered by broadband.

Task 3. Broadband Engineering and Cost Estimates

Asset Inventory

Magellan will conduct a comprehensive asset inventory of any existing fiber network resources and other above and underground assets, including traffic signal, utility pole, and street light infrastructure to determine its usefulness toward improving broadband. In addition, Magellan will research wireless tower assets to identify additional need to support current wireless and future 5G services. This inventory will give the City a realistic assessment of the infrastructure's capabilities and opportunities to use it as a foundation for deploying broadband, in effort to lower overall costs of deployment.

Broadband Engineering

Magellan will provide a broadband high-level design and cost estimates to the City for expanding fiber and wireless services to businesses and residents. We utilize a phased approach to engineering and building broadband networks that allows our municipal clients to evaluate different buildout strategies, considering commercial-only, residential-only and residential plus commercial. Our engineering will give you a clear understanding of the regions of the City to be covered by broadband infrastructure and the costs of deploying the network.

The overall engineering process will be based on the needs of the residents, businesses, and anchors in Waterloo. This will determine the bandwidths and speeds, performance, redundancy and scalability requirements, meeting today's needs and future bandwidth requirements, such as:

- Gigabit-capable with a path to 10-gigabit
- High-performance, dedicated connectivity
- Reliable and redundant
- Flexible to support multiple technologies, such as GPON and Active Ethernet simultaneously
- Scalable to support future growth, density and bandwidth requirements
- Multi-service in design – voice, video, data, with the necessary QOS management
- Supporting future smart city and internet of things applications
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Our analysis will include method of delivery (FTTP, wireless, fiber/wireless hybrid, etc.), and associated infrastructure and backhaul routes. We will also include full equipment budgets for the network, renewal and replacement and capital expansion requirements over the long-term (15-20 years).

Cost Estimates

Magellan will provide full cost estimates for all fiber and wireless infrastructure, equipment, services and renewal and replacement. We will also provide complete operating cost estimates for the broadband network, to enable Waterloo to understand all expenses that go into operating and managing services as a retail provider such as Waverly and CFU. This will provide valuable information to inform the City of the overall costs of providing services versus creating partnerships with current providers. The cost capital and

operational cost estimates will be utilized in the Study to evaluate different feasible business models for the City to consider.

Task 4. Analysis of Feasible Business Models

Overview and Detailed Analysis of Each Business Model

Magellan will provide the City a side-by-side comparison of each of the feasible business models for expanding broadband in Waterloo. This comparison will provide the essential functions of each business model, the financials, risks, rewards and control elements that are important for the City's consideration as it evaluates expanding broadband. Magellan will also provide many real-world examples of other cities that have implemented each business model to help the City better understand the best practices, successes and failures.

Magellan believes that the City should consider the following business models and we are open to evaluating other options for the City as the project unfolds, as we find unique opportunities in each community that may not conform to a particular business model:

- Retail services – business and residential
- Retail services – business only
- Retail services – residential only
- Public-private partnership
- Public-public partnership
- Open-access
- Dark fiber leasing

Some of the key questions that we will address in this section include:

- What immediate steps could the City take to improve broadband and what business models would be most effective?
- What would it take for the City to provide all retail services to homes and businesses?
- Could the City work with neighboring broadband utilities, such as CFU or Waverly to reduce risk and bring broadband services to Waterloo more quickly?
- Would a public-private partnership be appropriate for Waterloo and what are the tradeoffs that the City should consider?
- Could the City provide business services first to support economic development, followed by expansion into residential?
- What is the financial performance of each business model? What are the costs and how long would it take for the City to break-even on each business model?
- What are the financial and non-financial risks of each business model?

Financial Planning for Each Business Model

Magellan proposes using our Broadband Financial Sustainability Model to ensure that the City of Waterloo has a full understanding of the business and financial sustainability of various broadband business models. Using these tools will allow the City to evaluate different business models and make informed decisions on which are most adequate for the City and community – including environments that require no funding.

Our models are widely used tools to model feasibility and financial performance for over 50 municipal broadband providers. Magellan's financial modeling tools have been utilized to plan and manage broadband network investments for over $1 billion of broadband investments in the US.

Using our financial tools, we suggest using the following process to conduct the business model analysis and make recommendations. We would propose using a 20-year period to analyze business models:

1. Develop the cost model for the network, including one-time and ongoing capital expenditures to build the network.
2. Develop the cost model for operations, including O&M, network operations, field services, staffing, billing and customer service.
3. From the market analysis and outreach, determine the customer segmentation and growth on the network, across each type of customer (business, school, hospital, etc.).
4. Determine customer growth rates for the network, based on benchmarking analysis from other utility and municipal providers.
5. Determine a proposed competitive rate schedule for potential services, using pricing information from the market analysis and benchmarking information.
6. Develop financial statements, pro-formas, depreciation schedules, and cash flows.
7. Conduct comprehensive financial analysis on the project to determine overall financial sustainability using key metrics such as free cash flow, debt service coverage, operating margin, and net income.
8. Use scenario analysis to evaluate different business models and determine which are feasible for the City to consider.
9. Recommend the most feasible business model based on overall business and financial sustainability, community benefit, and long-term value to the Waterloo community. This model will be designed to generate revenue for the City for a self-sustained broadband maintenance and development program. Our pro formas will indicate the cost of resources both internally and externally, as estimated based on previous similar engagements.

Task 5. Funding Opportunities & Analysis

Magellan will provide a detailed analysis of the funding options for the broadband network and operations. Public funding sources analyzed to determine how the City could fund the project utilizing a variety of vehicles, including municipal bonds, loans, leases, tax increment financing and other municipal options.

We believe that some funding streams could come from public grants and private providers and we will help you analyze what funding opportunities are available, potentially reducing the City's funding requirements. Magellan provides grant writing and compliance for a variety of broadband grant and loan programs managed by the USDA, USAC and FCC. We will provide a deep analysis of programs for which the City may qualify, amount of funding available and requirements to apply. Our funding analysis will also inform the City of the best approach to funding the broadband project, which may include the utilization of multiple funding sources where they apply to specific aspects of the project.

Task 6: Recommendations & Next Steps

Based on the results of the study, a series of key recommendations will be made to inform City leaders of the most feasible options to expand high-speed broadband in Waterloo. Recommendations may include key policy decisions that the City could consider, based on the outcomes of the study. The study will discuss each option in detail and provide a series of next steps that the City could take to pursue one or more of the feasible options. Timelines, costs and resources will be included in the recommendations and next steps. Magellan will workshop these options with the City's project team and if desired, with City leadership in a Council workshop or meeting.

Task 7. Final Broadband Feasibility Study Report

Magellan will provide a final Comprehensive Feasibility Study to The City of Waterloo at the conclusion of this engagement. The final report will inform the City of key information that it can use to make decisions on how to proceed in the most prudent way. This information will include:

- Executive summary
- Broadband needs assessment and demand
- State of Broadband in Waterloo today
- Broadband opportunities
- Broadband benefits
- Broadband design and costs
- Broadband financial analysis for each business model
- Business model options, financial comparisons, risk and reward tradeoffs
- Most feasible options
- Recommendations and next steps

We will work with the City's team to refine this plan, so it is highly representative of your stakeholders needs and is relevant to the Waterloo community.

The Study will function as the guidebook for broadband development across the City and will include the relevant information necessary for Waterloo to begin implementing its broadband initiative. All supporting information such as individual task analysis, raw data, mapping (ESRI) shapefiles and the technical memoranda from each previous task will be included with the Study. All documents generated to support delivery of the Study will also be provided to the City.

Deliverables

Magellan will provide a final Comprehensive Feasibility Study to The City of Waterloo at the conclusion of this engagement. The final report will inform the City of key information that it can use to make decisions on how to proceed in the most prudent way. This information will include:

- Executive summary
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- Business model options, financial comparisons, risk and reward tradeoffs
- Most feasible options
- Recommendations and next steps

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memoranda from each previous task will be included with the Study. All documents generated to support delivery of the Study will also be provided to the City.

In addition to the final report, Magellan will provide all project support materials used to develop the feasibility report. This includes:

- GIS Maps of All Infrastructure, Survey Results and Planned Designs, in GIS, KMZ or related formats
- Excel financial plans for each business model studied
- Excel raw data for residential and business surveys
- Project documentation, plans, meeting minutes and agendas
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Project Timeline

Task	Month 1	Month 2	Month 3	Month 4	Month 5
Task 1. Kick-Off Meeting, Project Charter & Goals					
Task 2. Broadband Needs Assessment & Demand Planning					
Task 3. Broadband Engineering & Cost Estimates					
Task 4. Analysis of Feasible Business Models					
Task 5. Funding Opportunities & Analysis					
Task 6. Recommendations & Next Steps					
Task 7. Final Broadband Feasibility Study Report					
Task 8. Final Presentations to City Leadership					

Fees For Service

The total cost of the project is $84,450, including all tasks to be completed by Magellan and a $5,000 expense budget. Magellan's price is not-to-exceed total budget for the project.

Task	Cost
Task 1. Kick-Off Meeting, Project Charter & Goals	$7,000
Task 2. Broadband Needs Assessment & Demand Planning	$10,500
Task 3. Broadband Engineering & Cost Estimates	$14,000
Task 4. Analysis of Feasible Business Models	$12,250
Task 5. Funding Opportunities & Analysis	$12,250
Task 6. Recommendations & Next Steps	$8,750
Task 7. Final Broadband Feasibility Study Report	$10,500
Task 8. Final Presentations to City Leadership	$4,200
Travel & Incidental Expenses	$5,000
Total Not To Exceed Price	$84,450

Optional Services

Magellan Advisors also provides comprehensive fiber and wireless design engineering services and other complementary broadband planning and implementation services at the following rates.

Description	Per Ft.
Underground Engineering Design	$1.25 Per Foot
Aerial Engineering Design	$1.00 Per Foot
Pole Loading Analysis	$50 Per Pole
Pole Make Ready Engineering	$50 Per Pole
Broadband Equipment Design	$175 Per Hour
Broadband Business Strategy	$175 Per Hour
Broadband Financial Planning	$175 Per Hour
Broadband Sales & Marketing Planning	$175 Per Hour
Broadband Procurement & Vendor Management	$175 Per Hour
Broadband Operations Planning	$175 Per Hour