



CITY OF HARVARD, ILLINOIS
REQUEST FOR PROPOSAL
BROADBAND
FEASIBILITY STUDY



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LETTER OF INTRODUCTION

The team of Design Nine and Mission Critical Partners (MCP) look forward to the opportunity to work with the City of Harvard in its effort to obtain broadband planning and implementation guidance. Our team's unique expertise allows us to look at your challenges and apply exactly the right resources to deliver an integrated solution that helps you successfully obtain better broadband for your residents and businesses. Our team's expertise can help the City best utilize funding for broadband. We have the resources to be available as needed over the contract term.

Our team has worked more than 300 communities on broadband planning and implementation projects. Our technical, business and financial planning work has led to many successful projects. No other company has as many broadband planning successes.

- We understand the challenges that towns and cities have in bringing improved broadband affordability and access to their citizens and businesses.
- We have a track record of success helping municipalities develop fiber to the home projects.
- We have extensive experience with municipal ownership models, public/private partnerships, and combination municipal/public/private models. We will provide an analysis of all options and discuss the advantages and disadvantages of each one.
- Our plans are focused on creating achievable results that reflect the funding realities of your community. Our recommendations are based on real world best practice.
- Our technical designs, detailed cost estimates, and specific, actionable recommendations set us apart. Our in-house broadband business and financial planning tools have no equal.

Our team will work closely with the City's staff to produce a road map and strategy that leads to success as you target expansion and deployment of broadband infrastructure. We can effectively provide the guidance the City needs to move forward in its initiatives. Our recommendations will clearly explain the options and tradeoffs with different wireless and fiber technologies, business/financial plans, operational models, costs, and deployment plans. We will also provide detailed recommendations for the next steps required to meet your broadband planning goals including funding strategies, construction oversight, and network management.

You can count on the team of Design Nine and Mission Critical Partners to provide recommendations that will offer affordable options for providing world class Internet connectivity and services to your citizens, businesses, and institutions. Our advice over the contract term will help bring more affordable high performance broadband to the City. We will help you close the digital divide and address digital equity issues. We look forward to working with the City.

Best regards,
Andrew Cohill, PhD.



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HIGH LEVEL PROJECT PLAN

We understand your goal is for residents and businesses to have access to efficient and affordable high speed Internet. Design Nine has years of experience in community engagement and surveying broadband needs; we look forward to assisting the City of Harvard with practical, actionable, and affordable strategies for improving broadband availability and affordability in the City.

Design Nine has a **well-defined project management (PM) process** that is used in every planning effort. Our process enables us to manage and track projects effectively. We provide each customer with a project management Web site (fully access controlled) so City officials, the Project Team and other stakeholders will have a single place to get project updates, meeting times, and project documents. The Web site includes a calendar for tracking tasks and milestones. All documents, handouts, and materials are stored conveniently in one place for easy access from home or from work.

We believe strongly in a **highly interactive and collaborative approach** to broadband planning. In our experience, bringing stakeholders, providers, and key users together as part of the planning process is crucial to long term success.

We will **schedule extensive discussion and dialogue** with asset owners, vendors and service providers. We believe good relationships with asset owners, private fiber networks, and service providers is essential. We fully support the development of public/private partnerships.

By **listening and by being open to all points of view**, we can more easily identify where resistance may exist, and this allows us to modify and adapt partnerships and to adjust and change planning to meet and address legitimate concerns. Our recommendations will support the community and economic development goals of the City.

In our experience with hundreds of communities over the past twenty-five years, the communities that succeed are the ones that have focused on these issues:

“Best Fit” Technical Designs – We excel at identifying practical, state of the art fiber network designs and cost estimates for fiber that match your needs and your grant and funding capacity.

Practical Partnership Opportunities – We evaluate a series of options for public/private partnerships, funding opportunities, and make recommendations based on local needs and local capacity.

Identification of Barriers – We will identify and evaluate key issues that may be limiting broadband expansion in the city, and propose a phased, prioritized approach to overcoming those barriers.

Recommendations and Next Steps – We provide the specific, step by step recommendations, activities and strategies needed for success. We identify a complete road map of tasks and activities that can lead to successful grants, productive public/private partnerships, and affordable high speed broadband throughout the region.

- We will recommend the business model that would maximize the financial, economic, and social benefits to the City, the public, and the overall business community.
- We will recommend fiber technology that will meet current and future demand.
- We will present ownership and partnership options with an analysis will include the advantages and disadvantages of each option, and a recommended “best fit” for the City.
- Our recommendations will detail a potential timeline for implementation of recommended strategies.

SCHEDULE FOR DELIVERY OF THE STUDY

Estimated project start and end dates: We are prepared to start the project within ten days of receiving a signed contract. The schedule below is contingent on contract approval on or about May 1st, 2024.

We would expect to have the work completed and ready for the City in the second half of September. Our timeline can be adjusted to the particular needs of City staff and stakeholders. We will collect the needed information, deliver maps, recommendations and agreed-upon reports, and make regular visits to the City. Assistance from the City in identifying key stakeholders for meetings can help ensure the right attendees are present.

Month 1

- Meetings with City staff, stakeholders, and interested parties
- Conduct current asset, service provider, and infrastructure owner analysis
- Collect and map existing asset data and identify other pertinent assets
- Begin current and future bandwidth needs analysis
- Partnership, governance and financial pro forma analyses
- Begin analysis of capital funding options

Month 2

- Additional meetings with City staff, stakeholders and interested parties
- Analysis of muni-owned, public/private partnerships, and combination business models
- **Milestone:** Delivery of asset maps and current provider studies
- Public/private partnership analysis underway
- Continue to test pro forma financial analyses for each ownership option
- Analysis of build out strategy, estimates of build out costs
- **Milestone:** Incumbent provider analysis, map speeds by provider
- **Milestone:** Preliminary capital funding options recommendations
- Financial analysis, risk assessment, and opportunity assessment
- **Milestone:** Draft funding strategies options and potential partners

Month 3

- **Milestone:** Deliver advantages/disadvantages for each ownership/partnership option
- **Milestone:** Delivery of draft preliminary design and technology options
- Milestone: Delivery of pre-engineering build out cost estimates
- Milestone: Delivery of ten year financial pro formas for each option
- **Milestone:** Recommendations on leveraging additional funding, needed data, future opportunities
- Presentation of preliminary findings to City staff and stakeholders

Month 4

- Integration of materials into the Final Report and Recommendations
- **Milestone:** Draft recommendations and next steps options
- **Milestone:** Draft final report for review and feedback, including GIS files
- Final changes and updates to recommendations based on City comments and feedback
- Presentations to City Council

SCOPE OF SERVICES

KEY STUDY AREAS

We understand that the City has specific goals for this study. We summarize below the key study areas that the Design Nine team will address. On the following pages we provide more detail on the specific Scope of Services tasks.

Current Level of Demand for Broadband Service

We will conduct a detailed analysis of current telecom infrastructure and ISP offerings (prices, packages, speeds). We will interview stakeholders to identify current use and demand of broadband and Internet (e.g. City needs, libraries, K12 schools, healthcare facilities, businesses). We also recommend conducting an online residential and business broadband survey with a residential mailing to every household. The two surveys will collect data on speeds, costs, providers, and current uses. We geo-locate every response, which provides a map of areas of use and need in the City.

Community Engagement Plan

We will conduct a variety of meetings and interviews with key stakeholders, and work with the City to promote awareness of the study. The direct mail survey can be extremely valuable; the survey is delivered to every household as an 8 1/2 x 11 flat mailer, with the full survey on one side and a full page of explanation about the importance of the study on the other side. We will meet with current Internet providers and identify ISPs that could participate in a public/private partnership with the City.

City-wide IT Map

As part of infrastructure assessment work, we will build a City-wide IT map to identify existing fiber and cable routes, wireless point to point systems, cellular wireless assets (e.g. towers, small cell poles), and cell data usage by department.

Pre-engineering Design for Active Ethernet and PON

Our work will include development of pre-engineering technical designs for active Ethernet and PON architectures. This work will include proposed fiber routes, labor costs, materials costs (e.g. conduit, fiber, handholes, etc.), engineering and project management costs, and related expenses needed to construct a working network.

Recommendations for Model Options

We will provide an evaluation and recommendations for several business model options, including a municipal-owned network, a public/private partnership, and an analysis of shared public/private ownership. Each model will include an analysis of the advantages of and disadvantages of each.

Pro Forma Analysis of Each Model Option

We have a comprehensive ten year pro forma that will be used to provide an financial analysis of each model option. The pro forma projects revenue, take rates, operating expenses, capital costs, staffing, maintenance costs, billing/marketing/customer service, packages offered, and debt projections.

Analysis of Capital Funding Options

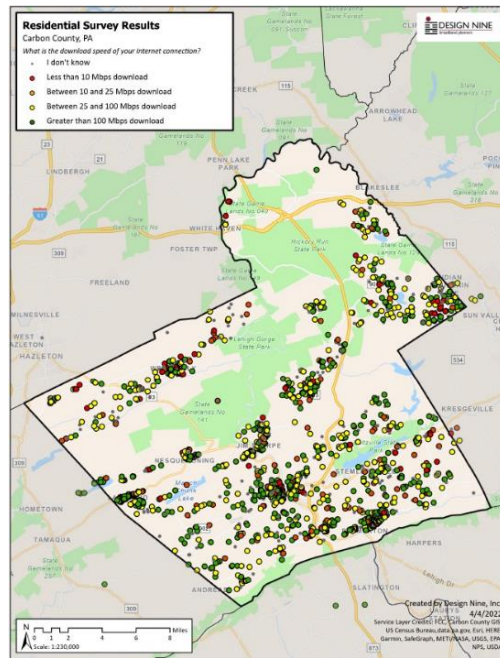
We will analyze a variety of funding options and their advantages and disadvantages, including Federal and state grants and loans, public/private partnership funding, bond options, and tax options.

1. DEMAND FOR BROADBAND SERVICE

To estimate the current state of broadband in the City, the Design Nine team will use FCC data and commercial data sources. We will conduct business and residential broadband surveys to collect more accurate and timely broadband speed, cost, and availability data. The broadband surveys will also gauge satisfaction with existing services. We will design and host online Web-based business and residential surveys. The survey will provide a link to a speed test. The survey data we collect is geo-located to provide the City with hard data that can be very useful as part of a grant application.

Our survey also provides information that we use to estimate demand for better broadband services with improved reliability, better pricing and increased speed.

We will map existing public and private broadband infrastructure. Map schools, government facilities, public safety facilities, utility facilities (e.g. pumping stations, water towers, etc.), health care facilities, and other public and private institutions and broadband users. We will also map business areas, economic development zones, business and industrial parks, retail/commercial areas (including core downtown areas of demand) The data we collect about today's market and where demand is likely to grow in the future are important early steps in our planning process. The data is fed into a comprehensive set of maps, the network design, and our financial and business planning work.



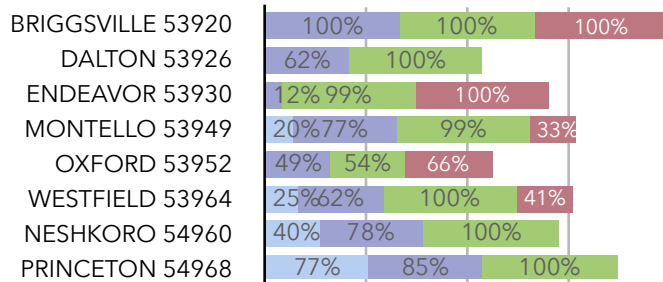
The data we collect is comprehensive and includes demographic information, broadband speed and satisfaction, digital equity evaluation, education and work from home questions, Internet use questions

Our recommended way of identifying areas of most need, actual broadband speeds, Internet costs, current uses of the Internet, and future needs is customized broadband surveys for businesses and residents. We use an 8 1/2" x 11" mailer with information about the study on one side, and the residential survey on the other. Residents are invited to fill out the survey online or complete the paper version and return by mail.

Our study includes:

- Inventory of existing and planned telecom assets
- Providing a clear picture of the state of broadband in the study area and how any forthcoming network will fit into that landscape
- Identification of the unserved, underserved, and served areas in the City
- Mapping existing public and private

■ Cable ■ DSL ■ Wireless ■ Fiber

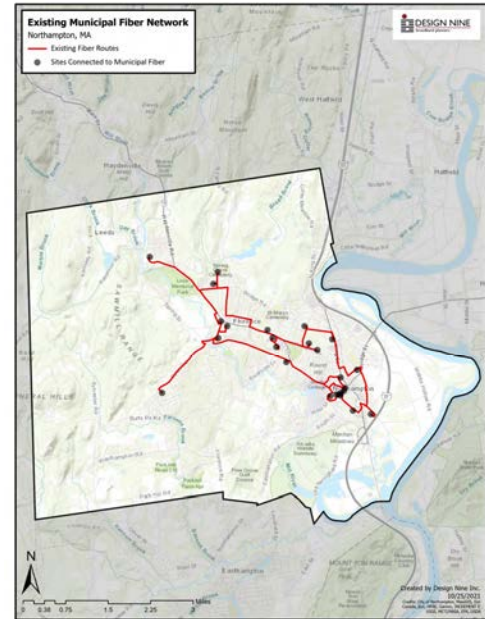


broadband infrastructure

- Mapping business areas, economic development zones, business and industrial parks, retail/commercial areas (including core downtown areas of demand)
- An analysis of how to best leverage identified existing assets.

DELIVERABLES

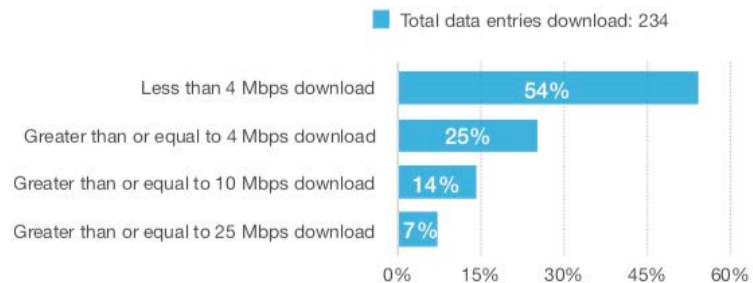
- GIS-based maps with existing assets clearly identified
- GIS maps of unserved, underserved, and served areas in the City (needed for grant applications)
- Updated maps of towers and information on tower owners for the City
- Updated maps of existing and potential fiber routes designed to improve broadband coverage
- City-wide IT Map of fiber/internet services, wireless systems, cellular assets, and City department cell data use.



We provide a complete and comprehensive analysis of ISPs and WISPs that offer services in the City. During our four-month engagement with New North, an eighteen county region in northern Wisconsin, we provided reports with detailed pricing and service information for twelve DSL providers, four cable providers, ten fiber to the premise companies, and eighteen wireless companies across one hundred sixty-three zip codes. Our extensive experience with service providers enables us to find information that is often missed.

Our work has included over thirty-five broadband market assessment studies in the last six years. We will develop an understanding of your market, not only as it is now but also where demand is likely to grow in the future. The data we collect is fed directly into our gap analysis work.

Our team will deliver an analysis of current broadband requirements and future projections of bandwidth needs.



2. EDUCATION/COMMUNITY ENGAGEMENT PLAN

We understand your goal is the development of a long term Broadband Plan for the community. The Design Nine/MCP team is prepared to assist with this effort and provide materials needed to help get the community on board with the City's plan to improve broadband throughout the City of Harvard.



The Design Nine team will:

- Recommend a communications and engagement strategy to engage public and private stakeholders, Internet service providers and related groups. We will develop a variety of educational and supporting materials that will discuss both the current and future benefits of broadband.
- Meet with municipal officials, school district officials, healthcare professionals, private stakeholders, businesses, ISPs and related groups as needed to collect information and understand the local conditions.
- We will work with the City to make effective use of in-person meetings and social media—we have found Facebook and Instagram to be very successful in engaging citizens, businesses, and stakeholders. In-person meetings can be an excellent way of engaging interested parties and stakeholders in conversation and learning more about their needs and concerns.
- Meet with municipal officials, school district officials, healthcare professionals, private stakeholders, businesses, Internet Service Providers and related groups as needed to collect information and understand the local situation and to develop strategies to improve broadband services in the City.
- Hold additional meetings as needed to build support for any recommended plans by including interested parties that have been identified in our public and private meetings.



Dear Northampton County Resident

Help us improve Internet service and Internet affordability in Northampton County.

The County is conducting a broadband survey to assess your current broadband service and needs. The goal is to develop a comprehensive set of strategies to bring high performance broadband and Internet services to all residents and businesses.

Your participation in this survey will help us understand how to connect every home, school, doctor's office, and government agency to a high-speed network for our community.

The results will help county leaders determine where the need is greatest and help guide us on how to ensure that all citizens and businesses have affordable and adequate access to broadband services.

Sincerely,

Lamont G. McClure
County Executive

For more information or if you want to ask a question, send us an email to dtomaino@norcopa.gov and set the subject line to: **Broadband Study**

We need your input!
Take the survey online in just 5 minutes!



<https://tinyurl.com/northampton-residential>

Or return the this survey by the U.S. Postal Service. Place the survey in a stamped envelope and use the address below:

Northampton County DCED
2801 Emrick Blvd.
Bethlehem, PA 18020

Please complete the survey by April 18th

We thank you in advance for your participation!

Engage Internet Service Providers to identify Potential Partners

It is also important for our team to help Internet Services Providers understand how the City's plans can be positive for their businesses. The Design Nine team works Internet service providers to understand which ones might be willing to be a partner and work with the City to meet the community's broadband needs. Our analysis of current provider offerings and identification of areas of opportunity are key to a successful partnership should you choose to do one. Community investments may be able to help some service providers acquire new customers and provide better service to existing customers through partnership agreements. We will look at all options.

The Design Nine team will:

- Recommend a communications and outreach strategy to Internet service providers and related groups.
- Engage current service providers. Our extensive experience in talking to service providers and our detailed knowledge of their offerings and service areas help us to quickly identify areas of opportunity where community investments may be able to help those service providers acquire new customers through partnership agreements. We are also experts at coaching service providers to understand that potential investments by the City are opportunities for the service providers to expand their business not threats to their businesses.
- Investigate willingness of Service Providers to collaborate and help close gaps that impact digital equity.
- Assist with ISP negotiations where an ISP wants to lease/use portions of the infrastructure- by providing pieces of infrastructure, the City can extend the ISP's reach into low income or unserved area.

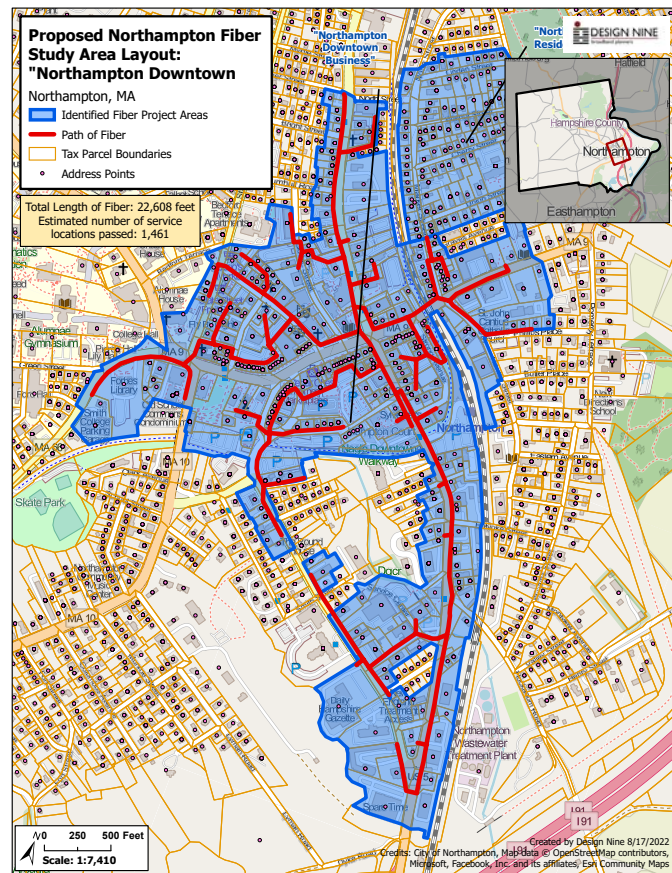
We will provide an ongoing assessment of legal and regulatory requirements, risks, and other factors including risks and regulations relevant to support a public-private-partnership network that may affect the City's plans for investments and partnerships. We include a careful examination of current law and policy that may affect the the development of a local telecom infrastructure with or without partners. Our report includes a complete discussion of legal, financial, and competitive risks.

3. ENGINEERING DESIGN OPTIONS

Our preliminary network design will provide a technical specification for possible City of Harvard investments (e.g. conduit, fiber cable, colo/data center facility, network equipment, etc.) We provide proposed infrastructure routes of recommended last mile solutions (active Ethernet and PON) mapped to create a complete City-wide high speed network.

We will provide network architecture specifications for broadband, backbone/core network routes, local distribution networks for business parks and downtown areas, and access (fiber connections to the business/residence) network specifications. We have extensive experience with the design, construction, and operation of broadband wireless networks. Our network design will include the type of infrastructure (i.e. aerial and/or buried fiber, wireless, hybrid) that best suits the telecommunication needs of the area.

- Identify the technical requirements needed to develop a City-wide high speed fiber network
- Provide proposed infrastructure routes of recommended last mile solutions mapped to areas of need with an overlay of existing telecommunications infrastructure
- Provide detailed cost estimates based on GIS-mapped fiber routes
- Identify and provide estimates of fixed and variable costs
- Provide operational cost estimates
- Provide estimates of replacement expenses and life expectancy of equipment
- Assessment of all primary and redundant backhaul connection options. Backhaul (Internet connections to key Internet meet points outside the City are very important. We will examine existing local and long fiber routes in the City, evaluate the development of new backhaul options, and propose solutions that provide resilient and redundant backhaul connections.



4. BROADBAND MODEL OPTIONS

The Design Nine Team has developed a sophisticated set of financial analysis tools to model the unique business characteristics of a community-owned fiber and/or an integrated fiber and wireless network. We have provided these pro formas to more than forty communities in the past decade, and we are confident that we have the most detailed and comprehensive business analysis available.

Our Team will evaluate a series of options for both ownership and governance, and make recommendations based on the City of Harvard's needs and local capacity. We will evaluate options specifically on how they relate to the following considerations.

- Control - network ownership including decisions on how it is operated.
- Financial risk - investment associated with developing and running the network balanced against revenue generated.
- The right mix of capital and operational costs to create long term financial sustainability.

We will seek the right balance of control and financial risk with the City's need to have a sustainable network that delivers the broadband services delivered in way that will attract the funding and partnerships needed to make a broadband solution a reality.

Stakeholder meetings and guidance from the City will inform our recommendations on each option. The ability to provide potential incentives to enhance private sector participation is important when looking for partners.

By presenting the pros and cons of different ownership and business models (e.g. City ownership, open access, public/private partnership, combination ownership), we will deliver a clear comparison of costs and benefits of each model.

Our models project operational costs (marketing, customer service, management systems, and billing), We also model maintenance costs (infrastructure maintenance and electronics refresh). Our models show the cost of debt service costs. The models also provide take-rates and pricing scenarios with different service levels.

Our pro forma is designed specifically to model the unique business characteristics of municipally-owned and public/private networks, and includes more twenty pages of spreadsheets that present a complete long term financial analysis of the proposed project.

We have ability to work closely with the City to test multiple financing, service and product pricing, capex, and opex scenarios. We will provide a detailed analysis of start-up expenses and capitalization needed for successful implementation.

For each business model, we will provide:

- An analysis and recommendations for the marketing strategy
- Recommendations for the operations and management plan
- An analysis of both routine and emergency break-fix maintenance needs
- A recommendation for implementation, included pre-construction planning, network construction, network equipment installation and testing, and ongoing operations.

The pro forma includes:

- The ability to model and test multiple different projections of revenue, expenses, borrowing, take rates, capital costs, expansion costs, and grant funding.
- A detailed analysis of capital costs for building the proposed network.
- A detailed analysis of operational costs including staffing and equipment replacement.
- Multiple revenue and service options which match each business model.
- Minimum take rates required for financial sustainability.
- Projected revenue based on expected take rates.
- A timeline which takes into account the planning, construction, and testing of your network.
- The cost of marketing, billing, technical support, and customer service.

Pro Forma Income Statement										
Summary of Project Revenue	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Residential Recurring Revenue	\$14,268	\$195,816	\$512,172	\$748,824	\$930,411	\$1,069,264	\$1,200,514	\$1,255,321	\$1,319,324	\$1,345,667
Business/Inst. Recurring Revenue	\$0	\$12,610	\$36,166	\$62,252	\$87,515	\$125,976	\$185,180	\$236,956	\$253,650	\$258,723
Residential Annual Non-Recurring Revenue	\$13,200	\$92,850	\$100,050	\$44,400	\$49,800	\$32,400	\$24,450	\$7,200	\$7,350	\$7,500
Business/Inst. Non-Recurring Revenue	\$0	\$4,160	\$2,080	\$2,080	\$3,380	\$2,340	\$4,160	\$1,820	\$0	\$0
Total Recurring Revenue	\$14,268	\$208,426	\$548,338	\$811,076	\$1,017,926	\$1,195,240	\$1,385,695	\$1,492,276	\$1,572,974	\$1,604,390
Total Non-Recurring Revenue	\$13,200	\$97,010	\$102,130	\$46,480	\$53,180	\$34,740	\$28,610	\$9,020	\$7,350	\$7,500
Other Services	\$1,327	\$17,598	\$45,427	\$65,991	\$79,593	\$91,369	\$99,556	\$104,027	\$106,145	\$108,265
Gross Network Revenue	\$28,795	\$323,034	\$695,895	\$923,547	\$1,150,699	\$1,321,349	\$1,513,861	\$1,605,324	\$1,686,469	\$1,720,155
Cost of Services	\$206,667	\$324,393	\$379,804	\$389,695	\$414,180	\$447,161	\$452,415	\$465,326	\$489,986	\$489,994
Revenue after Expenses	-\$177,872	-\$1,359	\$316,090	\$533,853	\$736,519	\$874,188	\$1,061,445	\$1,139,997	\$1,196,483	\$1,230,160
Sales, General & Administrative Expenses (SG&A)	\$110,555	\$219,836	\$228,909	\$203,332	\$212,068	\$203,855	\$203,148	\$195,120	\$200,076	\$205,459
Interest Income	\$0	\$21,512	\$7,903	\$3,095	\$1,476	\$421	\$322	\$1,672	\$4,977	\$8,535
Interest Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation	\$0	\$161,213	\$263,366	\$309,807	\$348,341	\$378,125	\$402,213	\$420,732	\$426,086	\$431,262
Amortization	\$0	\$7,143	\$7,143	\$7,143	\$7,366	\$7,616	\$7,779	\$7,904	\$7,97	\$832
Net Income	-\$288,427	-\$368,040	-\$175,425	\$16,666	\$170,220	\$285,013	\$448,628	\$517,914	\$574,501	\$601,143
Cash-On-Hand at Year End	\$5,162,890	\$1,896,652	\$742,721	\$354,230	\$100,970	\$77,207	\$401,305	\$1,194,496	\$2,048,403	\$2,928,704
Capital Expenditures (CAPEX)	\$4,075,118	\$3,085,472	\$1,254,389	\$720,800	\$781,955	\$696,580	\$534,900	\$153,765	\$149,945	\$153,385
Accumulated CAPEX	\$4,075,118	\$7,160,590	\$8,414,979	\$9,135,779	\$9,917,734	\$10,614,314	\$11,149,214	\$11,302,979	\$11,452,924	\$11,606,309
Summary of Funding and Borrowing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sources of Funds										
Equity	\$9,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Long-Term Debt	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Funding	\$9,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

General & Administrative (G&A) Expenses											
		Benefits 25%			Annual Salary Increase 2%						
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Staff Salaries and Benefits											
Manager	# of Emp	0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Salary	\$85,000	\$26,563	\$108,375	\$110,543	\$112,753	\$115,008	\$117,309	\$119,655	\$122,048	\$124,489	\$126,979
Finance and Billing		0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Salary	\$55,000	\$0	\$70,125	\$71,528	\$72,958	\$74,417	\$75,906	\$77,424	\$78,972	\$80,552	\$82,163
Customer Service		0.50	2.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Salary	\$44,000	\$27,500	\$112,200	\$171,666	\$233,466	\$238,135	\$242,898	\$247,756	\$252,711	\$257,765	\$262,920
Total Staff Salary and Benefits		\$54,063	\$290,700	\$353,736	\$419,177	\$427,561	\$436,112	\$444,834	\$453,731	\$462,805	\$472,062
Total # of Admin Employees		0.8	4.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Total # of Technical Employees		0.5	5.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total # of Employees		1.3	9.0	13.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Staff and Office Expenses											
Travel Expenses	\$2,000	\$1,600	\$8,000	\$10,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
WideOpen Management fee	\$194,500	\$194,500	\$204,225	\$214,436	\$225,158	\$236,416	\$248,237	\$260,649	\$273,681	\$287,365	\$301,733
Other staff costs	\$2,500	\$2,000	\$10,000	\$12,500	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
Office and Expenses		\$24,000	\$24,480	\$24,970	\$25,469	\$25,978	\$26,498	\$27,028	\$27,568	\$28,120	\$28,682
Office Supplies		\$8,500	\$8,925	\$9,371	\$9,840	\$10,332	\$10,848	\$11,391	\$11,960	\$12,558	\$13,186
Computers and Office Equipment		\$5,000	\$15,000	\$10,000	\$4,000	\$4,000	\$4,000	\$7,500	\$5,000	\$5,000	\$5,000
Mailing & Delivery	\$10	\$0	\$6,180	\$9,930	\$22,540	\$19,970	\$9,010	\$9,670	\$15,460	\$5,800	\$5,800
Credit Card Fees	3.50%	\$4,095	\$14,627	\$40,871	\$95,994	\$149,287	\$185,469	\$212,448	\$256,379	\$275,762	\$290,425
Total Staff and Office Expenses		\$239,695	\$291,437	\$332,079	\$410,000	\$472,983	\$511,062	\$555,686	\$617,049	\$641,606	\$671,827
Sales/Marketing Commissions	\$75.00	\$0	\$49,050	\$77,288	\$172,538	\$152,925	\$70,050	\$73,650	\$117,075	\$43,500	\$43,500
Marketing and Advertising		\$42,000	\$65,000	\$55,000	\$50,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Total Marketing Expense		\$42,000	\$114,050	\$132,288	\$222,538	\$177,925	\$95,050	\$98,650	\$142,075	\$68,500	\$68,500
Other External Expenses											
Law & Audit	\$2,500	\$2,500	\$2,750	\$3,025	\$3,328	\$3,660	\$4,026	\$4,429	\$4,872	\$5,359	
Financial & Technical Consulting	\$0	\$0	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	
Asset, Business, Liability Insurance	\$7,500	\$10,000	\$12,500	\$13,750	\$15,125	\$16,638	\$18,301	\$20,131	\$22,145	\$24,359	
Miscellaneous	\$22,500	\$23,625	\$24,806	\$26,047	\$27,349	\$28,716	\$30,152	\$31,660	\$33,243	\$34,905	
Total Other External Expenses		\$32,500	\$36,125	\$55,056	\$57,822	\$60,801	\$64,014	\$67,480	\$71,220	\$75,259	\$79,623
Total SG&A Expenses		\$368,258	\$732,312	\$873,158	\$1,109,537	\$1,139,270	\$1,106,238	\$1,166,649	\$1,284,075	\$1,248,170	\$1,292,011

Service Delivery and Network Operations											
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Service Delivery Staff											
Technical Services Manager		0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Salary	\$75,000	\$23,438	\$95,625	\$97,538	\$99,488	\$101,478	\$103,508	\$105,578	\$107,689	\$109,843	\$112,040
Network Technician		0.25	2.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Salary	\$56,000	\$17,500	\$142,800	\$291,312	\$297,138	\$303,081	\$309,143	\$315,325	\$321,632	\$328,065	\$334,626
Service Delivery Technician		0.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Salary	\$48,000	\$0	\$122,400	\$187,272	\$254,690	\$259,784	\$264,979	\$270,279	\$275,685	\$281,198	\$286,822
Total Service Delivery Staff Salary and Benefits		\$40,938	\$360,825	\$576,122	\$651,316	\$664,343	\$677,630	\$691,182	\$705,006	\$719,106	\$733,488
Support and Equip. Replacement Fees											
Core Network Equipment	\$0	\$5,000	\$5,250	\$5,513	\$5,788	\$6,078	\$6,381	\$6,700	\$7,036	\$7,387	
Distribution Network Equipment	\$0	\$18,000	\$18,900	\$19,845	\$20,837	\$21,879	\$22,973	\$24,122	\$25,328	\$26,594	
CPE	\$0	\$3,500	\$4,200	\$5,040	\$6,048	\$7,258	\$8,709	\$10,451	\$12,541	\$15,049	
Billing System & Consumer Portal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Equipment Support Fees		\$0	\$26,500	\$28,350	\$30,398	\$32,673	\$35,214	\$38,064	\$41,273	\$44,904	\$49,031
Network Operations Costs											
Per Subscriber NOC/Support Fee	\$ 2.50	\$ 2.50	\$ 2.50	\$ 2.25	\$ 2.00	\$ 1.75	\$ 1.75	\$ 1.75	\$ 1.75	\$ 1.75	\$ 1.75
Per Subscriber NOC/Support Fee Total	\$0	\$9,810	\$35,093	\$76,538	\$120,120	\$136,322	\$156,440	\$183,131	\$205,611	\$217,791	
Back office billing fees per Subscriber	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.09	\$ 3.18	\$ 3.28	\$ 3.38	\$ 3.48	\$ 3.58	\$ 3.69	
Back office billing fees per Subscriber Total	\$0	\$11,772	\$42,111	\$105,113	\$191,153	\$255,364	\$301,841	\$363,940	\$420,875	\$459,181	
Network Operations Base Fee	\$24,000	\$39,600	\$40,788	\$42,012	\$43,272	\$44,570	\$45,907	\$47,284	\$48,703	\$50,164	
Number of Electric Service Locations	3	3	5	5	5	5	5	5	5	5	
Electric Service Locations Total	\$50	\$1,800	\$1,800	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	
Locates	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pole Use Fees	\$25	\$0	\$500	\$550	\$605	\$666	\$732	\$805	\$886	\$974	\$1,072
Conduit/Dark Fiber Lease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Storage and Lay Lot	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	
Tools and Equipment	\$5,500	\$7,500	\$7,875	\$8,269	\$8,682	\$9,116	\$9,572	\$10,051	\$10,553	\$11,081	
Total Network Operational Costs		\$49,300	\$88,982	\$147,417	\$253,536	\$384,893	\$467,104	\$535,565	\$626,292	\$707,716	\$760,289
Outside Plant (OSP) Costs											
Outside Plant Maintenance	\$6,000	\$17,500	\$18,375	\$19,294	\$20,258	\$21,271	\$22,335	\$23,452	\$24,624	\$25,855	
Building and Vehicle Maintenance	\$6,000	\$12,000	\$18,000	\$24,000	\$30,000	\$31,500	\$33,075	\$34,729	\$36,465	\$38,288	
Total Outside Plant (OSP) Maintenance		\$12,000	\$29,500	\$36,375	\$43,294	\$50,258	\$52,771	\$55,410	\$58,180	\$61,089	\$64,144
Total Operational Expenses		\$102,238	\$505,807	\$788,263	\$978,544	\$1,132,167	\$1,232,719	\$1,320,221	\$1,430,751	\$1,532,816	\$1,606,951
Total SG&A and OPEX		\$470,495	\$1,238,119	\$1,661,421	\$2,088,080	\$2,271,437	\$2,338,957	\$2,486,870	\$2,714,826	\$2,780,986	\$2,898,963
Monthly Operational Cost per Sub		na	\$316	\$118	\$61	\$38	\$30	\$28	\$26	\$24	\$23

Capital Expenditure (CAPEX) Summary

Outside Plant	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Core Network Ring	\$1,680,000	\$1,680,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Buildings	\$900,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Distribution	\$0	\$1,182,700	\$1,281,350	\$2,463,300	\$1,971,450	\$492,600	\$492,700	\$985,300	\$0	\$0
Access	\$0	\$567,850	\$910,050	\$2,068,100	\$1,831,550	\$827,750	\$886,700	\$1,417,950	\$532,150	\$532,150
Subtotal	\$2,580,000	\$3,430,550	\$2,191,400	\$4,531,400	\$3,803,000	\$1,320,350	\$1,379,400	\$2,403,250	\$532,150	\$532,150
Equipment										
Core / Routing	\$0	\$15,475	\$24,800	\$56,350	\$49,900	\$22,550	\$24,175	\$38,625	\$14,500	\$14,500
Distribution / Switching	\$0	\$123,800	\$198,400	\$450,800	\$399,200	\$180,400	\$193,400	\$309,000	\$116,000	\$116,000
CPE	\$0	\$154,750	\$248,000	\$563,500	\$499,000	\$225,500	\$241,750	\$386,250	\$145,000	\$145,000
Other (servers, etc.)	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$15,000	\$294,025	\$471,200	\$1,070,650	\$948,100	\$428,450	\$459,325	\$733,875	\$275,500	\$275,500
Other										
Professional Services	\$592,500	\$384,600	\$225,625	\$458,450	\$380,575	\$123,875	\$128,425	\$229,250	\$41,325	\$41,325
Engineering	\$940	\$137,995	\$157,545	\$311,535	\$254,125	\$73,590	\$75,210	\$140,700	\$14,500	\$14,500
Legal	\$3,500	\$3,000	\$3,000	\$500	\$0	\$0	\$0	\$0	\$0	\$0
OSS/BSS/Software	\$50,000	\$3,095	\$4,960	\$11,270	\$9,980	\$4,510	\$4,835	\$7,725	\$2,900	\$2,900
Vehicles and Tools	\$60,000	\$120,000	\$120,000	\$120,000	\$60,000	\$0	\$60,000	\$0	\$60,000	\$0
Other Upfront Costs	\$25,000	\$42,165	\$45,690	\$67,020	\$34,870	\$11,340	\$11,765	\$20,985	\$3,770	\$3,770
Subtotal	\$731,940	\$690,855	\$556,820	\$968,775	\$739,550	\$213,315	\$280,235	\$398,660	\$122,495	\$62,495
TOTAL CAPITAL EXPENDITURES	\$3,326,940	\$4,415,430	\$3,219,420	\$6,570,825	\$5,490,650	\$1,962,115	\$2,118,960	\$3,535,785	\$930,145	\$870,145
30 Year Depreciation Capex	\$3,261,940	\$4,118,310	\$2,743,260	\$5,488,905	\$4,532,570	\$1,529,155	\$1,654,800	\$2,794,185	\$651,745	\$591,745
9 Year Depreciation Capex	\$15,000	\$294,025	\$471,200	\$1,070,650	\$948,100	\$428,450	\$459,325	\$733,875	\$275,500	\$275,500
7 Year Amortization Capex	\$50,000	\$3,095	\$4,960	\$11,270	\$9,980	\$4,510	\$4,835	\$7,725	\$2,900	\$2,900

5. CAPITAL FUNDING OPTIONS

Our job is to objectively present your ownership and financing options. Our analysis will include the advantages and disadvantages of each option, and a recommended “best fit” for the City. The pro formas we will develop as part of the study provide a detailed projection of various debt, equity, revenue.

The ability to evaluate financing strategies over a ten year time frame is critical to understanding the long term impact of each strategy.

Design Nine’s team will look at the whole range of funding strategies including grants, private equity, commercial lending, bonds and other potential funding sources. A wide variety of new funding opportunities are emerging in 2024, and we are tracking these funding programs and the requirements for successful awards.



Grant applications using information and cost estimates provided by the Design Nine team have helped our local government clients win more than \$30 million in grants in the past ten years.

Our recommendations deliver a phased approach to funding that reflects the most likely sources of funding, grants, and other sources of financing.

We identify eight to ten sources of funding, including local, state, and Federal funding opportunities.

Our work includes projected revenue based on different approaches to your specific market, minimum take rates required for a successful network, projected revenue based on expected take rates, and a timeline which takes into account the planning, construction, and testing of your network.

We have extensive experience in assessing Public Private Partnerships (PPP). We will share that expertise with the City and determine if a PPP might be the right solution.

- a. What sectors, groups and individuals may help the City achieve the broadband goals and how could the City engage them to become partners? We will identify them.
- b. Identify synergies and sharing opportunities that exist with providers and customers to include but not limited to: ISP providers, incumbent providers, and other telecoms. We will explain how to take advantage of the synergy in those situations and any cooperation that might help the City with its broadband plans.

Funding, Equity, and Loan Costs										
Financing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Long-Term Debt	\$0	\$8,000,000	\$7,000,000	\$4,500,000	\$500,000					
Other Equity (cash, in-kind)	\$4,000,000	\$0	\$0	\$600,000	\$250,000	\$0	\$0	\$0	\$0	\$0
- Long Term Debt (overall)	80%									
- Income Interest	1.250%									
Cash Injections		\$8,000,000	\$7,000,000	\$4,500,000	\$500,000					
Stockholder equity										
-Capex payments	\$4,000,000	\$0	\$0	\$600,000	\$250,000	\$0	\$0	\$0	\$0	\$0
-Face amount value	\$4,000,000	\$0	\$0	\$600,000	\$250,000	\$0	\$0	\$0	\$0	\$0
-Extra Payments										
Accumulated Loan Unpaid Balance	\$0	\$8,000,000	\$15,000,000	\$19,500,000	\$19,752,543	\$19,279,901	\$18,636,389	\$17,953,207	\$17,246,114	\$16,514,272
Amortization	\$0	\$0	\$0	\$0	\$247,457	\$472,642	\$643,512	\$683,182	\$707,094	\$731,842
Operating Reserve										
Interest Expenses	\$0	\$280,000	\$525,000	\$682,500	\$700,000	\$691,339	\$674,797	\$652,274	\$628,362	\$603,614
Loan Maturity (years)	25									
Length of Interest Only	3									
Loan Cost of Capital (%)	3.5%									
Fees and Closing Costs	\$0									
External Funding Year 1										
- Initial Loan Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- Interest Charge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- Total Loan Payments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- Principal Payment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- Interest Payment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- Ending Loan Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
External Funding Year 2										
- Initial Loan Balance	\$8,000,000	\$8,000,000	\$8,000,000	\$8,000,000	\$7,752,543	\$7,496,426	\$7,231,344	\$6,956,985	\$6,673,022	
- Interest Charge	\$280,000	\$280,000	\$280,000	\$280,000	\$271,339	\$262,375	\$253,097	\$243,494	\$233,556	
- Total Loan Payments	\$0	\$0	\$0	-\$527,457	-\$527,457	-\$527,457	-\$527,457	-\$527,457	-\$527,457	
- Principal Payment	\$0	\$0	\$0	-\$247,457	-\$256,118	-\$265,082	-\$274,360	-\$283,962	-\$293,901	
- Interest Payment	-\$280,000	-\$280,000	-\$280,000	-\$280,000	-\$271,339	-\$262,375	-\$253,097	-\$243,494	-\$233,556	
- Ending Loan Balance	\$8,000,000	\$8,000,000	\$8,000,000	\$7,752,543	\$7,496,426	\$7,231,344	\$6,956,985	\$6,673,022	\$6,379,122	

QUALIFICATIONS & EXPERIENCE

ABOUT DESIGN NINE

Design Nine has been doing broadband feasibility studies for over twenty-five years. Design Nine has a world class team of ten broadband analysts and network engineers to support our work with the City.



Our headquarters' staff in Blacksburg, Virginia, and the staff in our two remote offices: San Diego, California, and Mocksville, North Carolina, have been able to effectively handle projects all across the country and Canada.

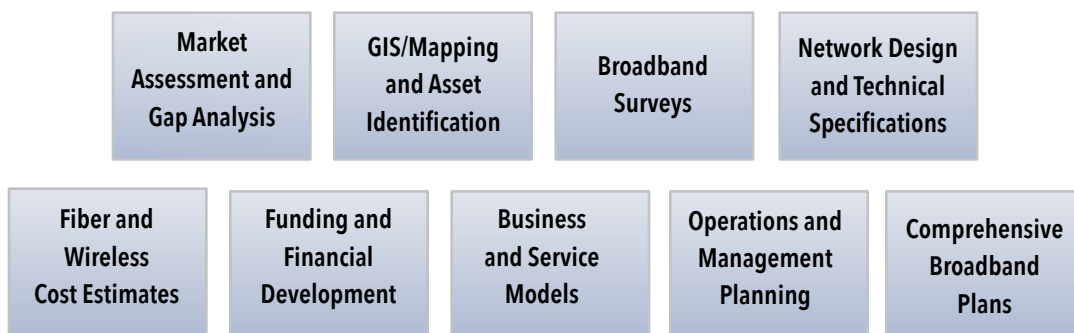
Many of our planning recommendations have turned into successful, world-class networks, and some of our municipal/county projects have enjoyed more than a decade of financially sustainable operation. Design Nine has never defaulted on a planning engagement and has never been sued for any reason. Design Nine is registered with Dun and Bradstreet (DUNS 13-832-9052).

Unlike many consulting companies, helping communities get better broadband is the only work that we do.

A three year financial summary of Design Nine is provided on the last page and is marked as proprietary.

COMPANY SERVICES

Design Nine Planning Services



Market Assessment and Demand Aggregation

Market assessment and broadband demand aggregation normally includes study of telecom service provider coverage areas, types of services available, broadband use patterns and trends for both residential and business customers, gaps in service coverage. Our reports include tables which show detailed availability, speeds, and costs by zip code for study areas. We clearly delineate those areas which have only one or no options for broadband.

GIS and Asset Mapping

Mapping work typically includes road layout, identification of telecom infrastructure, public and private tower locations, public buildings and schools, business parks and commercial/retail areas, walking/hiking trails, and easements and rights of way. Our in-house GIS and mapping systems are interoperable with all common GIS systems typically used by local governments, including ArcGIS.

Development of Partnerships and Cooperative Agreements

Much of our work with local governments in successful broadband efforts has been driven by partnerships either between different levels of government, adjoining governmental entities, or public-private agreements that have been instrumental in delivering broadband that meets community needs. We have more experience than any other broadband planning firm in **successful** negotiations with service providers and private sector partners.

Residential and Business Broadband Surveys

Geo-located surveys are the most effective way of establishing a good data set for existing service and demand for future services. ***Our Web-based survey is extremely effective because it is thorough but designed to be quick and easy to complete. Each survey is customized to client needs.*** Random telephone surveys and direct mail surveys can also be included. We use this crowd-sourced data to create ***online interactive GIS-based maps*** of survey information for use by each County.

Network Design and Technical Specifications

The Design Nine team has decades of combined experience designing and building fiber and wireless networks, with successful projects in Montana, Florida, Minnesota, New Hampshire, and Virginia as recent examples of our completed projects. We can provide detailed network architecture specifications for rural wireless broadband, backbone/core network routes, local distribution networks for business parks and downtown areas, and access (fiber connections to the business/residence) network specifications.

Business and Financial Planning

Design Nine has developed a sophisticated set of financial analysis tools that are used in our planning projects to provide extremely detailed ten year financial projections for a proposed community broadband system. Inputs and outputs include take rates, prices for services, income and revenue projections, capital expenditures, operational expenditures, staffing projections, cash flow analysis, loan and grant considerations, buildout costs, and market projections.

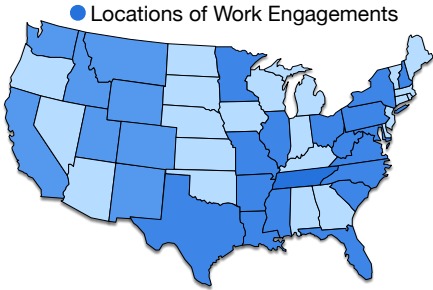
Business and Service Models

Community investments in infrastructure need a sound business model to show how these projects will pay for themselves over time. We evaluate the local incumbent competition, identify appropriate pricing strategies, and identify the kinds of services that could be offered (e.g. tower space, conduit, dark fiber, lit circuits, etc.). We also ensure that our recommended business model meets all applicable local, state, and federal telecommunications regulations.

Fiber and Wireless Cost Estimates

Broadband grant applications need solid cost estimates that are aligned with the funding and grants available to support them. Design Nine provides detailed and specific cost estimates with all major materials, labor, and network equipment itemized. We include estimates of engineering and surveying, permitting, project management, and testing and configuration.

DESIGN NINE ENGAGEMENTS



Design Nine has worked with hundreds of towns, cities, counties, planning districts and states on broadband planning in our twenty-five years of experience. Some of our previous work engagements are listed below.

- Northampton County, PA
- St. Croix County, WI
- Blair County, PA
- Marathon County, WI
- Yellow Springs, OH
- Door County, WI
- Winnebago County, WI
- Wright County, MN
- Isanti County, MN
- Missoula Public Schools, MT
- Fayette County, TN
- Kewaunee County, WI
- Northampton, MA
- Marquette County, WI
- Eagan, MN
- Hanover, NH
- Van Zandt County, TX
- Kansas City, MO
- Marquette County, WI
- Green Lake County, WI
- Madison County, ID
- Person County, NC
- Port Hardy, BC
- Rexburg, ID
- Fond du Lac County, WI
- Buena Vista, VA
- Roanoke, VA
- Union County, PA
- Prince George County, VA
- Spokane, WA
- Santa Cruz, CA
- Washington County, MD
- Teton County, ID
- Amelia County, VA
- Franklin County, TX
- Portsmouth, OH
- Rindge, NH
- Oconee County, SC

- Peoria County, IL
- Dodge County, WI
- Dakota County, MN
- Sandpoint, ID
- Danville, VA
- Shawano County, WI
- Calumet County, WI
- Highlands, NC
- Wright County, MN
- Wise County, TX
- Mississippi County, AR
- Bedford County, PA
- Calabasas Village, CA
- Gregg County, TX
- Waushara County, WI
- Fauquier County, VA
- Henderson County, TX
- Los Alamos, NM
- Clinton County, PA
- Outagamie County, WI
- Cass County, TX
- Palm Coast, FL
- Prior Lake, MN
- Waupaca County, WI
- Sheboygan County, WI
- Rockbridge County, VA
- Menominee County, WI
- Huntington County, PA
- Temple, TX
- Upper St. Clair, PA
- Brown County, WI
- Powhatan County, VA
- Fremont County, ID
- Canton, IL
- Smyth County, VA
- Blacksburg, VA
- Enfield, NH
- Pickens County, SC

- Decatur, IL
- Carbon County, PA
- Clarion County, PA
- Florence County, WI
- Columbia Basin Broadband, BC
- Manitowoc County, WI
- Westmoreland County, PA
- Carroll County, VA
- Northampton, MA
- Green Lake County, WI
- Lycoming County, PA
- Tate County, MS
- Haywood County, TN
- Oconto County, WI
- NM Statewide Broadband Study
- Accomack County, VA
- Harrison County, TX
- Teton County, WY
- Hopkins County, TX
- Crittenden County, AR
- Marshall County, MS
- Amarillo, TX
- Shelby County, TN
- Salt Lake City, UT
- Guernsey, Britain
- Grand Rapids, MI
- Eureka, CA
- Carroll County, VA
- Galax, VA
- Bremerton, WA
- Monmouth, IL
- Bath County, VA
- Albemarle County, VA
- Pittsfield, IL
- Delta County, TX
- Camino, CA
- Anderson County, SC
- Bowie County, TX



RECENT BROADBAND FEASIBILITY STUDIES

This is a list of just a few of the studies completed in the past three years.

Marathon County, Wisconsin – Researched and evaluated the current supply of broadband and telecommunications environment and assets, products and services in the County, detailing the location of facilities, types of services, pricing, availability and limitations. Provided an analysis of business and financial models for a proposed network, including discussion of advantages and disadvantages of each.

East Texas Council of Government - In our work with the fourteen counties served by the East Texas Council of Governments, Design Nine developed GIS-based maps of existing infrastructure, provided market assessment provide best technologies recommendations, provided a technical design for three to five broadband projects per county, recommended a regional strategy, and provided an overview of ownership options. We identified operational roles/responsibilities, identified potential funding sources.

Madison County, Idaho – Design Nine assessed existing broadband assets, including fiber and tower infrastructure. We also assessed appropriate business model options for the county. Design Nine evaluated public/private partnerships, including wholesale and retail models. We also developed a technical design for a county-wide plan to bring improved broadband to residents, businesses and institutions in the county. The plan included fiber to the home, fixed point wireless services, and point to point microwave network components to create a high performance broadband plan for the county. Our work included detailed cost estimates for all portions of the proposed network and the development of a ten year financial pro forma based on the proposed network design.

Dodge County, Wisconsin – Design Nine gathered input from public stakeholders, private stakeholders, residents, and broadband providers regarding the demand for current and enhanced broadband services. We conducted residential and business broadband survey. Data collected was analyzed and included in a final report which provided strategic guidance in the planning of broadband connectivity projects that would provide multiple options for high-speed Internet service delivery (e.g. FTTP, wireless, fiber/wireless hybrid, etc.) We also suggested infrastructure and backhaul routes for each recommendation and delivered an assessment of potential construction and operational relationships with public, private, and membership owned companies in the service area and with publicly and privately funded networks.

St. Croix County, Wisconsin - Researched and evaluated the current supply of broadband communications assets, products and services in the County. Evaluated the current and future demand and market for broadband products and services in St. Croix County. Examined the telecommunications environment detailing the location of facilities, types of services, pricing, availability and limitations. Identified potential areas for partnership between the County and incumbent providers. Provided potential funding sources and articulated strong justification for funding to serve as the bases for a grant/loan application to support project implementation.

New North Region, Wisconsin – We surveyed broadband needs across the eighteen counties. It included creating mapping for fiber and broadband Internet infrastructure, providers, facilities and other equipment in a format usable by GIS systems. We also identified community readiness/barriers to address gaps. We completed a Regional Infrastructure Development Plan with recommendations and cost estimates. This project was completed in four months and included a direct mailing of a broadband survey to 500,000 homes. In addition to the survey, we had meetings in all 18 counties.

RESULTS

Design Nine is one of the very few broadband planning firms whose broadband planning recommendations and technical designs have been used to build high-speed networks. Some of these successes are listed below, and in many cases, Design Nine was hired to manage the engineering, construction, and operation of the networks.

Bozeman, Montana - This planning project by Design Nine brought Gig fiber to the City of Bozeman.

Sandpoint, Idaho - Design Nine provided technical and business planning for dark fiber which attracted three competitive ISPs to the City and lowered prices for businesses and residents.

Madison County, Idaho- Design Nine created a plan including fiber to the home, fixed point wireless services, and point to point microwave network components to create a high performance broadband network for the County. Funding to built the network has been secured.

Rockbridge County, Virginia, Design Nine's planning study resulted in a network that provides fiber access to more than 50 local government and community organizations and over 125 businesses.

WideOpen Blacksburg, Virginia - Design Nine's plan and construction supervision resulted in over 25 miles of fiber construction with hundreds of homes and businesses already receiving affordable and reliable Gig services.

Marathon County, Wisconsin Design Nine's plan became the blueprint for a public/private partnership with a regional WISP who received funding for projects and has added FTTH to their portfolio of services.

GRANTS

Design Nine feasibility studies, financial and business plans, and technical design have enabled many projects to be funded. Some examples include:

1. SEDA-COG Study for Clinton, Lycoming, Northumberland & Union Counties in Pennsylvania resulted in an **\$2.5M broadband grant** from a combination of ARC and CARES funding
2. The Wired Road municipal network received nearly **\$4 million** in local, state, and Federal grants over seven years. The funds were used to build more than forty miles of fiber and twenty fixed point wireless access points.
3. After completion of a broadband feasibility study, Design Nine assisted with the development of a successful **\$10 million broadband stimulus grant** for the Cities of Lexington and Buena Vista and Rockbridge County, Virginia. The grant funded a 5,000 square foot Tier II data center and more than sixty miles of fiber, including fiber in downtown Lexington and downtown Buena Vista.
4. Design Nine completed a broadband planning study for the towns of Hanover and Keene, New Hampshire, and then assisted with the development of a successful **\$7.7M BTOP grant** that funded fiber to the home in the towns of Rindge and Enfield, and connected Hanover, Keene, Enfield, Rindge, and several other communities with middle mile fiber and fiber in the downtown areas.
5. The Design Nine broadband plan for Marathon County, Wisconsin became the blueprint for a public/private partnership with a regional ISP. Design Nine had proposed an extensive middle mile fiber network designed to be expanded quickly to include individual fiber to the home projects. More than **\$20 million in public and private funding** was developed to build the network.

REFERENCES

CITY OF NORTHAMPTON MASSACHUSETTS

City of Northampton, Massachusetts (Design Nine Reference)

42 Gothic Street, First Floor, Kilgore, Texas 75662

Antonio Pagán, Chief Information Officer, City of Northampton, Massachusetts

apagan@northamptonma.gov , (413)-587-1283

Contract: 10/13/2020- 04/30/2021

Design Nine identified and compared the City's, other public entities, and current incumbent service providers' current and planned (to the extent possible) Gigabit broadband networks within Northampton, by organization and geographic area.

Phase 1

- Assessed Existing conduit and fiber networks including fiber strand capacity and availability, fiber strand characteristics, geographic usability, and cable route space capacity, to the extent possible.
- Identified significant opportunities within the City's current fiber network that would increase effectiveness and efficiency.
- Executed a gap analysis within Northampton; identified infrastructure/network gaps within Northampton by organization and geographic area.
- Identified possible synergies among current and planned networks and relevant projects within downtown Northampton, internally and across organizations.
- Produced GIS mapping that can be integrated with City systems that displays all relevant findings, can be updated by City staff, and can be used for ongoing analysis by the City
- Defined and justified reasonable specifications (capacity, reliability, quality of service, throughput, etc.) for multiple applicable classes of next-generation broadband as well as WiFi (including 5G) service

Phase 2

- Assessed and compared various business models of delivering the distinct services of City-provided/initiated Gigabit broadband in Northampton
 - City installed conduit/pole space leased to internet service providers who would pull fiber and provide service to end-users.
 - City installed conduit/pole space and fiber, with fiber leased to internet service providers who would provide service to end-users.
 - City installed conduit/pole space and fiber, with the City acting as an internet service provider that would provide service to end-users.
- Executed an engineering analysis to produce estimates to build and operate the proposed network and implement the required services for each of the business models
- Executed an integrated operational, financial, and strategic analysis. Assessed and compared the business models in regard to the following:

- Organizational requirements (such as installation, operations and maintenance, repair, customer service, marketing, etc.).
- Operational requirements (such as staff, assets, etc.).
- Approximate timeline for creating and implementing.
- Financial analysis (assume city funds will be utilized for construction/buildout):
- Cost analysis (such as capital expenses, operating expenses, direct and indirect costs, etc.).
- Assessed opportunities and threats to the City of Northampton.
- Identified ways to enhance, exploit, etc. known opportunities.
- Identified ways to anticipate, minimize, mitigate, etc. known threats.
- Provided a summary of key study findings as well as a summary comparison of the strengths, weaknesses, opportunities, and threats associated with each business model assessed.
- Based on our comprehensive cost-benefit analysis and study findings, provided a recommendation and explanation regarding whether or not the City should pursue City-provided/initiated Gigabit broadband, City-provided/initiated or WiFi in downtown, and what business model would maximize the financial, economic, and social benefits to the City, the public, and the overall business community.
- Delivered fiber network technical specifications to meet current and future demand
- Provided a possible timeline for implementation.
- Suggested next steps.

PEORIA COUNTY ILLINOIS, DESIGN NINE REFERENCE

401 NE Jefferson Ave. Peoria, IL 61603-3725

Kathie Brown Director of Rural Outreach and Development
Greater Peoria Economic Development Council
kbrown@greaterpeoriaedc.org (309) 255-9189

Design Nine provided a broadband feasibility study for Peoria County. The work included an assessment of existing public and private sector internet infrastructure. We developed an inventory of current broadband providers' service, pricing strategies, and coverage areas. Our work included evaluating existing public infrastructure coverage and opportunities for coordination. Design Nine also did a market analysis which compiled and analyzed data on current and future broadband needs, usage, and solutions for residents, businesses, institutions, and agencies throughout the county. The market assessment detailed types of service, pricing, availability, and limitations.

Our work also involved the following:

- Conducting residential and business market research about the current providers and future needs.
- Market research to leverage existing residential survey work which has been completed as part of Connect Illinois Broadband Planning.
- Identification of technologies to achieve reliable broadband access throughout the county and provided a framework for evaluating the options.
- Examined Potential Partnerships – Evaluated entities that might be prospective partners with a summary of how each relationship would function. These partnerships included public, private, and nonprofit agency involvement.
- Identified strategies to assist county government in obtaining needed funds from appropriate programs best matched to the recommended solution design. Financing and funding opportunities included the evaluation of grant funding opportunities and assessing other funding options that included local capital improvement funds, revenue bonds, and other self-funding options.

The final report also included:

- Recommendations on ownership of any new broadband infrastructure (Public, Private, or Public-Private Partnerships)
- Management and operations options and strategies
- Capital investment options and potential assets required
- Analysis of public/private partnership options
- Identification of technologies that would achieve reliable broadband access throughout the county

WEST CENTRAL IL JOINT EMERGENCY PHONE SYSTEM, MCP REFERENCE

Phil McCarty
Director
217.479.4616
pmccarty@jacksonvilleil.gov

Radio System Needs Assessment

Background: The West Central Joint Emergency Telephone System Board (ETSB) and agencies within Morgan County, Calhoun County and Greene County were operating multiple systems, including three VHF systems and one UHF system in Morgan County and three separate VHF systems in Calhoun and Greene counties.

Challenge: The ETSB identified the need to obtain professional services to address concerns over the multiple aging, mission-critical radio systems that have end-of-life elements which are no longer supported and are have performance issues. These systems are experiencing issues that affect portable radios and mobile units and limit interoperability capabilities between the counties and individual agencies.

Solution: Mission Critical Partners was selected by the ETSB to support the needs assessment of the Calhoun and Greene counties' systems and the assessment and procurement support to Morgan County to identify a solution to address all current and future needs. MCP's support includes the following:

- Needs Assessment
- On-site information gathering
- Frequency analysis
- Conceptual design
- Final needs assessment report and presentation
- RFP Development and Procurement for Morgan County (In Progress)
- Statement of work development
- Specifications development
- RFP evaluation support
- Vendor contract support
- Implementation Oversight and Management (To Be Completed)
- LMR system implementation and installation
- Final acceptance

Key Result

In January 2022, MCP completed and delivered a final needs assessment report to the ETSB, evaluating the current and future environments in Calhoun and Greene counties. MCP interviewed users, conducted site visits, and analyzed the information received. The assessment report provided the ETSB with the necessary information to identify the next steps in upgrading the ETSB's voice communications systems and to provide reliable and enhanced radio communications to ETSB public safety users. The ETSB is currently working through a deliberative process to determine when to release the RFP for vendor responses.

PROFESSIONAL CREDENTIALS OF SUBCONTRACTOR

MCP is committed to delivering top-quality technical and operational consulting services to help managers overcome mission-critical challenges. Founded in 2009 with only a staff of five, the company has grown to a staff of more than 200 people. The experts at MCP have invested more than three decades in the 911 industry and serve in key leadership roles in major industry organizations, such as the National Emergency Number Association (NENA). Our goal is to support our clients through improved policies, systems, and processes. MCP's clients are primarily from the public sector at the federal, state, county, and local levels. We have supported town, county and city clients with populations of less than 10,000 to large clients with populations of several million.

MCP has nine offices across the country to support our mission-critical projects including Port Matilda, PA (Corporate Headquarters), Pittsburgh, PA; Raleigh, NC; Dallas, TX; Denver, CO; Providence, RI; Silver Springs, MD; Jefferson City, MO; and Summit, NJ.



History of Firm

Mission Critical Partners, LLC (MCP) is committed to delivering top-quality technical and operational consulting services to help managers overcome mission-critical challenges. MCP has a staff of more than 200 people. The experts at MCP serve in key leadership roles in all the major industry organizations, such as the National Emergency Number Association (NENA), Association of Public Service Communications Officials (APCO), and Industry Council for Emergency Response Technologies (iCERT). MCP staff have advised numerous federal, state, and local governmental bodies. MCP is committed to providing The City with the broadband technical and digital literacy expertise to address Internet needs for all county citizens and businesses.

Company Services

The emerging digital world has created new demands on local governments. Citizens and businesses not only expect local governments to be "online," but to offer state of the art interfaces for government services (e.g. mobile phone access), digital savvy county staff, and 24/7/365 secure access to government services. MCP understands these new digital challenges and has the staff and expertise in consulting, IT, Internet/broadband, and fully integrated solutions to help local governments excel.

Broadband Services: MCP has been helping local governments with planning, stakeholder engagement and feedback, and facilitation of public-private partnerships. A comprehensive broadband strategic plan benefits from a well-designed outreach and public awareness effort. Citizens, businesses, and local institutions like K12 schools, higher education, and health care providers all have specific and different needs. We help bring together a diverse set of stakeholders from all areas of the community to collect their input, get feedback on specific strategies, and use the collected information to refine our broadband recommendations.

911 & Emergency Communications: 911 systems are becoming increasingly integrated with other local government Internet and broadband systems. Public safety first responders and their offices and service locations are now often heavily reliant on both fiber and wireless digital communications systems. As we evaluate the Internet and broadband needs for the county, we will use our experience

designing and implementing 911 systems to ensure that the City first responder needs are addressed in our recommendations and strategies.

Internet as a Utility: It is now widely understood that Internet and broadband infrastructure has to be treated as a utility. We will work closely with our partner Design Nine to ensure that City staff have the knowledge and technical information needed to work effectively with private sector telecom (ISPs). Telecom is a public/private partnership, and the City can play an effective role to help those private sector Internet providers expand their infrastructure while preserving valuable public right of way, as just one example of how local government can play a leadership role to increase Internet access and affordability.

Cybersecurity and Information Technology: MCP is one of the leading independent providers of cybersecurity services for public safety and justice agencies in the federal, state, and local government markets. MCP understands the best practice for cybersecurity for Internet and local government networks..

Smart & Safe Cities: MCP has the technical expertise to assist local governments with smart city initiatives. Smart city programs can lower the cost of delivering government services, provide better and faster access to government services for citizens, and improve the quality of life in the community. MCP helps local governments leverage rich data from sensors to enhance situational awareness, improve response outcomes and keep first responders safer.

STAFF RESUMES

Andrew Cohill, Ph.D., Project Manager

Andrew Cohill is President of Design Nine and will provide overall supervision and management of the project while serving as project manager. He will provide the strategic planning and design for the project, and he will directly supervise the work of other team members, will make all work assignments, and will review and approve all work items, reports, and recommendations before releasing them to the client. Cohill will lead many of the meetings.

Education

B.S., Computer Science, Virginia Polytechnic Institute and State University
Masters in Information Systems (M.I.S.), Virginia Polytechnic Institute and State University

Ph.D., Environmental Design and Planning, Virginia Polytechnic Institute and State University

Experience with related projects

Cohill has been helping communities develop effective broadband strategies since 1993, when he began directing the start of the Blacksburg Electronic Village, the world's first Internet-based community broadband project. His recent work has included helping local governments develop open access networks in four states.

Cohill has worked with more than 300 communities worldwide on telecommunications planning, design, and engineering of open access broadband systems. Cohill has provided assistance to community broadband projects throughout the United States, and is currently working on broadband feasibility studies and on the design and engineering of fiber build-outs in eight states.

Cohill has written and spoken extensively on the relationship between economic development and broadband infrastructure, and has a worldwide reputation for his work in helping states and communities make wise technology investments that will directly support jobs creation and economic development.

Background

He served as Director of the Blacksburg Electronic Village for nearly a decade, beginning with the project's start in 1993. Blacksburg has been widely hailed as the most wired community in the world, and Cohill's work has been used as a model for the development of other community telecommunications infrastructure projects throughout the world. National and local government officials from more than 25 other countries visited Blacksburg to take seminars and workshops from Cohill, and more than 100 representatives from communities in the United States visited Blacksburg to learn from Cohill.

While he was the Director of the Blacksburg Electronic Village (BEV) he also taught in the Department of Architecture at Virginia Tech. He teaches courses on community networking and information architecture regularly. He is a widely published writer, and author and coeditor of the popular book about Blacksburg (*Community Networks: Lessons learned from Blacksburg, Virginia*), now in its second edition. He served as cochair of the Governor's Task Force on eCommunities for the Commonwealth of



Virginia for the duration of the task force (2001-2002). He advised Hewlett-Packard on their \$15 million dollar Digital Village initiative.

Cohill has an international reputation for his efforts in network design for communities. He is a member of the National Advisory Board for Communities of the Future, a national coalition of thinkers and policy makers concerned with the sustainability and health of communities. He served two terms on the Association For Community Networks (AFCN) Board of Directors. He also served two terms as President for the AFCN (2000-2002). He served four years as a member of the Board of Directors of the Rural Telecommunications Congress.

Recent Articles

Cohill, Andrew *Municipalities Need a Local Transport Provider (LTP)*. ICT Solutions and Education magazine, April 2019

Cohill, Andrew *Breaking Telecom Monopolies*. Broadband Communities magazine, March 2017

Cohill, Andrew *The Role of the Local Transport Provider*. Broadband Communities magazine, March 2015

Cohill, Andrew *Worst Practices in Community Broadband, Part Two*. Broadband Communities magazine, August 2014

Cohill, Andrew *Worst Practices in Community Broadband*. Broadband Communities magazine, March 2011

Cohill, Andrew *Danville Transforms Its Economy with Fiber*. Broadband Communities magazine, November 2011

Jack Maytum, Senior Broadband Analyst

Jack Maytum has a deep background in business model development and analysis. He will focus on service provider outreach tasks, and will work closely with other team members on the cost analysis work, 5G analysis, and operational recommendations. He will also assist with stakeholder meetings, strategic planning and and coordination of work activities.



Education

B.A., Providence College, Providence, RI

M.S., Information Technology, Rochester Institute of Technology, Rochester, NY

Experience with related projects

Maytum has extensive experience with the design and development of telecom networks:

- Senior analyst for a feasibility study in Marathon County, Wisconsin. The study included recommendations for a fiber ring. Helped build a relationship with an ISP that has gone on to become a reliable partner for the County by winning broadband grants and transitioning to a FTTH provider.
- Worked with the Town Ely, Minnesota, in developing integrated fiber and wireless plans.
- Keene, NH – Project lead for a fiber to the home and fiber to the business study in Keene. Work included business interviews, asset identification, cost estimate development, and presentations to Town leadership.

Background

Maytum has been with Design Nine for more than ten years. His previous experience has included both very large companies and a heavy focus on small, entrepreneurial start-up companies. He has extensive experience starting and managing new business enterprises like community broadband efforts.

Maytum's direct experience in telecom network management began immediately after college graduation in his role as a communications officer in the U.S. Army Signal Corp. Then Lt. Maytum was appointed Tactical Communications Officer, 8th Army Headquarters/United Nations Command, Seoul, Korea where he was responsible for the communications portions of all U.S. Army contingency plans and army level exercises for South Korea.

For five years Maytum provided technical support for AT&T, coordinating the efforts of sales staff and networking professionals who were providing telecom services to Connecticut's 147,000 business customers.

Maytum served as Director of Marketing for Nestor Traffic Systems which provided automated traffic enforcement systems to the state of Maryland, Los Angeles and thirty other municipalities in the U.S. Maytum was responsible for preparing technical information for presentations to mayors, councils and County managers across the U.S. regarding the installation and operation of networked red light cameras and speed detection systems. Many of these systems leveraged or expanded on existing fiber optic municipal connections to transmit high definition video from incidents at busy traffic intersections or used wireless communications to connect mobile speed-detection vehicles vans. Maytum also taught network programming as an instructor at Northeastern University's State-of-the-Art Engineering program for five years.

Matt Bussing, Network Engineer

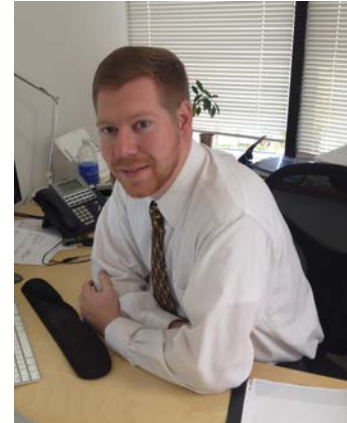
Bussing is an experienced network engineer. For Design Nine broadband feasibility studies, he assists with the evaluation of existing network assets, evaluation of cellular and fixed point broadband tower assets, fiber route design, and fiber network cost estimation.

Education

Bachelor of Science (Computer Science), Radford University

Experience with Related Projects

Bussing has more than fifteen years experience with the design, development, and management of broadband networks. Some of his recent accomplishments and related activities include:



- Project Manager for the construction of a fiber to the home network extending over 25 miles in Blacksburg, Virginia.
- Developed design and evaluation methodology, and initial network designs for a large fiber to the home project in Idaho.
- Bussing recently designed the network architecture and supervised the outside plant engineering of close to 60 miles of middle mile fiber in Madison County, ID.
- Developed the design and network architecture for a 50 mile dark fiber backbone between Ashburn, VA and an adjacent City. Designing the route required evaluating multiple urban, suburban, and rural environments.
- Bussing is currently developing and re-implementing the B2B and end user help-desk infrastructure for an established open-access network.
- Technical lead for a \$2 million dollar network expansion of The Wired Road, project
- Lead designer for a high performance fiber/wireless county network in Wise County, Texas.
- Lead designer for a fiber/wireless FTTH network in Richwood, West Virginia.
- Bussing was the technical lead for the Charles City County planning work that led to a \$650,000 state grant to build fiber and wireless facilities in the county.
- Preparation of multiple broadband grant applications, duties included direction of workflow, collection of information with a focus on quality assurance, design and estimation of multiple middle mile and last mile networks, and thorough review of environmental effects of network construction.
- Bussing has worked extensively on the New Hampshire FastRoads middle/last mile stimulus work, including pre-construction planning, detailed network design, and early network construction cost estimates.
- He was project manager for a fiber to the home build out for The Wired Road, and provided the day to day project oversight.
- He was lead on the network architecture design for the 60 mile fiber backbone for the Rockbridge Area Network Authority.

Daniel Cliburn, GIS Analyst

Cliburn is a GIS Analyst for the company. His work will include development of base maps and network route maps for fiber and wireless networks. He will assist with the development of cost estimates, including any needed maps and route designs. Cliburn has extensive fiber and wireless network design, including propagation studies and cost estimating.

Education

Bachelor of Arts, Geography/GIS. Virginia Tech

Experience with Related Projects

Since joining Design Nine in 2019, Cliburn has worked on broadband planning projects covering more than 65 counties across the US. His work includes the following:



- Cliburn played a major role in the mapping and data analysis for the eighteen county study in northeast Wisconsin and nine counties in East Texas. Fiber route design and detailed cost estimates were a major focus on this projects.
- Cliburn was part of the team that completed a fourteen county study in northeast Texas with a focus on providing comprehensive web-mapping products for reporting the results of a regional broadband survey.
- A four-county planning project in central Pennsylvania. Mapping work included base map development, tower asset analysis, fiber route analysis, points of interest, and wireless broadband propagation studies.
- Six-county planning project in West Virginia. His work included extensive survey data map work—geo-coding survey responses, mapping broadband speeds from survey data, and an analysis of customer satisfaction with current broadband providers.
- Cliburn was part of the team that developed a detailed technical architecture for several communities in Mingo County, West Virginia. His work included base maps, calculating tower heights, line of sight requirements, and assisting with propagation studies.
- Cliburn played a major role in an eight county broadband study in south central Pennsylvania. His work included base map development for every county, tower identification, and new tower siting. He also completed full county-wide wireless propagation studies for each county. The data from the propagation studies were used to locate new towers needed to provide full coverage for Internet service.

David Sobotta, Senior Broadband Analyst

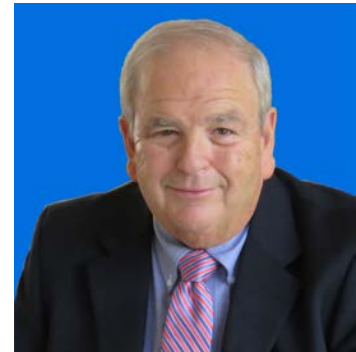
David Sobotta has extensive technical experience from Fortune 50 companies to startups. He has been with Design Nine since 2012 as a senior broadband analyst. He analyzes geographic data for current networks and their services, and develops the analysis for service providers.

Education

B.A., Harvard College, Cambridge, MA

Experience

Sobotta, a former director at Apple, was with the company for twenty years and helped Virginia Tech develop a strong relationship with Apple during Steve Jobs' tenure at the company. He was involved in helping procure the computers for Va. Tech original System X Super Computer.



While at Apple, he helped Apple and the NSA sign a CRADA, a cooperative research and development agreement for OS X and championed the inclusion of critical SmartCard technology in OSX.

Sobotta also worked in cooperation with Virginia Tech as a network evangelist for the National LambdaRail, the high-speed national computer network owned and operated by the U.S. research and education community. He has worked with CIOs of all the national federal labs, NIH, NASA, and two CIOs of the federal government. His work was instrumental in the launch of Apple's online Federal Store.

Work at Design Nine

Sobotta's work also involves research on potential network areas and developing plans for sustainable networks. He also analyzes geographic data for current networks and their services. He is also involved on a day to day level helping Design Nine maintain the highest level of customer satisfaction.

Experience with Related Projects

While with Design Nine, Sobotta has developed detailed service provider reports with information showing pricing, services offered, and delivery areas by zip code for numerous counties, regions and cities including Taylor, Doddridge, Harrison, Marion, Monongalia, Preston, Grant, and Jefferson Counties in West Virginia along with Clinton, Lycoming, Union, Northumberland, Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Somerset and Westmoreland Counties in Pennsylvania. In the fall of 2021, he finished the sixteen county service provider report for the New North Region of Wisconsin. Sobotta completed the work for all sixteen counties in three months. His work has also included reports for Williamstown, Northampton, and Pittsfield in Massachusetts along with Marathon County in Wisconsin. In the spring of 2023, he produced studies for Wood, Harrison, Anderson, Camp Cherokee, Gregg, Henderson, Marion and Rains Counties in Texas, St. Croix County, WI, and Wright County, MN. Last summer and fall he provided the provider reports for La Cross County, Wisconsin, Montgomery City/County, Alabama, and Peoria, Illinois.

Recent Articles

Sobotta, David - Competition and the Internet, broadband.io

Sobotta, David - Mini-monopolies are not your friend broadband.io

Scott A. Neal, ENP

Vice President & Director of Wireless Communications Services, Mission Critical Partners

Education

107th Administrative Officers' Course (AOC) of the Southern Police Institute, University of Louisville, KY

Experience

Scott brings more than three decades of emergency communications experience to MCP. Scott retired after completing a 28-year career with the Pennsylvania State Police (PSP) where he served 25 years in the field up through the rank of Captain and spent his final three years as a Major in charge of the Bureau of Communications and Information Services. In that capacity, he was responsible for the operation and maintenance of the Pennsylvania Statewide Radio Network (PA-STARNet) and the administration of the Commonwealth Law Enforcement Assistance Network (CLEAN), as well as security responsibilities related to the FBI's Criminal Justice Information Services (CJIS) Security Policy. Scott also served as the governor-appointed single point of contact for the Commonwealth of Pennsylvania for the planning efforts of FirstNet's Nationwide Public Safety Broadband Network (NPSBN) from 2012-2015.



Work at Mission Critical Partners

Since joining MCP in 2015, he has served as client manager as well as project manager on multiple projects and was the lead consultant supporting multiple states in the planning effort for the NPSBN. For the past four years, Scott has been the Vice President and Director of Wireless Communications Services, leading a team of 20 engineers and project managers who support our clients' mission-critical wireless networks.

Experience with Related Projects

State/Regional Experience

- Nationwide Public Safety Broadband Network Planning (NPSBN) activities—Served as Project Lead
 - Arizona, Missouri, New Jersey, Michigan, New Hampshire, and Pennsylvania
- Arizona—FirstNet consulting services
 - Data collection/analysis, education and outreach and conduct of band 14 technology exercise for the planning of the NPSBN
 - Project manager for the development and delivery of an RFP to explore potential public/private partnerships in a FirstNet "opt-out" scenario
- Arizona—Statewide broadband strategic planning, microwave network planning and design; Statewide Radio Request for Information
- Arizona—Northern Microwave Loop upgrade
- Massachusetts—Statewide LMR system (CoMIRS) assessment, conceptual design, RFP development and implementation support for the Massachusetts State Police
- Massachusetts—Statewide LMR system (CoMIRS) assessment, conceptual design, RFP development and implementation support for the Massachusetts State Police
- New Hampshire—Radio system assessment, upgrade and RFP development

- Pennsylvania–Statewide coverage survey and analysis for the Pennsylvania Statewide Radio Network (PA-STARNet)

City/County Experience

- Memphis/Shelby County, TN–Radio system assessment and RFP development
- Northumberland County, PA–Radio system upgrade
- Implementation oversight of a countywide P25, trunked VHF radio network
- Gallatin County, MT–Radio system upgrade support
- Washington County, PA–Radio system upgrade support
- West Central Emergency Telephone Services Board (ETSB), IL–Radio system assessment and RFP development
- Washington County, PA–Radio system assessment and RFP development

Certifications

Emergency Number Professional (ENP)

Incident Command Training (ICS 100/200/300/400/ 500/700/800)

Associations

National Emergency Number Association (NENA)

Association of Public-Safety Communications Officials (APCO)

International Association of Chiefs of Police (IACP)

Pennsylvania Chiefs of Police Association

Fraternal Order of Police (FOP)

Steve Michael Haberman, ENP - MCP

Senior Project Manager, Mission Critical Partners

Role in Project: Work Plan Development, Outreach Strategy, Project Management Support

Steve is a senior project manager who brings project management, public safety communications, 911 center and EOC experience, having previously served as a shift commander and communications supervisor. He is the consulting lead for MCP's Wireless Team. Steve's extensive experience with emergency communications and PSAP technology and operations ensures client success on the projects he supports. His expertise is in applying a holistic understanding of all aspects of public safety, and he leads his teams toward successful outcomes by providing project management and technical support.



Education

B.S., Business Administration -Management Information Systems, Indiana University of Pennsylvania

Experience

Thirty-four years of industry experience

Experience with Related Projects

State/Regional

- Arizona Dept. of Administration–Statewide FirstNet support for 1st responder and PSAP readiness
- Michigan Dept. of Mgmt, Technology and Budget–Statewide FirstNet support
- New Jersey Office of Homeland Security and Preparedness–Statewide FirstNet support
- Pennsylvania Emergency Management Agency (PEMA)–Technical support for statewide PSAP inventory of 69 PSAPs
- Pennsylvania Region 13 Task Force–PSAP technology and project management support

City/County Experience

- Iredell County, NC–Project Manager for P25 800 MHz radio system upgrade project
- Butler County, PA–Project manager for radio communications assessment, tower relocation and new P25 800 MHz radio system procurement and implementation
- Cambria County, PA–Radio assessment, procurement and implementation support
- Lorain County, OH–P25 radio assessment and Fire Station Alerting project
- Lake County, IL–PSAP consolidation assessment and new facility technology support
- Fairview Heights/O'Fallon, IL–Project manager and technical support for consolidation and financial impact study for relocation evolving into a consolidated PSAP
- St. Clair County, IL–Emergency Telephone System Board assessment
- Winnebago County, IL–PSAP consolidation assessment

Certifications

- Emergency Number Professional (ENP)
- National Incident Management System/ Incident Command System (NIMS/ICS)-100, 200, 300, 400, 700, 800
- PEMA Basic Certification

David Gelyana, PE, PMP

Senior Technology Specialist, Mission Critical Partners

David is responsible for communication system planning, design, and implementation for private, industrial, public utilities and public safety radio communication services. His responsibilities include planning and design, development of budgets and specifications, bid evaluation and contract negotiation, vendor oversight, acceptance testing, site acquisition, training and project management. David is a Professional Engineer in the state of Illinois.



Education

M.S., Electrical Engineering, Virginia Tech, B.S., Electrical Engineering, Virginia Tech

Nick is a professional engineer and wireless specialist who has served more than 50 public safety clients ranging in size from small municipalities to state agencies. His experience encompasses all aspects of public safety communications systems implementation. Nick has supported P25 system implementations from all major equipment vendors. He is at the forefront of public safety broadband, contributing to expert panels and publications on the topic. His expertise includes radio systems design, system acceptance testing, FCC licensing, propagation modeling, interoperability planning, data gathering, P25 subscriber certification, coverage testing and site assessments. He also serves as the Enterprise Client Manager and Engineering Group Lead for the Wireless Communications Services team.

Experience

- Lake County, IL—Countywide radio system for P25 upgrade
- Walworth County, WI—Radio system assessment and recommendations
- Forsyth County, NC—Radio system assessment and recommendations for joint radio system with the City of Winston-Salem, including:
 - Nash County, NC—Assessment of the communications system and proposal evaluation for an Association of Public-Safety Communications Officials (APCO) Project 25 LMR system
- Rock County, WI—Project manager on an assessment of the reliability of the County's current radio system/infrastructure
- Henry County 911 Emergency Communications, MO—Needs assessment of the County's current radio system/infrastructure using MCP's proprietary Model for Advancing Public Safety® (MAPS®) assessment tool.
- Cleveland, OH- Served as external project manager and consultant as the City updated its radio infrastructure to the latest P25 standards, including services related to build-out, testing and completion of an operational 800 MHz APCO P25 digital trunked radio system
- Paso Robles, CA- Conducted an assessment of the existing radio communications system and made recommendations for improvements to meet the City's goals.

COMMUNITIES IN PROCESS OR COMPLETED A SIMILAR STUDY

We have provided broadband feasibility studies for municipalities and local governments in twenty-eight states. List below are some of the most recent work engagements.

Montgomery County/City of Montgomery, Alabama – Joint City/County broadband planning and feasibility study which was recently finished.

City of Egan, Minnesota – We planned and managed the build out of this city-owned network in the Twin Cities area. The network was a 17 mile fiber to the business project that successfully attracted a large data center to the community. The network is in its ninth year of operation and has three providers offering services.

City of Sandpoint, Idaho - We provided technical and business planning to the City of Sandpoint. We helped them implement a very successful dark fiber network that has attracted three competitive ISPs to the City and lowered prices for businesses and residents. We have helped Sandpoint plan an expansion of their original dark fiber network twice.

Town of Ely, Minnesota – Completed a fiber and wireless broadband feasibility study for the Town of Ely. Work included asset mapping, technical design, cost estimates, and policy recommendations.

Town of Keene, New Hampshire – Town leaders wanted an assessment of fiber to the business and fiber to the home in the Town of Keene. Design Nine provided an extensive financial analysis that included capital costs, potential ISP partners, business model recommendations, and operational costs and recommendations.

City of Northampton, Massachusetts – Design Nine conducted a broadband feasibility study for the City that included a detailed financial analysis, including the projected capital costs and operational costs of building a network throughout the City. Our work also included an evaluation of Internet service providers, their offerings, and their potential to become a partner with the City.

City of Pittsfield, Massachusetts – The City was interested in expanding its small municipal fiber network and make it available to downtown businesses, and to extend fiber to the home service to its residential neighborhoods. We completed an analysis of the feasibility developing a partnership with one or more Internet service providers, a detailed cost analysis, fiber route designs, and recommendations for next steps.

City of Palm Coast, Florida – The City was concerned that its largest employer might leave because of the high cost of Internet. Design Nine developed a fiber network design for the business and commercial areas of the City, provided a ten year business and financial plan, and a full technical design for the network. Design Nine was then hired to oversee construction of the network, which has been in operation for fifteen years.

City of Cortez, Colorado – The City hired Design Nine to develop a technical and business plan for city-wide fiber to the home and fiber to the business. The City network has now been in operation for more than sixteen years.

City of Decatur, Illinois – The City of Decatur was interested in providing businesses and residents with better and less expensive Internet services. Design Nine was hired to develop cost estimates and business planning, and a city-wide public safety network was included as part of the work.

PROPOSED COST

Our Professional Services are all-inclusive for work tasks, advisory support, and related activities described in this RFP.

We propose a fixed fee of \$85,410 for all work, including all normal and ordinary travel for the initial broadband assessment and feasibility study. Fees for on-going support can be billed monthly after the initial study at at our standard hourly rate or a too-be-negotiated monthly fee for the duration of the contract. The first of five payments of \$17,082 for the initial study is due at contract signing and the last payment due only after all final documents and reports have been delivered. All labor costs, overhead, and other direct expenses, including transportation, housing, and printing are included in the fixed fee above.

The optional direct mail distribution of the residential survey using the USPS EDDM (Every Door Direct Mail) service is \$5,370. This includes the cost of printing the 8 1/2 x 11 flat mailing and postage to 3,985 residential addresses within the City limits. Design Nine does not mark up this cost or add any additional fees for the mailing. We enter the data from surveys mailed back at our office at no cost to the City.

1. Demand for broadband service	\$18,500
2. Education/community engagement plan	\$17,500
3. Engineering Design Options	\$18,325
4. Broadband model option(s) recommendation	\$17,650
5. Capital funding options	\$13,435
Total Cost all professional services	\$85,410
Optional EDDM Mailing to 3,101 households	\$5,370
Total Cost Professional Services & EDDM Mail	\$90,780

DESIGN NINE FINANCIAL SUMMARY

Company Proprietary

Public disclosure of this information would cause competitive harm to Design Nine Incorporated.

Design Nine is a Subchapter S company incorporated in Virginia. Design Nine was incorporated in 2003. The company has never been the subject of a lawsuit of any kind, and a contract has never been canceled for cause. The company has never been the subject of any financial investigation.

2021 Summary

Revenue	\$927,450
Expenses	\$908,463
Net Income	\$18,987

2022 Summary

Revenue	\$660,913
Expenses	\$630,132
Net Income	\$30,781

2023 Summary

Revenue	\$712,640
Expenses	\$666,450
Net Income	\$46,190

Commonwealth of Virginia



State Corporation Commission

CERTIFICATE OF GOOD STANDING

I Certify the Following from the Records of the Commission:

That Design Nine, Incorporated is duly incorporated under the law of the Commonwealth of Virginia;

That the corporation was incorporated on June 6, 2003;

That the corporation's period of duration is perpetual; and

That the corporation is in existence and in good standing in the Commonwealth of Virginia as of the date set forth below.

Nothing more is hereby certified.

Signed and Sealed at Richmond on this Date:

February 26, 2024



A handwritten signature in black ink, appearing to read "Bernard J. Logan".

Bernard J. Logan, Clerk of the Commission