

WESTMINSTER, MARYLAND

REQUEST FOR PROPOSAL

For

Network Operator for Westminster Fiber Network

CONTRACT NO. IT-265-C

Mayor and Common Council

Kevin R. Utz, Mayor
Dennis Frazier
Paul Whitson

Dr. Robert Wack, President
Tony Chiavacci
Suzanne P. Albert

Issued June 30, 2014

ADVERTISEMENT FOR PROPOSALS

CITY OF WESTMINSTER

Network Operator for Westminster Fiber Network City Project No. IT-265-C

Sealed responses for City Project No. IT-265-C, Network Operator for Westminster Fiber Network (the "Project") will be received by **The Mayor and Common Council of Westminster at the Department of Public Works, 56 West Main Street, Westminster, Maryland, 21157 until 2:00 P.M., August 22, 2014**, at which time they will be publicly opened and read aloud at the same address in the 2nd floor meeting room. The City will provide a conference bridge for bidders who are unable to attend the bid opening in person.

Electronic copies of the Contract Specifications are available for download on the City website at <http://www.westminstermd.gov/bids.aspx>.

The City reserves the right to reject any or all bids or portions thereof and to reduce the scope of the Project, where in the City's sole and absolute discretion, such action would be to the best advantage of the City. The City further reserves the right to waive technical defects in the bids and to accept the bid which, in the judgment of the City, is in its best interest.

The City encourages State-certified minority and disadvantaged business owners to submit a bid.

Table of Contents

1	Introduction	4
2	Background on City of Westminster	6
3	Policy Goals	7
3.1	STATEMENT OF NEED	7
3.2	QUALIFIED RESPONDENTS	8
4	Background on Project Funding and Council Approval	9
5	Background on Phase I Construction	10
5.1	NETWORK DESIGN OVERVIEW	10
5.2	NETWORK CONSTRUCTION ATTRIBUTES	10
6	Existing Fiber Assets	12
7	Financial Parameters	14
8	Information Required to Respond to This RFP and Response Procedure	15

Exhibit A: City of Westminster FTTP Phase I Fiber Route Maps

Exhibit B: Carroll County CCPN / CCPN Fiber Route Map

Exhibit C: Inter-County Broadband Network (ICBN) Fiber Route Map

Introduction

Located about 35 miles northwest of Baltimore and 40 miles due north of Washington D.C., the City of Westminster, Maryland is situated in a rural to semi-rural area in Carroll County. Westminster has an affluent, well educated, and forward-looking population with large businesses and institutions. The proximity to the Baltimore/Washington corridor enables a large portion of the workforce to commute to a variety of technology, financial, research, intelligence, and security occupations. Many of these employers are actively seeking telecommuting options for their employees.

City officials plan to ensure the local economy will have robust Internet access and strong connections to all information highways.

The City is building a municipal dark fiber-to-the-premises (FTTP) network, and seeks a Network Operator (Operator) who will lease the dark fiber, light the network, and make available capacity to Internet Service Providers (Service Providers) in an open, non-discriminatory fashion.

The City will partner with the Operator to light the fiber using a stratified business model. The Operator will lease dark fiber from the City, and provide network access on a utility basis to individual Service Providers. Service Providers will sell voice, video, data, cloud, security, health care, and other services to residential and business customers. The Operator will profit by adding customers to the network, recruiting additional Service Providers, and driving demand for bandwidth by cultivating a bandwidth intensive ecosystem.

This RFP is only for the Operator role. The Operator will be expected to manage the business and operational relationships with multiple Service Providers.

The City seeks specific proposals from potential Operators regarding the terms and conditions under which the Operator would operate and manage network operations for the Westminster Fiber Network and in turn provision capacity to multiple Service Providers catering to homes and businesses over City-owned fiber.

The City's goal is to engage a provider who will use the fiber to provide ultra-high-speed network access. The City defines ultra-high-speed as being in the multiple-hundred megabit to gigabit-per-second range.

The primary policy goal of this network is economic development. Broadband enables communities otherwise at a disadvantage to participate on more equal footing in the emerging global economy. With the Internet as a driving vehicle many businesses can locate anywhere—as long as there is enough bandwidth at affordable prices. High tech firms and other companies that rely on high connection speeds will go where they can flourish.

The City seeks to make Westminster a more desirable place for business and residents who see the quality-of-life benefits of broadband that derive both directly through home connections and through enhanced services provided to and by the business community.

Interconnection with other government led fiber networks in the City will provide the means to connect outside the City. Westminster fiber will connect with the Carroll County Business Network (CCBN), a countywide network extending to county borders to the east, south and west. The CCBN connects to the Inter-County Broadband Network (ICBN), a consortium of Maryland counties that have constructed fiber that will provide access from Westminster to the commodity Internet through points-of-presence in Baltimore and Washington D.C. The ICBN has connections to Baltimore Technology Park (BTP), multiple AiNet datacenters, and the collocation facility at 111 Market Place in Baltimore.

Background on City of Westminster

The City of Westminster is an incorporated community in Carroll County, Maryland. According to the U.S. Census, the City has a population of approximately 18,600 with 7,700 housing units. About 27 percent of the population age 25 and above has a bachelor's degree or higher.

Westminster is the seat of County government, and home to several higher education institutions including McDaniel College, a private four-year college. The largest employment sector in the City is education, with the Carroll County Public Schools employing about 3,700, and McDaniel College about 640. Other major employers within the City include: Carroll County government, Carroll Lutheran Village (a non-profit retirement community), Knorr Brake Corporation, and General Dynamics Robotics Systems.

Immediately outside the city limits, Carroll Community College employs about 500 workers. There are a number of major private employers just outside the City as well, including Carroll Hospital Center (non-profit), Random House, and English American Tailoring.

The health care sector is a significant portion of the local economy. Carroll Hospital Center itself employs upwards of 1,700 people, and is affiliated with a large group of multi-specialty practices.

Westminster has a significant outward-commuting population. Approximately two thirds of Carroll County working adults commute outside the county each day. The City is about 35 miles northwest of Baltimore; 32 miles east of Frederick; 40 miles north of Washington, D.C.; 57 miles northwest of Annapolis, the state capital; and 60 miles south of Harrisburg, Pennsylvania's state capital. However, Westminster does not lie on the route of any Interstate or U.S. highways. The lack of a major arterial route in and out of town leads to significant commute times for City residents. According to an analysis conducted by *The Business Journals*, about 32 percent of Westminster residents have a commute time of 45 minutes or more. Another 14 percent have a commute of 30 to 44 minutes.

Consequently, many City residents and business-persons may be expected to take advantage of and reap substantial benefits from the conveniences afforded by the availability of more robust telecommunications services.

Policy Goals

Scope of Services Sought

The business model for the Westminster Fiber Network is a stratified approach with segmentation of capital and operational expenses to multiple layers. By partitioning roles and responsibilities across the network, this model lowers capital and operational risks for each layer, and thereby mitigates business risk relative to a completely integrated approach.

The City will be responsible for the financing and construction of the physical layer and will make available dark fiber and associated infrastructure on a lease basis. Specific terms of the lease are negotiable and should be an element of the RFP response. The City anticipates most respondents will opt for a subscriber based model, but the City will entertain other proposals that meet its financial objectives.

The Operator will install and operate all necessary equipment to light the network and sell capacity to interested Service Providers. The Operator will also be responsible for lease arrangements for middle mile and long haul fiber connections outside the City. The City will provide all possible assistance in expediting lease arrangements for public dark fiber controlled by other political bodies.

The City's Phase I construction includes fiber optic service drops terminated within each of the business facilities located within the footprint of the project scope, and may include service drops to a portion of the residences. At a minimum, fiber will be constructed to taps located in City-owned handholes placed within the right-of-way for all residential properties included in the Phase 1 scope. After Phase I, the Operator will be responsible for installing drops for new customers, and will charge back to the City a fee, terms to be discussed. New drops will become part of the City-owned fiber infrastructure.

Service Providers will purchase network capacity from the Operator and sell services to business and residential customers, and will maintain customer service relationships with their respective customers.

The City will require the network infrastructure to be maintained by the Operator, a Service Provider, or by a separate partner.

Interested respondents should consider the system established by the City of Stockholm, Sweden and the Stokab fiber infrastructure provider as an example of an extremely successful multi-tiered network operations business model.

Qualified Respondents

The City seeks a partner who can and will meet the following goals:

- Lease network capacity to any Service Provider willing to sell their services to any customer connected to the City fiber network
- Offer competitive pricing and unique services, speeds, and network performance significantly better than that provided by the incumbent networks in the City. For example, providing hundreds of megabits or gigabit speeds, providing symmetrical services, providing services that continue operating when commercial power fails, providing stringent service level agreements, and providing direct connectivity between locations on the City fiber
- Propose an approach that includes open access, in which the City fiber network is open to multiple Service Providers
- Respond to the needs of the large and small businesses connected to the City fiber
- Provide cost-effective capacity to Service Providers to enable successful service for price-sensitive customers and flexible pricing plans
- Provision an open network, on which Internet Service Providers may offer a range of services, and the Network Operator is neutral with respect to Service Providers, applications, websites, type of use, and type of connection device

For the network to have the intended economic and quality of life impacts, we consider both cost and availability of service to be important. We encourage responses that address both to maximize adoption of service.

Background on Project Funding and Council Approval

In 2012, the Mayor and Common Council unanimously voted to approve a feasibility study for building a municipal FTTP network. Council members identified a lack of adequate connectivity among businesses within the City as a primary reason for proceeding with the study.

In May 2013, the Mayor and Common Council voted to allocate the funds to build Phase I of the Westminster Fiber Network.

In April 2014, the engineering was completed for Phase I of the Project, comprising the Carroll County Air Park and environs, which includes approximately 110 businesses, and a residential area of about 500 homes. Construction of the Phase I fiber is expected to be complete in the fall of 2014.

The Phase I fiber maps are attached as Exhibit A.

In May 2014, the Mayor and Common Council voted to allocate the funds to build Phase II of the Westminster Fiber Network. Engineering for the fiber construction will begin in third quarter of 2014. The City plans to work with the partner selected through this process to prioritize neighborhoods for the Phase II build.

Phases I and II of the project will reach more than 60 percent of the City.

Background on Phase I Construction

Network Design Overview

The Phase I project scope consists of approximately 10.0 route miles of new underground fiber construction within two distinct service areas:

- **Service Area A** - business and industrial park, comprised of approximately 250 business units in the Carroll County Air Business Center, West Branch Trade Center, and Westminster Technology Park; and
- **Service Area B** - the Carroll Lutheran Village and surrounding residential area, comprised of more than 200 single-family and attached homes, approximately 300 apartment residences, and 150 assisted living / nursing home residences.

Each of these service areas will be served from its own hub site, equipped to support fiber termination and network electronics. High-level overviews of the planned fiber optic network routes are located in **Exhibit A**.

The network is designed to facilitate capacity expansion and enable high-availability services to business customers over redundant, physically diverse fiber paths. Fiber optic cable strand counts, handhole placement, and specific routes reflect these future growth objectives. The backbone will generally consist of a two (2) 2-inch conduits, with laterals into businesses consisting of a single 2-inch extending from these backbone rings.

Network Construction Attributes

General physical attributes of the Phase I fiber network infrastructure to be provided by the City are as follows:

- Two (2) 2-inch conduits along all routes within public right-of-way;
- Handhole placement at intervals of approximately 300 feet on average;
- Use of singlemode fiber optic cable compliant with G.652.D;

Key attributes specific to the Service Area A are as follows:

- Concrete communications shelter having interior dimensions of 10-feet by 12-feet and providing self-contained, high availability environmental controls and backup power generation systems to serve as a headend location and a hub for serving business customers;
- Physical backbone ring architecture providing physically diverse paths to nearly all potential business customers from the hub shelter; and

- Termination of service drops at the interior telecommunications demarcation location within each business facility using wall-mounted or rack-mounted, lockable termination panels.

Key attributes specific to the Service Area B infrastructure are as follows:

- Network equipment enclosure (Telcordia NEBS GR-63 and GR-487 compliant) providing 36 rack units of mounting space, 1800 watt heat exchanger, DC power system rectifiers and backup batteries, and backup power generation; and
- Termination of fiber within handholes using fiber optic tap assemblies (e.g. Corning Optitap-style connector housings).

Complete specifications and engineering drawings are available at www.westminstermd.com.

Existing Fiber Assets

In addition to the fiber network currently being engineered and built by the City, there are two other key fiber assets that are available to the Network Operator in order to enable the partner to connect to the public Internet in Baltimore.

Carroll County operates a countywide fiber optic middle-mile network with two operating divisions: the Carroll County Public Network (CCPN) designed to serve government agencies and other anchor institutions, and the County Carroll County Business Network (CCBN) providing dark fiber leasing opportunities for private commercial entities. The CCBN consists of 72 strands of dark fiber along all CCPN routes, available for lease on an open access basis to businesses and commercial providers at a cost of approximately \$30 per strand mile per month. The CCPN / CCBN fiber map is attached as Exhibit B.

In addition, Carroll County and its neighbors have built fiber over the past five years under the framework of the Intercounty Broadband Network (ICBN). That fiber reaches from Carroll County to the Baltimore Point of Presence (POP) over multiple redundant routes. The region allocated 24 strands of dark fiber for lease, on an open access basis, to businesses and commercial providers. The ICBN provides contiguous connectivity among its nine participating jurisdictions within Maryland:

- Annapolis
- Anne Arundel County
- Baltimore City
- Baltimore County
- Carroll County
- Harford County
- Howard County
- Montgomery County
- Prince George's County

ICBN consists of approximately 800 route miles of fiber infrastructure, and connects approximately 650 anchor institution facilities. The ICBN fiber map is attached as Exhibit C. Each member county is responsible for leasing arrangements within its jurisdiction.

An example of leasing options for ICBN connections passing through Howard County includes both dark fiber and lit transport options as follows:

Dark Fiber

\$48.00 per strand per mile (\$96.00 per pair per mile)
(SLA – 4 Hour Mean Time To Repair)

Carroll Demarcation to Baltimore Demarcation Through Howard County – 28 miles
Carroll Demarcation to Anne Arundel Demarcation Through Howard County – 41 miles

Internet Service

Service Initiation Cost - \$12,000 (Non-Recurring)
(Includes Ciena 3930, Four 10 gig optics, 40KM)

Monthly Service Fee Per Gig - \$3800.00 (Up to 10 GB)

Includes:

24x7x365 Service Desk Provided By Gantech

24x7x365 Network Monitoring By Ciena Global NOC

License for Ciena SLA Portal

Provided by diverse ICBN paths and County-operated network electronics placed in Westminster

Capacity ranging from 1 Gbps to 10 Gbps

Service provided via fully redundant network electronics and redundant upstream providers, of which at least one is a Tier 1 provider

Assume Westminster network operator will supply any necessary IP addressing, and Howard County will facilitate BGP peering to allow Westminster operator to use its own autonomous system number and public IP address allocation if applicable

Together, CCBN and ICBN fiber provide physically diverse, contiguous paths between the City's planned Phase I FTTP network and the region's primary Internet peering and commercial collocation facilities within Baltimore. Specific paths, pricing, and terms will be up to the Operator to negotiate, with assistance from the City.

Financial Parameters

The City seeks a creative financial arrangement with the selected Operator that will enable the City both to meet its broadband goals for service and to recover its investment.

The City invites prospective Operators to propose mutually beneficial financial scenarios under which the City can meet these goals. The City is committed to the long term financial success of the selected Operator as a means of achieving the City's own goals.

The City has already approved funding of construction of a distribution network fiber to approximately 60 percent of its residents and businesses. The City will negotiate terms for funding drop installations between the curb and customer premises with the selected Operator. The City anticipates ultimately bearing this cost by reimbursement to the Operator after it builds the drop installations.

Information Required to Respond to This RFP and Response Procedure

The City requires that Respondents, in as much detail as is practicable:

- I. Affirm that the Respondent is interested in this partnership and address the core policy goals and requirements listed above.
- II. Provide a statement of experience discussing past performance, capabilities, and qualifications. Identify other networks the Responding firm has designed, built, maintained or operated; including the levels of broadband speed, availability and adoption among different categories of end-users and unique capabilities or attributes. Discuss other partnerships with other service providers, government or non-profit entities the Responding firm has undertaken, particularly any involving dark fiber leasing. Describe the nature of the projects and the Responding firm's role. Explain how the firm is a suitable partner for this project.
- III. Summarize the technological and operational approach the Responding firm would use for this project. How would the firm use technology to meet the City's goals? Explain the approach the firm would use to interconnect with the Internet and other public networks. Explain how the firm would perform network management? Describe the scenarios under which the firm would require route diversity or other special features in the City fiber? Describe what sort of facility (or facilities) would the firm place network electronics?
- IV. Summarize the business approach the Responding firm would use for the project. Describe how the firm's business plan would help meet the City's goals, and what are the key assumptions? Describe the firm's main areas of risk, and how the City can help reduce the risks? Specifically:
 - Propose lease terms for dark fiber (per mile, per subscriber, percentage of revenues, etc.).
 - Propose terms for a period of exclusivity, if desired. The long-term goal is open access to all infrastructure, but the City recognizes that the probability of early success increases with some allowance for exclusive operations for a fixed time period.
 - Propose performance metrics that enable the firm to meet its business goals while ensuring that the City's investment is serving its policy goals.
 - Optionally, propose creative solutions for cost-sharing or grants for further capital investments in the network infrastructure. Respondents are encouraged to consider creative interconnections between lease terms, exclusivity, and capital grants.

- V. If the Responding firm currently operates communications facilities, describe whether they are operated on an open access basis.
- VI. Explain the Responding firm's proposed schedule for implementing service. Propose a timeline with key milestones. The successful Respondent will be able to begin service before the entire City is constructed. Explain whether after Phase I, there are areas of the City the firm would recommend be prioritized for subsequent construction.
- VII. Explain whether the firm is proposing to perform fiber network maintenance. If so, describe the firm's ability to perform fiber maintenance on an ongoing and as-needed basis. Provide estimates of the operating cost of maintaining the fiber optic outside plant for a City fiber network and include the firm's main assumptions.
- VIII. Provide a statement of how the firm's proposed participation would further the City's economic development goals. Describe any aspect of the firm's proposal that will involve hiring local contractors and providers in Westminster, and explain the firm's plan, if any, for doing so, and describe how the firm's participation in the Project would facilitate local job creation. Describe the firm's relationships, if any, with local businesses in Westminster as well as the firm's interest and plans to engage them in this Project. Describe the firm's relationships with socially and economically disadvantaged small businesses in Westminster as well as your interest and plans to engage them in this project.
- IX. Describe the assistance from the City, if any, the firm foresees requiring in order to access dark fiber from CCBN and ICBN.
- X. Explain how the firm will market the Westminster Fiber Network to potential Service Providers.
- XI. Explain how the firm can support the City efforts to organize a Broadband Applications Incubator as part of a larger Technology and Small Business Incubator so as to facilitate the growth of a technology ecosystem.
- XII. Describe any concerns or exceptions the firm has to any part of this RFP or to the business model contemplated in detail and propose specific and concrete alternatives.
- XIII. Provide three (3) references, including contact information, from previous contracts or partnerships.
- XIV. Provide data to demonstrate to the City your financial and technical capability to undertake this project. Among other documents, you may provide audited financial statements, bank statements, or SEC filings.

All interested respondents are asked to submit a letter of intent via email by July 11, 2014 to rmiller@westgov.com, or via hard copy to:

City of Westminster
Attn: Robert Miller
56 W. Main St.
Westminster, MD 21157

Final RFP submissions must be received by 2:00 p.m. on August 22, 2014. Please send a hard copy of the RFP response to the address above. Additionally, please email a final copy of the RFP response in PDF format to rmiller@westgov.com by August 22, 2014.

Please identify any proprietary and/or confidential information as such.

A Pre-bid conference will be conducted at 10:00 a.m. July 25, 2014 at Westminster City Hall, 1838 Emerald Hill Lane, Westminster, MD 21157. Attendance is strongly encouraged but not required. The City will provide a conference bridge for respondents who are unable to attend the meeting in person.

All questions pertaining to the legal aspects of the proposal should be directed in writing to Robert Miller, City of Westminster, E-mail: rmiller@westgov.com. The closing time for questions is 3:00 p.m., August 8, 2014. Written responses to the questions submitted will be issued by the City no later than 10:00 a.m. on August 15, 2014.

All questions pertaining to the technical aspects of this proposal shall be directed in writing to Matthew DeHaven, CTC Technology and Energy, E-mail: mdehaven@ctcnet.us. The closing time for questions is 3:00 p.m. Written responses to the questions submitted will be issued by the City no later than 10:00 a.m. on August 15, 2014.

The following is the schedule for responding to this RFI. The schedule is subject to change:

June 30, 2014 – RFP Released

July 11, 2014 – Deadline for Submitting Letter of Intent to Respond to RFP

August 8, 2014 – Deadline for Submitting Questions

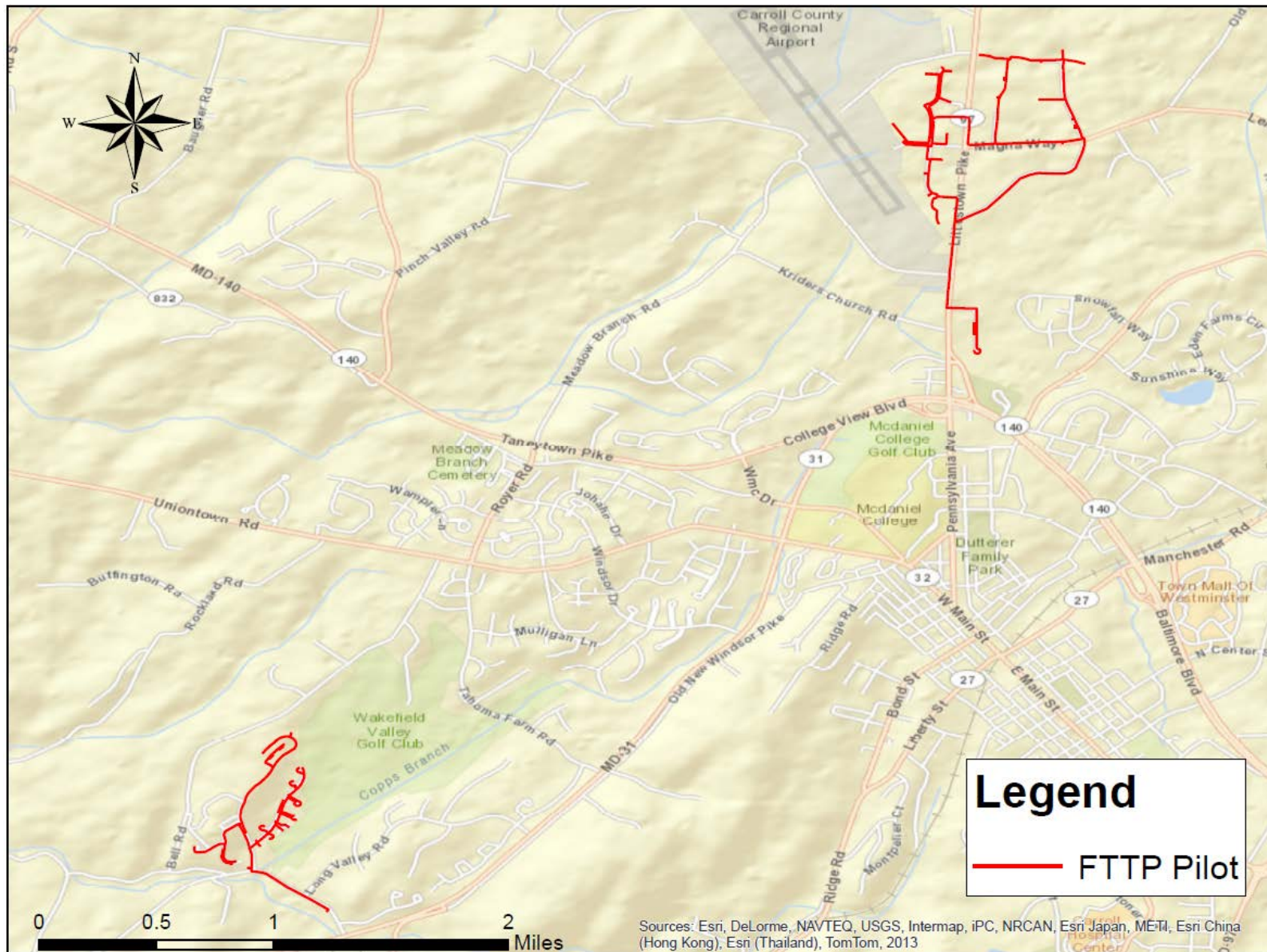
FINAL DEADLINE – August 22, 2014 – RFP Responses Due

Exhibit A:

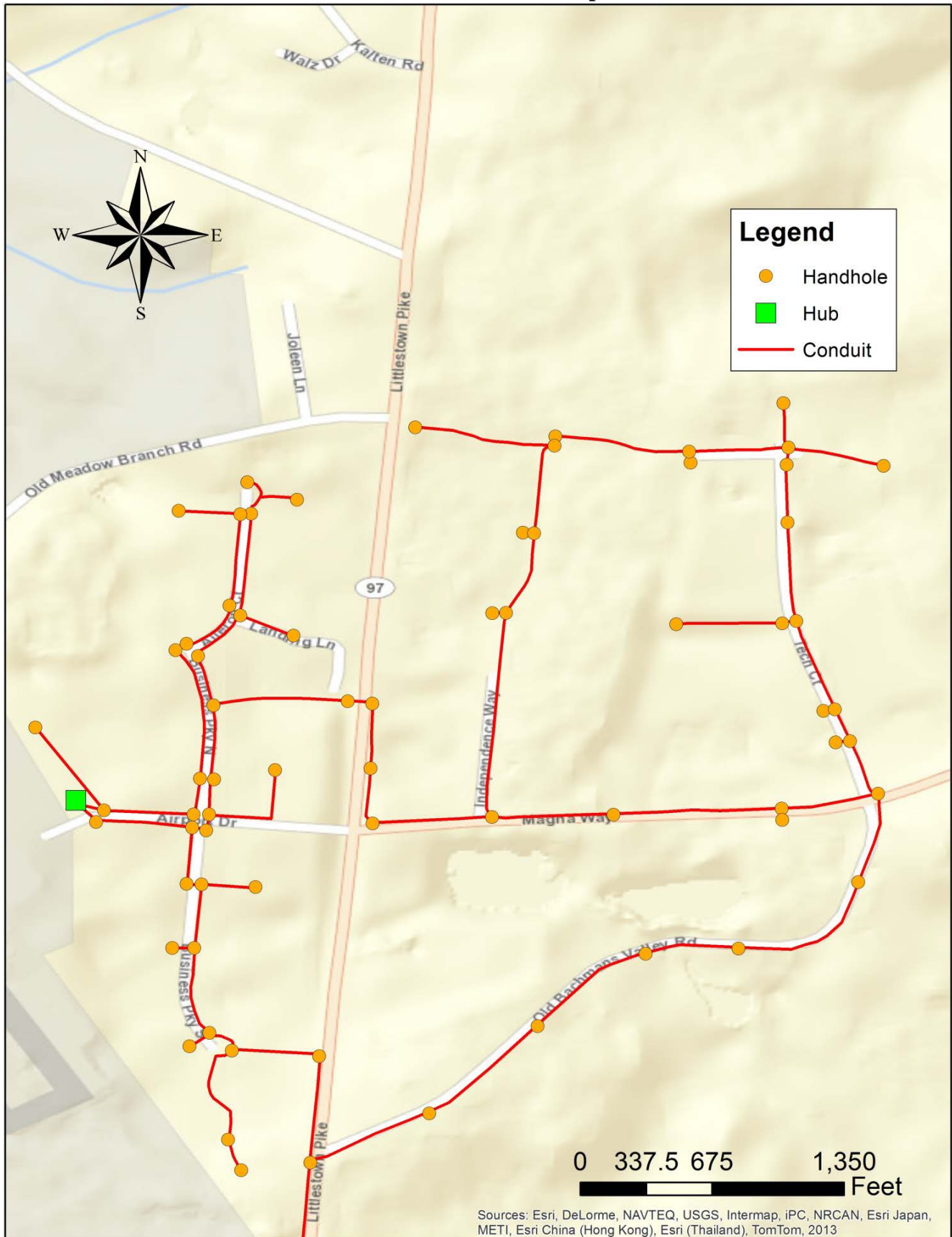
City of Westminster FTTP Network

Phase I Fiber Route Maps

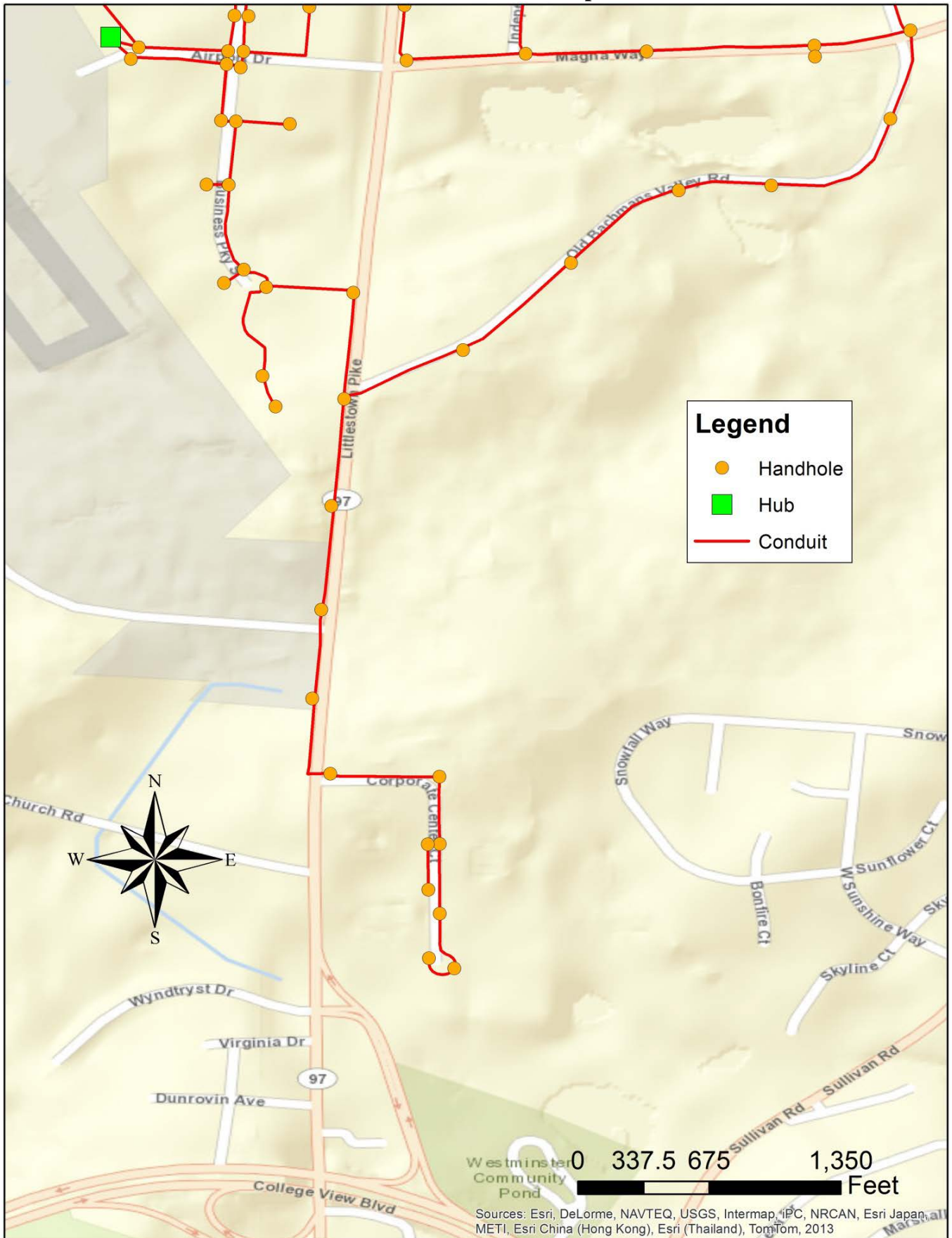
Overview Map



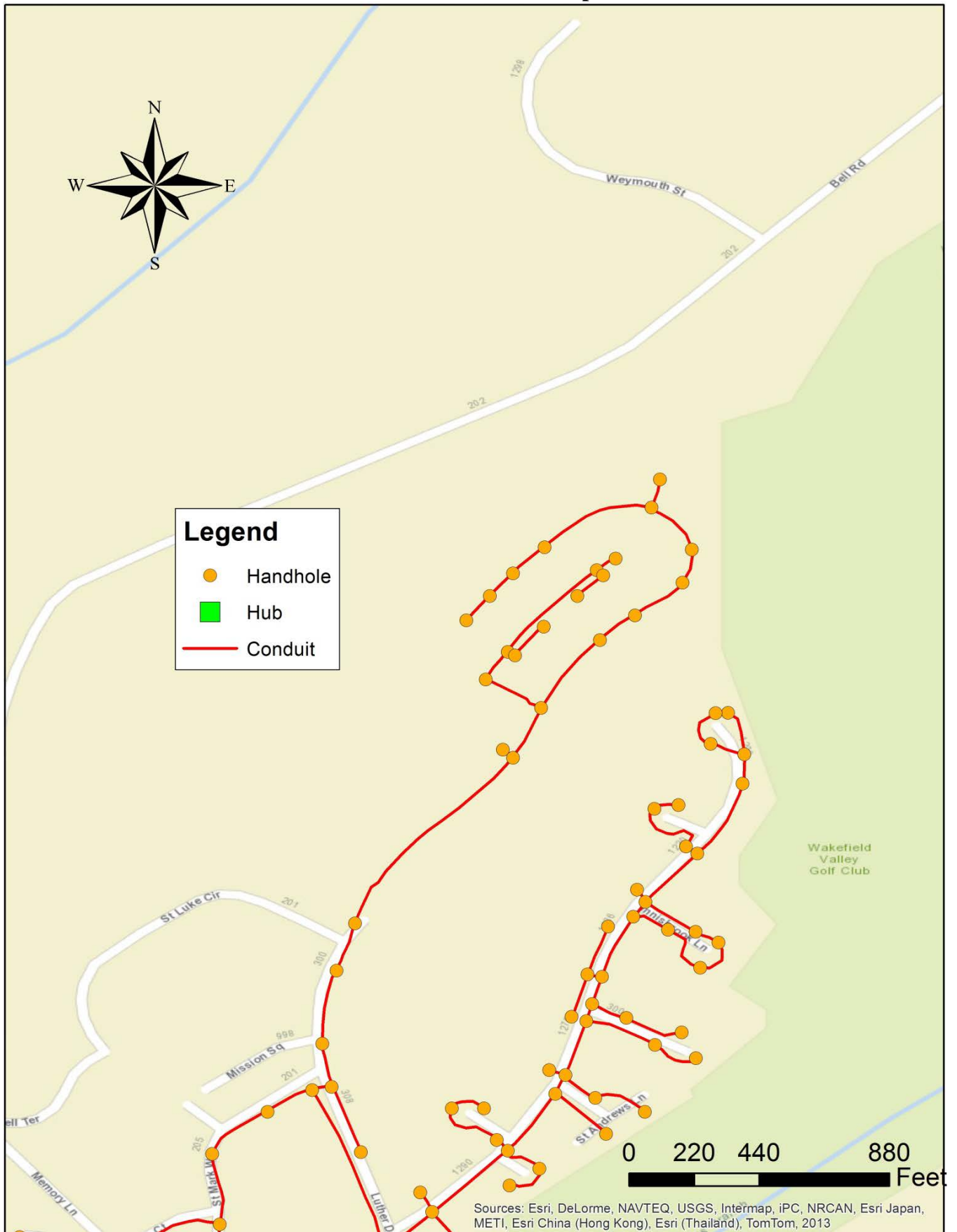
Service Area A Detail Map 1



Service Area A Detail Map 2



Service Area B Detail Map 1



Service Area B Detail Map 2

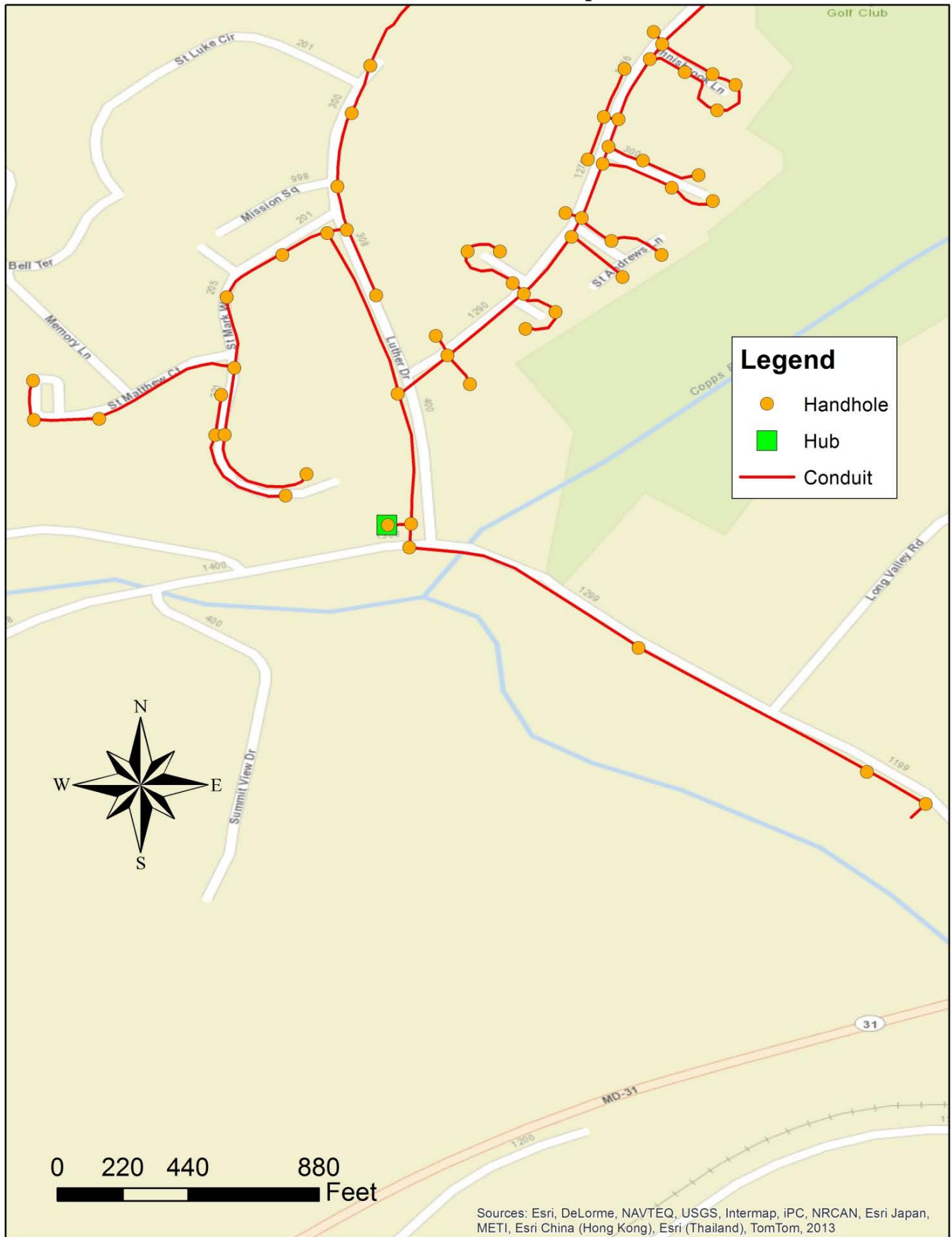


Exhibit B:

Carroll County CCPN / CCBN Fiber Route Map

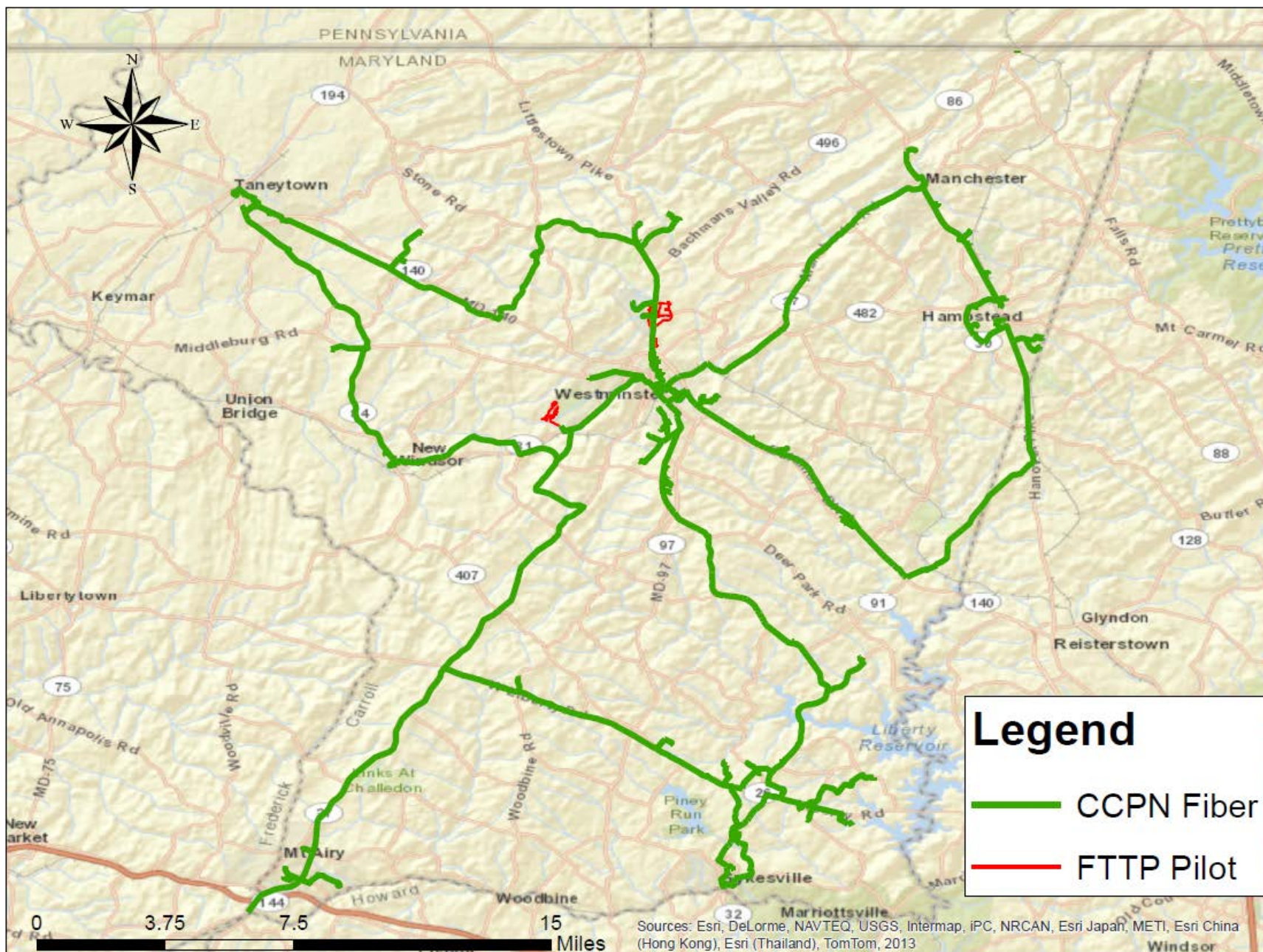


Exhibit C:

Inter-County Broadband Network Fiber Route Map

