



Casco Bay Advisors, LLC
Broadband/Telecom Consulting



BAR HARBOR
MAINE

Municipal Fiber Design Project



Prepared by
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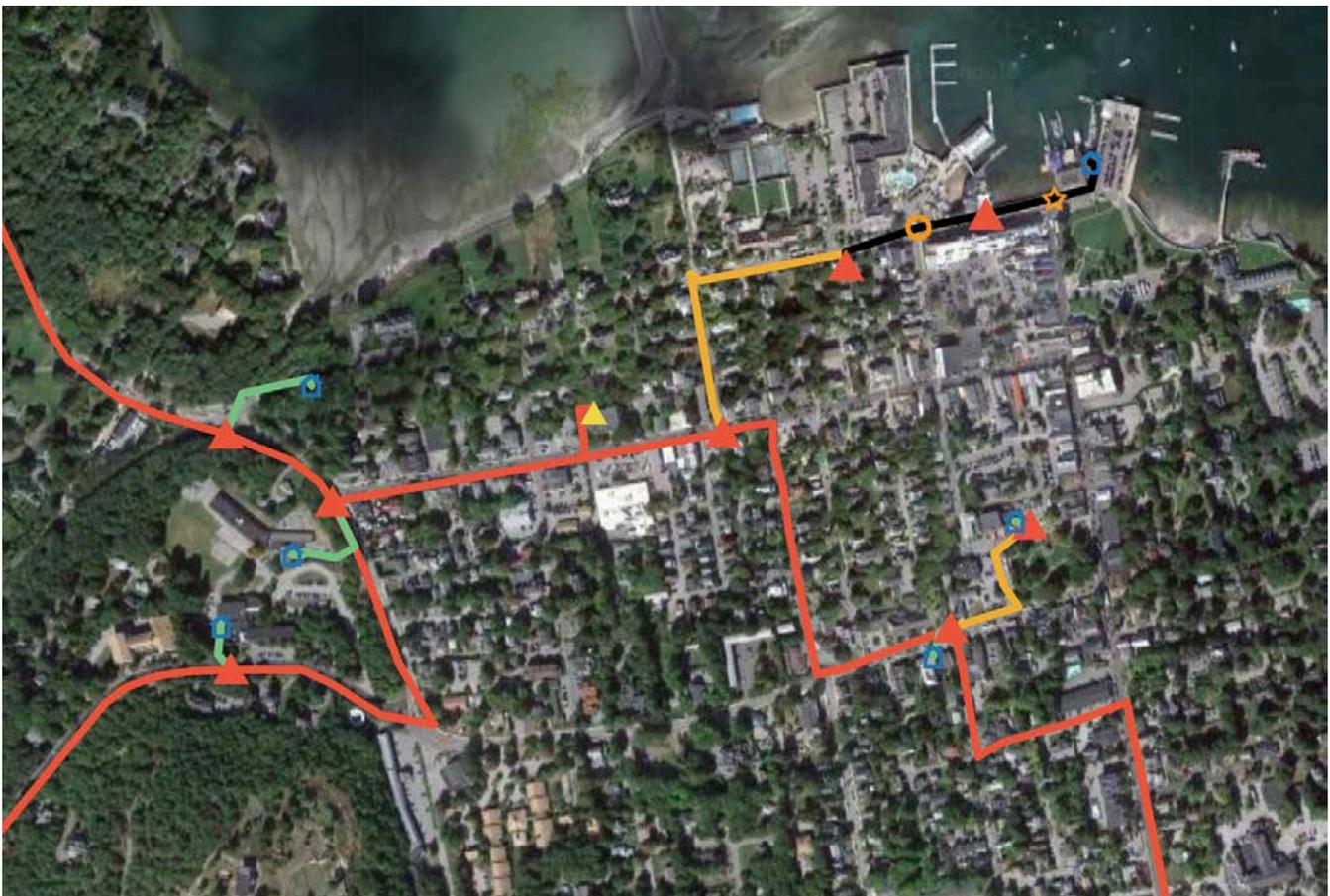
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1 Executive Summary

Casco Bay Advisors, LLC (Casco Bay) is pleased to present this engineered plan (Plan) for the Town of Bar Harbor (Town) Municipal Fiber Network, designed to interconnect all of the specified Town-owned and operated locations (Locations).

The Plan includes detailed routes connecting each location (*required and optional*) in the shortest manner available, identifies all of the utility pole and conduit infrastructure required to be utilized, detailed mapping and Bill of Materials (BOM) of the proposed network for inclusion in a Request for Proposals (RFP) for construction and maintenance of the network. In addition, we have included detailed engineering plans for connection of each location to the network, estimated capital and operational expenses, and optional considerations to reduce the overall cost of deploying the network.

We thank you for the opportunity to provide this Plan and look forward to assisting the Town of Bar Harbor with its ongoing evaluation and next steps.





2 VETRO FiberMap GIS Database

We have designed and engineered this network utilizing VETRO FiberMap¹, a purpose-built cloud-based, open source GIS system created specifically for fiber optic network design, engineering, as-built and ongoing operation and maintenance. We recommend this application be utilized through the construction, as-built and splicing of the network.

Once the network has been built and turned over for operation, the data in the VETRO application can continue to be utilized for the ongoing operation and maintenance of the network, or in the alternative, the data can be extracted into an industry standard ESRI geodatabase and incorporated into the Town's existing GIS system. All detail can be extracted into the Town's ESRI system, with the exception of the splicing documentation, which can be extracted into a spreadsheet for continuing maintenance.

Within the VETRO application, we have created various layers to separate the data. Those include:

- Locations
- Poles
- CCI Conduits
- Strand - Guys - Anchors
- Fiber

Cost for the VETRO application:

- \$500 Data Migration Fee (one-time)
- \$500 Provisioning Fee (one-time)
- \$250 per month user fee

A demonstration of the application can be provided at any time.

¹ <https://www.vetrofibermap.com/> - Headquartered in Portland, Maine

3 Location Inventory

The overall project includes twenty-five (25) Town-owned locations. The core network will serve the fourteen (14) “required” locations listed below. Eleven (11) additional “optional” locations are identified but may not be included in the final construction plan. Inclusion of these optional locations will be determined based upon a number of factors including the overall cost of the project and a determination of their importance for inclusion based upon a cost/benefit analysis once the construction costs are determined.

3.1 Required Locations

Town Office - 93 Cottage St (*head-end / central office location*)
Port Security/Harbor Master - 21 Ells Pier
Public Safety – 37 Firefly St
Wastewater Treatment Plant – 136 Ledge lawn
Solid Waste Transfer Station – 9 White Spruce
Public Works Complex - 50 Public Works Way
Duck Brook – 226 Duck Brook Rd
Ireson Hill Tower – 329 Route 3
Hulls Cove Treatment Plant - 37 Wilcomb Lane
(Old) Highway Garage - 135 Ledge lawn
MDI High School – 1081 Eagle Lake Rd
Connor Elementary School - 3 Eagle Lake Rd
Emerson Middle School – 3 Eagle Lake
Jesup Library - 34 Mt Desert St

3.2 Optional Locations

Comfort Station - 30 Park St
Ferry Terminal – 121 Eden St
Town Hill Fire Department – 1328 Main St (Route 102)
Eagle Lake Intake - 422 Eagle Lake Rd
Kebo Pump Station - 138 Eagle Lake Rd
Canadian National Pump Station - 8 Terminal Way
Degregoire Park Treatment Plant - 57 Degregoire Park Rd
Eddie Brook Pump Station - 138 West St
Hulls Cove Pump Station - 1 State Hwy 3
Main Street Pump Station - 1 Cromwell Harbor Rd
Ocean Ave Pump Station - 27 Ocean Ave

4 Utility Pole Make-Ready

4.1 Pole Data Scope of Work

658 poles were field surveyed to collect the following information:

- GPS coordinate
- Pole ID's for both the electric company (Emera) and the phone company (CCI)
- Presence of one or more existing down guys installed by CCI
- Presence of one or more available down guy anchors
- Presence of support poles
- Measurable photograph captured by IKE handheld device²

The information collected for each pole has been incorporated into the VETRO FiberMap GIS application as attributed points representing each pole. That data also resides in tabular form for easy import into make-ready applications for the pole owners should the project move forward to construction.

4.2 Make-Ready Cost Estimate

Utilizing the measurable photographs captured during the field survey, we have examined each pole and estimated the costs the pole owners would likely charge to create space on the poles for a new attachment. In general, the condition of the poles along the routes chosen to serve these 25 locations is above average, with many of the poles of a newer vintage with plenty of space for additional attachments. In addition, because many of the poles have recently been replaced and have sufficient open space below the existing attachments, our design calls for attachment below all other attachments, which should translate into lower construction costs than normal.

Please note, this is an estimate only. The actual charges will only be known after a pole attachment agreement has been negotiated with the pole owners, pole attachment applications have been submitted, a joint ride-out with the pole owners conducted and a firm quote has been received from the pole owners.

Having said the above, we believe our overall pole estimate of \$269,121 to be conservative. A detailed breakdown of these estimates by road segment is illustrated in the table below.

As of this report date, we are waiting on the make-ready costs for use of the CCI conduits, which we believe will be less than \$10,000.

² <https://ike4.ikegps.com/>



Utility Pole Make-Ready Estimate			
	Make-Ready Estimate	Pole Quantity	Average cost per pole
Northwest Route			
Town Office to Ireson Hill Tower	\$ 15,180	162	\$ 94
Public Works & Hulls Cove Treatment Plant	\$ 31,526	21	\$ 1,501
Optional Degregoire Park Treatment Plant	\$ 2,267	17	\$ 133
Optional Hulls Cove Pump Station	\$ -	1	\$ -
Optional Ocean Avenue Pump Station	\$ -	1	\$ -
Canadian National Pump Station	\$ -	0	\$ -
Ferry Terminal	\$ -	0	\$ -
Optional Eddie Brook Pump Station	\$ -	2	\$ -
Subtotal	\$ 48,973	204	\$ 240
East / Southeast Route			
Town Office to West Street CCI Conduits	\$ 16,425	22	\$ 747
Town Office to Public Safety	\$ 32,797	21	\$ 1,562
Library	\$ -	0	\$ -
Waste Water Treatment Plant	\$ 18,882	40	\$ 472
Old Highway Garage Lot	\$ -	0	\$ -
Solid Waste Transfer Station	\$ 2,830	17	\$ -
Optional Main Street Pump Station	\$ -	1	\$ -
Optional Comfort Station	\$ -	10	\$ -
Subtotal	\$ 70,934	111	\$ 639
West / Southwest Route			
Conner Elementary	\$ 345	2	\$ 173
Emerson Middle School	\$ 345	11	\$ 31
Eagle Lake Road to High School	\$ 112,985	149	\$ 758
Duck Brook	\$ -	27	\$ -
Optional Kebo Pump Station	\$ 1,659	23	\$ 72
Optional Arata Drive Pump Station	\$ -	1	\$ -
Town Hill Fire Department (High School to Main Street)	\$ 33,534	61	\$ 550
Town Hill Fire Department (Main Street from Sound Dr)	\$ 345	69	\$ 5
Subtotal	\$ 149,213	343	\$ 435
Total	\$ 269,120	658	\$ 409



4.3 LD 1192 - Potential Impact

LD 1192, approved by the Maine legislature this past session and signed into law by Governor Mills, suggests there is no charge for utility pole make-ready "For a governmental purpose consistent with the police power of the municipality". Our interpretation of this law would suggest the Town of Bar Harbor would not be subject to make-ready charges for this network, provided the use is intended to be covered by the Town's police powers. For the purposes of his project, we are including the costs for make-ready as if this Act was not enacted. We urge the Town to seek legal counsel for an interpretation.

An Act To Establish Municipal Access to Utility Poles Located in Municipal Rights-of-way

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 35-A MRS §2524 is enacted to read:

§2524. Municipal access to poles

1. Definitions. As used in this section, unless the context otherwise indicates, the following terms have the following meanings.

A. "Make-ready work" means the rearrangement or transfer of existing facilities, replacement of a pole, complete removal of any pole replaced or any other changes required to make space available for an additional attachment to a shared-use pole.

B. "Municipality" means a town, city, plantation, county, regional council of governments, quasi-municipal corporation or district as defined in Title 30-A, section 2351, regional municipal utility district established according to Title 30-A, section 2203, subsection 9 or a corporation wholly or partially owned by an entity specified in this paragraph.

C. "Unserved or underserved area" has the same meaning as in section 9202, subsection 5.

2. Access to poles; make-ready requirements. Notwithstanding any provision of law to the contrary, for the purpose of safeguarding access to infrastructure essential to public health, safety and welfare, an owner of a shared-use pole and each entity attaching to that pole is responsible for that owner's or entity's own expenses for make-ready work to accommodate a municipality's attaching its facilities to that shared-use pole:

A. For a governmental purpose consistent with the police power of the municipality;
or

B. For the purpose of providing broadband service to an unserved or underserved area.

5 Network Mapbook

A detailed map of the network is illustrated in Appendix. With a scale of 1"= 200', the Mapbook contains the following information and is intended to serve as a detailed construction plan.

- Utility pole locations with the pole owner IDs for each with the format ELCO;TELCO
- Underground duct with associated handholes and pedestals
- Locations identified with the name and address
- Type of Fiber (backbone, lateral, drop) with fiber count and length
- Splice locations
- Slack locations
- Down guys and anchors can be illustrated after receipt of make-ready quotes from the pole owners

The core network connecting each of the fourteen (14) required locations covers 13.96 miles. An additional 4.97 miles of network is required to connect the eleven (11) optional locations, for a total network distance of 18.93 miles.

6 Bill of Materials

The Bill of Materials (BOM) is presented in two different formats. First, by material type (below) and second, by Location (see appendix).

6.1 BOM for Entire Project

This version of the BOM provides the following:

- Part
- Part Description
- Vendor
- Manufacturer or Equivalent
- Part # or Equivalent
- Quantity



Bill of Materials					
Part	Description	Vendor	Manufacturer or Equivalent	Part # or Equivalent	Quantity
10M Strand	1/4" Extra High Strength Galvanized Steel Strand, including all associated hardware, lashing and down guys. Installation to include all necessary grounding.	Supply Solutions	Bekaert Corporation	1/4"EHS	100,020
Snow Shoe (pair)	31.25 length, .900 channel width, 16.25 diameter	Supply Solutions	Fiber & Cable Accessories	FOS3TMK	96
Splice Case	Fiber Optic Splice Enclosure (Aerial)	Supply Solutions	Tyco Corporation	FOSC450B66NT0B0V	28
Pole	30' Class 5 Pole	Bell Lumber & Pole	Bell Lumber & Pole	35' class 5	2
96 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	096ZU4-T4122A20	2,412
72 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	072ZU4-T4122A20	1,827
48 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	048ZU4-T4122A20	21,681
36 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	036ZU4-T4122A20	10,234
24 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	024ZU4-T4122A20	31,156
12 Count Fiber Cable	ALTOS All-Dielectric Cable, Loose tube, Gel-Filled, 12F per tube, SMF-28 Ultra fiber, Single Mode	Supply Solutions	Corning	012ZU4-T4122A20	40,556
12 Count Fiber Cable	FREEDM LST Single-Tube, Gel-Free Cable, Riser, 12F, SMF-28 Ultra fiber, Single-mode	Supply Solutions	Corning	012ZSF-T4101D20	10,104
12-Port Fiber Termination Panel (FTP)	PANEL, WM 2 SLOT 12 PORT, 12F SC-APC 250UM 4M PIGTAIL, SIMPLEX ADAPTERS, 2 SPLICE TRAYS, BLACK	Supply Solutions	Supply Solutions	SSPNL-2WM12SASM5-SSL	17
6-Port Fiber Termination Panel (FTP)	PANEL, WM 1 SLOT 6 PORT, 1 X 6 FIBER SM SC-APC 250UM 3M PIGTAIL, SIMPLEX ADAPTERS, SPLICE CHIP, BLACK	Supply Solutions	Supply Solutions	SSPNL-1WM06SASM5-ML	3
6-Port Fiber Termination Panel (FTP) - Exterior weather tite	PANEL, WM 2 SLOT 6 PORT, 1 X 6 FIBER SM SC-APC 900UM 3M PIGTAIL, SIMPLEX ADAPTERS, SPLICE CHIP, GRAY PLASTIC	Supply Solutions	Supply Solutions	SSPNL-FET2G06SASM9-TII	4
192-Port Fiber Termination Panel (FTP)	PANEL, RM 10U, CNS288HD WITH 192 PORT, SC-APC DUPLEX ADAPTERS, 16 250um PIGTAILS, SPLICE DRAWERS, SINGLE FUSION	Supply Solutions	Supply Solutions	SSPNL-10U192SASM5-AFL	1
Cable Identifier Tags	Fiber Optic Cable Marker	Supply Solutions	ACP International	1151	664

6.2 BOM by Location

The Bill of Materials (BOM) by Location itemizing the quantity of outside plant materials required to construct the fiber network to each location is included in the Appendix. The BOM is organized by location with each street segment required to support deployment to each location. Organizing the BOM by Location in this manner will permit construction bidders to provide their pricing separately for each optional location beyond the required locations that comprise the core network. With this cost information separated by optional location, the Town will have all of the cost information to make a separate decision for each location.

Figure 1: Suggested Format for Bidder Response

Core Network	
Town Office (Central Office)	
Hulls Cove Treatment Plant	
Public Works Complex	
Ireson Hill Tower	
Port Security / Harbor Master	
Public Safety	
Jesup Library	
Waste Water Treatment Plant	
Old Highway Garage	
Solid Waste Transfer Station	
Conner Elementary School	
Emerson Middle School	
Duck Brook	
MDI High School	
Core Network Cost	
Optional Locations	
Eddie Brook Pump Station	
Ferry Terminal	
Canadian National Pump Station	
Ocean Avenue Pump Station	
Hulls Cove Pump Station	
Degregoire Park Pump Station	
Comfort Station	
Main Street Pump Station	
Kebo Pump Station	
Eagle Lake Intake	
Town Hill Fire Department	
All Locations Total Cost	



6.3 BOM by Location Categories

Categories of materials include:

- Quantity of poles licensed to support deployment to each location
- Quantity of high-strength steel strand required for each road segment w/ 2% sag calculated
- Fiber count for each road segment
- Quantity of 100-foot slack loops to be deployed along each road segment
- Quantity of fiber cable required for each road segment w/ 2% sag, 2% helix factor and slack loops included
- Fiber count for each location drop cable
- Quantity of 100-foot drop slack loops
- Estimated quantity of fiber drop cable for each location w/ 2% sag, 2% helix factor and slack loops included
- Quantity of new poles to be set
- Quantity of snowshoes required for slack loops
- Quantity of splice cases
- Type of Fiber Termination Panel for each location
- Construction method (aerial or underground) for each drop cable and if underground, whether installation will be via an existing riser and conduit, or if a new riser and conduit will need to be constructed

6.4 Construction Metrics

The following construction metrics are also included in the BOM:

- Total network = 18.93 miles
- Totals poles = 662
- Leased duct from CCI = 1,038
- Average quantity of poles per mile = 35
- Average span length (distance between poles) = 151 feet

6.5 Exceptions to BOM

The quantity of down guys, anchors and auxiliary anchor brackets required are not included in the BOM. The quantity of these materials cannot be known until the pole owners survey the poles to determine where additional guys will be required to maintain the integrity of the pole structures with the additional fiber cables attached.

We have identified the quantity of down guys deployed by CCI for the identified poles. For those poles, we also identified the availability of open space for down guy attachments on the existing anchors.

- 291 of the 662 poles have existing CCI down guys
- 6 of the 291 poles have two CCI down guys
- 242 of the existing anchors supporting CCI and Emera down guys do not have space for an additional down guy attachment

We recommend bidders provide a per unit cost for materials, labor and equipment for the installation of down guys and anchors.

7 Site Engineering Package per Location

Site Engineering Packages for each location are included in the Appendix. These packages provide all of the pertinent information and illustrations to enable the selected construction contractor to accurately bid the job and guide the installation of the fiber cable from the drop pole to the interior location where the Fiber Termination Panel (FTP) shall be installed.

7.1 Splicing

The preliminary splicing plan assumes four (4) fibers will be spliced through the network from each Location to the Town Office (central office). Eight (8) fibers will be spliced through the network from each of the three (3) schools to the Town Office.

7.2 Fiber Termination Panels (FTP)

The table below details the FTP type per location.

Figure 2: FTP Port Size by Location

Core Network			Optional Locations		
	FTP Port Size			FTP Port Size	
Town Office (Central Office)	192		Eddie Brook Pump Station	4	Exterior
Hulls Cove Treatment Plant	12		Ferry Terminal	12	
Public Works Complex	12		Canadian National Pump Station	4	Exterior
Ireson Hill Tower	12		Ocean Avenue Pump Station	4	Exterior
Port Security / Harbor Master	12		Hulls Cove Pump Station	4	
Public Safety	12		Degregoire Park Treatment Plant	12	
Jesup Library	12		Comfort Station	12	
Waste Water Treatment Plant	12		Main Street Pump Station	4	
Old Highway Garage	12		Kebo Pump Station	4	Exterior
Solid Waste Transfer Station	12		Eagle Lake Intake	4	
Conner Elementary School	12		Town Hill Fire Department	12	
Emerson Middle School	12				
Duck Brook	12				
MDI High School	12				



8 Business Case / Financial Metrics

8.1 Summary Breakdown

Business Case / Financial Metrics	
Estimated Pole Quantity	662
Liner feet of CCI duct	1,038
estimated Outside Plant Miles	18.93
Capital Expense	Estimate
Pole owner application fees / Joint ride-out	\$ 15,715
Utility Pole make-ready	\$ 269,121
Make-ready Project Management	\$ 8,000
Network Construction	\$ 275,064
Location Construction (25 locations)	\$ 50,000
Construction Project Management (10%)	\$ 32,506
Total	\$ 650,406
Contingency (20%)	\$ 118,837
Total w/ Contingency	\$ 769,243
Operating Expense	Estimated Annual
Pole & Duct License Fees	\$ 17,134
Outside Plant Maintenance	\$ 10,000
Insurance	\$ 5,000
Debt Service (Principal & Interest)	
Total Annual Expense	\$ 32,134

8.2 Line Item Discussion

Each of the line items and their relevant assumptions are described in the following sections.

- Estimated Pole Quantity** - While we have identified each pole required for attachment, the actual pole count and final route may be modified slightly as a result of the joint ride-out survey with the pole owners. Slight modifications to the route are not uncommon in a joint effort to reduce the overall make-ready costs based on the joint field review.

- **Estimated Outside Plant Miles** - Like the pole quantity, the final mileage may be modified slightly due to the joint ride-out field survey.

These two categories (poles and mileage) drive portions of both the Capital and Operating expenses discussed below.

8.2.1 Capital Expenses

- **Pole Owner Application Fees / Joint Ride-out** - This category covers the charges assessed by the pole owners for application submission (4 applications with a maximum of 200 poles each) and the charges for the joint ride-out field survey.
- **Utility Make-ready Charges** - Estimated costs for the pole owners and other attachees to rearrange existing attachments, replace poles and trim trees to create and reserve space for a new attachment.

Note: Separate "Pole Attachment Agreements" will need to be negotiated with Emera and CCI and executed prior to submitting the pole applications. The charges utilized to calculate our estimates are based upon similar agreements for other clients in other jurisdictions.

- **Make-ready Project Management** - Represents charges for a consultant/contractor to assist with Pole Attachment Agreement negotiations, application submittal, participation in joint ride-outs and coordination with pole owners and other attachees until pole licenses are issued and construction can commence.
- **Network Construction (Materials & Labor)** - We have used a cost of \$30,000 per mile, minus all make-ready expenses and project management costs, divided by the estimated outside plant miles. We believe this is a reasonable metric based upon our experience with similar projects and the fact that this construction will be below all other attachees, resulting in fewer obstacles to overcome for construction crews. This also assumes construction will occur during the off-season when tourist traffic is light.
- **Location Construction (Materials & Labor)** - We have used an average estimated cost of \$2,000 per location for installation of the drop cable from the backbone network to the FTP.
- **Owners Project Manager (Construction Management)** - Represents charges for a consultant/contractor to represent the Town to manage the construction of the project. Responsibilities include, but are not limited to:
 - Resolving any issues that may arise between how the network has been engineered and the actual construction activity in the field.



- Tracking progress against the project plan milestones and modifying the project plan as appropriate.
 - Facilitating weekly project status calls between contractor and Town.
 - Inspection of construction practices at regular intervals.
 - Detailed inspection of final construction to ensure the work is in compliance with engineering plan and the National Electric Safety Code (NESC).
 - Review of as-built documentation and incorporation of as-built into GIS system.
- **Contingency** - We have included a contingency of 20% of the sum total of Utility Pole Make-ready, Network Construction and Location Construction to cover any potential cost overruns.

8.2.2 Operating Expenses

- **Pole & Duct License Fees** - Our estimate, contingent upon the negotiation of a Pole Attachment Agreement with the pole owners, assumes an annual license fee per pole of \$24.00, plus a partial duct lease fee of \$1.20 per foot for use of the CCI ducts along West Street connecting to the Harbor Master / Port Security facility.
- **Outside Plant Maintenance** - This is an estimate of the expenses to cover the cost of securing a construction contractor to be on-call for repair and restoration of the outside plant, the actual costs for such repair and restoration and insurance deductible, and the costs to relocate or rearrange the outside plant due to road widening projects or pole replacements by the pole owners.
- **Insurance** - Estimated cost for storm damage coverage.
- **Debt Service** - We have not attempted to calculate the cost of debt service as the amount of principal required can vary dramatically depending upon the final make-ready and construction costs.

Note: A significant portion of these capital and operating expenses can be reduced and/or eliminated by successfully pursuing the Optional Considerations discussed in the Section below.



9 Optional Considerations

9.1 Bar Harbor Road / Eden Street - NetworkMaine Fiber Lease

A consortium of service providers led by NetworkMaine has deployed a high-count fiber cable from the 3RB through Bar Harbor to Jackson Laboratories. We believe this cable has excess capacity sufficient to eliminate the need for the Town to construct its own fiber cable for portions of this project (Bar Harbor Rd, Eden St. and Cromwell Harbor Rd). We recommend the Town explore the potential to secure fibers in this cable under a long-term (20-year) Indefeasible Right to Use (IRU), and the rights to splice into this cable, as a means by which to reduce the overall cost of deployment. Alternatively, NetworkMaine may permit the Town to over-lash a fiber cable to its existing infrastructure, eliminating the make-ready costs and strand construction along this route segment.

9.2 Duck Brook - Spectrum Fiber Acquisition

Charter (Spectrum) currently supplies the Town with dark fiber to the Duck Brook Water Plant. Their fiber along Duck Brook Road was constructed to exclusively provide this service to the Town. There are no other potential subscribers along this route, and because it runs through National Park Service property, there will never be other uses for this cable than to serve this location. We recommend the Town explore the potential to acquire this fiber cable from Spectrum, as a means by which to reduce the overall cost of deployment.

9.3 Town of Mount Desert - Collaboration / Joint Build

The Town of Mount Desert has expressed interest in constructing / acquiring fiber to connect their Town Office to the Bar Harbor Town Office. We recommend the Town explore the potential to share costs with the Town of Mount Desert along Eagle Lake Road, as a means by which to reduce the overall cost of deployment.

9.4 Public-Private Partnership - FTTH Service Provider

There are a number of service providers who may be interested in offering a Fiber-to-the-Home (FTTH) broadband service within the Town of Bar Harbor. This network could serve as an ideal backbone for a FTTH network. We recommend the Town engage with these service providers to gauge their interest in creating a Public-Private Partnership for construction of this network. The construction costs for the Town could be reduced dramatically and the annual expenses to maintain the network, including insurance costs and annual pole license fees could be reduced or eliminated.



10 Appendix

10.1 Mapbook - Outside Plant

See separate file

10.2 Site Engineering Packages

See separate site engineering package files