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Environmental Assessment

OpenCape Corporation's Proposed Fiber Optic Network on Cape Cod and Across Southeastern New England

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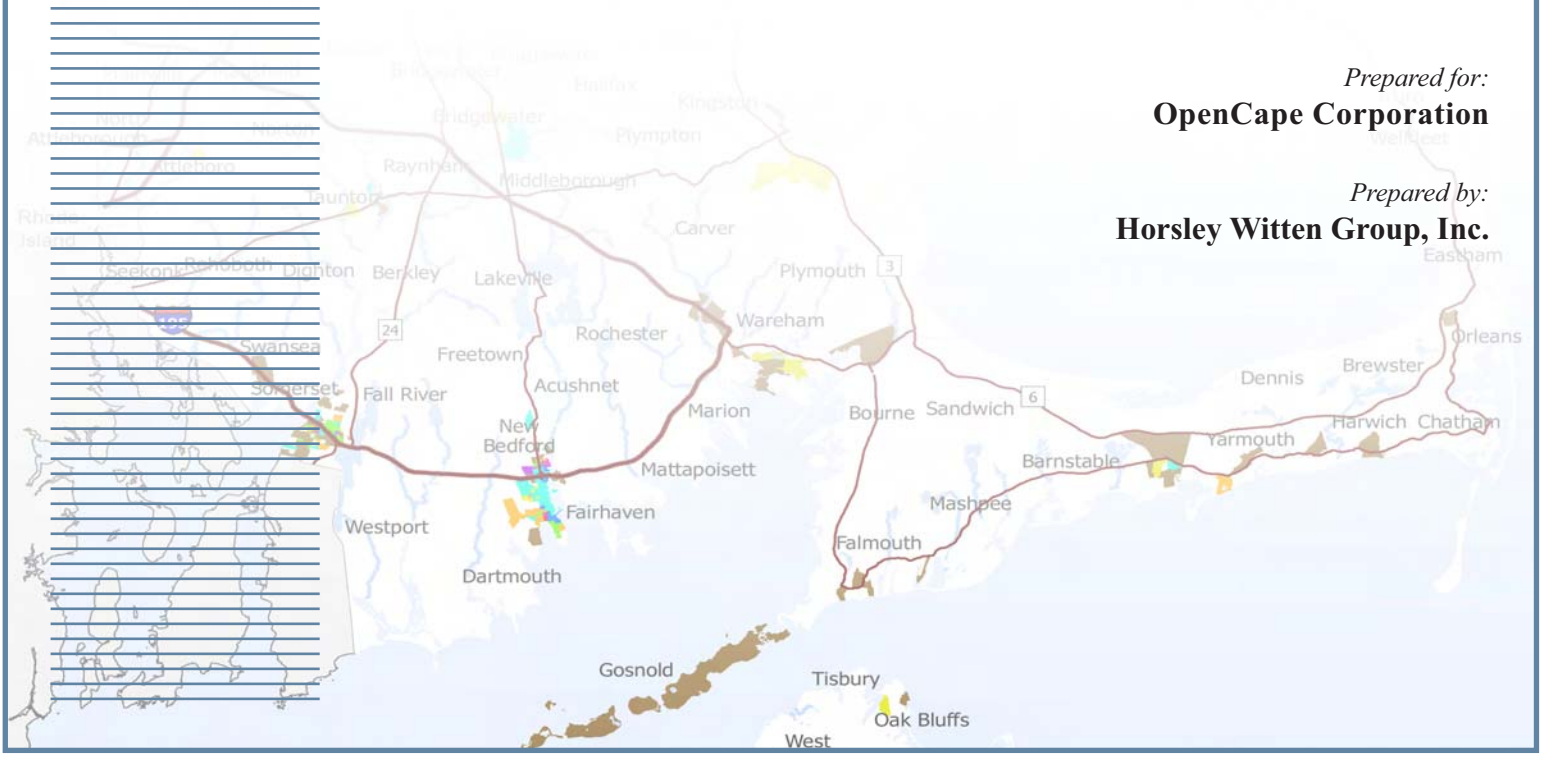

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List of Abbreviations

American Recovery and Reinvestment Act	ARRA
Areas of Potential Effect	APE
Broadband Technology Opportunity Program	BTOP
Cape Cod Commission	CCC
Central office	CO
Coastal Zone Management Area	CZMA
Code of Federal Regulations	CFR
Code of Massachusetts Regulations	CMR
Competitive Local Exchange Carriers	CLEC
Council on Environmental Quality	CEQ
Department of Commerce	DOC
Department of Energy	DOE
Development of Regional Impact	DRI
Endangered Species Act	ESA
Environmental Assessment	EA
Environmental Impact Report	EIR
Environmental Justice	EJ
Environmental Notification Form	ENF
Environmental Protection Agency	EPA
Executive Order	EO
Federal Communication Commission	FCC
Federal Highway Administration	FHA
Federal Preservation Officer	FPO
Gigabit per second	Gbps
Horsley Witten Group, Inc.	HW
Incumbent Local Exchange Carrier	ILEC
Massachusetts	MA
Massachusetts Coastal Zone Management	MA CZM
Massachusetts Department of Environmental Protection	MA DEP
Massachusetts Division of Fisheries and Wildlife	MassWildlife
Massachusetts Endangered Species Act	MESA
Massachusetts Executive Office of Energy and Environmental Affairs	MA EOEEA
Massachusetts Executive Office of Labor and Workforce Development	MA EOLWD
Massachusetts Geographic Information System	MassGIS
Massachusetts Highway Department	MHD
Massachusetts Historical Commission	MHC
Megabits per second	Mbps
Megahertz	Mhz
National Ambient Air Quality Standards	NAAQS
National Environmental Policy Act	NEPA

National Historic Preservation Act	NHPA
National Marine Fisheries Service	NMFS
National Priorities List	NPL
National Telecommunications and Information Administration	NTIA
Natural Heritage and Endangered Species Program	NHESP
New England	NE
New England District	NED
OpenCape Corporation	OpenCape
Public Archaeology Laboratory	PAL
Rhode Island Coastal Resources Management Council	RI CRMC
Rhode Island Department of Environmental Management	RI DEM
Rhode Island Department of Transportation	RIDOT
Rhode Island Geographic Information System	RIGIS
Rhode Island Historic Preservation and Heritage Commission	RIHPHC
Special Area Management	SAM
State Historic Preservation Officer	SHPO
Tower Construction Notification System	TCNS
Tribal Historic Preservation Officer	THPO
United States Army Corps of Engineers	US ACE
United States Department of Agriculture	USDA
United States Fish and Wildlife Service	USFWS
United States Geological Survey	USGS

EXECUTIVE SUMMARY

Purpose and Need

OpenCape Corporation (OpenCape) has identified a need to upgrade the existing telecommunications system on Cape Cod, Massachusetts (MA) and southeastern New England in order to make the system more responsive to the region's needs. The purpose of the project is to address this need through the installation of a comprehensive fiber optic communications network to support the economic, educational, public safety and governmental needs of the southeast Massachusetts region.

Proposed Action

Project Description

OpenCape proposes to run the nearly 300 mile core fiber optic network backbone on existing utility poles, high tension wires, and underground conduits along road and public utility right-of-way. The components of the comprehensive fiber optic communications network will include the following:

- A core fiber backbone on Cape Cod, MA;
- Extensions to two major regional network connection centers in Brockton, MA and Providence, RI;
- Connections to Central Office locations;
- Numerous fiber optic laterals extending from the backbone;
- A microwave radio overlay; and
- A regional collocation center in Barnstable, MA.

The Cape Cod Canal will be crossed in two spatially separated locations to minimize the chance that Cape Cod will be cut off from network services: a South Canal crossing through existing conduit on the Railroad Bridge and a North Canal crossing as a directional bore beneath the Canal. The North Canal crossing will involve one four-foot-by-four-foot area of disturbance on either side of the Canal within previously disturbed areas for directional drilling beneath the Canal. Temporary staging areas for equipment used for the directional drilling will also be within previously disturbed areas, normally used for staging during construction and maintenance activities associated with the Cape Cod Canal. OpenCape is currently in discussions with the US Army Corps of Engineers (ACE) New England District (NED) regarding agreements and permitting requirements for the directional bore under the Canal.

Alternatives

The following alternatives considered to meet the purpose and need of the project are as follows:

- Alternative 1 – Install a comprehensive fiber optic network on existing utility poles, high tension wires, and road and public utility rights-of-way, with connections to anchor institutions, and a supplementary microwave radio overlay.

- Alternative 2 – Install only buried fiber optic cables within existing and constructed underground conduits.

- Alternative 3 – Install an extensive wireless network.

- Alternative 4 – No Action Alternative

Alternative 1 was selected as the preferred alternative to meet the purpose and need of the project with the least impact on sensitive environmental resources while still providing a robust and cost efficient telecommunications network. These alternatives are further discussed in Section 2.2.

Noise

There will be no significant difference in noise between the proposed activities associated with the fiber optic path installation and that produced by regular maintenance of the existing cables and poles. There will be short term noise impacts associated with heavy equipment used during directional boring underneath the Canal. The proposed directional drilling sites are within existing disturbed areas outside of residential areas. All construction activities and their resultant noise impacts will be temporary and occur Monday through Friday during typical work hours. In addition, all project construction equipment utilizing combustion engines will be equipped with mufflers.

Air Quality

The proposed project is not anticipated to be a significant source of air pollutant emissions. The installation of the fiber optic cable and other project components, including the directional drilling component, would generate a limited amount of emissions, particularly through the use of heavy equipment and vehicles requiring diesel combustion. The regional collocation building will also be a source of air pollutant emissions, primarily through the use of the proposed onsite diesel generator; however, the proposed high efficiency generator will not be a significant source of emissions and is unlikely to be subject to New Source Review permitting under the Clean Air Act.

Executive Order (EO) 13514 requires the identification and analysis of impacts from energy usage and alternative energy sources. The proposed project would temporarily emit greenhouse gases during construction and permanently emit greenhouse gases for the use of the regional collocation center; however, the effect on climate change as a result of the project would be minimal. In fact, the increased telecommunications capacity that the proposed project would provide is anticipated to decrease transportation sources of greenhouse gas emissions, as it will allow for increased telecommuting practices. Climate change is also not expected to affect the proposed project.

Geology and Soils

The only proposed ground disturbance is for the North Cape Cod Canal crossing, including the directional bore beneath the Canal. The area for the directional drilling was chosen as an area that has been previously disturbed. The directional drilling is not anticipated to cause significant adverse impacts to the existing geology and soils. As discussed in Section 2.1.7.1, erosion control practices, such as silt fencing will be used during the directional drilling to ensure that sediments do not run off, causing impacts to the adjacent water resources. In addition, as described in Section 2.1.7.1, the soils extracted in conjunction with the directional drilling beneath the Canal will be handled and disposed of in a manner that will not threaten the watercourse or adjacent resource areas.

Water Resources

Surface Water

Neither the hanging of new fiber optic cable from existing poles; the running of fiber optic cable through existing conduits; nor the operation of that cable to provide data transmission would create any adverse impacts to the chemical, physical or biological integrity of surface water bodies. Best practices for avoiding impacts to wetlands and surface water resources as discussed in Section 2.1.7.1 as well as specific protocols developed by the contractors, and in accordance with the US ACE permitting for the Cape Cod Canal crossing will also protect surface water resources from the directional drilling beneath the Canal, and the installation of the fiber optic path.

Groundwater

Neither the hanging of new fiber optic cable from existing poles; the running of fiber optic cable through existing conduits; nor the operation of that cable to provide data transmission would create any adverse impacts to the chemical, physical or biological integrity of groundwater resources. The Cape Cod Canal directional drilling component will be planned to avoid impacts to groundwater resources, and in accordance with the US ACE and other state and local permitting requirements related to the protection of Groundwater.

Coastal Zone

Both the MA Office of Coastal Zone Management (CZM) and RI Coastal Resources Management Council (CRMC) were contacted regarding the project and sent a letter for determination of Federal Consistency review. The RI CRMC indicated that, given the limited nature of coastal zone disturbance, the project was below their review thresholds. MA CZM indicated that the only component of the project that requires further review is the boring beneath the North Canal (see letter in Appendix F). A second review specifically regarding the North Canal crossing, and associated directional drilling activities is currently in progress as part of the US ACE Permitting requirements.

Floodplains

Neither the hanging of new fiber optic cable from existing poles; the running of fiber optic cable through existing conduits; nor the operation of that cable to provide data transmission would create any adverse impacts to the ability of a floodplain area to manage flood waters. No buildings or structures are proposed within a mapped floodplain, and the proposed collocation building located on Barnstable County complex property is located within a Zone X, an area that is determined to be outside the 100- year floodplain (MassGIS, 1997). The Cape Cod Canal directional drilling component sites are within the 100-year floodplain (Zone AE) on both sides of the Cape Cod Canal; however, the directional drilling activity is not anticipated to have any permanent or temporary adverse effects on the ability of these floodplains to capture floodwaters and provide flood storage.

Wild and Scenic Rivers

As discussed in Section 3.4.5, the only designated river in the vicinity of the project site is the Taunton River; 26 miles have been designated as scenic and 14 miles have been designated as recreational (USFWS, 2010a). The fiber optic path will cross the Taunton River using existing cable conduits. During installation, best practices regarding avoiding impacts to surface waters and wetlands as discussed in Section 2.1.7.1 will be followed. As a result, the installation of these cables is not expected to adversely impact the recreational or scenic qualities of the Taunton River.

Biological Resources

Neither the hanging of new fiber optic cable from existing poles; the running of fiber optic cable through existing conduits; nor the operation of that cable to provide data transmission would create any adverse impacts to wildlife or vegetation within the project area. The Cape Cod Canal directional drilling component is also not anticipated to create any significant adverse impact on wildlife or vegetation. Consistent with the policies of the United States Fish and Wildlife Service (USFWS) New England Office, all components of the project, including the fiber optic component will not have any impacts on threatened or endangered species, and the Section 7 consultation is considered complete (See Appendix G for documentation related to the Section 7 consultation).

The majority of the project is proposed outside of wetland resource areas. There are some areas which are within the regulated 100-foot buffer area to wetlands pursuant to the Wetlands Protection Act Regulations (310 CMR 10.00). However, the activities associated with the installation of the fiber optic path are exempt from the Massachusetts Wetlands Protection Act (310 CMR 10.02(a) (2)). The Cape Cod Canal directional drilling component is located within the 100-year floodplain, and is therefore within Massachusetts Wetland Protection Act jurisdiction as "Land Subject to Coastal Storm Flowage." The directional drilling sites are also within the 100-foot buffer zone to the coastal bank of the Cape Cod Canal, which falls within Wetlands Protection Act jurisdiction. OpenCape will file a Notice of Intent (NOI) with the Town of Sandwich and Town of Bourne for the directional drilling component of the project. The directional drilling activity is not anticipated to have any permanent or temporary adverse effects on these wetland resources or the ability of floodplains to capture floodwaters and provide flood storage.

Historic and Cultural Resources

Consistent with the provisions of Section 106 of the National Historic Preservation Act, OpenCape has been consulting with the State Historic Preservation Officers (SHPOs) in Massachusetts and Rhode Island, Tribal Historic Preservation Officers (THPOs), and other Consulting Parties regarding the potential for the project to impact significant or potentially significant historical or archaeological sites. At the request of the MA SHPO, the Massachusetts Historic Commission (MHC), and THPO of the Mashantucket Pequot Tribe, OpenCape also had three separate historical and archaeological assessments conducted by a licensed archaeological firm, Public Archaeology Laboratory (PAL): a Cultural Resources Desktop Review (June 21, 2010), Archaeological Assessment (August 10, 2010), and Historic Property Identification and Effects Assessment (August 11, 2010). Those parties included in the Section 106 consultation,

including the SHPOs, THPOs, and other Consulting Parties have concluded that the project is not likely to have adverse impacts on historic or archaeological resources. All documentation related to the Section 106 consultation is provided in Appendix H.

Aesthetic and Visual Resources

The visual impacts of the proposed project are expected to be minimal. The above ground poles and high tension wires where the proposed network will be installed already maintain multiple similarly sized cables and wires. Aerial laterals to anchor institutions will be installed parallel to existing aerial utility cables, and buried fiber optic cables to anchor institutions will be installed where existing underground conduits exist. The antennas and radios will typically be one to three feet in height, and most will be mounted on existing water towers; the microwave radios installed on water towers and other structures typically used for communications are not expected to be visible from the ground. The directional drilling beneath the Cape Cod Canal is anticipated to have limited temporary impacts on aesthetic and visual resources in the vicinity of the directional drilling sites. Aesthetic and visual impacts to these sites, which are primarily recreational in nature, will be limited to the greatest extent practicable, and will not impact the sites during their most active periods: evenings and weekends.

Land Use

The proposed 300 mile core fiber optic network will run through multiple local Massachusetts and Rhode Island communities, each with its own local zoning code or ordinance, and some with local comprehensive plans. Existing land use will not be altered by the project as all project components are proposed on existing utility poles or within existing conduits. In addition, the location for regional collocation building is currently a regional communications building, and therefore the use is relatively the same. The proposed fiber optic network should not be in conflict with any local zoning codes or ordinances or local comprehensive plans. The purpose of the high capacity fiber optic communications infrastructure is to support the economic, educational, public safety and governmental needs of these local communities and the region in general, which is directly aligned with the fundamental elements, goals, and objectives of these local comprehensive plans as well as the Cape Cod Commission's Regional Policy Plan.

Infrastructure

Utilities

The proposed fiber optic infrastructure will not cause any permanent or temporary interruptions in utility service. The infrastructure will ultimately have a positive impact on the area's telecommunications network by providing ubiquitous, reliable, redundant, and cost competitive telecommunications infrastructure to support economic diversification in a region that has a currently unsustainable economy. In addition, OpenCape has executed a memorandum of understanding (MOU) with the regional power company, NSTAR, to develop a synergistic model of broadband and smart grid technologies. OpenCape will provide telecommunication capacity to NSTAR's Smart Grid initiatives in furtherance of the goals in NSTAR's $10 million Department of Energy (DOE) grant. NSTAR will support the deployment of OpenCape fiber optics along its right of way, and aid in gaining access to poles. These two mutually supportive initiatives have the potential to reduce the number of homes that lose power on Cape Cod from

groupings of up to 10,000 homes to less than 100 homes in any single power loss event and contribute to more efficient energy use throughout the region.

Transportation

Environmental consequences to transportation during construction activities would be temporary and minor. The proposed fiber optic network will be installed primarily on existing utility poles, high tension wires or underground conduits. Increased heavy equipment traffic and potential detours may be expected during construction on local roads. There are not expected to be any traffic impacts, including detours along any major highways as a result of the project. There would be no direct or indirect effects to transportation and emergency access as long as the measures outlined in Section 2.1.7.2 are followed.

Socioeconomic Resources

The proposed fiber optic network is anticipated to have a positive impact on socioeconomic resources, since it will enhance telecommunications proportionately throughout the region. Initially, enhanced telecommunications capabilities will be provided to public institutions such as local colleges, libraries and town halls; these institutions serve all members of the local population independent of their socioeconomic status. It is expected that most members of society within the region will benefit from the project. The project is expected to have a positive net impact, particularly on the multiple EJ populations in the project area, since it will promote economic investment in the region thereby achieving one of the primary goals in regard to EJ populations, which is to encourage investment in economic growth. It will also increase educational opportunities, and greatly enhance public safety. In addition, the fiber optic network is not expected to have a disproportional negative environmental impact on EJ populations, as discussed in Section 4.10.

Human Health and Safety

The proposed fiber optic network will not have any significant impacts on human health and safety as it relates to potentially hazardous waste sites within the vicinity of the project area. Best practices for traffic control and worker safety as discussed in Section 2.1.7.2 and 2.1.7.3 will also protect human health and safety during the installation of the comprehensive fiber optic network proposed to run nearly 300 miles on existing utility poles, high tension wires, and road and public utility rights-of-way, with connections to anchor institutions, and a supplementary microwave radio overlay. For the directional drilling component of the project, a perimeter fence and signage will be installed to mark out the construction zone and safely keep the public out of the designated construction zone.

Cumulative Impacts

Past, Current and Future Projects

The proposed project area overlaps with existing local, state, and federal roads with utility infrastructure. OpenCape is corresponding with the Federal Highway Administration (FHA), Massachusetts Highway Department (MHD), Rhode Island Department of Transportation (RIDOT), and local Departments of Public Works in an attempt to coordinate scheduling and avoid conflicts with routine maintenance and repair activities required for the continued operation of the existing roadways and utility lines.

OpenCape is also coordinating with the regional power company, NSTAR, to develop a synergistic model of broadband and smart grid technologies. OpenCape will provide telecommunication capacity to NSTAR's Smart Grid initiatives in furtherance of the goals in NSTAR's $10 million DOE grant. NSTAR will support the deployment of OpenCape fiber optics along its right of way, and aid in gaining access to poles. These two mutually supportive initiatives have the potential to reduce the number of homes that lose power on Cape Cod from groupings of up to 10,000 homes to less than 100 homes in any single power loss event. In addition, OpenCape has been coordinating with officials from Martha's Vineyard and Penikese Island with regard to optimization of broadband solutions for these relatively isolated locations (correspondence with Martha's Vineyard and Penikese Island officials is included in Appendix I).

Cumulative Effects of the Project

The proposed OpenCape project includes a comprehensive fiber optic network proposed to run nearly 300 miles on existing utility poles, high tension wires, and road and public utility rights-of-way, with connections to anchor institutions, and a supplementary microwave radio overlay. These actions have been identified to have few negative effects as discussed in Sections 4.1 through 4.11; as such, the cumulative impacts of the project alone as well as when combined with other activities unrelated to the project (e.g. road maintenance) are also considered to be insignificant. Further discussion of cumulative effects is provided in Section 4.12.2.