

ENVIRONMENTAL ASSESSMENT

**Prepared for
NTIA**

on Behalf of

the Maryland Department of Information Technology

for the

One Maryland Broadband Network “OMBN Project”

REVISED - March 31, 2011

Award Identification Number: NT10BIX5570135



Columbia Telecommunications Corporation • 10613 Concord Street • Kensington, MD 20895
301.933.1488 • www.CTCnet.us

Contents

Executive Summary	1
Chapter 1 – Purpose and Need	7
1.1 <i>Project Purpose</i>	8
1.2 <i>Project Need</i>	9
Chapter 2 – Description of Proposed Action and Alternatives	11
2.1 <i>Project Description</i>	11
2.2 <i>Alternatives</i>	12
2.2.1 Preferred (Hybrid) Alternative: Combined Aerial and Underground Construction.....	12
2.2.2 Alternative B: The Aerial Alternative.....	21
2.2.3 Alternative C: The Underground Alternative.....	21
2.2.4 Alternative D: No Action.....	22
2.3 <i>Alternative Considered but Eliminated from Further Discussion</i>	22
2.3.1 Wireless Alternative.....	22
2.4 <i>Reasons for Selecting the Preferred Alternative</i>	23
Chapter 3 – Existing Environment	27
3.1 <i>Noise</i>	27
3.2 <i>Air Quality</i>	27
3.3 <i>Climate, Greenhouse Gases, and Global Warming</i>	30
3.4 <i>Geology and Soils</i>	32
3.5 <i>Water Resources</i>	38
3.6 <i>Biological Resources</i>	46
3.7 <i>Historical, Cultural and Architectural Resources</i>	50
3.8 <i>Aesthetic and Visual Resources</i>	53
3.9 <i>Land Use</i>	54
3.11 <i>Socioeconomic Resources</i>	57
3.12 <i>Health and Human Safety</i>	59
Chapter 4 – Environmental Consequences	60
4.1 <i>Noise</i>	60
4.2 <i>Air Quality</i>	61

4.3	<i>Climate, Greenhouse Gases, and Global Warming</i>	62
4.4	<i>Geology and Soils</i>	64
4.5	<i>Water Resources</i>	65
4.6	<i>Biological Resources</i>	68
4.7	<i>Historic, Cultural and Architectural Resources</i>	77
4.8	<i>Aesthetic and Visual Resources</i>	81
4.9	<i>Land Use</i>	82
4.10	<i>Infrastructure</i>	83
4.11	<i>Socioeconomic Resources</i>	84
4.12	<i>Human Health and Safety</i>	85
4.13	<i>Cumulative Impact</i>	86
	Chapter 5 – Applicable Environmental Permits and Regulatory Requirements	88
	Chapter 6 – List of Preparers	91
	List of Persons Contacted	92
	References	93
	Appendix A – Threatened and Endangered Species List	97
	Appendix B – Section 7 Consultation—U.S. Fish & Wildlife Service	100
	Appendix C – Section 106 Consultation—State Historic Preservation Officer (SHPO)	127
	Appendix D – Section 106 Consultations—Tribal Historic Preservation Officer (THPO)	148
	Appendix E – List of Historical Resources	165
	Appendix F –Maryland Master Plans by County	167
	Appendix G – Maryland Wildlife Species List	174
	Appendix H – Maryland Plant Life List	197
	Appendix I – Attainment Status by County	202
	Appendix J – Superfund/Brownfield Sites	204
	Appendix K – List of Participating Jurisdictions	210
	Appendix L – Water, Bridge and Railroad Crossing Report	212
	Appendix M – Section 404 Consultation – U.S. A.C.E.	232

Appendix N – Maryland Department of the Environment Consultation243

Appendix O – List of Anchor Sites.....249

Appendix P – Estimated Ground Disturbance.....289

Appendix Q – Wall Penetration Construction Typicals.....291

Appendix R – Detailed Hut Location Maps w/Floodplain Layer293

Appendix S – U.S. Environmental Protection Agency Sole Source Aquifer Area Program Request for Phase 1 Preliminary Assessment312

Appendix T – CO2 Emissions Estimation327

Figures

Figure 1: Statewide Communications Equipment Hut Locations.....20

Figure 2: Physiographic Regions of Maryland33

Figure 3: Sassafras Distribution in State of Maryland.....37

Figure 4: Water Systems in Maryland41

Figure 5: Population Served By Water Systems in Maryland42

Figure 6: Map of Piedmont and Poolesville Sole Source Aquifer Areas.....43

Figure 7: Floodplain Overview Map45

Figure 8: Forested Land in Maryland49

Figure 9: OMBN Route Overview56

Figure 10: OMBN Threatened and Endangered Species Habitat Map74

Figure 11: OMBN Critical Habitat Areas Map.....75

Tables

Table 1: Potential Effects of the Preferred, Aerial, Underground and No Action Alternatives.....4

Table 2: OMBN Potential Water, Bridge and Railroad Crossing Summary15

Table 3: GPS Location Data for OMBN Proposed Huts18

Table 4: Maryland Air Quality28

Table 5: Attainment Status by County (All Criterion Pollutants).....29

Table 6: Water Bodies38

Table 7: Wildlife Diversity of Maryland.....47

Table 8: Race and Poverty in Maryland57

Executive Summary

The One Maryland Broadband Network (OMBN) is a middle-mile infrastructure project in the State of Maryland, sponsored by a consortium of public and private partnerships representing 25 jurisdictions (for a complete list of jurisdictions, see Appendix J and notes 1 and 2, *below*). The project was awarded American Recovery and Reinvestment Act (ARRA) funding through the Broadband Technology Opportunities Program (BTOP) of the National Telecommunications and Information Administration (NTIA) division of the U.S. Department of Commerce.

The project is intended to provide affordable broadband services to 1,006 community anchor institutions and to facilitate last-mile connectivity to unserved and underserved households statewide. The project area spans 9,773 square miles, and will lower the barriers to entry for private operators to deploy last-mile networks throughout the State. It encompasses 25 jurisdictions, including the cities of Annapolis and Baltimore (note that Baltimore City is treated as a county for Census purposes and will be referred to as such in this document). Of those, 15 jurisdictions are relatively sparsely populated rural counties,¹ and nine are counties where the construction will be in areas that are more urban and suburban in character.² When completed, it will allow for the delivery of affordable broadband services statewide, facilitating the deployment of new and expanded broadband access for the roughly 300,000 to 600,000 underserved residents in the more rural portions of the service area. We estimate that 30 percent of the geographic area of the State is currently unserved or underserved. This includes 147 Census Blocks in the urban areas and 399 to 565 Block Groups in the rural areas.³ The OMBN

¹ Allegany, Calvert, Caroline, Cecil, Charles, Dorchester, Garrett, Kent, Queen Anne's, St. Mary's, Somerset, Talbot, Washington, Wicomico, and Worcester counties

² Anne Arundel, Baltimore County, Carroll, Frederick, Harford, Howard, Montgomery, and Prince George's counties, and Baltimore City

³ One Maryland Broadband Network, Broadband Technology Opportunities Program Application, at 11 and 34-35.

will enable these unserved and underserved residents to benefit from affordable broadband services.

The network includes approximately 1,300 route miles of underground and aerial fiber optic cables, with roughly one-third of the fiber installed aerially and the remaining two-thirds installed in underground conduit. Approximately 430 miles will be installed aerially on existing utility poles, requiring no construction in undisturbed ground. Approximately 860 miles of fiber will be installed underground. Almost all underground fiber is anticipated to be installed in already disturbed ground along public roads and across anchor site property, though some short segments may be installed across private easements when existing public roads are too rocky for underground construction to be practical. The project will require installation of regularly spaced handholes (generally measuring 2' x 3' x 3' and spaced 500' to 750' apart) to accommodate existing cross streets, fiber construction, extra cable storage, and future splicing. It will also require the erection of 18 pre-fabricated communications equipment huts (measuring 10' x 20' x 9'2") to operate the network.

A total of five alternatives were initially considered in this Environmental Assessment (EA). These include:

1. Preferred (Hybrid) Alternative—Rely on a combination of aerial and underground construction to provide approximately 1,300 route miles to adjoin 1,006 anchor institutions. This alternative includes approximately 430 miles of aerial fiber and 860 miles of underground fiber.
2. All Aerial Alternative (“Alternative B”)—Rely exclusively on aerial attachments by installing cable as new attachments to existing utility poles throughout the project area and installing new utility poles where existing poles are unavailable.
3. All Underground Alternative (“Alternative C”)—Install all new fiber below ground, using existing conduit where available.
4. Wireless Alternative—Establish a network of radio towers and microwave radios to provide wireless broadband. This alternative was excluded from consideration prior to

analysis, as it fails to adequately support the desired speeds, requires significant ground disturbance and visual impacts, and is less reliable than fiber optics.

5. No Action Alternative (“Alternative D”)—Do nothing.

This EA analyzes the All Aerial, All Underground, and No Action Alternatives relative to the Preferred (Hybrid) Alternative. The Preferred Alternative was found to provide the greatest flexibility while having the least impact on the project area. The No Action Alternative fails to accomplish the project objectives. Table 1 summarizes potential effects of each alternative for the resource areas examined.

Table 1: Potential Effects of the Preferred, Aerial, Underground and No Action Alternatives

ALTERNATIVES	RESOURCE				
	Noise	Air	Geology/ Soils	Water	Biological
Preferred	Temporary and minimal effects associated with construction and occasional maintenance. No sustained impact from operation of equipment.	Temporary and minimal increase to criteria pollutants during construction and occasional maintenance.	No impact on soil content/minimal impact on erosion during underground boring. Use of best management practices and boring alongside existing ROWs and through existing conduit will minimize impact.	Minimal impacts as fiber will either be pulled through existing conduit or be attached to existing bridges and utility poles in wetland areas and stream crossings. Best management practices will prevent erosion and discharge into adjacent wetlands where applicable.	Minor and temporary disturbance due to noise during project construction. No marginal long-term impact as project will avoid critical habitat and be limited to existing rights-of-way.
Aerial	Temporary and minimal effects associated with construction and occasional maintenance. No sustained impact from operation of equipment. During construction, impacts are slightly greater than the Preferred Alternative due to the heavy equipment needed for additional pole installations.	Temporary and minimal increase to criteria pollutants during construction and occasional maintenance. Impacts may be slightly greater than the Preferred Alternative due to the possible increased use of bucket trucks and heavy construction equipment to install and maintain additional aerial attachments and new utility poles.	Modest but permanent impact for new pole installations.	Minimal impacts as project would use existing bridge and pole attachments where possible. Somewhat greater impact than the Preferred Alternative in wetland areas that lack existing utility poles.	Minor and temporary disturbance due to noise during project construction. No marginal long-term impact as project will avoid critical habitat and be limited to existing rights-of-way.
Underground	Temporary and minimal effects associated with construction and occasional maintenance. No sustained impact from operation of equipment. Depending on available methods, impacts may be slightly greater than the Preferred Alternative due to additional construction equipment and time needed to bury cable where conduit does not currently exist.	Temporary and minimal increase to criteria pollutants during construction and occasional maintenance. Impacts may be slightly greater than the Preferred Alternative, depending on available method, due to the additional time and equipment needed for burial where underground conduit does not currently exist.	Slightly greater impacts due to increase in excavation and backfilling as compared to the Preferred Alternative. Impacts would be minimized through best management practices.	With best management practices and erosion control, impacts should be negligible (and are similar to the Aerial Alternative).	Minor and temporary disturbance due to noise during project construction. While project will be limited to existing rights-of-way and avoid critical habitats, biological impacts may be somewhat greater than the Preferred Alternative, depending on method used, in some areas due to potentially longer construction time associated with the Underground Alternative.
No Action	None	None	None	None	None

(Continued on Next Page)

Table 1. Potential Effects of the Preferred, Aerial, and No Action Alternatives (Cont.)

ALTERNATIVES	RESOURCE					
	Historical/ Cultural	Aesthetic/ Visual	Land Use	Infrastructure	Socioeconomic	Human Health/ Safety
Preferred	None	None	None	Substantial benefit from new middle-mile broadband associated with the project.	Substantial benefits for unserved and underserved communities due to the access to middle-mile broadband associated with the project. Benefits include enhanced emergency response, ability to tele-work, increased learning and educational opportunities, and job creation and long-term economic growth.	Modest impact from heightened risk of traffic accidents during project construction. Best management practices will be used to mitigate traffic interruptions and accident risks. Substantial benefits associated with improved emergency response and telemedicine enabled by middle-mile broadband network.
Aerial	Minor impact where new utility poles are required within the viewshed of historical or cultural sites. No impact where aerial attachments are made to existing poles.	For installation of new utility poles, significant adverse impact may be possible within the viewshed of scenic resources where other similar structures are not already present, as well as associated pruning of adjacent trees where required. No impact where aerial attachments are made to existing poles.	None	Substantial impact from addition of new utility poles. Also, substantial benefit from new middle-mile broadband associated with the project.	Substantial benefits for unserved and underserved communities due to the access to middle-mile broadband. Benefits include enhanced emergency response, ability to tele-work, increased learning and educational opportunities, and job creation and long-term economic growth. Somewhat lower benefits than the Preferred Alternative due to increased costs associated with installation of new poles.	Modest impact from heightened risk of traffic accidents during project construction. Best management practices will be used to mitigate traffic interruptions and accident risks. Additional negative impacts from safety risks to workers associated with installation of additional utility poles. Substantial benefits associated with improved emergency response and telemedicine enabled by middle-mile broadband network.
Underground	Impacts will be minimal, although there is a slight risk of uncovering historical or cultural resources, leading to project delays.	Minimal impact. Less aesthetic impacts than Aerial Alternative due to elimination of pole installations and attachments.	None	Substantial benefit from new middle-mile broadband associated with the project.	Substantial benefits for unserved and underserved communities of Maryland due to the access to middle-mile broadband associated with the project. Such benefits include enhanced emergency response, ability to tele-work, increased learning and educational opportunities, and job creation and long-term economic growth. Somewhat lower benefits than the Preferred Alternative due to increased costs associated with burial of new cable.	Modest impact from heightened risk of traffic accidents during project construction. Best management practices will be used to mitigate traffic interruptions and accident risks. Substantial benefits associated with improved emergency response and telemedicine enabled by middle-mile broadband network.
No Action	None	None	None	Negative impact to unserved and underserved communities of Maryland due to the loss of this opportunity to gain substantial communications infrastructure.	Substantial negative impact to unserved and underserved communities of Maryland due to the loss of this opportunity to gain access to high-speed middle-mile broadband.	Some negative impacts to unserved and underserved communities of Maryland who will not benefit from improved emergency response and telemedicine associated with high-speed middle-mile broadband service.

After a review of potential environmental impacts and consultations with the Maryland Historical Trust, the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (USACE), and several State agencies—including the Maryland Department of the Environment and the Maryland Department of Natural Resources—we **have concluded that the project is unlikely to result in significant negative or otherwise detrimental impacts to environmental resources examined in this EA, as long as it follows applicable permit processes, and uses the best management practices as outlined herein.**