Environmental Assessment

Georgia Transmission Corporation Proposed Ellijay – Roundtop 230kV Transmission Line

Across United States Army Corps of Engineers Carters Lake Project, Gilmer County, Georgia

Prepared by

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1. INTRODUCTION:

This Environmental Assessment (EA) was prepared utilizing a systematic, interdisciplinary approach integrating the natural and social sciences and the environmental design arts with planning and decision making. Under the National Environmental Policy Act (NEPA) of 1969, an EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

This EA has been prepared to evaluate the potential natural, socioeconomic, and environmental impacts of a proposed action by Mobile District, U.S Army Corps of Engineers (USACE) to grant a real estate easement to construct a new overhead transmission line across Carters Lake, a USACE reservoir.

(a) Location:

Georgia Transmission Corporation (GTC) is proposing to construct a new 17.1 mile 230 kilovolt (kV) overhead transmission line. The project is located in Gilmer County, Georgia. The proposed transmission line route generally follows existing utility rights-of-way paralleling Georgia Highway 282 for approximately 8 miles west from the town of Ellijay before it turns south along Lower Tails Creek Road and banks Road for approximately 2 miles. It also travels approximately 5 miles alongside Roundtop Road, Knight Road, Barnes Mountain Road, and Oak Hill Road in southern Gilmer County. The only cross country section is for approximately 2 miles mainly over the uppermost reaches of USACE Carters Lake Project (Figure 1).

(b) Proposed Action:

Mobile District, USACE proposes to grant an easement to GTC for the construction of a 230kV Transmission Line across portions of the Carters Lake Project. Accordingly, this EA considers impacts to USACE project lands, that is, those for which an easement is granted. The route selected for the proposed transmission line would run mostly along Campground Road in the Ridgeway Recreation Area of Carters Lake. Much of this land is already cleared for the road and follows the natural ridgeline down to the lake. The width of the easement would be 100 feet wide in most areas but at the lake itself it will expand to 125 feet wide so that lower height poles can be used before the line crosses the lake in a single 1,800 foot span. This long span will also allow for a 150 foot tree save buffer to remain around the lakeshore on both sides where no clearing or ground disturbance will be performed. Only 14 structures (in 8 locations) will be placed on USACE property. Additional smaller easements along the existing roads and logging trails will also be granted for construction and maintenance access (Figures 2 and 3). All of these easements are located on the Carters Lake Project in Gilmer County. Permission to trim danger trees in a zone along the outer edge of the right-of-way will also be included in the easement agreement. The easement boundaries, acreages, and construction activities are described in more detail in the Description of the Recommended Plan Section below.

The proposed action and associated impacts assessment considered in this EA are limited to those on the proposed easement described above. The environmental impacts associated with the remainder of the 17.1-mile transmission line are being considered in a separate EA being prepared by the Rural Utility Service (RUS) of the United States Department of Agriculture.

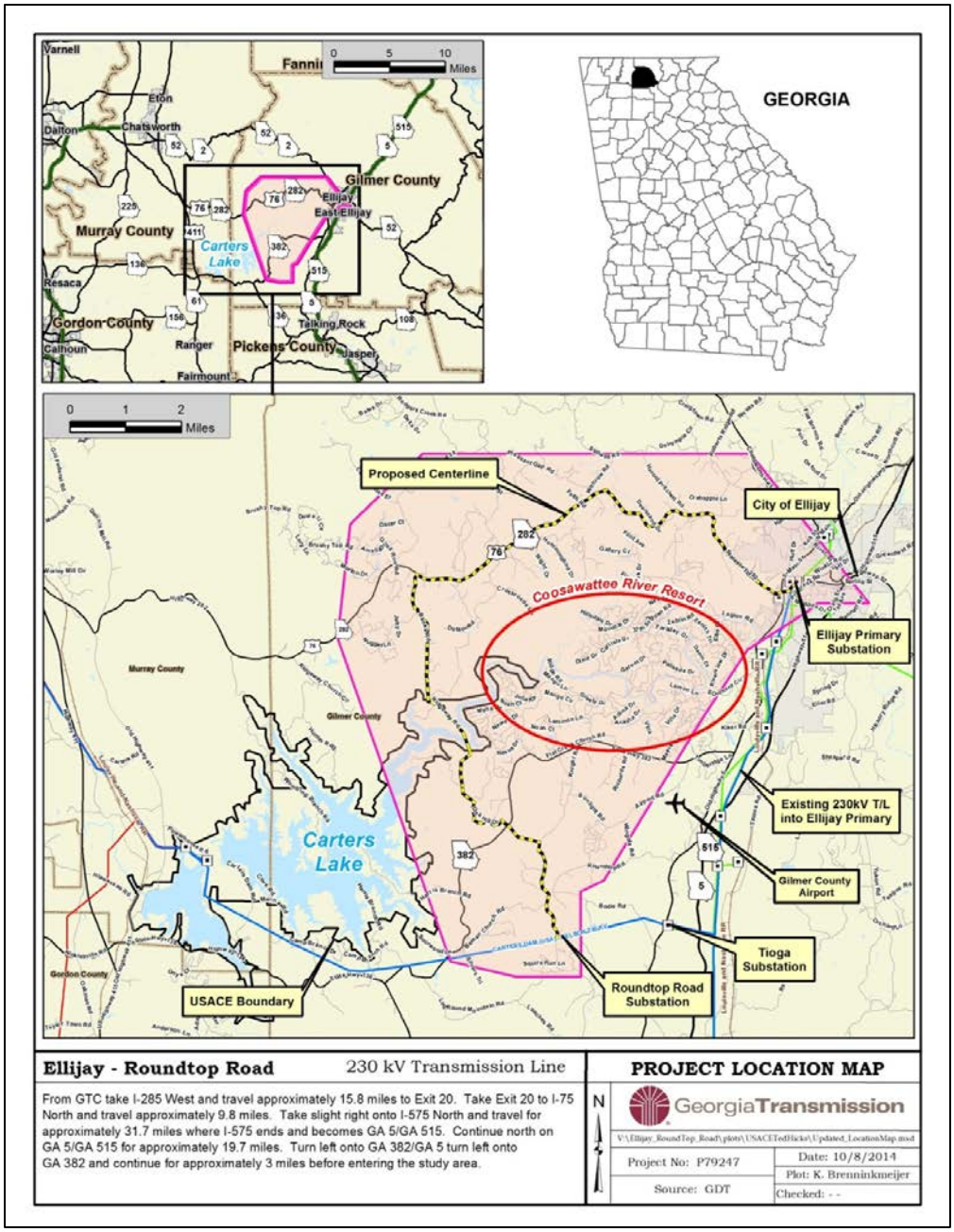

Figure 1. Project Location Map/Study Area Map

Figure 2. Proposed Outgrant Location (Aerial)

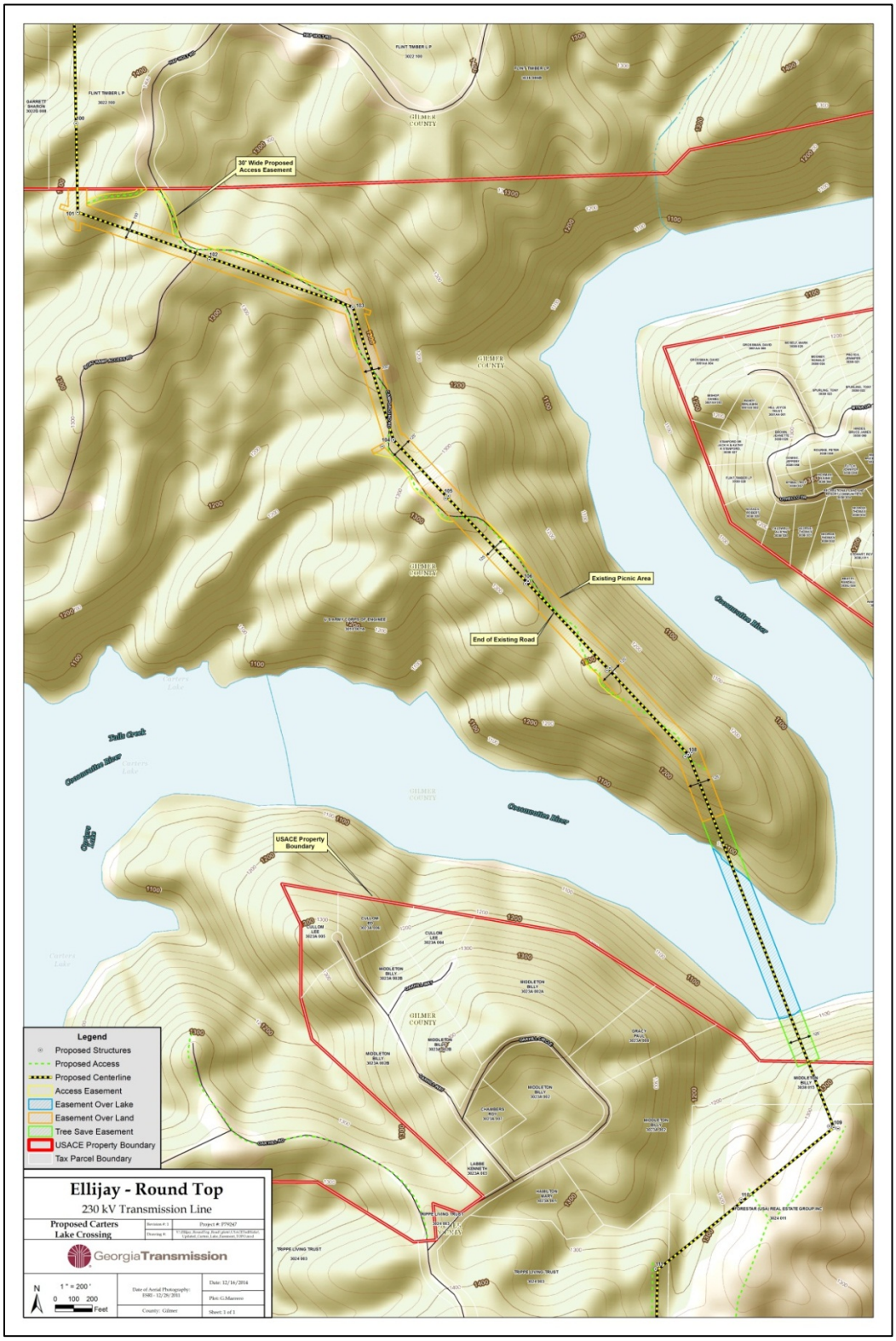

Figure 3. Proposed Outgrant Location (Topo)

(c) Purpose and Need for Action:

The current transmission lines from Tioga Substation to Ellijay Primary Substation cannot reliably provide power to residents of the Ellijay area in Gilmer County nor can it support future population or electrical load growth. The Carters Dam - Nelson 230kV Transmission Line is the source for the 230kV system in the Ellijay area. This 230kV transmission line conveys power from the Carters Dam and other generators to the Tioga 230kV Substation. From Tioga Substation, a 230kV radial tap extends north for 7.68 miles to Ellijay Primary 230kV Substation. In the current configuration, there is no operational redundancy in this 230kV system to address contingencies. The only backup system, the 46kV system, is attached as an underbuild (i.e. the use of one pole structure to carry two different voltages at different heights) to 35 of the 230kV structures, making the Ellijay area vulnerable to common structure and common corridor outage contingencies (Figure 1).

The proposed Ellijay - Roundtop 230kV Transmission Line is needed to remedy the electric reliability issues in the Ellijay area of Gilmer County. The current risks of long-duration outages and interruptions of service in the Ellijay area are unacceptably high. Ellijay and Gilmer County's residents and businesses are exposed to risks of electrical power outages due to disruptions by weather related events or equipment failure. Due to the absence of an alternative electrical source, restoration efforts are constrained in this region of difficult terrain and limited highway access.

The GA ITS is an acronym for the Georgia Integrated Transmission System. The Georgia ITS Participants include Georgia Transmission Corporation, Georgia Power Corporation, the Municipal Electric Authority of Georgia (MEAG Power), and Dalton Utilities. The GA ITS is responsible for evaluating alternatives in terms of system impact, cost, and ability to provide a long term solution. The subcommittees of the Georgia ITS meet monthly to evaluate and approve preferred methods to address the electrical needs of Georgia.GA ITS planners consider the outage contingency situation for Gilmer County (complete loss of the main 230kV transmission line and its backup 46kV lines) to be a "*low-probability, high-consequence event*", because it places the Ellijay area electrical system and service at risk. The Ellijay area is particularly vulnerable to three specific types of outage contingencies:

- A *structure contingency* exists when a transmission line structure carries both 230kV and 46kV conductors and the failure of a single pole structure would disable power.
- A *corridor contingency* exists when the 230kV and 46kV transmission lines are located on separate pole structures but occupy the same transmission line corridor and are close enough to be disabled simultaneously as in a storm event.
- A *bus contingency* exists at the 230kV bus at the Tioga Substation due to the fact that all 230kV sources serving the Ellijay area terminate at this bus. The term bus refers to an electrical junction, a physical bar made of aluminum, where conductors are terminated within a substation. A bus contingency would be any failure of this bus to perform its intended function, i.e. serve as a termination point and to allow power flow to other connected circuits.

As a result, electrical outages in the Ellijay area can result in electrical power failures, a loss of 50-85 Mega Volt Ampere (i.e. 50-85 million Volt-Amperes or MVA) of load and long-duration outages, sometimes up to 24 hours. Invariably, the consequence of such disruptions in electrical service could create significant hardship for residential consumers as well as economic losses for commercial and industrial customers in the Ellijay area.

The Ellijay - Roundtop 230kV Transmission Line would provide redundant, i.e. looped, transmission service to the Ellijay area (Figure 1). This proposed transmission line would eliminate structure, corridor and bus contingencies and would provide a connection for a future substation in the Pleasant Gap area (Pleasant Gap 230/46/25kV Substation) to offload GTC's existing Boardtown Substation. It would provide more flexibility for serving future customers north and south of Carters Lake. In addition, it would provide a backup to the Roundtop Road - Tioga 230kV Transmission Line segment which would result in an alternate path for generation from Carters Dam that could be used during the infrequent but required maintenance periods. Additionally, by utilizing both private and USACE land, the transmission project will avoid certain sensitive environments, as well as large residential communities along the Coosawattee River.

(d) Authority:

Carters Dam Project was authorized by the River and Harbor Act (PL 79-14), adopted 2 March 1945, as a part of the ultimate plan of development of the Alabama-Coosa River System. It was initially authorized through the Flood Control Act of 1944 (PL 78-534) enacted in the 2nd Session of the 78th Congress, as amended in 1946 and 1959. As authorized, the Carters Dam Project is a multipurpose project, which includes flood control, water quality, and hydroelectric power. Other purposes are the development and conservation of fee-owned lands for public use and enjoyment. The Fish and Wildlife Coordination Act of 1959 (PL 86-717) established additional purposes for the protection and development of forest and other vegetative cover and the establishment and maintenance of other conservation measures so as to yield maximum benefits and otherwise improve areas.

33 U.S.C. 408 authorizes the Secretary of the Army to permit alternations/modifications to existing USACE projects in certain circumstances. EC 1165-2-216, dated 31 Jul 2014 provides that outgrants issued pursuant to the procedures in ER/EP 1130-2-550, Chapters 16 or 17 ensure the requested alteration in the outgrant request will not be injurious to the public interest and will not impair the usefulness of the project; thus, meeting the intent of Section 408. The Secretary of the Army has delegated this approval authority to the Chief of Engineers.

(e) Public Involvement:

The National Environmental Policy Act of 1969, 42 U.S. Code (USC) 4321 et seq. (NEPA) requires that the public be involved in the decision making process on Federal actions. Consideration of the views and information of all interested parties promotes open communication and enables better decision-making. All agencies, organizations, and members of the public having a potential interest in the proposed action are urged to participate in the decision-making process.

Coordination with the general public is being accomplished by making the Draft EA available electronically. The documents are available on the Corps, Mobile District website with a stated 30-day comment period that ends February 17, 2015. Comments received by that date will be considered and discussed in Section 9 of this EA. As a result of evaluation of comments, this EA may be edited, followed by a decision to sign a FONSI, or alternatively, prepare an Environmental Impact Statement or to not proceed with the proposed action.

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT:

(a) General Environmental Setting

The portion of the project proposed on USACE lands is located within the Coosawattee (HUC 03150102) Watershed. According to the EPA website the proposed project lies in the Blue Ridge Level III Ecoregion, which is concentrated in the northern edge of the state.

Blue Ridge Level III Ecoregion Description: This region varies from massive mountains to narrow ridges with hilly plateaus in a mostly forested sloping terrain. There are high gradient cool clear streams throughout the region and rugged terrain. Natural vegetation in the area includes oak forests, northern hardwoods, shrub, grass, hemlocks, cove hardwoods and oak-pine communities in significant numbers. Geological materials are mostly a mix of igneous, metamorphic, and sedimentary geology from the late pre-Cambrian period including examples of slate, quartzite, schist, and gneiss.

The project area has undergone numerous anthropogenic impacts in various stages in the past. The most evident being the creation of Carters Lake reservoir in the 1960's and 1970's by impounding the Coosawattee River Gorge. The existing USACE project was created and designed to meet authorized purposes of flood control and power generation with recreation being considered an additional benefit. The site of the proposed easement, the Ridgeway Recreation Area, was designed to provide for two specific types of recreation. A day use area with picnic sites and a boat launch ramp was built in the western section, and a primitive campground was built in the eastern section. Paved roads were cut along ridgelines in the western and eastern sectors to provide access to these two aforementioned activities with cleared shoulders, multiple parking lots, and restrooms. Mountain biking trails were added later in the entire Ridgeway area. Mountain bikers and hikers access these trials form both the eastern and western sections of the park

(b) Resource Description

(1) Water Quality

Water quality of Carters Lake and the adjacent streams within the boundaries of the proposed easements are typical of others in the state. Carters Lake is on the Georgia 303(d) list of impaired waters due to Total Phosphorus. A TMDL has not been prepared by the State of Georgia Department of Natural Resources.

(2) Aquatic Resources

The footprint of this proposed transmission line crosses the upper reaches of Carters Lake where it meets the Coosawattee River in habitat that is suitable for fisheries resources. The water here is warmer than the rest of the lake due to the shallow draft of the Coosawattee River before it empties into the deep basin of Carters Lake. Sport fish in Carters Lake include largemouth bass (Micropterus salmoides), spotted bass (Micropterus pinctulatus), crappies (pomoxis spp.), catfish (ictalurus spp.), Coosa darter (Etheostoma coosae) and chub (Macrhybopsis spp.). Other common invertebrates include crayfish and mussels such as Coosawattee crayfish (Cambarus coosawattae), Beautiful crayfish (Cambarus speciosus), and Etowah Heelsplitter (Lasmigona etowaensis).

(3) Wildlife Resources

The Carters Lake Project lands provide habitat for several types of wildlife. The USACE property at Ridgeway Recreation Area is managed by the Georgia Department of Natural Resources as a wildlife management area, part of the greater Coosawattee Wildlife Management Area which has several distinct units in Gilmer and Murray Counties. The Ridgeway Unit where the proposed easement is located is managed as a hunting area for bear, deer, turkey, and small game species. The areas provide habitat for several species such as white-tailed deer (Odocoileus virginianus), squirrels (Sciurus carolinensis), turkey (Meleagris gallopavo), Eastern cottontail rabbit (Sylvilagus floridanus), beaver (Castor Canadensis), raccoon (Procyon lotor), opossum (Didelphis virginiana), and fox (Vulpes vulpes).

(4) Wetlands

A wetland delineation and jurisdictional determination were completed on USACE lands by Wetland and Ecological Consultants on October 11, 2011 and later, by the same firm under its new name, Corblu Consultants, on August 21, 2014. The first survey captured a proposed western route. The second survey captured a proposed eastern route. Neither survey found any wetlands on the proposed routes on USACE property at Carters Lake (Appendix E).

(5) Endangered Species

In addition to the surveys conducted by Wetland and Ecological/Corblu Consultants for wetlands, they also conducted an environmental assessment for threatened and endangered species at the same time. That survey included the entire 17-mile route of the proposed transmission line. Table 1 describes those species listed by United States Fish and Wildlife Service (USFWS) as threatened or endangered and known or believed to occur in Gilmer County and the availability of habitat capable of supporting the species. Wetland and Ecological/Corblu Consultants did not observe any listed species at the times of their surveys but did note there was potential habitat for the Small Whorled Pogonia on the western route. A survey was conducted again on the western route during the pogonia's flowering season by a biologist of the Atlanta Botanical Garden in July 10-13, 2013 and none were found. Furthermore, during the period of environmental assessments conducted as part of the research for this EA, USFWS also recommended two additional species for listing as threatened and/or endangered in Gilmer County. As a consequence, surveys were conducted in June 2014 by Terracon Consultants for the Indiana Bat and the Northern long eared. Again, no species were found but suitable habitat is present and USFWS requested all tree clearing be conducted in winter months (October 16 – March 31) to avoid any potential adverse

effect (see Appendix E, survey reports). Specifically, for the proposed easement crossing of USACE lands, no listed species or their designated Critical Habitat occur.

Table 1 Threatened and Endangered Species of Gilmer County

Gilmer County, Georgia					
Group	Species	Federal Status	State Status	Habitat Available	Notes
Invertebrates	Coosawattee Crayfish (Cambarus coosawattae)	NA	Endangered	None known	No work in water
Invertebrates	Beautiful Crayfish (Cambarus speciosus)	NA	Endangered	None known	No work in water
Fish	Blue Shiner (Cyprinella caerulea)	Threatened	Endangered	None known	No work in water
Fish	Holiday Darter (Etheostoma brevirostrum)	NA	Endangered	None known	No work in water
Fish	Coosa Chub (Macrhybopsis aestivalis)	NA	Endangered	None known	No work in water
Fish	Goldline Darter (Percina aurolineata)	Threatened	Endangered	No	No work in water
Amphibians	Eastern hellbender (Cryptobranchus alleganiensis)	NA	Threatened	Yes	No work in water
Plants	Goldenseal (Hydrastis canadensis)	NA	Endangered	None known	None found in project limits
Plants	Georgia Aster (Symphyotrichum georgianum)	NA	Threatened	Yes	None found in project limits
Plants	Broadleaf Tickseed (Coreopsis latifolia)	NA	NA	None known	None found in project limits
Plants	Pink Ladyslipper (Cypripedium acaule)	NA	NA	None known	None found in project limits
Plants	Small Whorled Pogonia (Isotria medeoloides)	Threatened	Threatened	Not on Eastern Route	None found in project limits
Plants	Sweet Pinesap (Monotropsis odorata)	NA	Threatened	Yes	None found in project limits
Plants	Green Pitcherplant (Sarracenia oreophila)	Endangered	Endangered	None known	None found in project limits
Plants	Starflower (Borago officinalis)	NA	Endangered	None known	None found in project limits

(6) Land Use

Land uses in the USACE lands affected by this proposal include forested recreation lands and a riverine recreational reservoir. There are picnic areas with parking spaces and restrooms in the affected areas as well as hiking and biking trails, wildlife food plots, and both paved and unpaved maintenance and access roads. Land use in the local area is dominated by second growth forests with pine plantations and

residential cabin/second home developments scattered about. There is very little industry in Gilmer County other than poultry and apple farms and these operations as well as most commercial activities are clustered along the main highways near Ellijay, 10 miles distant. Agricultural row cropping, never very practical in the steep areas near the lake, is almost non-existent.

(7) Cultural Resources

Historic Preservation Consulting (HPC) conducted Phase I, Phase II, and Phase III Studies for the entire length of the Ellijay-Roundtop 230kV Transmission Line. None of the historic structures identified in these reports were on USACE lands.

Southeastern Archeological Services (SAS) conducted an archeological survey for cultural resources on February 3, 2011 and later on July 17, 2014. The first survey captured a proposed western route. The second survey captured a proposed eastern route. Neither survey identified cultural resources eligible for the National Register of Historic Places. The results of those surveys and the ARPA permits from USACE are included in Appendix C.

(8) Recreation

There are several recreational activities that occur in the Ridgeway Recreation Area. Boating, fishing, camping, picnicking, hiking, biking, and hunting all occur in this unit of Carters Lake. The boating area is mainly on the western edge of the Ridgeway Recreation Area near the boat ramp where Tails Creek empties into Carters Lake and then from this point south into the main body of Carters Lake. Boating activity will not be physically affected by the transmission line as the line will be over 250 feet above the normal pool of the lake. The forested areas away from parking areas are laced with mountain bike trails and hiking trails and a few wildlife food plots. Fishing is practiced along all lake areas in the Ridgeway Unit that front the lake and from boats within the impoundment.

(9) Air Quality

The project is not within a Clean Air Act national Ambient Air Quality Standards non-attainment area under current standards. Air quality is very good in Gilmer County (96 out of 100) according to the Environmental Protection Agency based on number of Ozone alert days and the number of pollutants found in the air.

(10) Socioeconomic Resources

The Carters Lake Project lands and surrounding areas are largely forested lands with very low density single family residential developments, mainly to the east. There are a few commercial improvements along the main state routes concentrated mostly near the town of Ellijay with large scale poultry and apple farming as the main local industries. Timber companies planning to eventually develop lands as residential communities currently manage large tracts of adjacent lands. Population growth has been in the double digits since the 1970's however the poverty rate remains at 23% due to the lack of well-paying jobs in the area. Economic activity is constrained by the lack of investment in infrastructure such as electrical, sewer and water utilities beyond the towns of Ellijay and East Ellijay. The demographic profile of Gilmer County is mostly white (93%) and relatively young with a median age of 37.

(11) Hazardous and Toxic Materials

No hazardous and toxic materials were discovered during the environmental assessment of the USACE project lands subject to the proposed action. No formal site assessment was made but visual inspection of the property was conducted by several surveyors, ecologists, and archeologists on multiple occasions and no evidence of contamination was found.

(12) Geology and Soils

The soils identified by soil maps indicate that Tallapoosa, Talladega, Madison, and Tusquitee soils are present. The Madison series consists of well drained, moderately permeable soils that are very deep to bedrock. Madison soils are mainly silt/loam or loam and found on gently sloping to steep uplands. Slopes are mostly between 4 and 15 percent, but range from 2 to 60 percent. Organic matter content in the surface horizon is about 1 percent. The Tusquitee series consists of very deep, well drained soils on gently sloping to very steep benches, foot slopes, toe slopes, and fans in coves in the Southern Blue Ridge mountains. Slope ranges from 2 to 95 percent. These soils are fine sandy loam, sandy loam, loam, or sandy clay loam. Runoff class is low on gentle slopes, medium on strong on moderately steep slopes, and high on steeper slopes. Runoff is lower where forest litter has not been disturbed or had only partial disturbance. The Organic matter content in the surface horizon is about 6 percent. The Tallapoosa series consists of shallow, well drained, moderately permeable soils found on narrow ridges and sideslopes of the Piedmont Plateau. Slopes range from 5 to 80 percent. Runoff is medium to rapid. Permeability is moderate and the soils are sand, fine sandy loam, loam, or silt loam. The Talladega series consists of shallow to moderately deep cyclic upland soils found on narrow ridgetops and sideslopes chiefly of the Blue Ridge. Slopes range from 6 to 80 percent and steep gradients are dominant except on ridgetops which are less sloping. Talladega soils are channery silt loam, well drained. Runoff is medium to rapid and permeability is moderate. All of these soil are classified as posing severe constraints to construction due to steep slopes and susceptibility to erosion in the Gilmer County Comprehensive Plan.

(13) Noise

There are no specific studies related to the existing noise conditions in the residential areas near the project site. However, noise levels are considered typical of low-density residential areas in suburban and rural areas. Such areas typically have very low noise levels.

(14) Aesthetics

During project planning the potential visual impact of a route across USACE property was considered. Variables considered included: distance to the viewer, amount of the transmission line infrastructure visible to the viewer, whether the infrastructure would be seen against backdrops (vegetation, terrain, man-made elements) or silhouetted against the skyline, the amount of vegetative modification within the easement compared with surrounding landscapes, and the overall scenic condition (landscape content or context) of the area.

To analyze the potential visual impacts of a proposed route across USACE property, GTC engaged the services of the Truescape Company to develop before and after visualizations of the proposed transmission line design. Although only the western route was analyzed initially, it was considered indicative of the outcome on the eastern route as well due to the similar topography, similar forest canopy

heights, and similar pole height designs. These visualizations included animated simulations and still photography in the Ridgeway Recreation Area. One of the products depicted a "before and after" drive down the Ridgeway Recreation Area while the other showed "before and after" views of boating on the lake. To illustrate the post-construction views, photos of the proposed transmission line infrastructure were graphically superimposed on the existing (before) landscape photographs. The results of these visualizations showed that the proposed transmission line will be visible in the Ridgeway Recreation Area and the lake channel, but it will not be visible from the majority of all other areas. These results were displayed to the public at a public open house on September 4, 2014.

(15) Environmental Justice

An environmental justice survey of the entire study area was conducted by Wetland and Ecological Consultants looking at minority and poverty data from the U.S. census and the Environmental Protection Agency's methodology. No environmental justice communities were found along the entire transmission line corridor from Ellijay to Roundtop Road. The USACE property at Carters Lake is unoccupied and therefore not eligible to qualify as an environmental justice area. The residential areas around Carters Lake also do not qualify as environmental justice areas.

(16) Prime and unique Farmlands

Prime farmland, or areas with soil types that are most suitable and productive for agricultural purposes, was identified and mapped by the Soil Conservation Service (SCS) in 1978 for Gilmer County. There are over 7,000 acres considered to be of prime significance in the county. Most of these prime lands generally conform to major alluvial drainage areas along the Cartecay and Ellijay Rivers, as well as Mountaintown Creek. Much of this land has already been developed for purposes other than agriculture. In terms of the transmission line corridor, there are some prime farmlands in downtown Ellijay and along Highway 282 in isolated floodplains. There are none at Carters Lake or south of the lake.

(17) Floodplains

There are no floodplains on USACE property in the vicinity of this proposal. The nearest floodplains are upstream of Carters Lake on the banks of Tails Creek and the Coosawattee River on private lands.

3. DESCRIPTION OF THE RECOMMENDED PLAN:

Mobile District, USACE, proposes to grant an easement to GTC for construction of a 230kV transmission line across portions of the USACE Carters Lake Project (Figures 2 and 2a). Accordingly, this EA considers impacts to USACE project lands, that is, those for which an easement is proposed. The route selected for the proposed transmission line would run across the Ridgeway Recreation Area starting in the north near the end of a logging trail off of Hap Holt Road near the property boundary. The 100 foot wide easement would then head southeast following the ridgeline and Campground Road, making as few zig-zag turns as possible to minimize clearing and the number of structures needed. Approximately ½ mile north of Carters Lake the easement expands to 125 feet wide to allow for lower h-frame and 3-pole guyed structures to minimize visibility from neighboring properties. Finally, it spans Carters Lake in one 2,100 foot span. The easement will total 1.25 miles and consist of 19.13 acres. Clearing will be limited to 13.75 acres on USACE lands with the stipulation that a minimum 150 foot tree save buffer will be maintained on both sides of the lakeshore where no clearing will occur. Only ten (10) structures will be

located on USACE property. These will be mostly self-supporting single pole structures of steel or concrete, although some may require guys and/or stub pole supports. Approximately 1,200 feet of new access road construction will be necessary to construct and maintain the transmission line and these will be co-located with previously existing logging/maintenance trails. Table 2 summarizes the proposal's attributes. The proposed action also includes access use rights along the existing Campground Road and Hap Holt Road (plat maps in Appendix D). A danger tree trim zone will also be required along the outer edge of the transmission line right-of-way.

Table 2 Description of Project on USACE Property

Category	Eastern Route
Total Easement Acreage:	19.13
Total Clearing Acreage:	13.75
Total Length Mileage:	1.25
Total Length Clearing Mileage:	0.98
Number of Poles:	14
Feet Length of New Access Road Construction:	1,248'
Feet of ROW Co-locating with Roads:	1,836'
Feet of ROW Along Trails:	555'
Height of Wire (Above Lake Waters at normal pool):	255'
Length of Longest Span (Above Lake Waters at np):	862'
Length of Longest Span (USACE Lands & Waters):	1,780'
Total Length of Longest Span (From Pole to Pole):	2,165'

Danger Tree Zone

In accordance with North American Electric reliability Corporation (NERC) safety and reliability standards, GTC will also maintain a danger tree zone for any tree near the right-of-way that could potentially fall onto a pole or wire. Only trees that present an imminent threat to the safety of the power line will be cut. Generally speaking, the outside phase/conductor/wire is a safe distance from the edge of right-of-way. The danger tree zone is an additional buffer which provides the means to selectively cut outlier trees that are tall enough to pose a threat to safety and reliability. The removal of danger trees is performed by the use of chainsaws, not mechanized land clearing equipment. After initial identification and removal of danger trees (during right-of-way establishment), the line is surveyed every 5-7 years to identify any trees which would require removal. The danger tree buffer extends outside of the proposed easement footprint. Maintenance of the danger tree buffer on USACE property will be limited to the methods described above and particular language contained in easement documents concerning prior notification of USACE staff before trimming.

General Description of Construction Methods

The project construction sequence for the line, including those portions on USACE lands, begins with clearing of the new portion of the right-of-way corridor with typical clearing equipment appropriate for the location based on access, topography, weather, etc. Access control measures such as fences and locked gates will be employed to protect USACE property and the safety of the general public during and after construction. These measures will be developed in concert with USACE staff and be included in the mitigation plan appended to the easement documents. Fill roads and pads used for clearing, line construction, and future maintenance will be installed at this time. Having access established early in the construction sequence by constructing permitted fill roads reduces the potential for unintended schedule impacts. Following clearing, site stabilization will take place as outlined in the Erosion Sedimentation and Pollution Control Plan (ES&PC Plan) as required by the Georgia National Pollutant Discharge Elimination System (NPDES) Construction Permit. Georgia State Certified Personnel will be on-site to assist in the implementation of the erosion and sedimentation control measures outlined in the ES&PC Plan. Line construction will follow the clearing activities which will begin with the structure placement and installation of any associated guy anchors. Once a series of structures are constructed, conductor and overhead shield wire will be pulled to complete the section. Erosion and sediment control measures will be implemented until Final Stabilization is achieved and a Notice of Termination is submitted to Georgia Environmental Protection Division.

There will be a 150 foot tree save buffer on either side of Carters Lake. No ground disturbing activities will occur in this buffer. Avoidance for the need of Section 404 permitting was considered during the design and planning for this project. As currently proposed there will be no fill in any waters or wetlands of the United States on USACE property at Carters Lake. Clearing and construction crews will make use of existing access roads and former logging trails leading to and within the boundaries of the right-of-way corridor to reduce the number of new roads. All new roads or rebuilt logging trails will not cross any waters of wetlands of the United States on USACE lands.

4. ENVIRONMENTAL IMPACT OF THE RECOMMENDED PLAN:

General Physical Impacts

Impacts to USACE project lands are associated with creating a new GTC transmission line right-of-way. As described above, the right-of-way will be cleared of trees and access roads will be installed in pre-existing locations to facilitate access to the structure locations and future maintenance. Permanent physical impacts will also include the installation of poles and guys at regular intervals, which maintain proper clearance for the conductor, and the installation of gates, guard rails, and fences to control access.

(a) Water Quality

Surface and subsurface hydrology is not expected to be affected significantly, and surface modifications do not limit or preclude the habitat functions of adjacent and surrounding areas. It is not expected that the proposed project would further impair the lake with regard to Total Phosphorous.

The NPDES Stormwater General Permit Notice of Intent (NOI) for Construction Activities will be submitted to Georgia Environmental Protection Division prior to land disturbance occurring on USACE project lands. The Certified Erosion Sedimentation & Pollution Control Plan (ES&PC) Plan will be

implemented to meet requirement of the NPDES stormwater permit. Certified personnel will be onsite to do inspections as outlined in the permit. Once final stabilization is achieved, a Notice of Termination will be submitted to Georgia EPD.

EPD 401 Water Quality Certificate

All general and special conditions set forth in the Water Quality Certificate will be followed. In light of minimal direct water quality impacts and the safeguards associated with EPD's authorizations, we find that there is no significant impact to water quality.

(b) Aquatic Resources

The proposed project will have no direct impacts on fishery resources. All habitats within the project footprint, where construction will occur, are terrestrial habitat. There are instances where the transmission line will cross aquatic habitat suitable for fisheries but there will be no construction below ordinary high water. In areas in close proximity to aquatic habitat, BMPs will be used to ensure aquatic species are not adversely affected.

(c) Wildlife Resources

The proposed project will have only temporary impacts on wildlife resources during construction. All habitats within the project footprint, where construction will occur, are terrestrial habitats. The wildlife species present in the Ridgeway area will not be precluded from finding habitat once the project is completed. The newly cleared right-of-way will also provide grassed foraging zones after a period of time.

(d) Wetlands

No wetlands on USACE property will be affected by this proposal.

(e) Endangered and Threatened Species

Section 7 consultation with USFWS was initiated in August-September 2011 via email. USFWS responded in a letter dated September 8, 2011 (Attachment in Appendix E) stating the project has potential to effect the Goldline darter in the streams that feed Carters Lake. This potential effect is not included in the proposed easement area, nor do Goldline darters or their habitat occur within Carters Lake. There are recommendations outlined in the USFWS correspondence that identify Best Management Practices (BMPs) and other actions to control erosion and minimize impacts to aquatic systems. GTC plans to implement these recommendations on USACE lands as well, where applicable. Further consultation with USFWS was required in Summer 2014 both to survey a new alternative route across USACE property and to follow up on new species of concern (Indiana and Long eared bats). No further adverse effects were anticipated as long as GTC follows the additional BMP of limiting clearing to winter months on USACE lands recommended by USFWS. This correspondence is included in Appendix E as well.

USACE followed up with USFWS by e-mail dated 22 December 2014 requesting concurrence that the proposed crossing of USACE lands would likely affect but not be likely to adversely affect any listed species. USFWS concurred by e-mail dated 6 January 2015.

(f) Land Use

Land use changes to USACE project lands are associated with constructing a new GTC transmission right-of-way through the Ridgeway recreation Area. As a result of clearing of the forested project limits and routine vegetation maintenance, the lands will be converted from a forested system to a shrub/scrub environment. Currently Georgia Department of Natural Resources manages the area as a hunting zone for bear, turkey, and small game. Part of the actively managed areas is cleared wildlife food plots which are seeded on a regular basis. No food plots will be affected by the proposed project and additional clearing will allow for additional foraging habitat for these species, even if passively managed. Therefore, no adverse land use impact is anticipated due to land use changes.

(g) Cultural Resources

Cultural resource surveys were performed on USACE project lands that could be affected by the proposed project. No cultural resources were identified which would qualify as eligible for nomination to the National Register of Historic Places, thus no effects to cultural resources are expected on USACE property as a result of the proposed action. (Appendices C.1.-C.5.).

(h) Recreation

To the extent that any hunting, hiking, biking, or boating may occur in the Ridgeway Recreation Area in areas where there will be construction, there is nothing about the proposed project that would limit such activity. The proposed facility will not be visible to boaters from the boat ramp but will be visible from boaters in the main channel of the lake directly underneath and beside the corridor right of way. The main objects seen will be marker balls on the conductor wire. The main facilities for these activities are mostly in the western sector of the Ridgeway Recreation Area and will not be affected by the proposed easement. Only one off-pavement bike trail will be crossed by the proposed easement. The primitive campsites and associated amenities in the Ridgeway camping area will be mitigated for by renovation of existing degraded campsites and associated amenities in the Woodring Branch Primitive Campground. Therefore, we conclude there is no significant impact to recreational opportunities.

(i) Air Quality

Construction of the project on USACE lands will generate both combustive emission from heavy equipment and fugitive dust emissions from ground-disturbing activities. Uncontrolled fugitive dust emissions, including particulate matter less than 10microns in diameter, will be temporary, localized and occur in sparsely populated rural areas. Therefore, impacts of fugitive dust on air quality and the human environment should be short term and minor.

Combustive emissions associated with the project will be short-term and insignificant in volume. Gilmer County is not in an EPA designated Non-attainment area for air quality therefore, a formal conformity determination is not required.

In light of the temporary and minor nature of fugitive dust and combustive emissions, we find that there is no significant impact to air quality.

(j) Socioeconomic Impacts

No negative socioeconomic impacts from the proposed project are anticipated individually or cumulatively. No homes will be relocated and no commercial sites will be affected. The recreational boating facilities at Carters Lake will continue to function during construction and the campground facilities at Ridgeway will be relocated to the Woodring Branch Campground to accommodate the new power line. Biking and hiking will resume once construction is complete in the eastern portion of the Ridgeway area.

(k) Hazardous and Toxic Materials

The project does not involve or require creation or disposal of hazardous and/or toxic materials.

(l) Geology and Soils

No negative impacts to the geology and soils of the USACE property are anticipated. Construction will require minimal boring at pole location sites which have been carefully placed to avoid erosion of soil and demolition of rock outcrops. Best management practices to control water runoff will be employed at all critical locations on USACE lands to avoid erosion and sedimentation. Additional precautions will be written into the BMPs in consultation with USACE staff.

(m) Noise Impacts

Typical construction noise will be limited to the timeframe of clearing and construction. The noise will be that of machinery associated with cutting timber, dumping and grading material, construction of poles, and pulling wire. All of these are anticipated to be minor, temporary, and in low-population areas. Accordingly, we find that there is no significant impact associated with noise on the Carters Lake Project lands.

(n) Aesthetics

During project planning at the request of the USACE, the potential visual impact of a route across USACE property was analyzed by GTC as previously described in Section 2(14). Variables considered included: distance to the viewer, amount of the transmission line infrastructure visible to the viewer, whether the infrastructure would be seen against backdrops (vegetation, terrain, man-made elements) or silhouetted against the skyline, the amount of vegetative modification within the easement compared with surrounding landscapes, and the overall scenic condition (landscape content or context) of the area.

During a public workshop on September 4, 2014, GTC and USACE presented two final route alternatives for the lake crossing at Carters Lake. The western route would follow Boat ramp Road in the Ridgeway Recreation Area south to cross the lake while the eastern route would follow Campground Road in the Ridgeway Recreation Area south to cross the lake. Some nearby property owners expressed concern about the visibility of the proposed transmission line along Campground Road to their homes across the lake gorge compared to the western route, which cannot be seen from the gorge. After the meeting, GTC in concert with USACE developed a new design that used the same corridor on Campground Road but reduced pole heights by up to 50%. For more details refer to Appendix D Plat Maps, Plan and Profile Drawings, and Transmission Structures Specifications.

Subsequent visual analysis indicates that the nearest poles to the subdivision should not be as noticeable from parcels in the Coosawattee River Resort as the original design due to their lowered design heights (yellow squares in Figure 3 and the circled locations in Figures 4, 5, and 6). The main component of the electrical infrastructure visible from the Coosawattee River Resort should be the conductor wires across the lake and possible Federal Aviation Administration (FAA) transmission line safety requirements such as marker balls (blue squares Figure 3). This visibility analysis was conducted using best available data developed from United States Geological Survey (USGS) digital elevation models and tree canopy heights derived from aerial imagery. These data combine topography elevations, leaf-off winter conditions, and top of tree to top of pole to top of wire marker balls sight lines (i.e. if there is a completely unobstructed view between the top of the infrastructure to the top of the existing trees then visibility was color coded on the map. Houses and viewers below tree tops are assumed to have screened vegetative obstructions between them. FAA regulations will be addressed but, at present, are not known. Should such be required, GTC may include lights as may be stipulated.

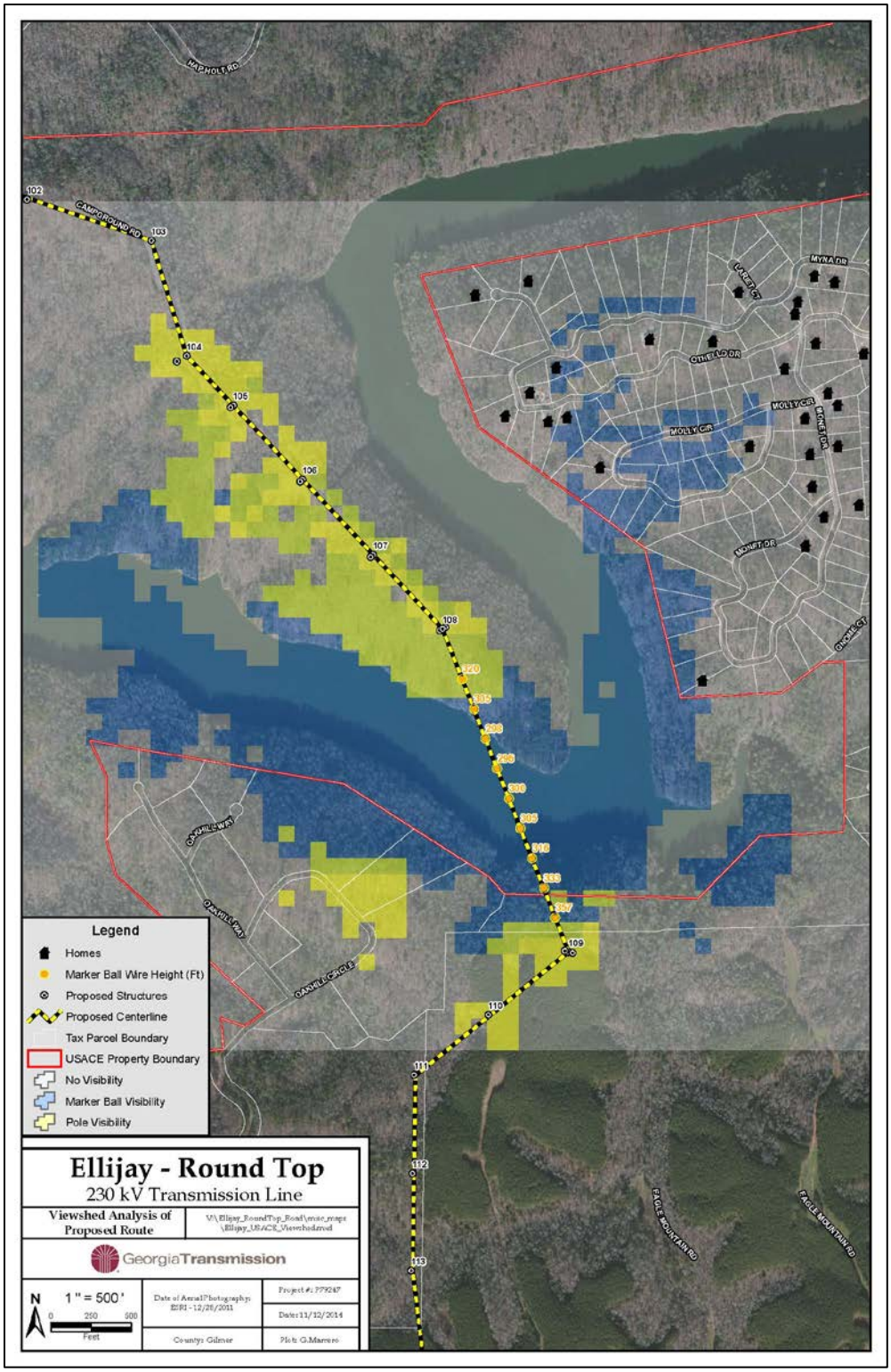

Figure 4. Viewshed Analysis Results

In order to better show how the new lower pole height design minimizes visibility, GTC performed field photography from the Coosawattee River Resort from the two locations where built homes are nearest to the proposed line. Balloons of different colors were tied to pins at the exact pole locations and the string lengths were measured to correspond to the original (red) and new (Blue) pole heights. Although the new poles will be H-frame design requiring two supports, the reduction in heights along the horizon are already noticeable in Figures 5 and 6. Figure 4 shows the locations of the viewer in the photos depicted by Figures 5 and 6.

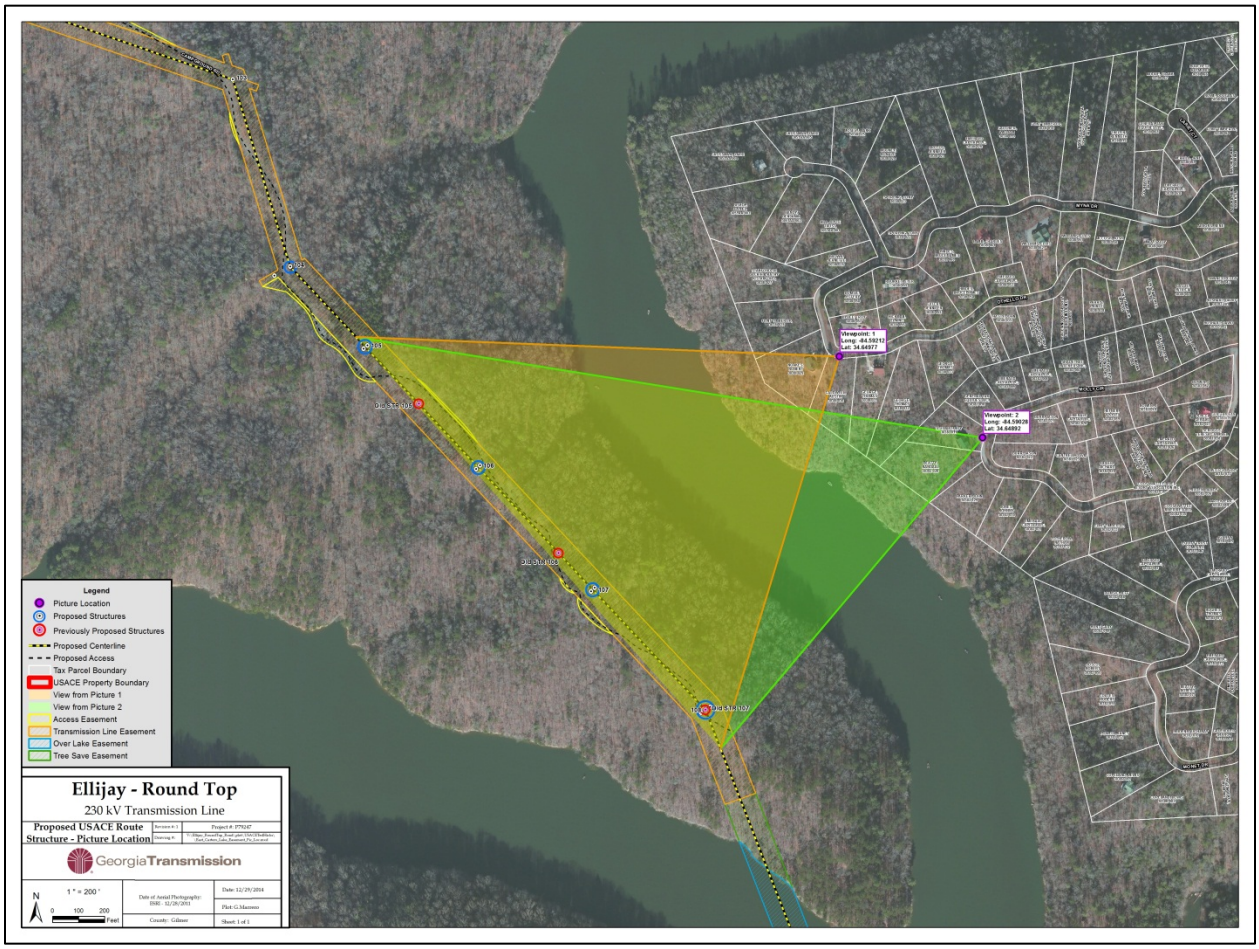

Figure 5. Locations of Visibility Analysis Viewpoints

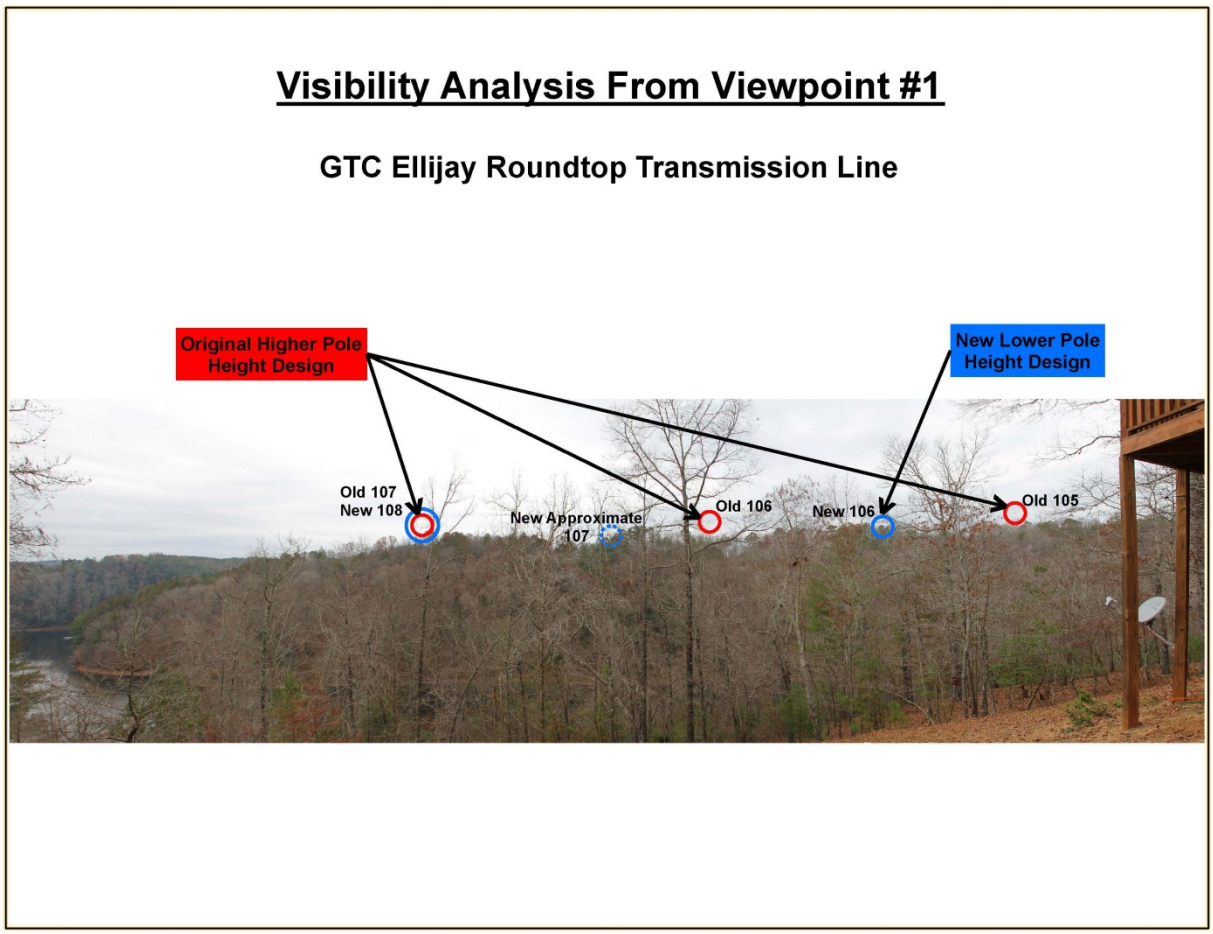

Figure 6. Visibility Analysis Viewpoint 1

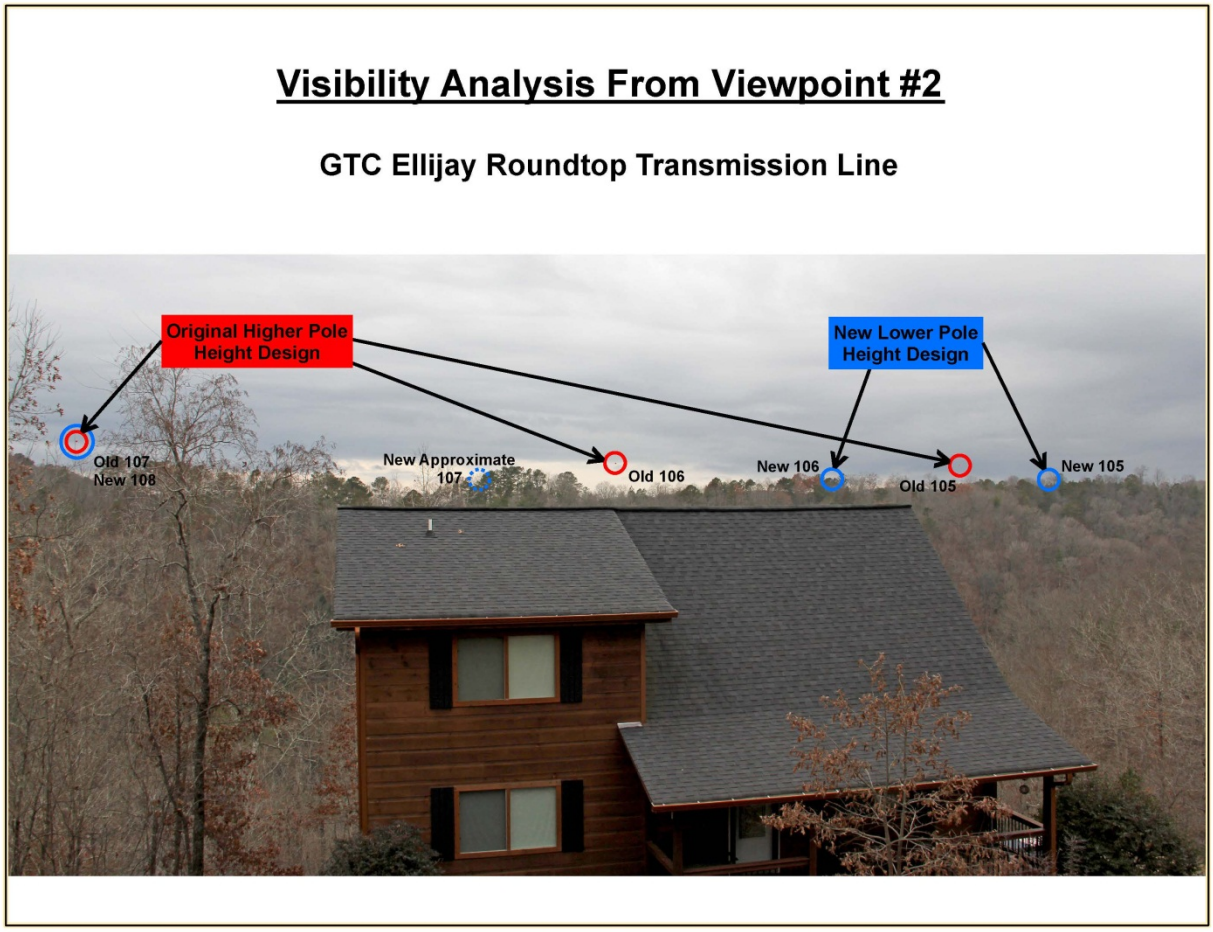

Figure 7. Visibility Analysis Viewpoint 2

(o) Environmental Justice

The primary objective of an environmental justice analysis is to ensure that vulnerable populations do not bear a disproportionately high and adverse share of human health or environmental effects from proposed Federal actions. To address environmental justice concerns, President Clinton issued Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, on February 11, 1994 requiring each Federal agency to "make the achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health and environmental effects on minority and low-income populations." The EO and accompanying Presidential Memorandum direct Federal agencies to identify and analyze the potential socioeconomic impacts of proposed actions in accordance with health and environmental laws and to identify alternatives that might mitigate these impacts. Neither the proposed action nor any of the alternatives considered would displace any portion of the people living in the area nor create any environmental hardships for any portion of the population. Therefore, the action would not disproportionately impact minority or low income

populations and Environmental Justice is not further evaluated in the EA. An environmental justice survey was conducted using Environmental Protection Agency guidelines and no environmental justice communities were identified any point on the proposed transmission line. No minority or low-income communities will be disproportionately affected by this proposal.

(p) Prime and Unique Farmland

The project corridor does not impact prime or unique farmland on USACE project lands or elsewhere in the county.

(q) Floodplain Impacts

No floodplains on USACE property will be affected by this proposal. The nearest floodplains are upstream of Carters Lake on the banks of Tails Creek and the Coosawattee River on private lands.

(p) Cumulative Impacts

No significant cumulative impacts resulting from the action on Carters Lake Project lands would occur. The project would not change surrounding land use or induce development on surrounding lands. All impacts are minor both individually and cumulatively. A cumulative impacts report of the entire project corridor was conducted by Jacobs Engineering. The report looked at changes that could reasonably be expected to occur from the construction of the Ellijay-Roundtop 230kV Transmission Line. The report is attached in Appendix E.

5. ANY IRREVERSIBLE OR IRRETRIEVEABLE COMMITMENTS WHICH WOULD BE INVOLVED SHOULD THE RECOMMENDED PLAN BE IMPLEMENTED:

Any irreversible or irretrievable commitments of resources involved in the proposed action have been considered and are either unanticipated at this time, or have been considered and determined to present minor impacts.

6. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED:

Any adverse environmental effects which cannot be avoided should the recommended plan be implemented are expected to be minor individually and cumulatively.

7. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY:

The proposed project constitutes a short-term use of man's environment and is not anticipated to affect long-term productivity. The Ellijay - Roundtop 230kV Transmission Line would provide redundant, i.e. looped, transmission service to the Ellijay area. This proposed transmission line would eliminate structure, corridor and bus contingencies and would provide more flexibility for serving future customers north and south of Carters Lake. In addition, it would provide a backup to the Roundtop Road - Tioga 230kV Transmission Line segment which would result in an alternate path for generation from Carters Dam that could be used during the infrequent but required maintenance periods. Therefore, the proposed

transmission project will be beneficial to the economic life of the community **(**See letters of Support from Gilmer County officials in Appendix A)

8. ALTERNATIVES TO THE RECOMMENDED PLAN:

GTC considered various locations within and without the USACE project limits to locate the proposed transmission line and associated access roads. A proposed transmission line is necessarily tied to a certain region in the sense that the purpose of the project is to connect particular points on the electric grid. However, within reasonable limits, site-specific modifications can be made to relocate structures from sensitive areas such as wetlands and habitats. Upland areas are the preferred location for structures both for stability and structural integrity of the transmission line. There are certain impacts that cannot be skirted due to the linear nature of transmission line construction and maintenance. Based on information provided by GTC, this Section evaluates impacts of various alternatives in an effort to reduce adverse effects on the natural and human environment. The selection criteria for all pole locations and access roads included a consideration of impacts to USACE lands and waters balanced with construction constraints and best management practices which consider topography, soil conditions, weather, the surrounding community, homes, businesses, highways and other utilities.

(a) Electrical Alternatives

GTC considered several electrical alternatives to remedy the reliability issues in the Ellijay area. Electrical alternatives examine the existing grid in Northwest Georgia and identify potential answers to the electrical problem and where these solutions can be applied. These alternatives were studied for system impacts, costs, and the ability to provide a long term electrical solution (Figure 7 Ellijay Area Electrical Alternatives). The following electrical alternatives were considered:

1. 46kV Area Solution: Upgrading the existing 46kV transmission system was eliminated by the GA ITS since it was not considered to be a long-term solution and did not fully solve the problems of outage contingency and normal overloads, reliability concerns and maintenance restrictions. The risk of unserved load resulting from structure or corridor contingency on the 230/46kV common corridor or a bus outage at Tioga was still unresolved with this option.

2. Common Corridor Solution: The Tioga – Ellijay Primary 230 kV T/L Common Corridor alternative eliminates the Tioga-Ellijay Primary 230 kV Transmission Line (T/L) “radial configuration” and provides flexibility for future area 46 kV system relief. However, the alternative does not resolve the single corridor contingency concerns or the bus contingency concern at Tioga Substation. Additionally, this alternative does not provide load serving capacities for future load growth north and west of Ellijay, including the Pleasant Gap Substation.

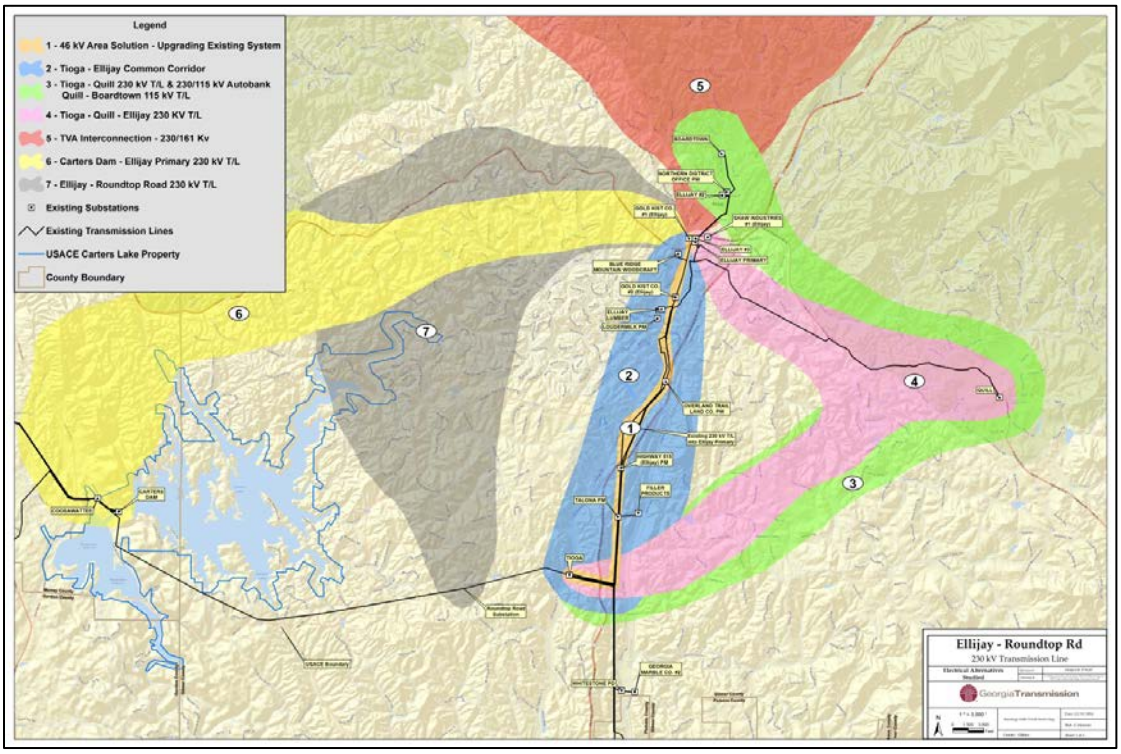

Figure 8. Ellijay Area Electrical Alternatives

3. New South Gilmer County to East Gilmer to North Ellijay Connection Solution: The Tioga – Quill 230 kV T/L & 230/115 kV autobank, Quill – Boardtown 115 kV T/L option was assessed but discarded due to the excessive cost and the fact that this alternative did not fully address the project problem statements. This option does provide flexibility for future 46 kV system relief to the area and provided overall support to the system with the addition of the Quill – Boardtown 115 kV T/L. However, if this alternative was selected, the system would still be vulnerable to bus contingencies at Tioga Substation as well as 230/115 kV autobank contingencies at the Quill Substation.

4. New South Gilmer to East Gilmer to Central Gilmer Connection Solution: The Tioga – Quill – Ellijay Primary 230 kV T/L option does provide support for the 46 kV system, as well as increased system reliability by introducing looped 230 kV service to Ellijay. Although it mitigated reliability concerns for unserved load during structure and corridor contingencies, it was not supported by the GA ITS subcommittees due to increased cost and limited benefit provided when compared to the preferred alternative. This option met several project needs, but it did not solve the single bus contingency at Tioga, nor did it meet future load serving needs north and west of Ellijay.

5. TVA interconnection: An alternative involving interconnection with the Tennessee Valley Authority (TVA) electric grid, more than 25 miles north of Ellijay Primary, was also considered. This option was not deemed viable as TVA refused to participate by building a transmission line from their nearest substation to the north.

6. New Eastern Murray County to Western Gilmer to Central Gilmer Connection Solution: The Carters Dam - Ellijay Primary 230 kV T/L option:
    - Provides looped transmission service to the Ellijay area,
    - Eliminates structure and corridor contingencies on the transmission line between Tioga Substation and Ellijay Primary Substations,
    - Eliminates bus contingencies at Tioga,
    - Provides for connection to the future Pleasant Gap 230/46/25 kV Substation in order to offload Boardtown Substation,
    - Provides backup to the Carters Dam – Tioga 230 kV T/L segment resulting in an alternate path for generation at Carters Dam (Although this path would be infrequently used, it would be critical in storm outages and routine maintenance scenarios).

    There are many construction complications that make this alternative not viable. Permitting requirements are likely to be extensive due to the large number of new access roads and new stream crossings that will be required, the presence of many documented sites of significance to Native Americans, the designation of sections of Old Highway 411 as a scenic highway by the Georgia Department of Transportation, and the necessity of building up to 4 miles of transmission line outside of the Amicalola EMC's service territory in a zone assigned to TVA by the Georgia Territorial Electric Service Act of 1973. Constructing transmission line facilities within the Georgia ITS Member's service territories allows for more cost-effective service flexibility for GTC and the Members to utilize these facilities to energize new substations to address future load-serving issues. When transmission line facilities are outside the territories of the Members, the costs to construct new substations and connect to the Member's existing distribution system are significantly increased such that they are not feasible and thereby reduces the effectiveness of the transmission line facility. The proposed route also introduces additional corridor contingency issues for transmission corridors west of the Coosawattee Substation. Furthermore, the constructed T/L route would travel outside EMC service territory for several miles and cross very mountainous terrain that would limit access for both construction and maintenance. Limited access could delay restoration of the transmission line during an outage. Not only would the construction of this route be problematic, this option is much more expensive than the preferred alternative (a minimum of $11 million more). The bulk of these cost increases are from the required rebuilding of the existing Tioga Substation due to the need for added breakers and the lack of sufficient space to accommodate them. Although this alternative does solve many of the original problem statements, it does not address the load growth south of the lake, furthermore it creates a new corridor contingency risk from Carters Dam Substation to the point where the new line would leave the existing Carters Dam – East Dalton 230kV Transmission Line Corridor. The GA ITS did not consider this option as the preferred alternative due to substantial increases in cost and potential area impacts compared to the preferred alternative as well as its necessity of passing outside the jurisdictional boundaries of the ITS. It also delays project completion by up to 5 years.

7. New Southwest Gilmer to West Gilmer to Central Gilmer Connection Solution: The Ellijay Primary – Roundtop Road 230 kV T/L route was proposed as the preferred alternative by the GA ITS on December 2, 2011. This alternative was recognized by a GA ITS subcommittee as having cost sharing advantages and exemplifying good engineering practice. This alternative is the lowest cost alternative that still addresses the entire spectrum of project needs, as well as forecast population and load growth. Specifically the Ellijay – Roundtop 230 kV T/L route:
    - Provides looped transmission service to the Ellijay area,
    - Eliminates structure and corridor contingencies on the transmission line between Tioga and Ellijay Primary Substations,
    - Eliminates bus contingencies at Tioga Substation,
    - Provides for the future Pleasant Gap 230/46/25 kV Substation to offload Boardtown Substation,
    - Provides backup to the Carters Dam – Tioga 230 kV T/L segment resulting in an alternate path for generation at Carters Dam (Although this path would be infrequently used, it would be critical in storm outages and routine maintenance scenarios),
    - Provides flexibility for serving growth on both sides of the lake west of Ellijay.

    In conclusion, Option 7, the Ellijay – Roundtop 230kV T/L alternative was selected as the best method to address the existing system limitations in the Ellijay area in terms of cost and ability to fully solve the project problem statements.

    This alternative is the lowest cost alternative that addresses all project needs. The Ellijay – Roundtop 230 kV T/L will mitigate the risk of losing the Tioga - Ellijay 230 kV tap line corridor due to thermal line and transformer overloads by providing looped transmission service to the Ellijay area. This route will also allow GTC to connect the future Pleasant Gap Substation with minimal transmission line additions and less area impacts. This future substation will alleviate circuit overloads in the areas north and west of Ellijay.

    Furthermore, the Ellijay – Roundtop 230 kV T/L offers backup to the Roundtop Road – Tioga 230 kV T/L segment, providing an alternate path for generation from Carters Dam if a fault were to occur on this segment of the Carters Dam – Nelson Transmission Line (i.e. approximately 3 miles out of the total line length of 9 miles would be backed up). This alternate path results in the following benefits:

    - The proposed route helps maintain reliable electric service from Carters Dam and prevents electrical overloads.
        - Benefits electricity consumers in Gilmer County.
        - Minimizes risks of a curtailment in Carters Dam generation because of a maintenance outage (or unplanned outage) on the 230kV segment between Roundtop Road and Tioga Substations.

- The proposed route allows for future population growth in the area around Carters Lake while minimizing infrastructure construction.
    - Accommodates future electrical substations both north and south of lake as one connected facility.
    - Minimizes environmental and community impacts by using existing roads and existing facilities.
    - Minimizes new stream crossings.
    - Preserves lake buffers of 150 feet
    - Minimizes risk to waters of the United States by avoiding sensitive stream habitats.

(b) Project Study Area:

GTC determined that a new 230kV transmission line connecting the future Roundtop Road 230kV Substation and the existing Ellijay Primary 230kV Substation is the only viable electrical alternative (Refer to Electrical Alternatives Section above, Option 7). This project was approved by the GA ITS in 2011. In addition to connecting the proposed Roundtop Road Substation (southeast of Carters Lake in Gilmer County) to the existing 230kV system, Amicalola EMC needs a distribution substation near the northwestern edge of their service territory. This load serving need is in an area along State Highway 282 between Tails Creek Church Road and Pleasant Gap Road (Figure 1). Therefore, connecting this future substation to the 230kV system became an important consideration for the transmission line alignment.

Since co-locating with the existing 230kV and 46kV transmission lines would create corridor outage contingency problems, GTC evaluated corridor alternatives west of the existing Tioga- Ellijay Primary 230kV Transmission Line (Figure 1). As a result a one (1.0) mile buffer was applied to the western side of this existing transmission line corridor in order to avoid having multiple lines disabled in the same contingency event. This placed it near the Gilmer County Airport which is approximately 1.0 mile west of the corridor occupied by the Tioga-Ellijay 230kV and Tioga-Ellijay 46kV Transmission Lines. Because of FAA air space restrictions, any transmission line corridors would need to be outside of the clear zone of the Gilmer County airport runway. Therefore any new transmission line corridor would need to be located even further west of the airport runway clear zone. North and west of the Gilmer County Airport is a major residential subdivision (Figure 1). This area, known as the Coosawattee River Resort, has over 1,700 parcels which is accessed by narrow single-lane curvilinear roads.

The USACE property at Carters Lake lies on the western edge of the Cooswattee River Resort. Carters Lake, fed by the Coosawattee River and its tributaries, is a hydroelectric reservoir constructed by the USACE in 1962 (Figure 1). Several transmission lines are connected to the dam including: Carter's Dam - East Dalton 230kV TL, Carters Dam – Coosawattee 230kV TL and Carter's Dam - Nelson 230kV TL (the latter line encompasses the Carters Dam – Tioga section) to the southeast.

(c) Transmission Line Alternatives:

Within the project study area, GTC analyzed multiple groups of transmission line route alternatives. Of the many routes considered, three were studied in-depth because they more closely followed existing

rights-of-way and minimized impacts to the environment or were requested for further study by the USACE. Two of these route alternatives are characterized by the location where they cross major landscape features in the Project Study Area: *Carters Lake (Green Route - Western and Eastern alignment options)* and the *Coosawattee River (Red Routes*). At the request of USACE a third alternative *(Orange Routes)* was added to the list. The green and red routes are examples of the Electrical Alternative Option Number 7 whereas the Orange Routes are examples of the Electrical Alternative Option Number 6. It extends from Carters Dam around Carters Lake to the west and then north and east to Ellijay (Figure 8). (Although Electrical Option Number 6 had been previously discarded, GTC reviewed it again to see if any circumstances had changed to make it a viable alternative.) Of these alternatives, only the *Green Route* was determined to be a viable route for siting the transmission line.

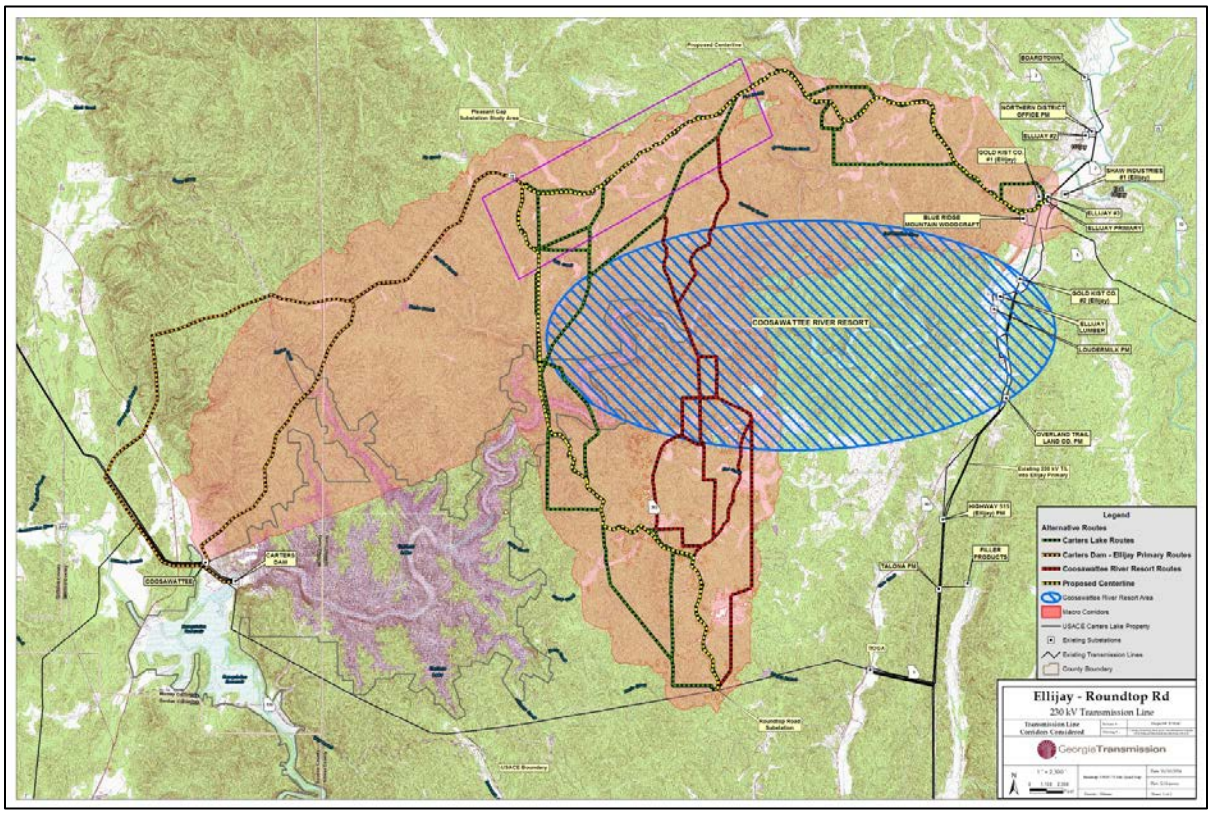

Figure 9. Transmission Line Alternatives Considered

<u>Carters Lake Route (Green Route Western and Eastern Alignment Options)</u>:

The *Green Route* starts at GTC's proposed Roundtop Road Substation in southern Gilmer County at the intersection of Roundtop Road with GPC's Carters Dam - Nelson 230 kV TL. Then the proposed transmission line facility would extend north and west along Roundtop Road, Knight Road, Barnes

Mountain Road, and Oak Hill Road for approximately 5.0 miles. It would then cross Carters Lake between the Oak Hill Recreation Area on the south side of the lake and the Ridgeway Recreation Area on the north side in two (2) potential alignments – a western mostly due north-south route and an eastern route that follows the ridge down the Ridgeway peninsula. This route alternative continues north across country for approximately 1.5 miles until it reaches Banks Road which it would follow for approximately 1.0 mile until it reaches State Route (SR) 282. The future Pleasant Gap Substation of Amicalola EMC will be located at the intersection of Banks Road and SR 282. The transmission line would continue east along SR 282 for approximately 10.0 miles into the existing Ellijay Primary 230 kV Substation located in the City of Ellijay (Figure 5).

Coosawattee River Resort (Red Route):

The *Red Route* starts at the GTC's proposed Roundtop Road Substation in southern Gilmer County at the intersection of GPC's Carters Dam-Nelson 230kV TL and Roundtop Road. The transmission line then extends north and west along Roundtop Road, Knight Road, and Barnes Mountain Road for approximately 3.0 miles. Then it continues north on SR 382 for 1.7 miles before extending due north on a cross-country route for 1.8 miles. This section of the transmission line passes east of Carters Lake through the Coosawattee River Resort and over the Coosawattee River. On the north side of the river, the proposed transmission line continues across country towards the northeast for 3.0 miles until it reaches SR 282. Then the transmission line route will continue east along SR 282 for approximately 5.0 miles until reaching the existing Ellijay Primary 230 kV Substation located in the City of Ellijay (Figure 5).

Carters Lake- Ellijay Primary (Orange Routes A and B)

At the request of the USACE, GTC also analyzed two routes originating on the west side of Carter's Lake (Figure 4). The Orange Routes would start on USACE property at the existing Carters Dam Substation and traverse the re-regulation lake below the main dam to the existing Coosawattee Substation. From the substation, there would be two possible routes for the Orange alternative. A Southern Route would extend west out of Carters Dam Substation, bypass the Coosawattee Substation and then continue north for approximately 0.4 miles before turning up the western slope of the Blue Ridge Mountains ascending 700 feet to the nearest ridgetop. The route would head east-northeast across country for 3.5 miles until it reaches SR 282. The transmission line would continue east along SR 282 for approximately 10.0 miles directly into the existing Ellijay Primary 230 kV Substation located in the City of Ellijay. Also a Northern Route would extend west out of the Carters Dam Substation bypassing the Coosawattee Substation and would parallel the existing Carters Dam – East Dalton Transmission Line corridor for approximately 2.8 miles before heading east-northeast across country for 0.8 miles before it reaches the Old Highway 411 corridor. The route alternative would cross Old Highway 411 and then would continue northeasterly up the western slope of the Blue Ridge Mountains, ascending 700 feet to the nearest ridgetop in less than 0.4 miles. It would extend almost due north for a little over a mile following a ridgeline. Then it would proceed 1.8 miles east until it reached SR 282. The transmission line facility would continue east along SR 282 for approximately 10.0 miles directly into the existing Ellijay Primary 230 kV Substation located in the City of Ellijay.

Evaluation of Alternatives:

Major factors which dominated the evaluation of the three alternatives included: connectivity, topography and ecology, congestion, accessibility, and cost.

- *Connectivity*: the preferred route would need to connect all three substation facilities: Roundtop Road, Pleasant Gap and Ellijay Primary Substations;
- *Topography and Ecology*: the preferred route would need to minimize the crossing of steep topography and minimize impacts to ecologically sensitive plant and animal habitats, particularly around the Coosawattee River and its major tributaries which are all designated as trout streams and contain protected species habitat for the goldline darter;
- *Congestion*: the preferred route would need to be approximately 1.0 mile west of the existing transmission line corridor (to avoid a common corridor outage contingency). Additionally, the route would need to maintain a buffer on the west side of the Gilmer County Airport. Residential development in the Coosawattee River Resort is extremely dense and extends to the eastern boundary of USACE property;
- *Accessibility*: the preferred route would need to facilitate access for construction, operations and maintenance of the proposed transmission line in both congested and undeveloped areas.
- *Cost*: the preferred route needs to solve all the purpose and needs statements and the challenges listed above in a cost-effective manner.

The *Red Route (Coosawattee River Resort)* has the greatest connectivity, topographical, ecological, congestion, and access constraints. Since the route is further to the east, it would potentially require a longer transmission line facility to connect it to Amicalola's future Pleasant Gap Substation. Also, it would need to cross the Coosawattee River in undeveloped areas that have no functional access roads. Although no archeological investigations of this area were conducted, based on the review of the Georgia archeological site files, there is a high probability of archeological sites adjacent to the banks of the Coosawattee River and its tributaries. No ecological surveys of this area have been performed; however, due to the need to cross as many as nine (9) streams (all tributaries of the Coosawattee which feed Carters Lake) and the Coosawattee River itself, there is a higher probability of environmental impacts, particularly to aquatic species. Specific impacts would include:

- Potentially relocating approximately seven homes;
- Also acquiring 53 vacant lots (their small size and irregular shape would leave no usable remnant outside the transmission line easement);
- Constructing new access roads both north and south of the Coosawattee River would result in impacting even more existing homes and vacant lots. Also, new access road construction with culverts and/or rock crossings would likely impact approximately 19 additional streams including several tributaries of the Coosawattee River. Due to the one-lane curvilinear roads that make up the street network in the Coosawattee River Resort, and the limited number of access points to and from the subdivision (5

gates for 1,700 lots), major traffic disruptions for hundreds of residents would likely occur during construction and maintenance work;
- Clearing vegetative buffers in sensitive riparian habitats along the Coosawattee River;
- Delaying project completion by a minimum of 2-3 years (with no land condemnations/additional delay likely with condemnations).

In contrast, the *Green Route(s) (Carters Lake Route Western and Eastern alignment options)* has no known issues with connectivity, congestion and access. This is because it aligns with the proposed location of the Amicalola EMC's future Pleasant Gap Substation and it avoids the congestion of the Coosawattee River Resort and co-locates with existing roads for most of its alignment on both the north and south sides of Carter's Lake, resulting in fewer impacts to the environment and local communities. Specifically, the proposed route would require:

- No relocation of homes;
- Complete takings of only 1 vacant parcel;
- Use of existing roads for construction and maintenance access throughout the entire length (western option only);
- Three new stream crossings (western only, five on eastern) for construction, of which two (Carters Lake and Tails Creek) will be spanned aerially and leave 150 uncut tree buffers intact; and
- Significantly less potential environmental impacts to cultural resources, sensitive habitats, and species of concern such as the goldline darter and trout due to less cross country right-of-way and fewer creek crossings.

A summary of the differences between the western and eastern alignment options are provided in Tables 4-6 on pages 43-44.

In summary, the *Green Route (both alignment options)* not only was the preferred alternative because it had fewer impacts, but also because the *Red Route* is not viable. The magnitude of the effects of the *Red Route* on environmental resources and the community would create significant mitigation issues with uncertain outcomes. The *Red Route* could require up to 28 new stream crossings (compared to 3-5 new crossings along the proposed "Green Routes" depending on which Green route is selected). The differences in number of streams crossed reflects the fact that the Green Routes generally follow ridgelines whereas the red routes cross mostly perpendicular to them. Many of these streams on the *Red Route* contain sensitive trout and darter habitat, and GTC would need to apply for both federal and state permits as well as stream buffer variances for most of these stream crossings. This route also disrupts the natural landscape, and GTC would have to rebuild single-lane, curvilinear roads (which, in turn, would shut off all access to nearby residential neighborhoods during construction and maintenance activities). This new road development could also be expected to have potential impacts to the adjoining drainage system located upstream from Carters Lake. If the *Red Route* were followed, GTC may have to condemn up to 7 homes and also 53 vacant lots. As a result, land acquisition costs within the Coosawattee Resort, which is a luxury resort community with many homes valued in excess of $300,000, would be excessively high. Operation, maintenance, and construction costs would be much higher as well, because

of the circuitous route required to site a transmission line within a residential development where less than adequate rights-of–way and access roads currently exist.

Orange Routes A and B (Carters Lake- Ellijay Primary)

At the request of the USACE, GTC also analyzed two routes originating on the west side of Carter's Lake (Figure 4). The Orange Routes would start on USACE property at the existing Carters Dam Substation and traverse the re-regulation lake below the main dam to the existing Coosawattee Substation. From the substation, there would be two possible routes for the Orange alternative:

Route A (Southern Route) would extend west out of Carters Dam Substation, bypass the Coosawattee Substation and then continue north for approximately 0.4 miles before turning up the west and ascending 700 feet to the ridgetop. The route would head east-northeast across country for 3.5 miles until it reaches SR 282. In this cross country section it would extend over USACE property at Wurley Creek. Extensive access roads would need to be constructed for this entire section. At several locations access roads cannot be constructed and as a result construction, operations, maintenance and future restoration activities would need to be accomplished by helicopter at significantly higher cost. It is likely that restoration times during an outage would be increased. About 3.0 miles further east along SR 282, this proposed route would connect to the future Pleasant Gap Substation. The transmission line would continue east along SR 282 for approximately 10.0 miles directly into the existing Ellijay Primary 230 kV Substation located in the City of Ellijay.

Route B (Northern Route) would extend west out of the Carters Dam Substation bypassing the Coosawattee Substation and would parallel the existing Carters Dam – East Dalton Transmission Line corridor for approximately 2.8 miles before heading east-northeast across country for 0.8 miles before it reaches the Old Highway 411 corridor. The route alternative would cross Old Highway 411 and then would continue northeasterly, ascending 700 feet to a ridgetop in less than 0.4 miles. It would extend almost due north for a little over a mile following a ridgeline. Then it would proceed 1.8 miles east until it reached SR 282. In this cross country section it would not extend over USACE property however extensive access roads would need to be constructed for this entire section since there are no paved roads in this area. At several locations access would only be accomplished by helicopter so that construction, operations, maintenance and any restoration activity during an outage would be at significantly higher cost. Restoration times would likely be increased. About 4.0 miles further east along SR 282, this proposed route would connect to the future Pleasant Gap Substation. The transmission line facility would continue east along SR 282 for approximately 10.0 miles directly into the existing Ellijay Primary 230 kV Substation located in the City of Ellijay.

Orange Route A (Southern Route) would have significant connectivity, topography, ecology, and access issues.

These issues would include:

- Any streams with protected aquatic species would likely require additional stream buffer variances including tributaries of Fir Creek, Crooked Creek, Banks Branch, Wurley Creek, Fisher Creek, and Wilbanks Branch;
- Creating a new common corridor contingency for approximately 0.5-1.0 miles by co-locating a third 230kV line in an existing corridor that currently has two 230kV

transmission lines. This new outage contingency would require a full risk evaluation to meet NERC standards regarding "extreme contingencies" such as the loss of all transmission lines in a common right-of-way;

- Adding significant construction and maintenance constraints due to the steep topography and the absence of existing access roads relative to the other alternatives;
- Locating transmission facilities in areas away from the most load growth for the first 6 miles from Carters Dam;
- Limiting cost-effectiveness of service for approximately 4.0 miles before the route would be located inside the service area for Amicalola EMC (Constructing transmission line facilities within the Member's service territories allows flexibility for GTC and the Members to utilize these facilities to energize new substations to address future load-serving issues. When transmission line facilities are outside the territories of the Members, the costs to construct new substations and connect to the Member's existing distribution system are significantly increased such that they are not feasible and thereby reduces the effectiveness of the transmission line facility);
- Delaying completion of the project by 3-5 years.

Orange Route B (Northern Route) would have significant connectivity, topography, ecology, and access issues.

These issues would include:

- Adversely impacting historical and archaeological resources along the Old Federal Road (Old US Highway 411). Old Federal Road is part of a National Historic Trail with cultural and historic significance for native Cherokee tribes, the American Civil War and early settlers in Georgia;
- Creating a new common corridor contingency for approximately 3.0 miles by co-locating a second 230kV line in an existing corridor that currently has one 230kV transmission line and two 115kV transmission lines. This new outage contingency would require a full risk evaluation to meet NERC standards regarding "extreme contingencies" such as the loss of all transmission lines in a common right-of-way;
- Any streams with protected aquatic species would likely require additional stream buffer variances including tributaries of Fir Creek, Crooked Creek, Banks Branch, Wurley Creek, Sugar Creek, Mineral Springs Branch and Wilbanks Branch;
- Adding significant construction and maintenance constraints due to the steep topography and the absence of existing access roads relative to the other alternatives;
- Locating transmission facilities in areas away from the most load growth for the first 6 miles from Carters Dam;
- Limiting cost-effectiveness of service for approximately 4.0 miles before the route would be located inside the service area for Amicalola EMC (Constructing transmission line facilities within the Member's service territories allows flexibility for GTC and the Members to utilize these facilities to energize new substations to address future load-serving issues. When transmission line facilities are outside the territories of the Members, the costs to construct new substations and connect to the

Member's existing distribution system are significantly increased such that they are not feasible and thereby reduces the effectiveness of the transmission line facility);

- Delaying completion of the project by 3-5 years.

GTC also studied a third route for the Carters Dam –Ellijay alternative that continues down SR 282 to its intersection with Old US 411. This route, among other reasons, is not viable because it does not have the physical space to accommodate large transmission scale poles alongside the road at several locations. This constraint is due to the fact that when this narrow road was constructed it was blast cut through a mountain range creating steep rock cliffs on both sides. Although there is distribution in this corridor, it consists of small wooden poles that could be built using pack animals in areas without roads. This is not a viable option for transmission infrastructure due to scale factors and new access road cost factors.

For all of these reasons stated above, these Red and Orange alternatives are not viable. They would incur higher costs, increase time for survey, acquisition, permitting and construction. GTC has compiled this information in a matrix to assist in analyzing all of the alternatives and the criteria used for their evaluation (Table 3).

Table 3 Evaluation of Alternatives

Evaluation Criteria	**Orange Route (Carters Dam-Ellijay Alternative)**	**Green Route Ellijay-Roundtop (GTC Preferred Route Across Upper reaches of Carters Lake Alternative, Western and Eastern alignment options)**	**Red Route Ellijay-Roundtop (Route across Coosawattee River Resort Alternative)**
Electrical			
Does the Alternative solve all the problems statements? (Common Corridor Contingency and reliability issues)	No	Yes	Yes
Does the Alternative create new electrical problems	Yes (New Common Corridor Contingency in Murray County)	No	No
Does the Alternative solve all generation curtailment issues at Carters Dam?	No (Still vulnerable to outages between Tioga and Nelson)	No (Still Vulnerable to outages between Carters Dam and Roundtop Road and between Tioga and Nelson)	No (Still Vulnerable to outages between Carters Dam and Roundtop Road and between Tioga and Nelson)
Does the Alternative locate facilities where current and future loading issues are?	No (Goes outside of EMC service area for several miles in low growth zone, does not address load growth	Yes (Serves both sides of Carters Lake where current and future growth is expected)	Yes (Serves both sides of Carters Lake where current and future growth is expected)

Evaluation Criteria	Orange Route (Carters Dam-Ellijay Alternative)	Green Route Ellijay-Roundtop (GTC Preferred Route Across Upper reaches of Carters Lake Alternative, Western and Eastern alignment options)	Red Route Ellijay-Roundtop (Route across Coosawattee River Resort Alternative)
	southeast of lake)		
Does the alternative follow existing corridors and access roads to the greatest extent possible to facilitate construction and maintenance?	No (Will likely require 3.7 miles of cross country right of way in area with no access roads)	Yes (Parallels existing roads 15.6 out of 17.1 miles and can use existing logging trails for all cross country sections, so no new access roads will be required)	No (3.45 miles cross country section goes through existing subdivision with curvilinear one lane roads that are inadequate for construction and maintenance)
Is the alternative approved by the GA ITS?	No (Project costs are at least $11 million higher by going outside of the GA ITS service territory into TVA's territory to such a large degree)	Yes (Already approved by GA ITS and endorsed as "good engineering practice")	No (Cross country section will be more costly to construct and maintain)
Does the alternative utilize existing and accommodate future planned infrastructure as efficiently as possible?	No (would be outside of EMC territory for several miles, does not allow for flexibility in serving future growth area north and south of the lake and will require the rebuilding of the existing Tioga Substation)	Yes (allows for future in-line substations north and south of lake in growth area of EMC territory and can utilize Tioga Substation as is)	Yes (but it will result in the need for longer transmission line connections in the future to connect to the Pleasant Gap Substation which will lie to the west of this route)
Does the alternative minimize new radial transmission lines?	No (Lack of connection to growth areas north and south of lake will therefore require additional radial transmission lines in the future)	Yes (growth areas north and south of the lake can be connected with in-line substations to avoid new radial transmission lines)	Yes (growth areas north and south of the lake can be connected with in-line substations to avoid new radial transmission lines)
Can this alternative be constructed by the EMC's required cut in date of 6/1/2016?	No (3-5 year delay to the required cut-in date assuming no condemnations)	Yes (assuming USACE grants approval)	No (minimum of 2-3 year delay assuming no condemnations)

Evaluation Criteria	Orange Route (Carters Dam-Ellijay Alternative)	Green Route Ellijay-Roundtop (GTC Preferred Route Across Upper reaches of Carters Lake Alternative, Western and Eastern alignment options)	Red Route Ellijay-Roundtop (Route across Coosawattee River Resort Alternative)
Environmental			
Does the alternative minimize tree clearing and stream crossings?	No (Will likely require up to 3.7 miles of cross country right of way in area with no access roads and minimum of 4 new stream crossings in corridor)	Yes (Requires only 1.5 miles of cross country right of way , no new access roads, and three new stream crossings, 2 of which Carters Lake and Tails Creek will be spanned aerially leaving 150 foot buffers intact)	No (Cross country section 3.45 miles long goes through existing subdivision with curvilinear one lane roads that are inadequate for construction and maintenance with up to 28 new stream crossings)
Does the alternative minimize risks to waters of the United States?	Unknown (but passes upstream of Murray County water intake structure on Carters Lake, unknown stream buffer variance requirements, wetlands present in corridor)	Yes (requires three new stream crossings and spans 2 of them (Carters Lake and Tails Creek) aerially leaving 150 foot buffers on both sides all stream buffer variances have been approved (no wetlands affected on western route one wetland affected on eastern route)	No (requires up to 28 new stream crossings upstream of Carters Lake in trout and darter habitats each with stream buffer variance required unknown wetlands)
Does the alternative minimize impacts to Corps lands?	Unknown (approximately 13 acres of USACE property may be crossed if cross country direct corridor is used)	Impacts will be mitigated with a mitigation plan approved by USACE	Yes (No Corps lands will be affected)
Does the alternative affect other public lands?	Unknown (potentially the Coosawattee Wildlife Management Area or the Chattahoochee	Yes (Carters Lake USACE property is also part of the Coosawattee Wildlife Management Area)	No

Evaluation Criteria	Orange Route (Carters Dam-Ellijay Alternative)	Green Route Ellijay-Roundtop (GTC Preferred Route Across Upper reaches of Carters Lake Alternative, Western and Eastern alignment options)	Red Route Ellijay-Roundtop (Route across Coosawattee River Resort Alternative)
	National Forest could be affected depending on which side of Highway 282 is used)		
Does the alternative affect species of concern?	Unknown (potential impacts to 6 secondary trout streams if roadside corridor is used, up to 4 trout streams on cross-country corridor)	No	Yes (raises number of potential trout and gold line darter streams crossed by 28)
Does the alternative avoid impacts to historic and archeological resources?	No (if roadside corridor is used due to the presence of known eligible sites at the re-regulation dam and along the Old US 411 Corridor)	No (one historic property visually affected which will be mitigated with screening)	No (due to the high number of new stream crossings which tend to be favored locations for pre-historic occupation sites)
Community			
Does the alternative have community support?	Unknown (but likely will not, location precludes service to Amicalola EMC members for at least 4 miles who sponsor project and increase project costs by $11 million)	Yes (Broad-based electric customer, business, and elected official support)	Likely Not (extensive community disruption and impact in Coosawattee River Resort with 1,700 parcels)
Does the alternative require home relocations?	Unknown (not likely due to low density of development)	None	Yes (up to 7 homes and 53 parcels to be acquired)
Does the alternative solve community needs in a cost effective manner?	No (increase project costs by at least 50% or $11 million because of necessity to rebuild of Tioga Substation and construction, maintenance and	Yes	No (costs overages and delays likely because unpredictability of legal challenges to eminent domain and stream buffer variances, longer transmission line required for future

Evaluation Criteria	Orange Route (Carters Dam-Ellijay Alternative)	Green Route Ellijay-Roundtop (GTC Preferred Route Across Upper reaches of Carters Lake Alternative, Western and Eastern alignment options)	Red Route Ellijay-Roundtop (Route across Coosawattee River Resort Alternative)
	restoration issues for transmission line due to poor access)		connection needed to Pleasant Gap Substation in Western Gilmer County, offers less flexibility to serve future growth north and south of the lake)

Conclusion:

In conclusion, the proposed Ellijay Primary- Roundtop Road 230kV Transmission Line is the only alternative that:

a) Will meet the current and future electric system standards for reliable electric service to the area
b) Will enhance the reliability of electric transmission from Carter's Dam
c) Will provide GTC with sufficient access to construct, maintain and operate the Facility by using existing corridors for most of the route
d) Can be fully mitigated resulting in no significant impacts on the environment or local community
e) Is the only viable alternative
f) Provides a direct benefit to Gilmer County and its citizens in a timely and cost-effective manner.

Summary of Alternatives Analysis

The following alternatives for the proposed project across Carters Lake were analyzed and for the reasons described all but the proposed action were eliminated from further consideration.

No Action- The proposed transmission line is necessary to resolve serious and long-standing issues with the electrical grid in Gilmer County, Georgia. The purposes of the new line are to provide a back-up source of power to the entire county in case of a severe contingency event and thus improve reliability of service and allow for future load growth. Failure to construct the line would deny those project purposes entirely. Accordingly, any "no action" alternative is not practicable.

Going Around USACE Lands at Carters Lake- Consideration was given to two principal scenarios where USACE lands at Carters Lake were bypassed.

The initial bypass option was to go around to the east through the Coosawattee River Resort (The Red Route Alternative of Electrical Alternative Option #7). As described earlier, even in the least densely developed part of the subdivision, several homes (up to 7) and many parcels (up to 53) would need to be acquired for the transmission line easement due to the small sizes and irregular shapes of the parcels in the subdivision which take advantage of the mountainous terrain to maximize number of lots. Also, the main road in the subdivision would have to be shut down for traffic during constructions hours to make this route possible, affecting up to 250 homes. For these reasons this option was not viable.

Bypassing Carters Lake to the west (The Orange Route Alternatives of Electrical Alternative #6) was also considered. This option would have a transmission line coming out of Carters Dam and going up Old Highway 411, over the mountains, potentially crossing the Woodring Recreation Area to meet with Highway 282 or up Old Highway 411 all the way to its junction with Highway 282. Either scenario presented dramatic topographical challenges, would pass near known major archeological sites at the dam, would require GTC to pass over TVA lands for up to 4 miles, and would at a minimum increase costs 33%. For all these reasons, this option was also not viable.

Site location Alternatives on Carters Lake Ridgeway Recreation Area- GTC looked at two site locations within the Ridgeway Recreation Area at the request of USACE and fully evaluated both The Green Route Alternatives of Electrical Alternative Option #7).

The first was a western option that essentially went due north to south crossing the boat ramp road at its straightest section and jumping over food plots and the last ridge on the north side of the lake to the ridge on the south side of the lake at the end of Oak Hill Road. It then followed Oak Hill Road in a zig-zag pattern until it emerged south of USACE lands.

The second was an eastern option that went across the Ridgeway Recreation Area in a northwest to southeast diagonal, following Campground Road almost the whole way to jump across the lake at the end of the peninsula and landing on private lands on the other side. A comparison of the two routes is included in the tables below.

Tables 4-6
Comparison of Western and Eastern Transmission Line Alternatives

Table 4 Description of Both Routes on USACE Property

Category	Western Route	vs.	Eastern Route
Total Easement Acreage:	19.48		19.13
Total Clearing Acreage:	11.76		13.75
Total Length Mileage:	1.24		1.25
Total Length Clearing Mileage:	0.88		0.98
Number of Poles:	11		14
Feet Length of New Access Road Construction:	1,033'		1,248'
Feet of ROW Co-locating with Roads:	1,657.7'		1,836'
Feet of ROW Along Trails:	824.2'		555'
Height of Wire (Above Lake Waters at normal pool):	185'		255'
Length of Longest Span (Above Lake Waters at np):	967'		862'
Length of Longest Span (USACE Lands & Waters):	2,431'		1,780'
Total Length of Longest Span (From Pole to Pole):	2,431'		2,165'

Table 5 Description of USACE Natural and Cultural Resources on both Routes

Category	Western Route	vs.	Eastern Route
Archaeology:	NA		NA
T&E Species:	None		None
Jurisdictional Features:	2 (Carter's Lake & 1 Ephemeral Stream)		1 (Carter's Lake)
Water Based Recreation:	Visible to boat ramp users		Not visible to boat ramp users except from main channel
Land Based Recreation:	2 Picnic sites		10 campsites & 3 Restrooms
Length in feet of Tree Save Buffer Around Lake Shore:	983'		561'

Table 6 Description of Impacts Off of USACE Property

Category	Western Route	vs.	Eastern Route
Closest Proximity to Residences:	3,686'		1,140'
Structures Noticeable From Adjacent Homes:	No		Minimized by lower height design, homes can see mainly marker balls across lake
Jurisdictional Wetlands Crossed:	0		1
Jurisdictional Waters Crossed:	0		3
Feet Length of New Access Road Construction:	0		4,213'

Ultimately, the eastern route was selected as the preferred alternative due to a combination of factors including environmental impacts, recreational impacts, and aesthetic concerns.

Environmental Impacts

Overall, the environmental impact of the eastern route is equal to or less than the western route alternative. The eastern route crosses into the Ridgeway camping area, and is more or less on one single ridgeline, allowing for more control of the construction site. The western route through the day use crosses several valleys and has a higher number of steep slope changes than the eastern route. The eastern route follows an existing roadway and logging cut corridor for the majority of its distance whereas the majority of the western route is through forested land that has no existing cut corridors but for a single smaller section along an existing road corridor. Most of the eastern route corridor has already been cleared and graded for this roadway and is thus already impacted. Furthermore, the eastern route crosses Carters Lake in only one location. Western route crosses the lake in two locations; one crossing spans the main body of the Carters Lake, the other crosses a cove.

Recreation Impacts

The recreational impacts are greater in the western route than the eastern route. Approximately 6,300 yearly visitors who use the boat ramp areas and Tumbling Waters trail head will be directly impacted by the western route. Approximately 700 yearly visitors who use the Ridgeway Campground will be impacted by the eastern route. Furthermore, the Ridgeway Day Use area, immediately adjacent to the western route, is the most northern lake access boat ramp on the project. Most visitors that access the river use the Ridgeway boat ramp. There are no other comparable facilities on the project that allow for boating access to the upper reaches of the lake. The Ridgeway camping area, which is in the eastern route area, is comparable to Woodring Branch Primitive camping area. Woodring Branch Primitive camping area is within close proximity to Ridgeway Park and can be used as a substitute facility by campers. Additionally, due to low visitation, high maintenance cost, low fee revenue collection and other conditions at the Ridgeway camping area, this location has been previously identified as an opportunity

for consolidation in accordance with USACE's National Recreation Adjustment Plan (an action of the Recreation Strategic Plan). Visitation is anticipated to be consolidated to Woodring Branch Primitive camping area in the future. Woodring Branch primitive camping area does not fill to capacity and can adequately accommodate relocated visitation from the Ridgeway camping area. Because of resource constraints, facilities that are in the eastern route are in a degraded condition, and are lightly used whereas facilities in the western route are in better condition, and are more heavily used. In addition to the factors mentioned above, more formal hiking and biking trails will be impacted in the western route than in the eastern route. The western route passes near the Tumbling Waters National Recreation Trail which is one of the major facilities on the Carters Lake Project. USACE has allocated $300,000 for bridge repair on this trail in fiscal year 2015 and transmission line construction on the western route could interfere with this planned maintenance activity.

Aesthetic Concerns

Development within the entire USACE area (both routes) is limited, as a result measuring the aesthetic impact of a proposed transmission line will be variable and depend on physical proximity to the line (distance and sight line); the activity of the viewer (transitory or permanent); and, the relative contrast between the visual aspects of a transmission line and the surrounding environment. One variable in this calculus is the estimated impacts of the additional requirement of aircraft warning lights. This option has yet to be fully defined. It will vary depending on final engineering and coordination with the FAA. Based on information on hand, we assume that the western route may be more visible to boaters on Carters Lake. Boating is the primary activity conducted at the Ridgeway Recreation Area, which is near the furthest northern point where most recreational boaters can access. As for eastern route, which is located further to the east of the Lake, we assume that this alternative route will not be visible to the majority of recreational boaters. Similarly, it appears that property owners in the adjacent Coosawattee River Resort Subdivision will not see more than the tops of the pole structures on USACE lands because the design heights were lowered after the public meeting by as much as 50 percent to respond to public comments.

9. COORDINATION:

GTC and the USACE have conducted active coordination with appropriate federal, state, local agencies, environmental and developmental organizations and general public during the course of this EA preparation. Coordination started early in the pre-Application stage and included a public open house meeting held in Ellijay, Georgia on September 4, 2014. The meeting was conducted by GTC in cooperation with USACE. Comments were accepted by submittal of written comments on site, via email and by U.S. Mail. In response, a total of 33 comments were received. All of the participants agreed with the need for improved electrical reliability in the county but some voiced differing opinions as to which route would be best. Of those comments supportive of the proposed transmission line 16 supported the western alternative , 9 supported the eastern alternative, 3 asked that it not be on public lands at all, 4 asked for more information before deciding, and 1 thought both were equally acceptable. A number of comments voiced strong opinions about the project. These can be categorized as follows: Sixteen (16) comments were opposed to the eastern route because of stated concerns regarding aesthetic impacts to the residential areas in the Coosawattee River Resort subdivision and potential property value impacts (please refer to previous section 4(n). Nine (9) comments were opposed to the western route because of impacts to more extensive biking trails in those areas which are considered prime mountain biking courses in the

state and are a source of tourism revenue to the community (please refer to previous section 4(h). Three (3) comments were opposed to any routes on public lands because of the scenic beauty and sensitive habitats USACE Carters Lake affords. While generally supportive of the project purpose and need, these last 3 commenters expressed concern regarding the possibility of finding an alternative off public lands altogether, regardless of cost (please refer to previous section 8). Copies of the original comments are provided in Appendix A.

This Draft EA is made available for review by the interested public and agencies as described in Section 1(e). After the comment period, all comments will be discussed in this Section. Should multiple comments of the same nature be received, they may be categorized and discussed by topic rather than individually. All original comments will be kept on file in the Mobile District, U.S. Army Corps of Engineers. Based on the comments and discussion in this Section, revisions may be made to other sections of the Final EA.

10. APPENDICES:

(A) Summary of Public Coordination Prior to Preparation of Environmental Assessment

(B) Environmental Surveys and Correspondence

(B.1.) Ellijay- Rountop – Phase I USACE Carters Lake (P79427) 230kV Transmission Line-Environmental Survey Results Western Alternative Wetland and Ecological Consultants (October 11, 2011)

(B.2.) Survey for Istroia medeoloides (Small Whorled Pogonia) Along Ellijay Roundtop 230kV Transmission Line project Site: Gilmer County, Georgia Atlanta Botanical Garden (July 10-11, 2013)

(B.3.) USFWS letter- September 8, 2011

(B.4.) Ellijay- Rountop – Phase I USACE Carters Lake (P79427) 230kV Transmission Line-Environmental Survey Results Eastern Alternative Corblu Consultants (July 22, 2014)

(B.5.) Biological Evaluation (Bat Surveys) Ellijay –Roundtop T/L and Roundtop SS, Ellijay Gilmer County, Georgia, Terracon Consultants, (August 15, 2014)

(C) Cultural Resource Surveys and Correspondence

(C.1.) USACE ARPA Permit No. DACW01-4-12-0111, February 3, 2011

(C.2.) Archeological Survey of Carters Lake (ARPA Permit No. DACW01-4-12-0111, February 3, 2011)-Southeastern Archeological Services, Inc., December 29, 2011

(C.3.) Archeology Memorandum Carters Dam – Ellijay Route- Southeastern Archeological Services, Inc., March 26, 2014

(C.4.) USACE ARPA Permit No. DACW01-4-14-0173, July 17, 2014

(C.5.) Archeological Survey of Carters Lake (ARPA Permit No. DACW01-4-14-0173, July 17, 2014)-Southeastern Archeological Services, Inc., August 11, 2014

(D) Plans and Drawings

(E) Cumulative Impacts Assessment