

Appendix A

Detailed Environmental and Cultural Analysis



CONNECT COBB
Northwest Transit Corridor Alternatives Analysis
December 2012

Connect Cobb



Connect Cobb
Northwest Transit Corridor Alternatives Analysis

Environmental Factors Report

Prepared by:

JACOBSTM

July 2012

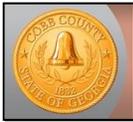
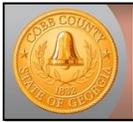


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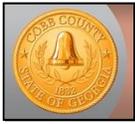
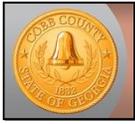


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1.0 INTRODUCTION AND OVERVIEW

The *Connect Cobb: Northwest Transit Corridor Alternatives Analysis* (AA) is being undertaken by the Cobb County Department of Transportation (Cobb DOT) to assess the potential for a transit connection from downtown Atlanta to northern Cobb County.

There are three levels of analysis associated with assessing alternatives within the AA:

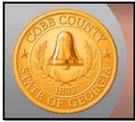
- Initial Alignment Analysis – to conduct a high level analysis of a universe of alignments identifying those advancing into Tier 1;
- Tier 1 Analysis – to assess alternatives against data-driven Measures Of Effectiveness (MOEs) and evaluate their viability for advancement into Tier 2 analysis; and
- Tier 2 Analysis – to develop a Locally Preferred Alternative (LPA) to be carried forward into the next phase of project development.

The purpose of this report is to provide an overview of the environmental analysis that was undertaken during the course of the AA and the environmental characteristics discovered as a result. The overall objective of this report is to provide the necessary foundation from which to build upon in the next phase of project development – whether it an Environmental Impact Statement (EIS) or Environmental Assessment (EA).

As such, this report documents the findings that factor into the selection of a LPA from the perspective of environmental impact potential. It is important to understand that potential environmental impacts are just one of the emphasis areas by which alternatives were evaluated.

The remainder of the report is organized as follows:

- Section 2: Evaluation Framework – A description of the development and application of the evaluation framework.
- Section 3: Initial Alignment Assessment – An overview of the high level qualitative analysis of the initial alignments identified through the Stakeholder Outreach process in order to identify the alignments appropriate for Tier 1 Analysis.
- Section 4: Tier 1 Analysis - Alignment Assessment – A report of the Tier 1 Alternatives evaluation methodology and analysis results.
- Section 5: Tier 2 Analysis - Hot Spot Analysis – A description of analysis of potential environmental ‘hot spots’ and ‘fatal flaws’ addressed in the Tier 2 analysis.
- Section 6: Environmental Justice (EJ) Analysis – A high-level assessment of potential impacts to EJ communities.
- Section 7: Conclusion – Highlights of the report findings moving forward into the next phase of project development.



2.0 EVALUATION FRAMEWORK

The evaluation framework for this study’s environmental factors was developed consistent with Federal Transit Administration (FTA) accepted practices. They are generally consistent with similar studies conducted throughout the region, and rely on use of existing, available data resources.

Table 1 provides an overview of the environmental issues typically assessed in the AA process. As shown, these issues are often either impact- or benefit-related. Impact-related factors are those that typically are addressed through avoidance and mitigation strategies. Benefit-related factors are those that typically result in favorable outcomes after implementation of a transportation improvement. All of the factors are considered and utilized in project approval and funding decisions under National Environmental Policy Act (NEPA) reviews and the FTA New Starts funding program.

Table 1: Environmental Issues Related to Transit Projects

Impact-Related	Benefit-Related
<ul style="list-style-type: none"> • Natural – Wetlands, streams, floodplains, endangered species • Cultural – Parks, churches, schools, cemeteries, etc. • Historical – Historic sites, archaeological sites • Physical – Hazardous sites, noise/vibration sensitive sites • Social – Low-income and minority populations, elderly and disabled 	<ul style="list-style-type: none"> • Air Quality - Reduction in emissions, Greenhouse gases • Sustainability – Promoting compact urban form, higher occupancy trips • Livability – Promoting economic development, healthier lifestyles • Economic – Opportunities for the transit dependent

2.1 Input from Stakeholders and Public

During the development of the evaluation framework, there were two meetings in which the public and project stakeholders were given the opportunity to provide input into the goals, objectives, and performance measures:

- Stakeholder Kickoff Meeting held on November 15, 2011; and
- Stakeholder Environmental Roundtable held on December 8, 2011.

The following highlights the input on environmental issues received at these events and how they were addressed:

- Emphasis should be focused on cleaner technologies as there is a general concern about greenhouse gases. (Air quality, to be addressed in Transportation MOEs)



- Vehicle trip reduction should be stressed in order to improve air quality. (Air quality, to be addressed in Transportation MOEs)
- Impacts to historic resources should be considered. (Historic Resources, Incorporated into Environmental MOEs)
- Social impacts are a major concern of this study. (Environmental Justice, Incorporated into Environmental MOEs)

2.2 Environmental Performance Measures

The following factors influenced the development of performance measures for environmental analysis in the AA:

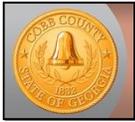
- Impact related measures typically involve physical features of the built and natural environment. Therefore, they are used to develop project constraints, and to identify areas that should be avoided if possible. If avoidance is not possible, then project alternatives within the constrained areas could result in mitigation requirements. Data exists to measure these potential impact-related issues and consists of environmental resource data files and reports produced by local, regional, and national resource agencies socio-economic statistics and Census data.
- Benefit-related measures relate to the favorable factors associated with build alternatives. As such, they do not lend themselves to constraint mapping and avoidance analysis. These factors are typically evaluated in later analysis and therefore, are not included in this Tier 1 analysis.

As noted above, the Tier 1 analysis was oriented towards identification of possible impacts to the built and natural environment consistent with NEPA procedures. Most of the natural, social, and economic environment related issues can be incorporated into the following objectives:

- Objective 1: Avoid and minimize potential impacts to environmentally sensitive resources and promote sustainable transportation solutions
- Objective 2: Avoid and minimize impacts to low income, minority, and historically underrepresented populations consistent with Environmental Justice (EJ) criteria.

These objectives are also consistent with the AA Purpose and Need Statement:

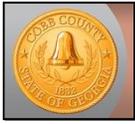
The Northwest Transit Corridor Alternatives Analysis (NWTCAA) will seek to identify appropriate transit improvements that can best serve existing and future mobility needs, encourage efficient and sustainable land use patterns, complement the local economy and improve the quality of life of our citizens, visitors and employees. Specifically, Cobb County residents working in Midtown and Downtown will have an attractive and convenient transit option. People traveling within Cobb County and from the City of Atlanta to destinations along Cobb Parkway will have a convenient and competitive transit option as well.



Based on these objectives, MOEs were developed based on two primary evaluation criteria – environmental preservation and EJ – as reflected in **Table 2**.

Table 2: Environmental Measures of Effectiveness

Evaluation Criteria	Measure of Effectiveness	Tier 1	Tier 2
Environmental Preservation	Estimated community impacts/disruptions for (residential, business, community, facilities, churches)	X	X
	Noise sensitive land uses within proximity to alignments	X	X
	Environmentally sensitive resources within ½-mile of alignment (wetlands, water bodies, parks, historic structures)	X	X
Environmental Justice	Minority, low-income, elderly and disabled populations within ½-mile of alignments	X	X



3.0 INITIAL ALIGNMENT ASSESSMENT

The purpose of this section is to describe the methodology and results of an initial qualitative analysis applied to the study area in order to identify the alignments to undergo Tier 1 Analysis.

3.1 Methodology

A map of the initial alignments presented to the public and AA stakeholders for comment is provided in **Figure 1**. The assessment of potential alignments focused on environmental factors to identify baseline conditions in the overall study area and address the goals and objectives established for the AA. The factors assessed included potential impacts to:

- Cultural Resources – Churches, cemeteries, schools, libraries, and parks from the Atlanta Regional Commission (ARC) Community Facilities and ESRI Nationwide Landmarks GIS files – as shown in **Figure 2** at the end of this section.
- Historic Sites – Sites inventoried on the current National Register of Historic Places GIS file - as shown in **Figure 3** at the end of this section.
- Water Resources – Jurisdictional wetlands and streams, as well as ponds and lakes from the current US Fish and Wildlife Service National Wetlands Inventory – as shown in **Figure 4** at the end of this section.
- Low Income and Minority Populations – Low income and minority populations, as defined by Executive Order 12898 on Environmental Justice (EJ), obtained from the US Census – as shown in **Figure 5** and **Figure 6** at the end of this section.
- Hazardous Sites – Sites included on the current Environmental Protection Agency (EPA) Regulated Facilities and Cleanup Area Site GIS files – as shown in **Figure 7** at the end of this section.

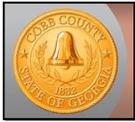
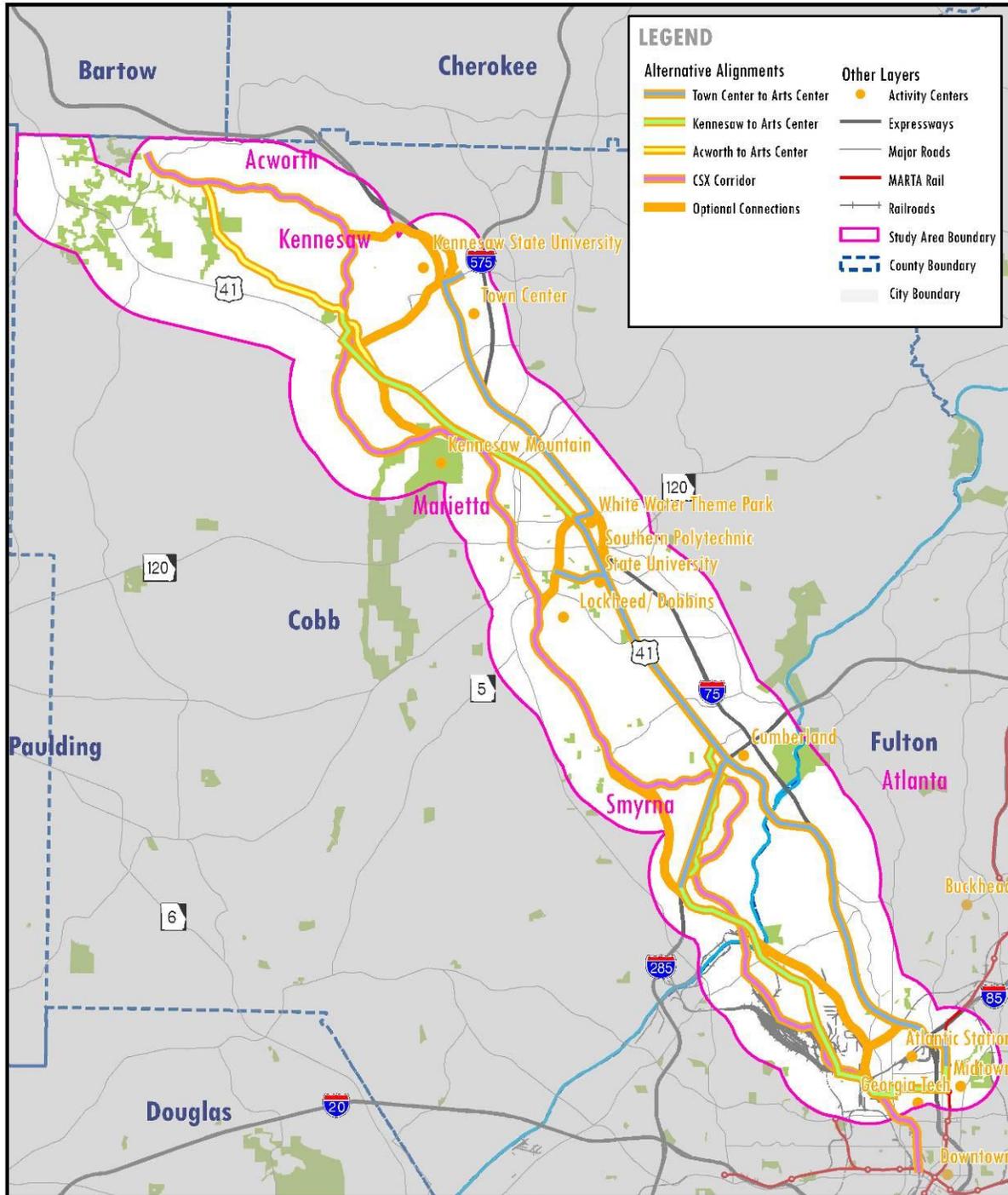


Figure 1: Alignments for Initial Assessment

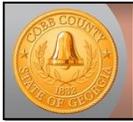


Initial Alternatives



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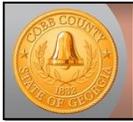




3.2 Initial Alignment Analysis Results

The alignments generally follow three corridors – Interstate 75 (I-75), US 41, and the CSX Rail line. In addition, a potential connection from Cumberland to Downtown Atlanta via I-285, Atlanta Road, Chattahoochee Avenue, and 14th Street was considered as an alternative to the I-75 corridor. Based upon the information shown in **Figures 2 through 7** (at the end of this report section), and supporting database analyses, the following describes environmental conditions prevalent in the study area.

- **Interstate 75 Corridor** – I-75 is a highly urbanized rural corridor. As such, the potential to impact community facilities including churches, parks, and cemeteries, is limited. The Chattahoochee River and associated tributaries are the primary water features along this corridor. Minority populations in this corridor are generally located between Marietta and the Cumberland area. Known contamination hazard sites are localized in the northern portion of Marietta, and are much less numerous along the remainder of the corridor.
- **US 41 Corridor** – US 41 closely parallels I-75, and is therefore similar in its potential to impact natural features. This is particularly true for water resources, as both corridors cross the same water bodies. Unlike I-75, however, US 41 is not an access controlled facility, and therefore exhibits a higher number of community facilities, such as churches and cemeteries, along its length. This is particularly true in the Kennesaw area, where US 41 traverses the older portion of the city. It should also be noted that the US 41 corridor has grade characteristics that would require a significant earthwork to accommodate a fixed guideway transit improvement which, in turn, would enhance the potential for community impacts during both construction and implementation. The corridor has similar concentrations of environmental justice populations and hazardous sites as the I-75 corridor.
- **CSX Rail Corridor** – Unlike the I-75 and US41 corridors, the CSX corridor was built on a ridge line in order to accommodate the grade and turn characteristics necessary for rail to operate. As a historic transportation corridor, it also connects town centers within the study area. Many of these early communities were first developed along the rail line. Given this early development pattern, there are many more community facilities and historic sites – particularly in Marietta – along the rail line than there are in the other two corridors. Having been built generally along a ridge line, there are fewer water features along the corridor than either the I-75 or US 41 corridors. The Fulton County portions of this corridor are highly industrial, and contain a concentration of known hazardous materials sites. The Fulton County portion of the corridor is also characterized by higher concentrations of both minority and low-income populations than other parts of the study area.



- **I-285/ Atlanta Road/Chattahoochee Avenue Corridor (Cumberland to Downtown)**
– This corridor follows an interstate facility and then traverses an area characterized by a high number of industrial uses along Atlanta Road and Chattahoochee Avenue into Midtown Atlanta. As such, the potential to impact natural and community resources are somewhat less than the I-75 corridor, which traverses primarily residential areas through Fulton County into Atlanta. Like I-75 corridor, this connection would require a crossing over the Chattahoochee River. The most significant environmental consideration is the proliferation of hazardous material sites along the Chattahoochee Avenue portion of the corridor that, in turn, could require significant mitigation. In addition, there are higher concentrations of minority and low-income populations in comparison to the I-75 corridor.

Based upon the initial screening analysis, the following conclusions can be made:

- The CSX corridor exhibits higher impact potential to historic sites, community facilities, industrialized sites, and low income and minority populations than the other two corridors.
- Avoidance of natural features may be easiest along the CSX corridor. However, avoidance and mitigation techniques along the US 41 and I-75 corridors appear manageable at this stage of analysis.
- The US 41 corridor has slightly higher potential for impacts to cultural and community facilities than the I-75 corridor, due primarily to its ease of access to these facilities.
- The US 41 and I-75 corridors have similar natural features constraints and potential impacts.
- With respect to Cumberland to Downtown connections, the I-285 connection would rate less favorable than the I-75 connection due to the presence of a high number of hazardous material sites along the Chattahoochee Avenue portion of the corridor.

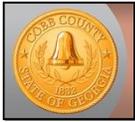
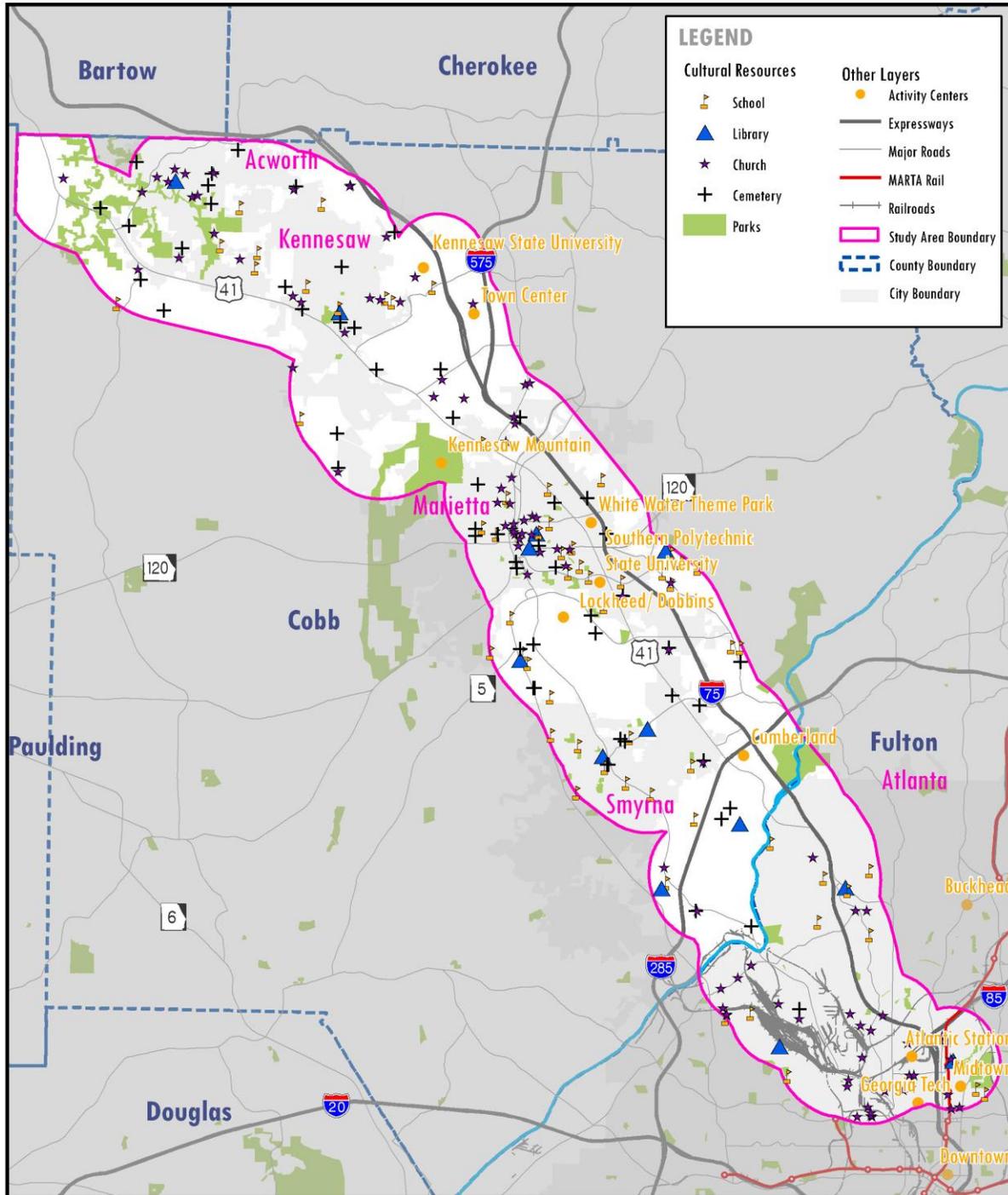


Figure 2: Community Resources for Initial Assessment



Cultural Resources



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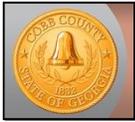
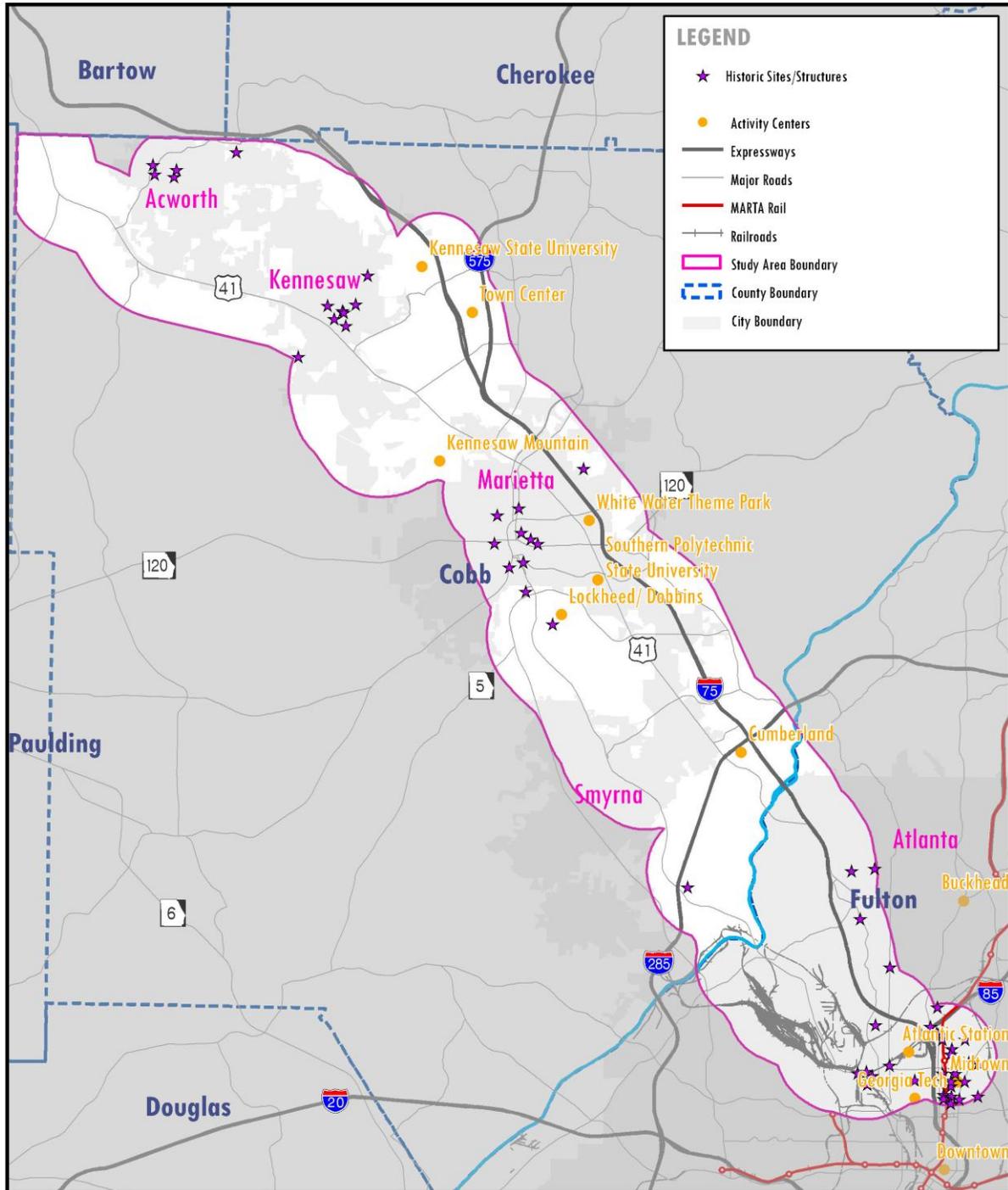


Figure 3: Historic Sites for Initial Assessment



Historic Sites

(National Register of Historic Places)

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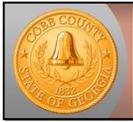
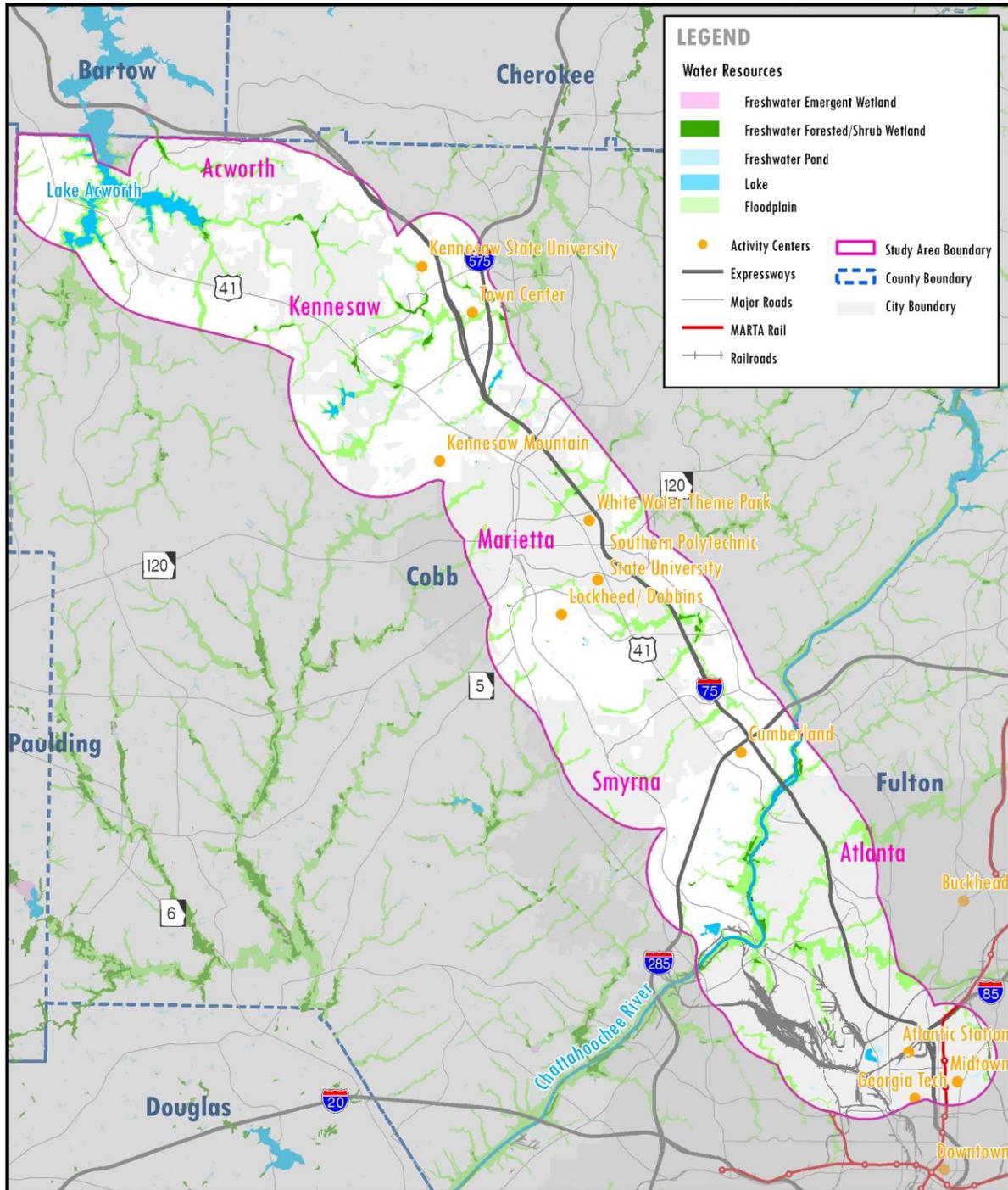


Figure 4: Water Resources for Initial Assessment



Water Resources



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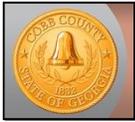
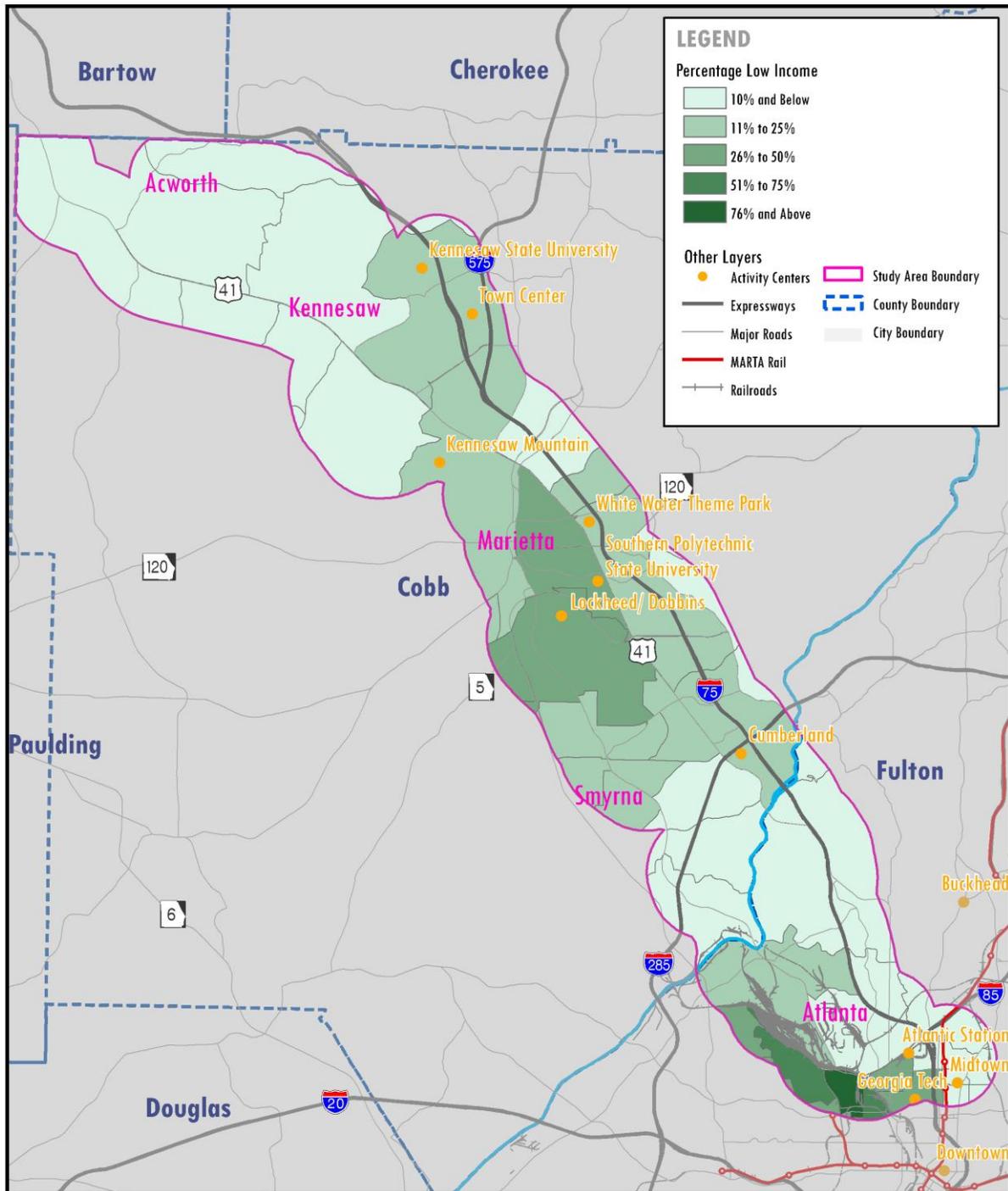


Figure 5: Low-Income Populations for Initial Assessment



Low Income Population

(2009 American Community Survey Tract)
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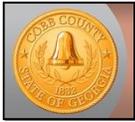
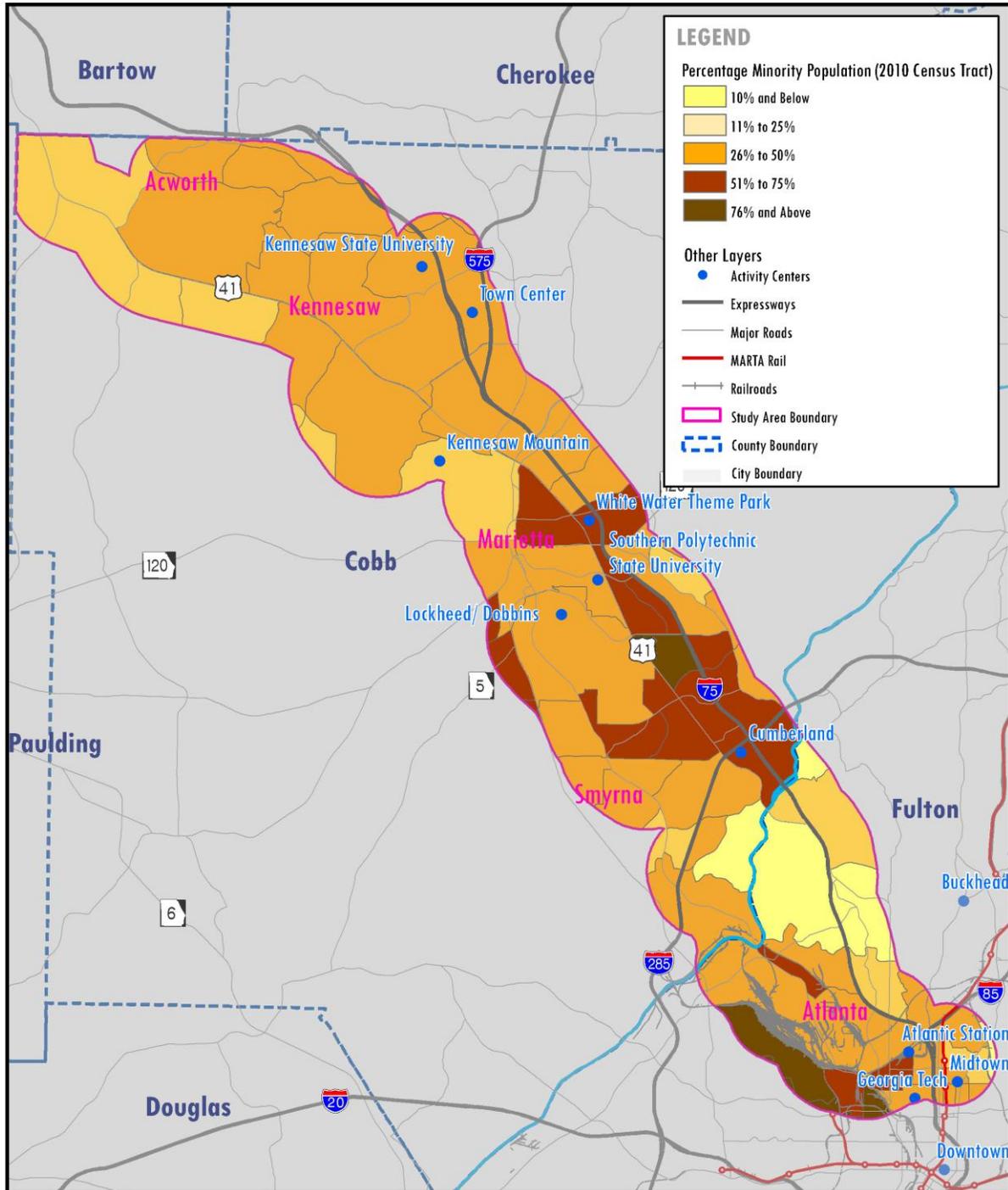


Figure 6: Minority Populations for Initial Assessment



Minority Populations

(2010 Census Tract)

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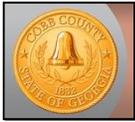
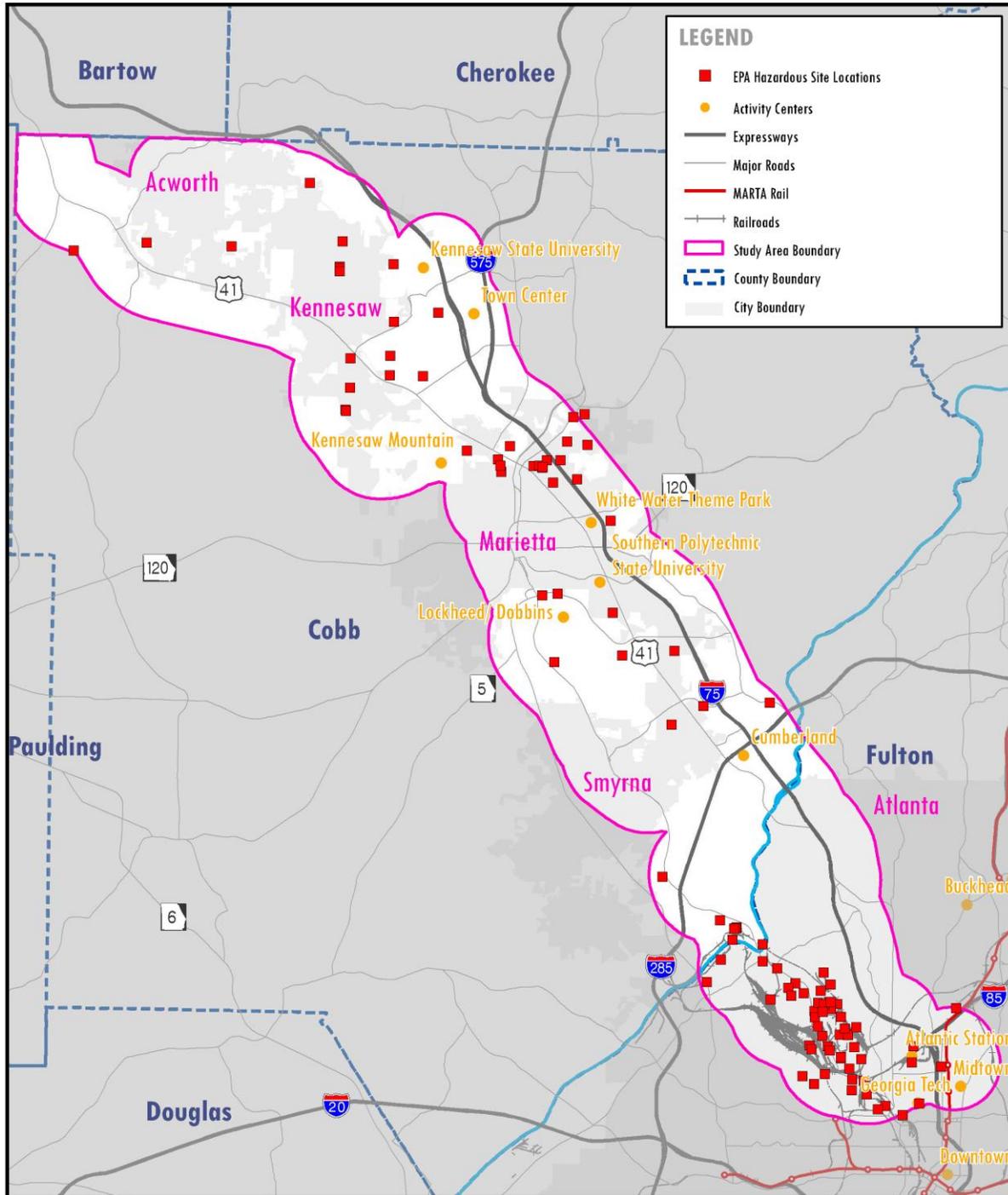


Figure 7: Hazardous Sites for Initial Assessment

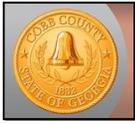


Hazardous Sites



CONNECT COBB: Northwest Transit Corridor Alternatives Analysis





4.0 TIER 1 ANALYSIS

Based upon the analysis presented herein, and in combination with other non-environmental MOE analysis, several alternatives were developed for advancement to Tier 1. As a result, the initial AA study area was expanded to accommodate these alternative alignments. These alternatives were along the following alignments shown in **Figure 8**.

- **Alignment 1 – Acworth to MARTA Arts Center Station along I-75** – This alignment would begin at I-75 and Cowan Road in Acworth and follow I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station.
- **Alignment 2 – Acworth to MARTA Arts Center Station along US 41** – This alignment would begin at the northern intersection of SR 92 and US 41 in Acworth and extend south along US 41 to Cumberland Boulevard, and would then follow Cumberland Boulevard to the existing CCT transfer station. This alignment would continue along Cumberland Boulevard to Akers Mill Road, and would then follow Akers Mill Road to I-75. The alignment would continue south along I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station.
- **Alignment 3 – Kennesaw State University to MARTA Arts Center Station along I-75** – This alignment would begin at I-75 and Frey Road near Kennesaw State University and follow I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station.
- **Alignment 4 – Kennesaw State University to MARTA Arts Center Station along US 41** – This alignment would begin at Kennesaw State University and follow Chastain Road/McCollum Parkway to US 41 and extend south along US 41 to Cumberland Boulevard and then follow Cumberland Boulevard to the existing CCT transfer station. This alignment would continue along Cumberland Boulevard to Akers Mill Road, and would then follow Akers Mill Road to I-75. The alignment would continue along I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station.

4.1 Tier 1 Analysis Measures of Effectiveness

The MOEs developed for the Tier 1 analysis are more detailed, and more quantitative, than those used in the Initial Screening Analysis. Since the alignment alternatives are better defined in Tier 1, analysis of their potential interactions with environmental resources can be more discreetly quantified. The evaluation factors utilized for this analysis are summarized in **Table 3**, and are more fully described in the following sections.

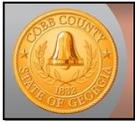
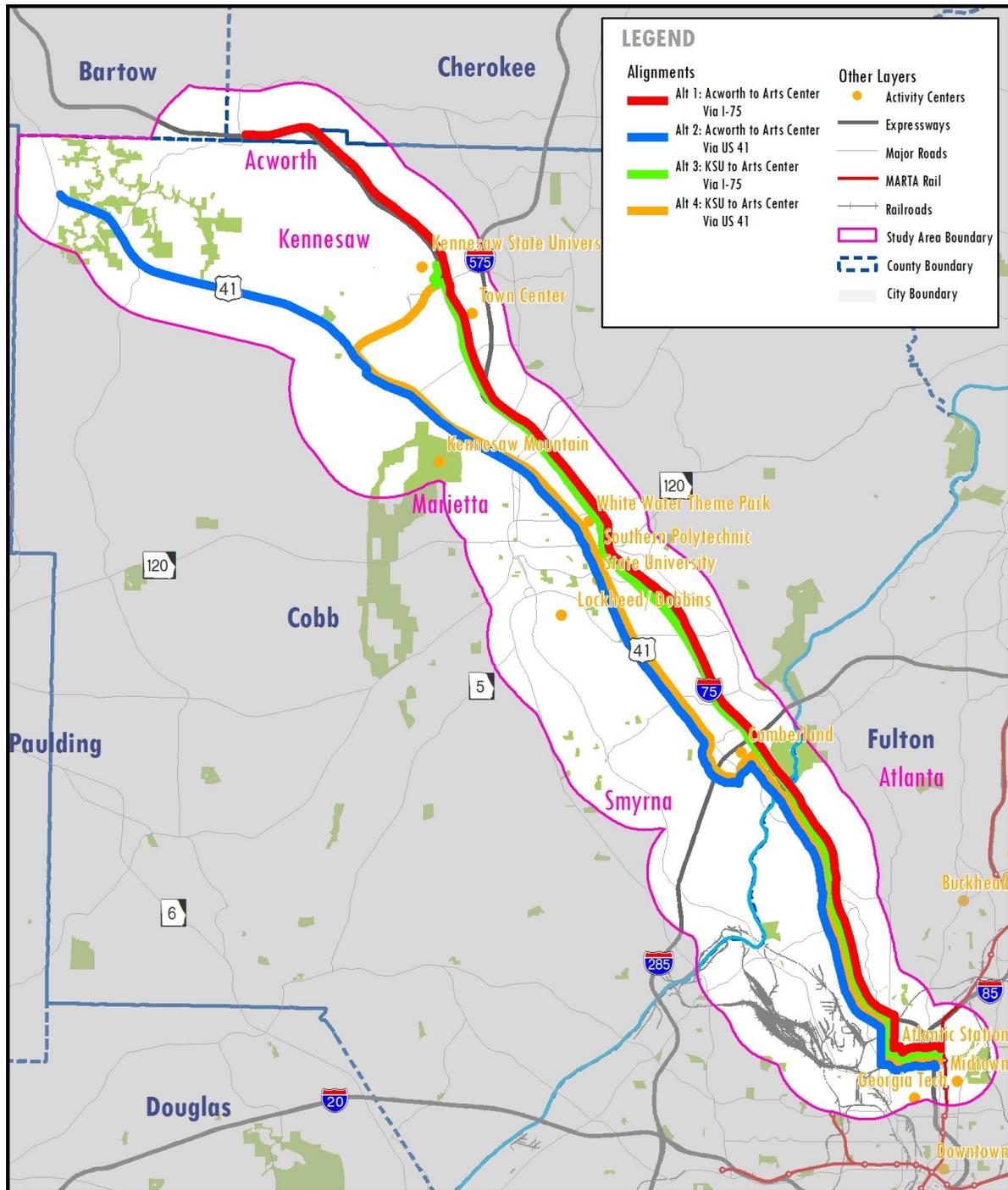


Figure 8: Alternative Alignments Subject to Tier 1 Analysis



Tier 1 Alternatives



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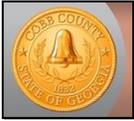


Table 3: Summary of Evaluation Methodology for Tier 1 Analysis

Goal: Minimize Adverse Environmental Impacts				
Evaluation Criteria	Measure of Effectiveness	Tools/Resources	Key Assumptions	Method of Analysis
Environmental Preservation	Estimated community impacts/disruptions to residences, businesses, and community facilities	<ul style="list-style-type: none"> • GIS spatial analysis • ARC ARIS community facilities shapefile • 2010 Census households at the block group level • Cobb County and City of Atlanta parcel data • Aerial Photography 	<ul style="list-style-type: none"> • Due to the built-out nature of the corridor, many established houses, businesses, and community facilities are in close proximity to the potential alignments. 	<ul style="list-style-type: none"> • Use GIS spatial analysis to count parcels within 500 feet from the alternative alignments.
	Noise sensitive land uses adjacent to alignment	<ul style="list-style-type: none"> • GIS spatial analysis • ARC ARIS community facilities shapefile • Aerial Photography • Future land use data 	<ul style="list-style-type: none"> • FTA guidance on transit noise assessment indicates thresholds to measure potential impacts of noise. • Noise-sensitive land uses are defined as single- and multi-family residential, low-density commercial and institutional uses (e.g., schools and churches). 	<ul style="list-style-type: none"> • Use GIS spatial analysis to identify and calculate the total acres of noise sensitive land uses within 500 feet of alternative alignments.



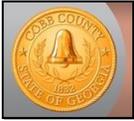
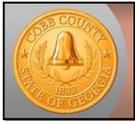


Table 3: Summary of Evaluation Methodology for Tier 1 Analysis (continued)

Evaluation Criteria	Measure of Effectiveness	Tools/Resources	Key Assumptions	Method of Analysis
Environmental Preservation (continued)	Environmentally sensitive resources within 1,000 feet of alignment	<ul style="list-style-type: none"> • GIS spatial analysis using - NWI, FIRMs, Historic resources shapefile developed by Georgia Department of National Resources, ARC ARIS GIS data, GDOT's statewide DLG-F Polygonal Hydrographic dataset 	<ul style="list-style-type: none"> • Alternatives within existing ROW are less likely to cause adverse impacts than alternatives requiring additional ROW • Impacts to the following resources are a Federal priority: <ul style="list-style-type: none"> ○ Acres of wetlands ○ Acres of 100-yr and 500-yr floodplains ○ Number of known and potential historic resources ○ Number of community resources (schools, churches, libraries, and cemeteries) ○ Number of known hazardous sites, USTs and landfills ○ Acres of parkland and protected greenspaces ○ Acres of hydrographic features including lakes, ponds, reservoirs, swamps and islands. 	<ul style="list-style-type: none"> • Assess the need to acquire environmentally sensitive ROW by using GIS to measure a project's proximity to seven environmentally sensitive area types.
Environmental Justice	Minority, low-income and elderly populations within ½ -mile of alignments	<ul style="list-style-type: none"> • 2010 US Census at the block group level • GIS spatial analysis 	<ul style="list-style-type: none"> • Minority population is defined as Black, Hispanic, Asian American, American Indian or Native Alaskan populations • Low-income households are those at or below the poverty line as established by the US Department of Health and Human Services • EJ populations are equally distributed throughout a given Census block group • Some individuals could fall under multiple categories of EJ. • Elderly population is 65 years of age or older 	<ul style="list-style-type: none"> • Use GIS spatial analysis to evaluate a project's potential to disrupt EJ communities by calculating the number of EJ populations within ½ -mile of alignment.



4.2 Environmental Preservation

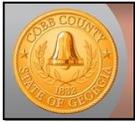
4.2.1 Environmentally Sensitive Resources

This MOE offers a cursory review of the potential for alternatives to impact the natural and built environment. As the corridor continues to develop with higher densities, the need for preserving natural resources and mitigating negative impacts becomes all the more important. Care should be taken to ensure that potential impacts to the environment are minimal and can be mitigated. GIS spatial analysis will be applied to the following measures to assess potential impacts to the natural environment:

- Acres of impacted wetlands within proposed project limits pursuant to the National Land Cover Database;
- Acres of 100-year and 500-year floodplains within proposed project limits pursuant to the Flood Insurance Rate Map (FIRM);
- Number of historic resources within GIS layer developed by Historic Preservation Division of Georgia Department of Natural Resources;
- Number of known hazardous sites, USTs and landfills based on the current Environmental Protection Agency (EPA) Regulated Facilities and Cleanup Area Site GIS files
- Acres of parks and greenspaces within proposed project limits pursuant to ARC's Land Use Planning Division GIS layer;
- Number of community resources (schools, churches, cemeteries, and libraries) per the data from Cobb County; and
- Acres of water bodies of 5 acres or more per GDOT's DLG-F Polygonal Hierarchy.

This MOE offers a cursory review of the potential impacts of the Tier 1 alternatives to the natural and built environment. The resources evaluated are valued from an ecological, community, or historical perspective, and avoidance measures are always considered as the first mitigation option. When avoidance is not possible, impacts to these resources typically require extensive proof of need, and can incur long permit periods. Also, several of these resource categories are protected by state and federal law. Therefore, identification of the potential involvement of these resource categories should help to shape the alternatives development process. The specific features analyzed, and the data sources utilized, include:

- Acres of impacted wetlands within proposed project limits (National Land Cover Database);
- Acres of 100-year and 500-year floodplains within proposed project limits (Flood Insurance Rate Map (FIRM));



- Number of historic resources affected (Historic Preservation Division of Georgia Department of Natural Resources);
- Number of known hazardous sites, USTs and landfills (Environmental Protection Agency (EPA) Regulated Facilities and Cleanup Area Site files)
- Acres of parks and greenspaces within proposed project limits (ARC’s Land Use Planning Division GIS layer);
- Number of community resources (schools, churches, cemeteries, and libraries) (Cobb County); and
- Acres of water bodies of 5 acres or more (GDOT’s DLG-F Polygonal Hierarchy).

A more detailed assessment of the environmental factors considered as part of this MOE is provided in the sections that follow. A summary of the overall impacts is provided in **Table 13** at the end of this section.

Wetlands

The preservation of wetlands is recognized due to their influence on the natural environment both on- and off-site. Not only are they serve as critical ecological habitat, but they also act as the initial filtration device for pollutants for the overall hydrological systems in which they are a part. There are several policy documents that require the protection of wetlands, most notably Section 404 of the Clean Water Act.

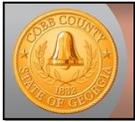
A map of wetlands along the Tier 1 alignments is presented in **Figure 9**. Given the urbanized nature of the corridor, there is not a great deal of wetland acreage along the Tier 1 alignments. The most significant concentrations of wetland areas are in the vicinity of the Chattahoochee River and Lake Acworth. It should be noted that stream impacts are a very important consideration from a mitigation perspective and, therefore, will be assessed in Tier 2.

From an alignment comparison perspective, as reflected in **Table 4**, there are similar amounts of wetland acreage along all of the Tier 1 alignments with the exception of Alignment 2. This is due to its proximity to Lake Acworth.

Table 4: Wetland Acreage along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Freshwater Emergent Wetland	4.5	3.0	4.6	1.8
Freshwater Forested/Shrub Wetland	19.9	23.9	15.76	49.43
Freshwater Pond	26.1	35.43	28.05	43.79
Lake	3.6	45.91	1.73	0.00
Riverine	41.9	42.73	42.73	42.73
TOTAL	97.84	150.86	92.83	137.76

Source: US Fish and Wildlife Service, National Wetlands Inventory, 2011.



Floodplains

Potential impacts to floodplains are an important feature to measure due to their influence on our overall water quality and to mitigate potential risks to infrastructure constructed within them.

A map of the floodplains along the Tier 1 alignments is provided in **Figure 10**. Much like the wetland characteristics, the largest concentrations of floodplains are located in the vicinity of the Chattahoochee River and Lake Acworth. As shown below in **Table 5**, the acreage of potentially impacted floodplain by the Tier 1 alignments is also somewhat similar. Since all of the alignments cross the Chattahoochee River at the same location, the largest differentiator is the proximity of Alignment 2 to Lake Acworth.

Table 5: Floodplain Acreage along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
100-Year	545.22	530.73	499.02	463.70
500-Year	40.59	90.20	40.28	67.05
TOTAL	585.81	620.92	539.29	530.75

Source: US Fish and Wildlife Service, National Wetlands Inventory, 2011.

Historic Resources

The protection of historic resources is regulated under Section 106 of the National Historic Preservation Act, which pertains to the protection of historic properties under NEPA. As such, potential impacts to these resources are an important consideration for transportation projects subject to NEPA review – such as those financed with Federal funding.

A total of seventy-one (71) properties 50 years old or older were identified within 1,000 feet of the Tier 1 alternative alignments. A map of historic resources throughout the study area with respect to the Tier 1 alignments is provided in **Figure 11**. As shown, historic properties throughout the study area are primarily concentrated in the older areas of Acworth, Marietta, Kennesaw, and Atlanta. Of these areas, all but the historic area of Kennesaw are outside of the alignment buffers for Tier 1 alternatives.

A breakdown of the historic resources by alignment is provided in **Table 6**. As reflected, the alignment with the most historic resources is Alignment 2. This is primarily due to its traversal of older areas in and around Kennesaw and Acworth. Furthermore, in assessing the “degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8))”, Alignment 2 would also have the greatest potential as well. As with many of the environmental MOEs within this analysis, the US 41 corridor alignments are characterized by greater potential for impacts due to the access characteristics of the roadway.

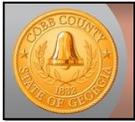


Table 6: Historical Resources along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Total Resources	31	48	26	32
National Register of Historic Places Status				
Listed	5	6	5	5
Eligible	1	5	1	5
Appears to Meet Criteria	5	15	4	13
Not Eligible	17	10	15	4
More Information Needed	2	11	1	5

Source: State of Georgia Natural, Archaeological, and Historic Resources GIS (GNAHRGIS)

Community Resources

For the purposes of this analysis, community resources are defined as cemeteries churches, schools, and libraries. Understanding potential impacts to these resources provides:

1. A better idea of potential overall impacts to the affected community; and
2. A precursor of mitigation strategies that may be necessary for a given alignment for NEPA compliance.

The study area is a highly urbanized environment and, characteristically, community facilities are fairly widespread throughout. From an alignment perspective; however, they are a higher number of resources along the US 41 corridor as would be expected given its access characteristics when compared to I-75. Also, because it traverses a greater length of the two US 41 corridors, Alignment 2 would have greatest potential to impact these facilities. The number of community resources along the proposed alignments is shown in **Table 7**. In comparing these impacts, those that could potentially present the most significance from a regulatory perspective are the presence of cemeteries – particularly along US 41.

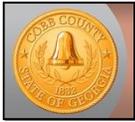
Table 7: Community Resources along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Cemeteries	3	7	3	6
Churches	4	7	4	4
Schools	1	4	1	3
Libraries	0	0	0	0
TOTAL	8	18	8	14

Source: ESRI Nationwide Landmarks and Atlanta Regional Commission (ARC) Community Facilities File

Parks

Much like historic preservation, the protection of parklands from the adverse impacts of development is another cornerstone of environmental legislation. For transportation



projects, their protection is primarily regulated by Section 4(f) of the US Department of Transportation Act of 1966 (Section 4(f)) and applies to the action of agencies under the USDOT – such as the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA).

As shown in **Figure 13**, most of the parklands within the study area are concentrated around the more significant natural features such as the Chattahoochee River, Kennesaw Mountain and Lake Acworth.

A matrix of the parks along this buffer is provided in **Table 8**. As such, the most significant recreational feature in the study area is the Chattahoochee National Recreation Area, which all of the alignments would impact in a similar nature. From an alignment comparison perspective, Alignment 2 presents the highest potential for impacts because of its proximity to Lake Acworth Park. Otherwise, potential impacts amongst the remaining alignment alternatives are relatively similar in scale.

Table 8: Parkland Acreage along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Chattahoochee Nat'l Rec Area	92.98	92.98	92.98	92.98
A.L. Burruss Nature Park	**	32.71	**	32.71
Adams Park	**	10.92	**	**
Beaver Brook Park	6.96	6.96	6.96	6.96
Channing Valley Park	0.07	0.07	0.07	0.07
Pershing Point Park	0.33	0.33	0.33	0.33
Custer Park	**	8.19	**	8.19
Lake Acworth Park	**	183.92	**	**
Mt. Paran-Cave Road Triangle	0.07	0.07	0.07	0.07
Proctor Landing Park	**	0.08	**	**
Tennyson Circle	0.03	0.03	0.03	0.03
Underwood Hills Park	9.77	9.77	9.77	9.77
Woodland Park	**	0.42	**	**
TOTAL	110.21	346.44	110.21	151.10

Source: ARC and Cobb County GIS Files

** - No Potential Impact

Hazardous Material Sites

As presented in **Table 9**, there is little variation in the number of hazardous material sites along the four Tier 1 alignments. Alignment 4, which traverses industrial areas near Allgood Road in Marietta and Chastain Road in Kennesaw, rated the highest for potential impact, but the overall number will still somewhat small given the overall alignment lengths (ranging from 21 to 29 miles). A map of the hazardous material sites is provided in **Figure 14**. While there are numerous sites in the study area, very few fall within 1,000 feet of the Tier 1 alignments.

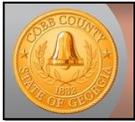


Table 9: Hazardous Materials Sites along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Number of Sites	5	6	5	9

Source: EPA Regulated Facilities and Cleanup Areas Site File

4.2.2 Potential Community Impacts/Disruptions

An inventory of the parcels located within 500 feet of the alignments was used in order to gauge the potential for disruptions to neighborhoods and/or communities. This inventory is presented in **Table 10**.

Table 10: Number of Parcels along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Number of Parcels	1,697	2,123	1,545	1,820

Source: Parcel Data from Cobb, Fulton, and Cherokee Counties

As would be expected, the alternatives along US 41 – Alternatives 2 and 4 - have more numerous individual parcels given the access characteristics in comparison to I-75. From an alignment comparison perspective, Alignment 2 – as the longer of the two US 41 alignments - has the highest number of parcels within its buffer. A map depicting the parcels inventoried within is provided in **Figure 15**.

4.2.3 Noise Sensitive Land Uses

Using FTA guidance on transit noise assessment, this evaluation includes an analysis of potential impacts of noise associated with the project alternatives. Construction and operation of new transit facilities poses a potential noise problem for residents and businesses near an alignment. Noise-sensitive land uses are defined as single- and multi-family residential, low-density commercial and institutional uses (e.g., schools and churches). This measure requires application of GIS to identify the noise-sensitive land uses within 500 feet of alternative alignments.

Table 11 presents the distribution of noise sensitive land uses along the Tier 1 alternative alignments. As would be expected given their respective accessibility characteristics, the number of potentially noise sensitive land uses are greater along the US 41 corridor than the I-75 corridor. This is particularly true for commercial properties, which are limited to interchange areas along I-75 but are the predominant land use along US 41. A map depicting potential noise sensitive land uses along the Tier 1 Alternatives is provided in **Figure 16**.

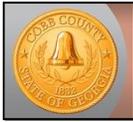


Table 11: Noise Sensitive Land Uses along Tier 1 Alignments

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Alignment Length (Miles)	27.4	29.4	21.4	25.3
Total Area Under Analysis (Acres)	3,253	3,572	2,604	2,872
Residential Acreage	689	596	511	479
Institutional Acreage	0	34	0	16
Commercial Acreage	572	1,815	549	1,438
Total Potential Noise Sensitive Acreage	1,261	2,445	1,060	1,933
% Potential Noise Sensitive	38%	68%	41%	67%

Source: Parcel Data from Cobb, Fulton, and Cherokee Counties

4.3 Environmental Justice

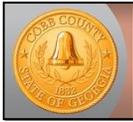
Environmental Justice (EJ) refers to the practice by which transportation projects are planned in such a manner as to minimize disproportionate impacts to areas with high percentages of minority and low-income residents. This analysis also involved potential impacts to traditionally transit-dependent groups such as elderly populations. GIS analysis was used to estimate the number of minority, low-income, and elderly populations within a half-mile of alternative alignments. For the intended purpose low-income populations are those that earn at or below the national poverty level and elderly populations are defined as those 65 years old or older. The results of this analysis are found in **Table 12**. Within the study area, as shown on **Figures 17-19**, the highest concentration of EJ populations are found in two areas – 1) in the central portion of the study area between Cumberland and northeastern Marietta; and 2) on the far southern portion of the study area in Atlanta.

Table 12: Environmental Justice Populations along Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Total Population (within ½ mile)	75,501	71,500	61,116	63,859
Minority Population				
Total	36,953	33,943	31,296	31,429
Percentage	48.9%	47.5%	51.2%	49.2%
Elderly Population (Over 65)				
Total	4,651	4,803	3,662	4,144
Percentage	6.2%	6.7%	6.0%	6.5%
Total Population for Whom Poverty is Determined *	70,786	66,920	57,279	58,751
Low-Income Population				
Total	10,615	9,233	9,359	8,995
Percentage	15.0%	13.8%	16.3%	15.3%

Source: US Census, 2010.

*- Based on American Community Survey Data, 2009. 2010 income status has not been released by the Census.



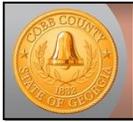
As shown in **Table 12**, the distributions of minority, elderly, or low-income populations are very similar from an alignment comparison perspective. It should be noted that, upon identification of Tier 2 alternatives, a more detailed assessment of potential disproportionate impacts to these populations will be undertaken as part of Tier 2 analysis.

4.4 Tier 1 Environmental Analysis Results

Alternatives were ranked based upon the proximity of the resource classes, with higher ratings going to those alternatives with fewer environmentally sensitive resources along the Tier 1 alignments (presented in **Figure 8**). The Tier 1 alternatives were evaluated based on their potential involvement with these resources. The results of this assessment are presented in **Table 13**. As shown, the potential impacts to environmental resources of the Tier 1 alignments are somewhat similar in scale.

Table 13: Summary of Environmental Results for Tier 1 Alternatives

	Alignment 1	Alignment 2	Alignment 3	Alignment 4
Alignment Length (Miles)	27.4	29.4	21.4	25.3
Environmentally Sensitive Resources				
Total Wetland Acreage	97.84	150.86	92.83	137.76
Total Park Acreage	110.21	346.44	110.21	151.10
Total Floodplain Acreage	585.81	620.92	539.29	530.75
Total Historic Resources	31	48	26	32
Total Community Resources	8	18	8	14
Total Hazardous Material Sites	5	6	5	9
Potential Impact Alignment Rating	Low	High	Low	Medium
Alignment Ranking	2	4	1	3
Number of Potentially Impacted Parcels	1,697	2,123	1,545	1,820
Potential Impact Alignment Rating	Low	Medium	Medium	Medium
Alignment Ranking	1	T-2	T-2	T-2
% Potential Noise Sensitive Land Uses	38%	68%	41%	63%
Potential Impact Alignment Rating	Low	High	Low	High
Alignment Ranking	1	4	2	3
Environmental Justice				
Minority Population Percentage	48.9%	47.5%	51.2%	49.2%
Low-Income Population Percentage	15.0%	13.8%	16.3%	15.3%
Elderly Population Percentage	6.2%	6.7%	6.0%	6.5%
Potential Impact Alignment Rating	Medium	Medium	Medium	Medium
Alignment Ranking	NA	NA	NA	NA
CUMULATIVE IMPACT ALIGNMENT RATING	Low	High-Medium	Low-Medium	Medium
CUMULATIVE ALIGNMENT RANKING	1st	4th	2nd	3rd



The following conclusions are made as a result of this analysis:

- All of the Tier 1 alignments cross the Chattahoochee River National Recreation Area. Given its national significance, impacts to this resource will need to be carefully avoided if possible. If avoidance is not possible, then special mitigation measures may be needed. Since all alternatives cross the river at the same location, there is no differentiation between the alignments in terms of potential impacts to this resource.
- All of the Tier 1 alignments have similar concentrations of traditionally underserved populations.
- There is a slightly higher concentration of wetlands within the buffer along US 41 than I-75.
- The major difference in the two alignments along US 41 is the potential for Alignment 2 to impact wetlands and parklands in the vicinity of Lake Acworth.
- There is a slightly higher concentration of parklands within the buffer along US 41 than I-75 – particularly along Alignment 2. However, as previously noted, all of the alignments will have the same level of involvement with the Chattahoochee National Recreation Area.
- As would be expected due to the access characteristics of the two corridors, the US 41 corridor also has a higher number of community resources along it than does the I-75 corridor Alignment 2, which extends into the areas of mature development within Kennesaw, has the highest number of potential historic sites within the proximity buffer to the alignment. The other Tier 1 alternatives all have similar numbers of potential historic sites nearby.
- The number of potential hazardous material sites along all of the alignments is similar, and is primarily concentrated in the area near Allgood Road in northeast Marietta.

In summary, the potential involvement with environmental resources are proportional to the length of the alternative, and are slightly higher along US 41 than along I-75.

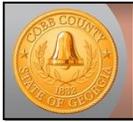
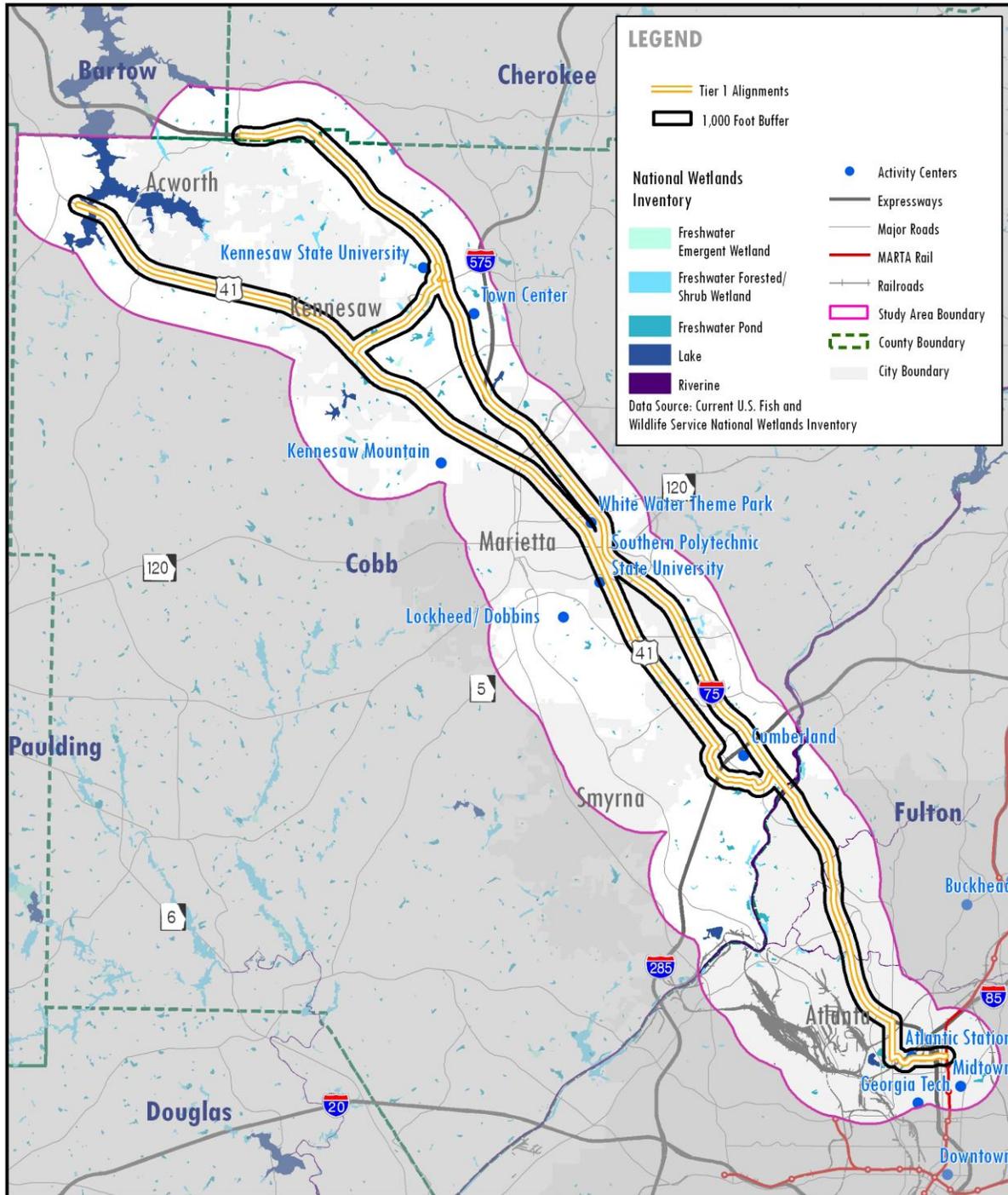


Figure 9: Wetland Areas along Tier 1 Alignments



Wetlands along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



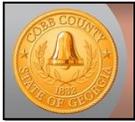
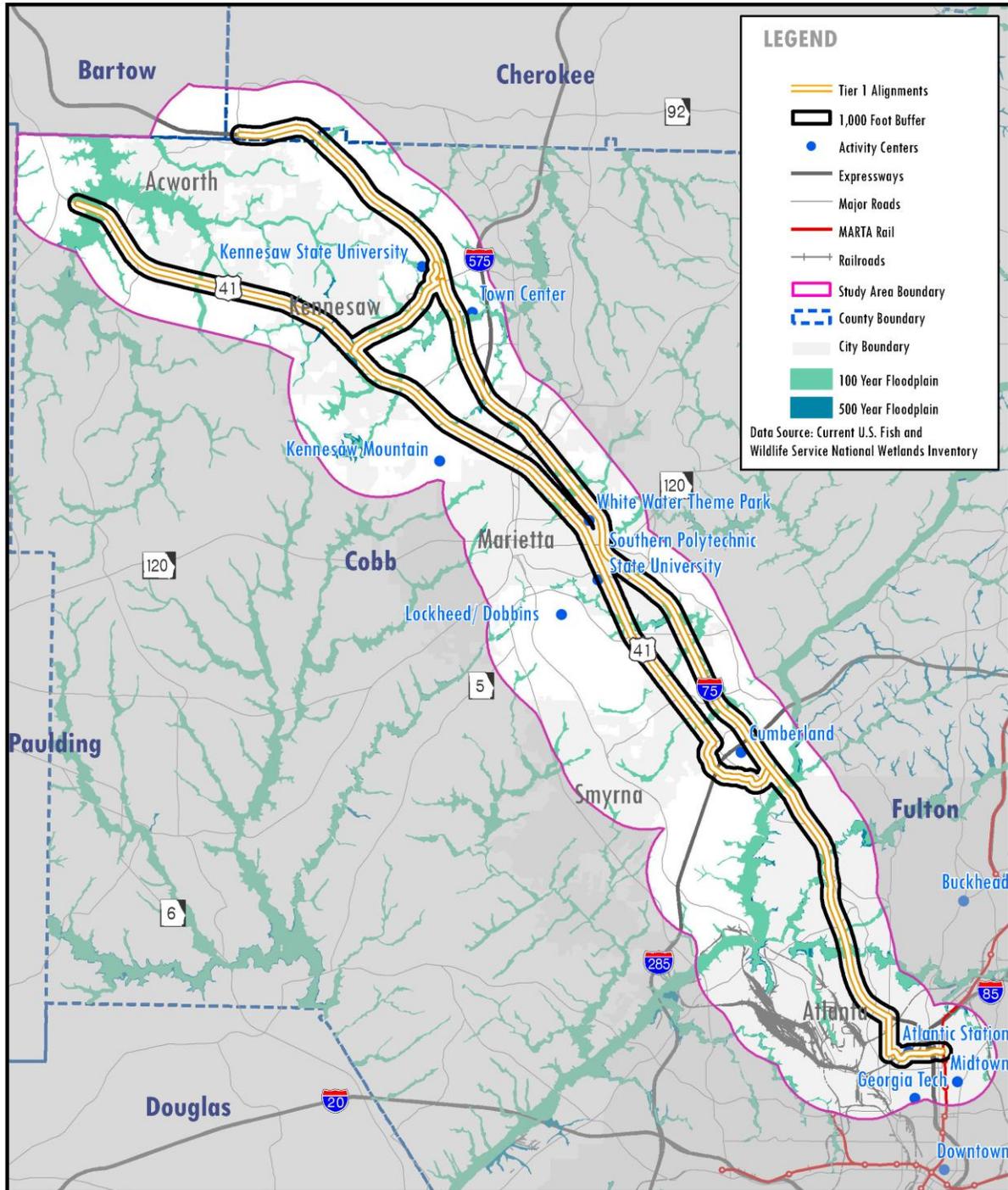


Figure 10: Floodplain along Tier 1 Alignments



Floodplain along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



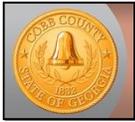
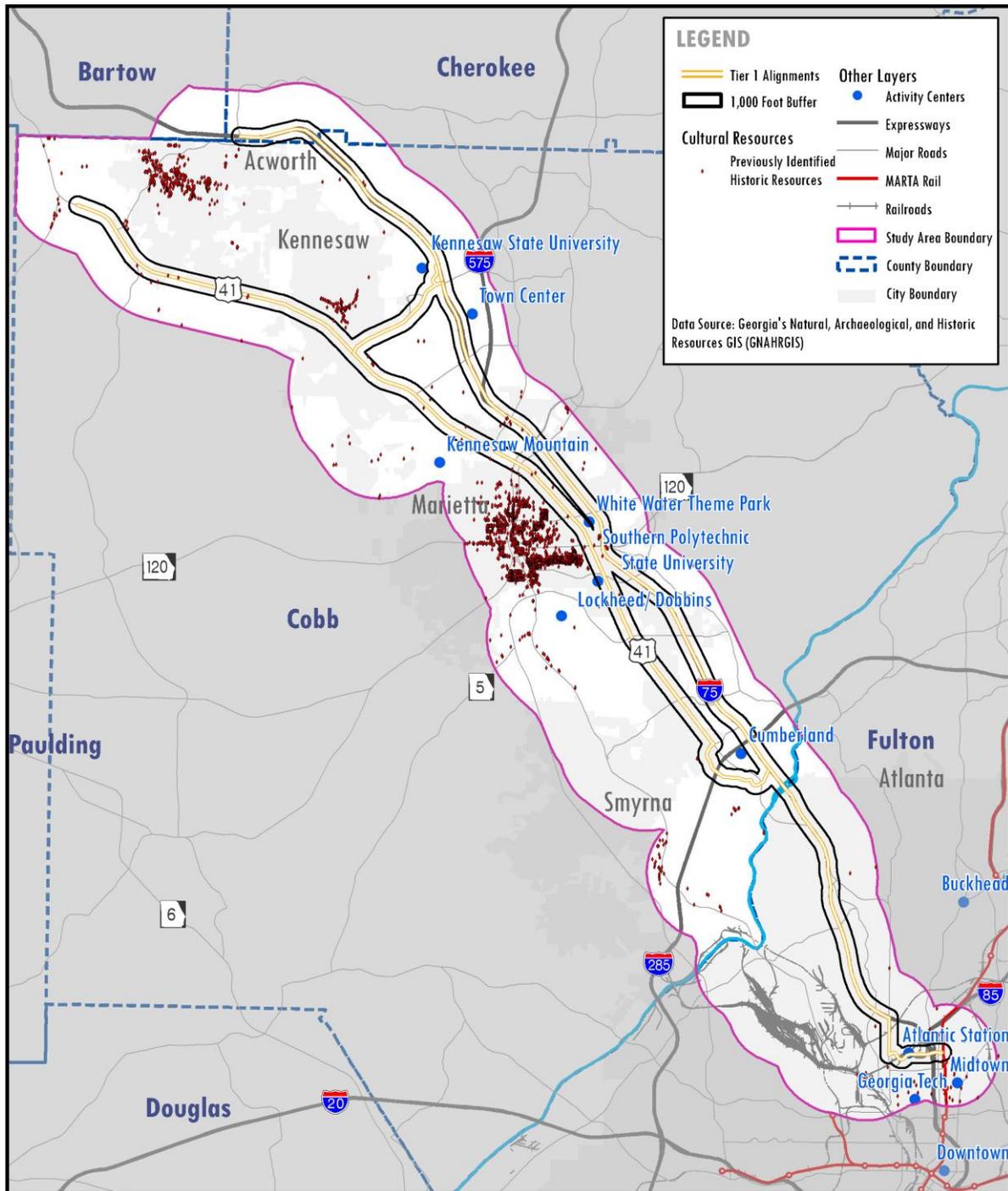


Figure 11: Historical Resources along Tier 1 Alignments



Historic Resources along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



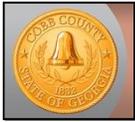
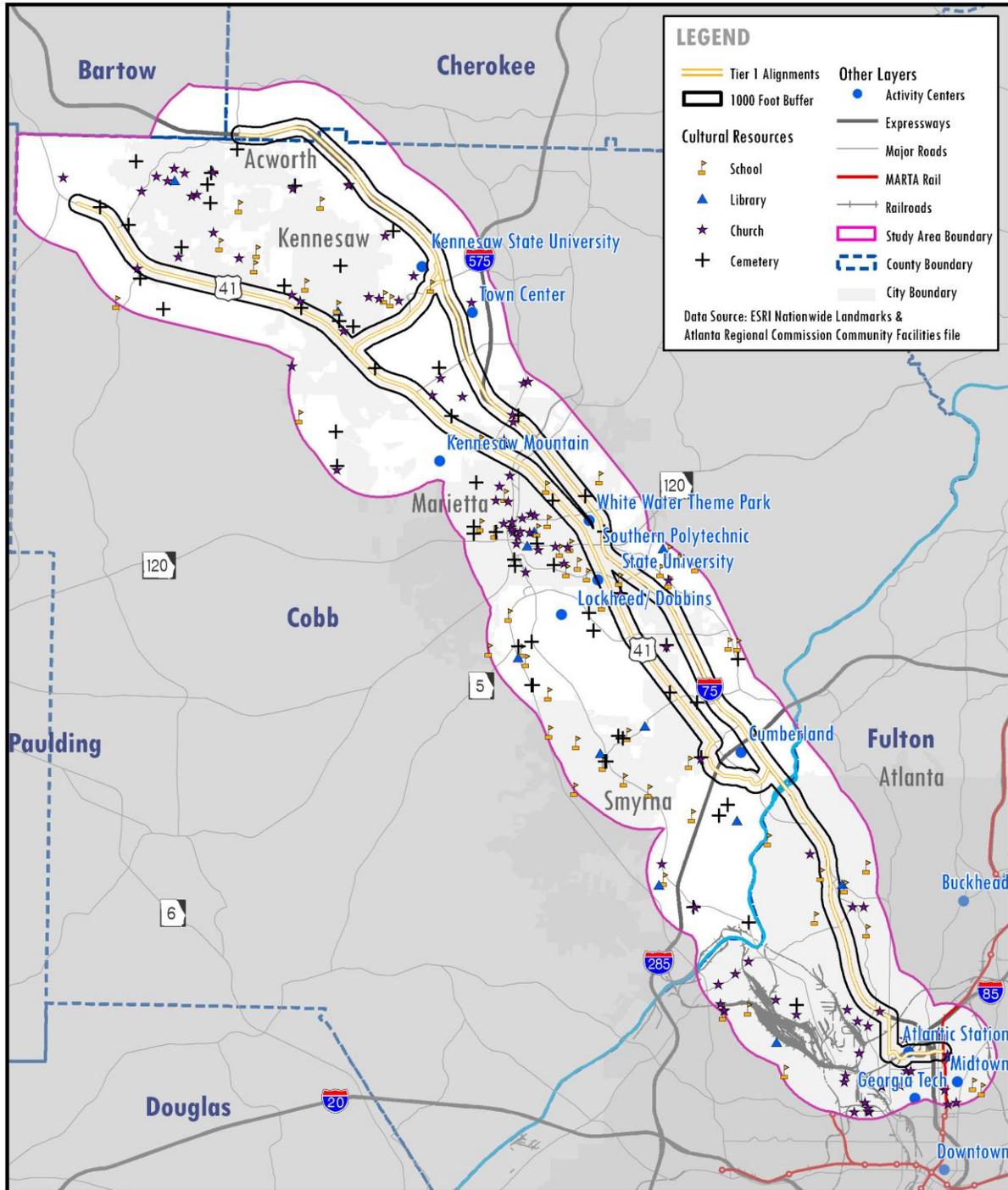


Figure 12: Community Resources along Tier 1 Alignments



Community Resources along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



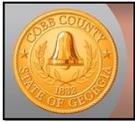
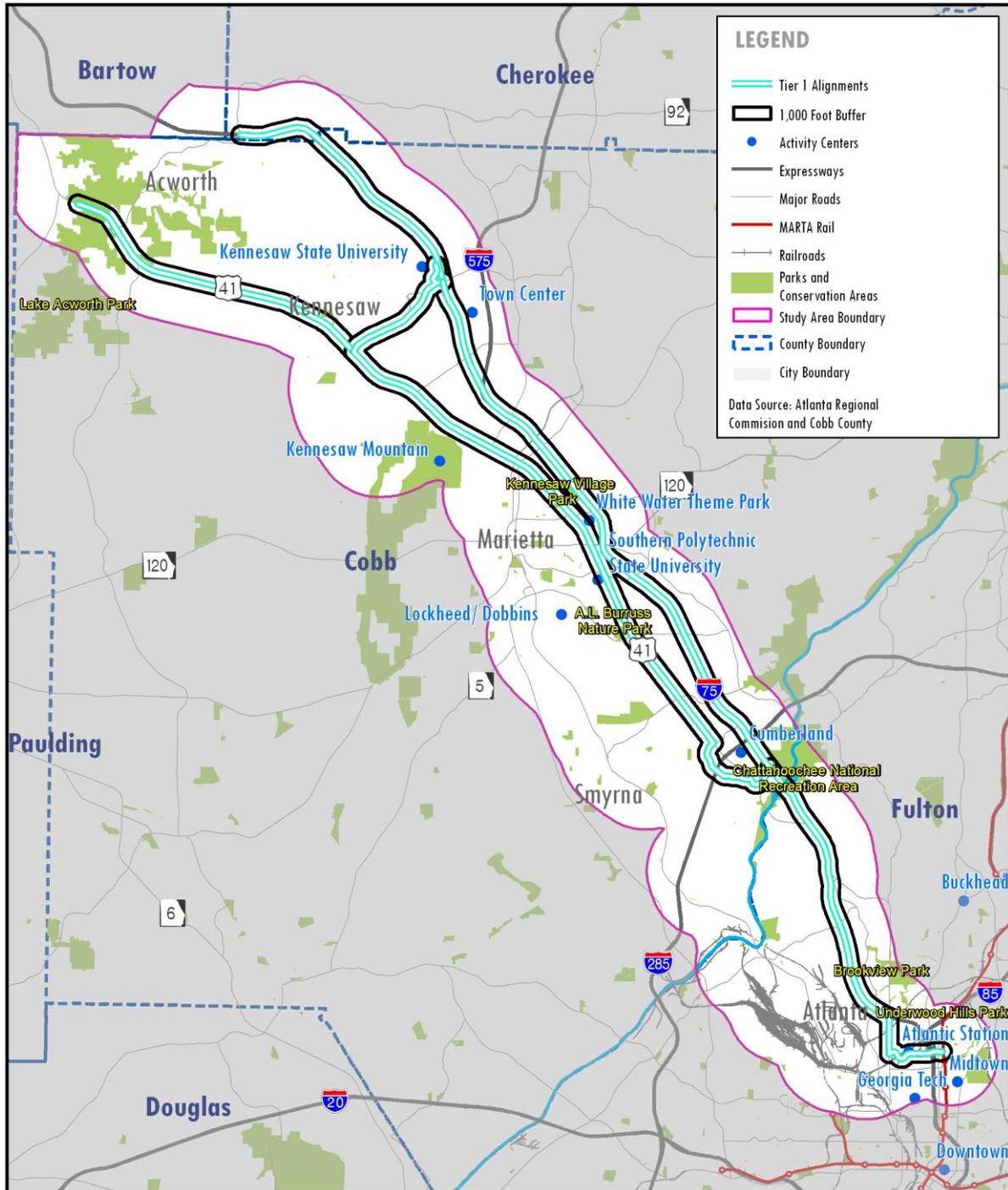


Figure 13: Parklands along Tier 1 Alignments



Parklands along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



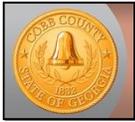
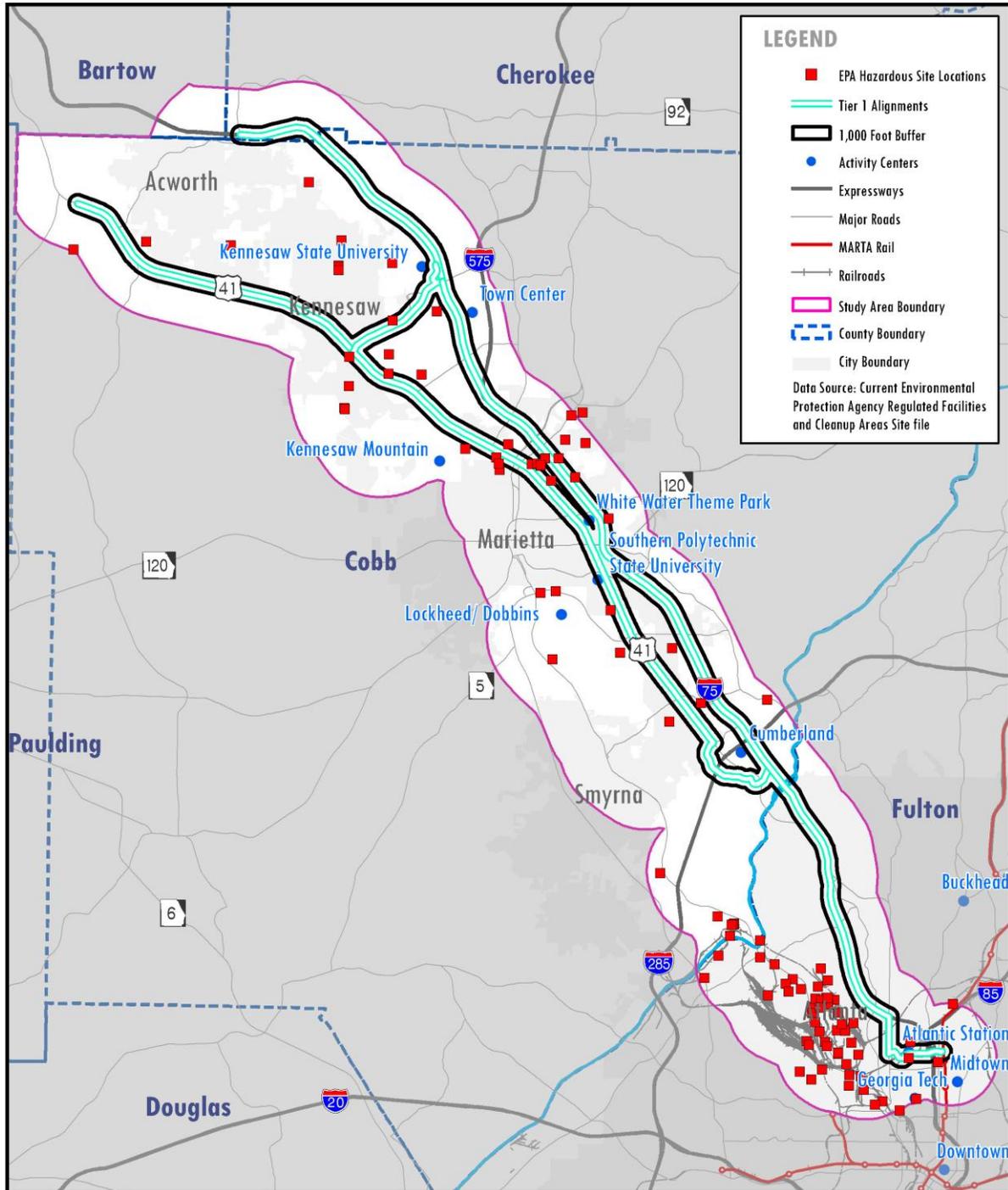


Figure 14: Hazardous Material Sites along Tier 1 Alignments



Hazardous Material Sites along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



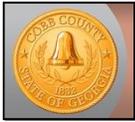
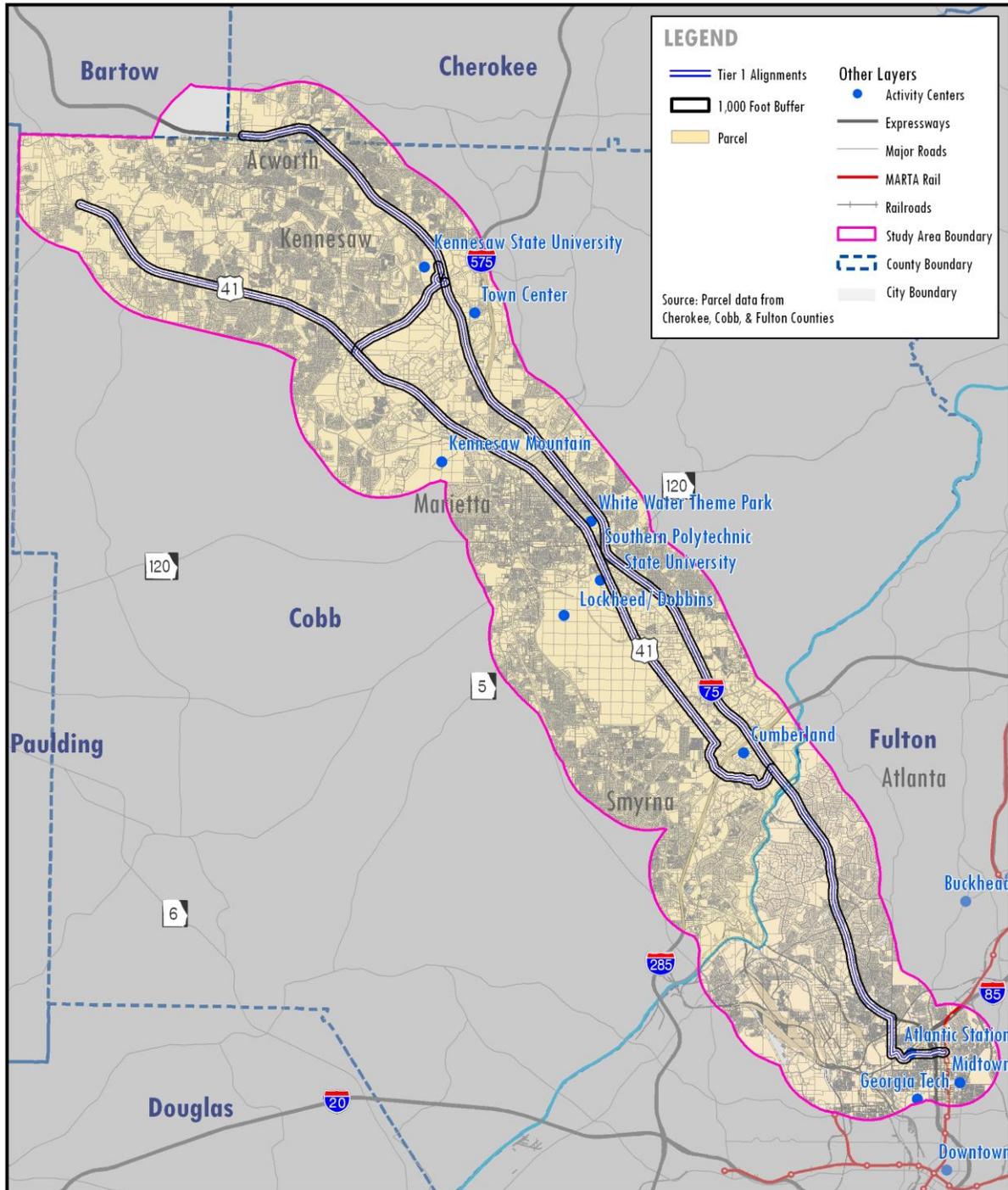


Figure 15: Parcels along Tier 1 Alignments



Parcels along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



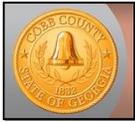
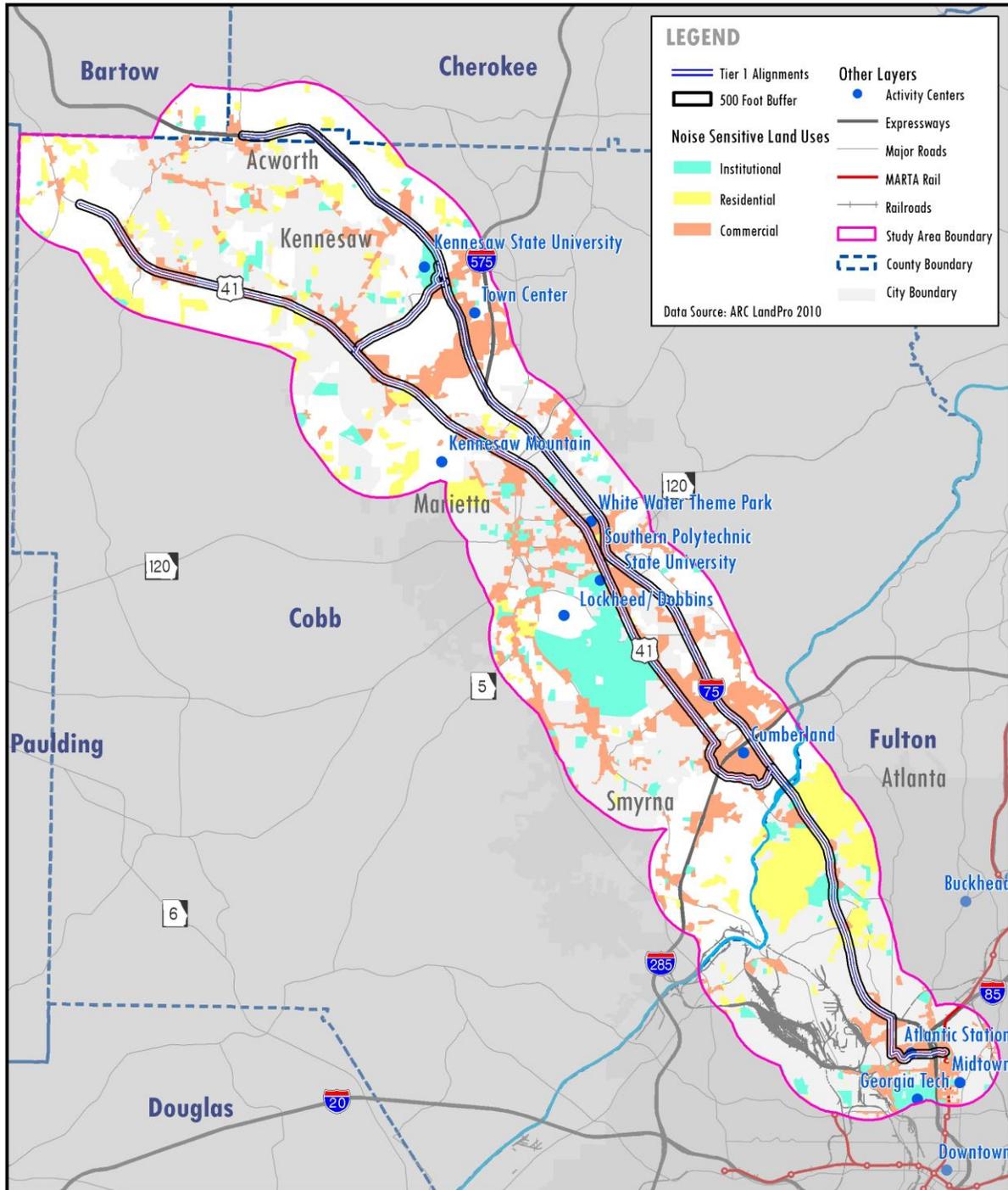


Figure 16: Noise Sensitive Land Uses along Tier 1 Alignments



Noise Sensitive Land Uses along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



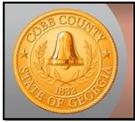
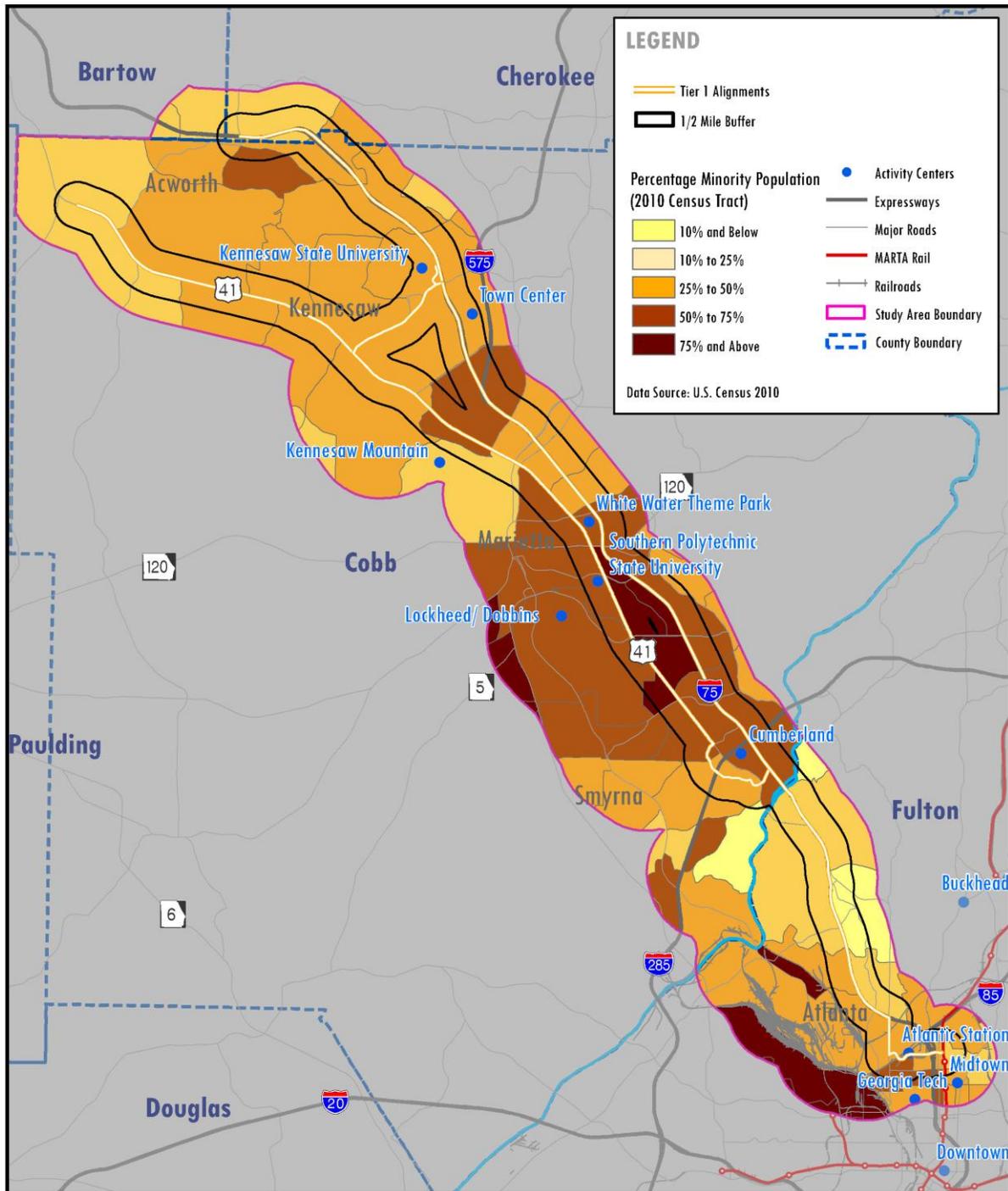


Figure 17: Minority Populations along Tier 1 Alignments



Minority Populations along Tier 1 Alignments

Tier 1 Environmental Analysis
CONNECT COBB: Northwest Transit Corridor Alternatives Analysis



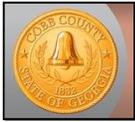
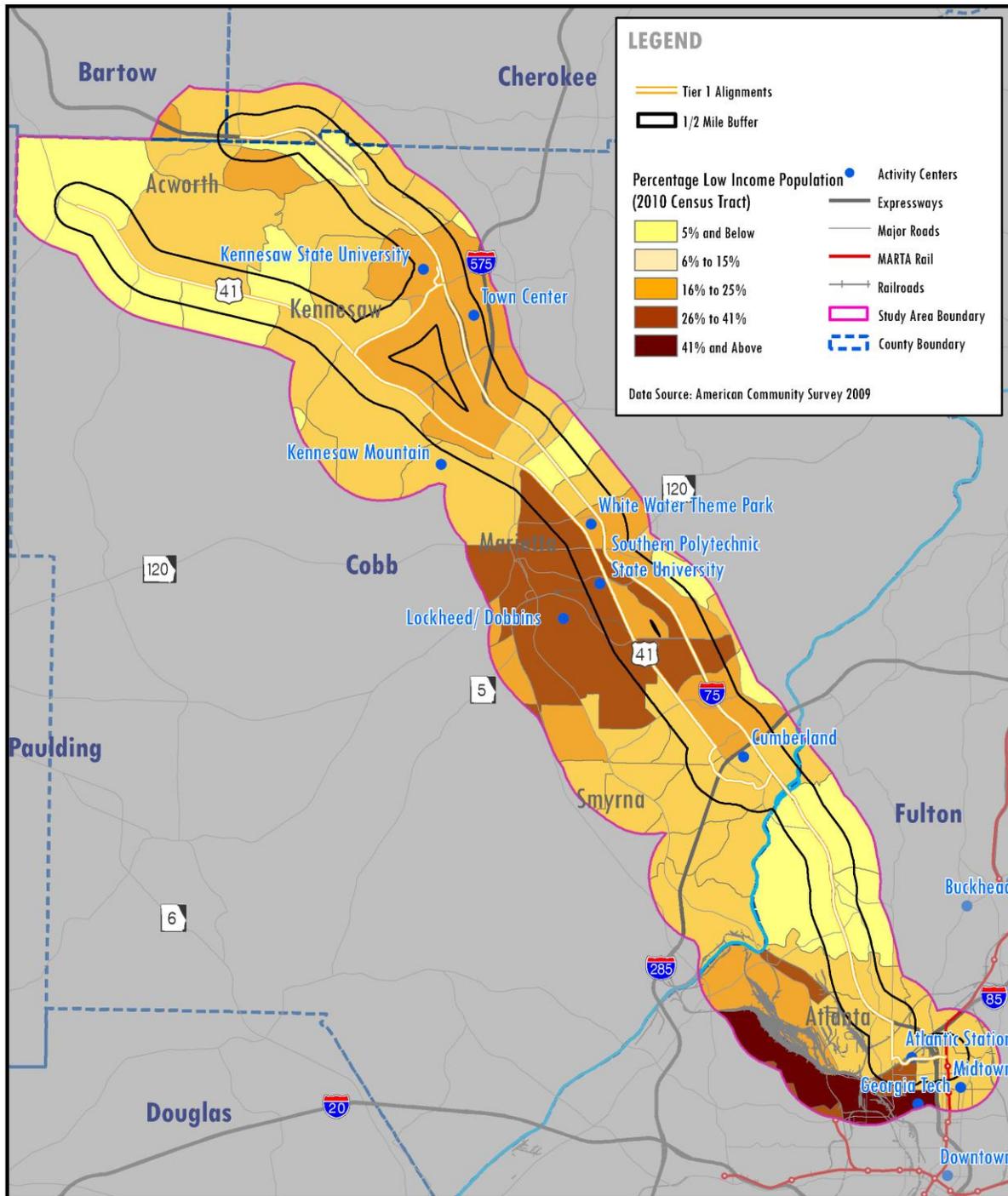


Figure 18: Low-Income Populations along Tier 1 Alignments



Low Income Populations along Tier 1 Alignments

Tier 1 Environmental Analysis
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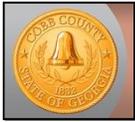
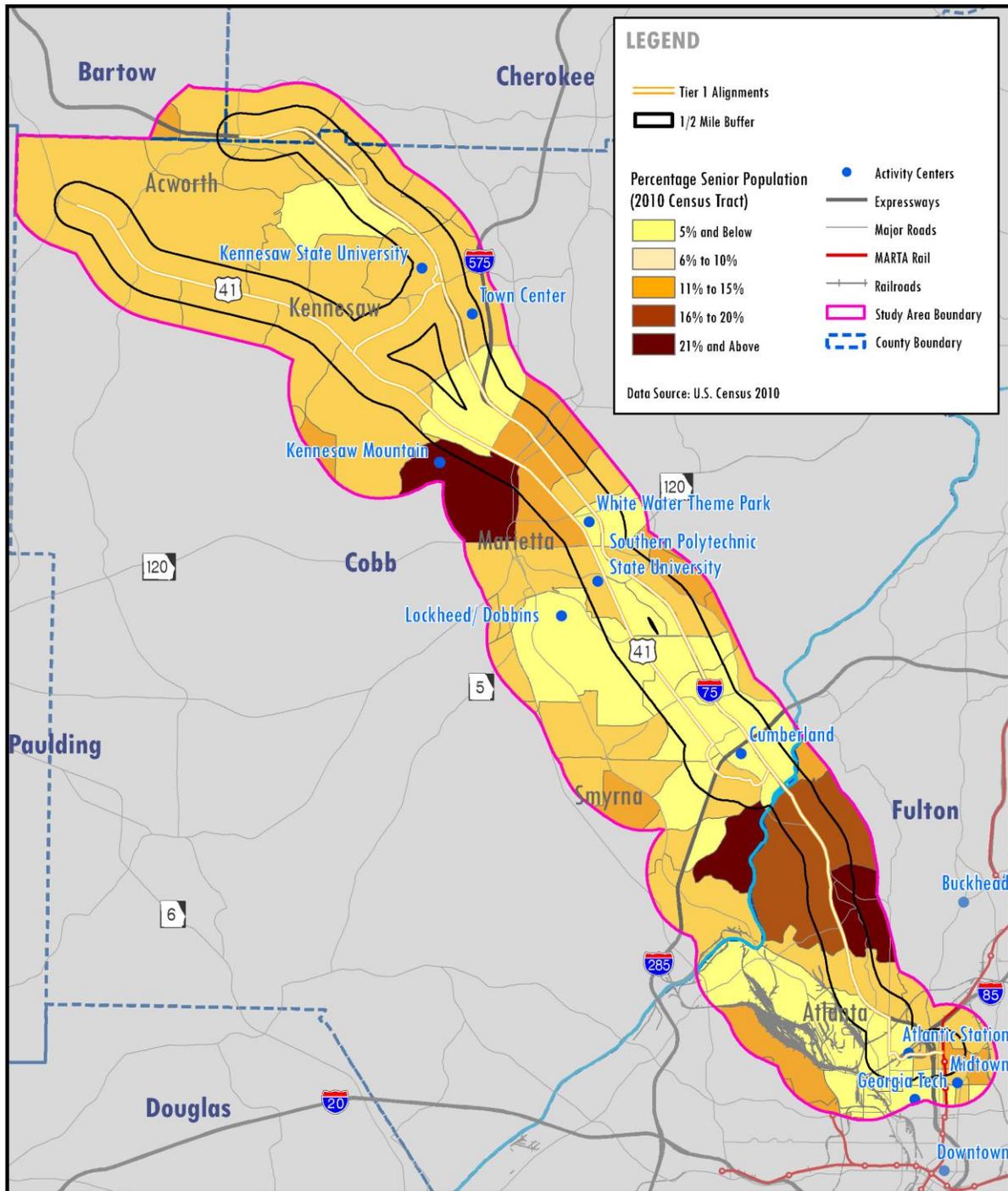


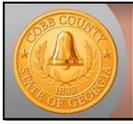
Figure 19: Elderly Populations along Tier 1 Alignments



Elderly Populations along Tier 1 Alignments

Tier 1 Environmental Analysis
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5.0 TIER 2 ANALYSIS

A GIS-based assessment was conducted to identify potential environmental fatal flaws and hot spots within the Tier 2 alternative alignments. For the purposes of this analysis:

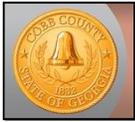
- **Fatal flaws** are defined as substantial impacts to key environmental features, either natural or human, that would
 - Preclude the use of the alignment (a true fatal flaw);
 - Require cost-prohibitive mitigation; and/or
 - Create significant public controversy.
- **Hot spots** are areas that may not fail a 'fatal flaw' analysis, but still have a high concentration of environmental resources, and would therefore require careful considerations in a more detailed alternatives development and may involve substantial mitigation or potential for controversy.

Based on these findings, potential actions to minimize, mitigate, or off-set potential adverse effects will be identified for consideration in the selection of a Locally Preferred Alternative (LPA) and for consideration as the project proceeds into the EIS or EA phase of project development.

5.1 Overview of Tier 2 Alternatives

The following build alternatives were assessed as part of the Tier 2 Analysis:

- **Alternative 1-LRT - Light Rail Transit from Acworth to MARTA Arts Center Station along I-75** – This LRT service would begin at I-75 and Cowan Road in Acworth and follow I-75 south to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station. There are a total of 11 stations proposed along this alternative.
- **Alternative 2a-LRT – Light Rail Transit from Acworth to MARTA Arts Center Station along US 41** – This LRT service would begin at the southern intersection of SR 92 (Lower 92) and US 41 in Acworth and extend south along US 41 to Cumberland Boulevard, and would then follow Cumberland Boulevard to the existing CCT transfer station. This alignment would continue along Cumberland Boulevard to Akers Mill Road, and would then follow Akers Mill Road to I-75. The alignment would continue south along I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station. There are a total of 19 stations proposed along this alternative.
- **Alternative 2a-BRT – Bus Rapid Transit from Acworth to MARTA Arts Center Station along US 41** – This BRT service would follow along the same alignment with the same station locations as Alternative 2a-LRT.



- **Alternative 4a-LRT – Light Rail Transit from Kennesaw State University to MARTA Arts Center Station along US 41** – This LRT service would begin at Kennesaw State University and follow Chastain Road/McCollum Parkway to US 41, and extend south along US 41 to Cumberland Boulevard and then follow Cumberland Boulevard to the existing CCT transfer station. This alignment would continue along Cumberland Boulevard to Akers Mill Road, and would then follow Akers Mill Road to I-75. The alignment would continue along I-75 to Northside Drive. The alignment would then follow Northside Drive to 17th Street and would connect to the MARTA Arts Center Station. There are a total of 22 stations proposed along this alternative.
- **Alternative 4a-BRT – Bus Rapid Transit from Kennesaw State University to MARTA Arts Center Station along US 41** – This BRT service would follow along the same alignment with the same stations as Alternative 4a-LRT.

A map of the Tier 2 Alternatives is shown in **Figure 20**. It should be noted that due to environmental concerns regarding potential impacts to Lake Acworth, the northern terminus of Alignment 2a was changed from Dallas-Acworth Highway (Upper SR 92) to Lake Acworth Drive (Lower SR 92).

5.2 Baseline Environmental Conditions for Tier 2 Analysis

As a result of the change to Alignment 2a and a modified alignment into the MARTA Arts Center station for all of the build alternatives, the updated baseline conditions of environmental characteristics for Tier 2 analysis are provided in the table below.

Table 14: Summary of Environmental Characteristics for Tier 2 Analysis

	Alignment 1-LRT	Alignment 2a – LRT/BRT	Alignment 4 – LRT/BRT
Alignment Length (Miles)	27.3	29.2	25.3
<u>Environmentally Sensitive Resources</u>			
Total Wetland Acreage	96.1	96.3	137.76
Total Park Acreage	132.3	186.3	151.10
Total Floodplain Acreage	595.7	486.3	530.75
Total Historic Resources	21	27	31
Total Community Resources	12	19	22
Total Hazardous Material Sites	6	8	9
Number of Potentially Impacted Parcels	1,876	2,209	1,820
% Potential Noise Sensitive Land Uses	36%	75%	63%
<u>Environmental Justice</u>			
Minority Population Percentage	48.6%	47.4%	49.2%
Low-Income Population Percentage	17.7%	16.6%	15.3%
Elderly Population Percentage	6.3%	6.8%	6.5%

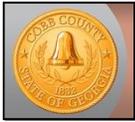
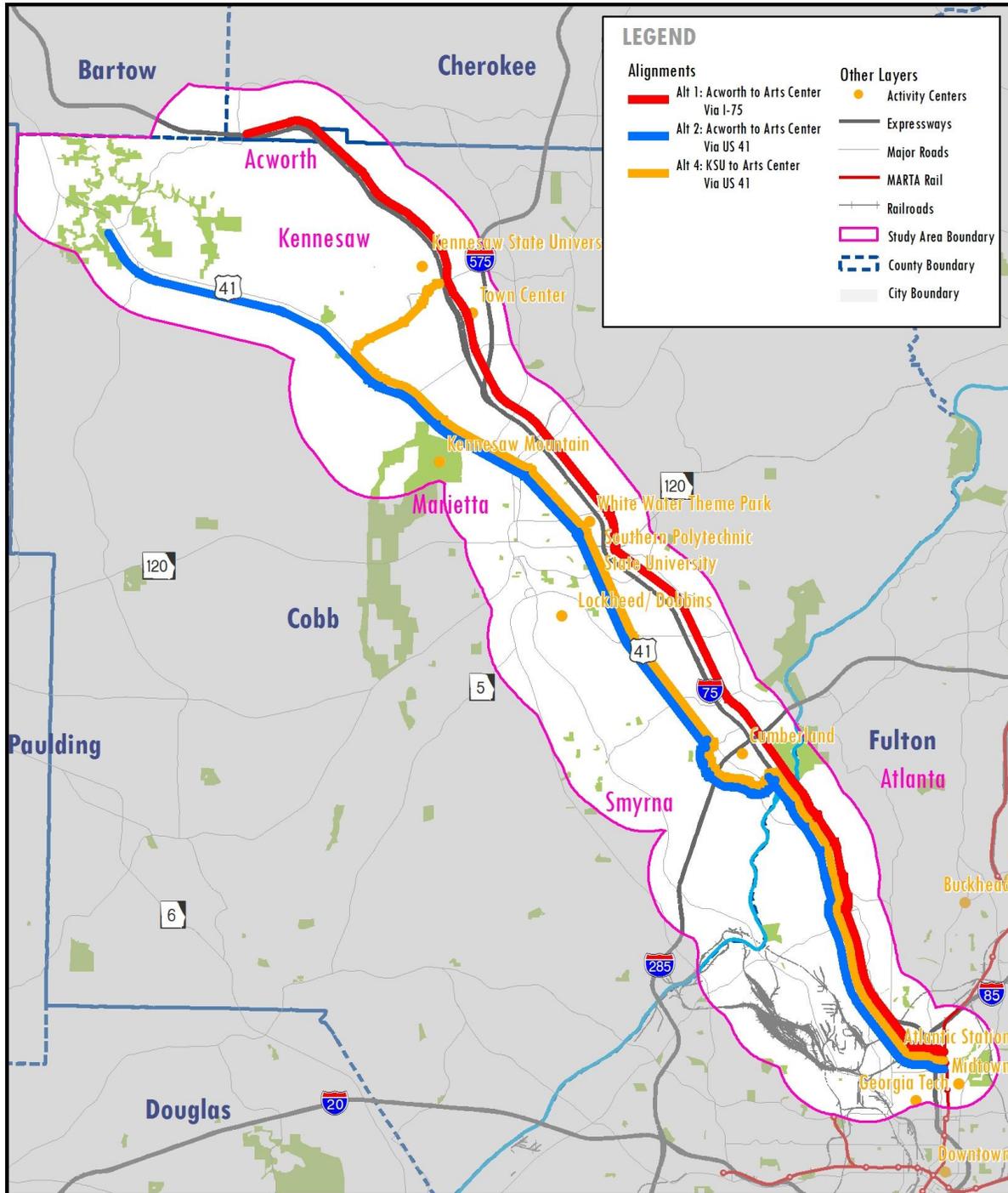


Figure 20: Tier 2 Alternatives

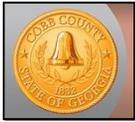


Tier 2 Alternatives



CONNECT COBB: Northwest Transit Corridor Alternatives Analysis





As shown in **Table 14**, the environmental resources in proximity to the Tier 2 alignments are somewhat similar in scale. As noted within Tier 1 analysis results, the alignments along US 41 have a slightly higher potential for requiring environmental mitigation than that along I-75.

5.3 Fatal Flaw/Hot Spot Assessment of Tier 2 Alternatives

In order to understand the potential fatal flaws along the Tier 2 alignments, it is important to identify the mitigation strategies that could be needed based on the findings of Tier 1 Analysis. A table of typical mitigation strategies is provided in **Table 16**. Of the resources listed, those most likely to present a potential fatal flaw (as defined in this analysis) are:

- Potential disturbance of cemeteries and/or archaeological resources; and
- Significant impacts to parklands and/or historic resources.

Mitigation for potential impacts to the remaining resources is typically less problematic. Since the Tier 2 alternatives often traverse the same areas, many of the hot spots will be similar between the five build alternatives, as illustrated below in **Table 15**.

Table 15: Potential Hot Spots Along Tier 2 Alternatives

Environmental Hot Spot	Alt 1-LRT	Alt 2a – LRT/BRT	Alt 4a – LRT/BRT
Chattahoochee River Crossing	X	X	X
Downtown Connection/Atlantic Station	X	X	X
Northside Parkway/ W. Paces Road Area	X	X	X
Lake Acworth Park		X	
Kennesaw Community Resources		X	

The section that follows discusses the primary issues associated with the hot spots listed in the above table and potential mitigation strategies that could be appropriate to accommodate the alternatives and ancillary facilities (such as park-and-ride lots) through their construction and implementation. It should be noted that this analysis is being conducted at a high level since many of the factors that make up the alternatives (technology, plan and profile, etc.) will be developed in much greater detail as the project enters into preliminary engineering and environmental analysis.

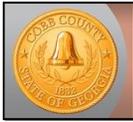
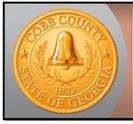


Table 16: Summary of Potential Mitigation Strategies

Resource	Applicable Regulations	Potential Mitigation Strategies (Other than Avoidance)
Wetlands and Streams	<ul style="list-style-type: none"> • National Environmental Policy Act • Section 404 – Clean Water Act • Section 10 – Rivers and Harbors Act (1899) 	<ul style="list-style-type: none"> • Construction of filtering devices (i.e., swales) to prevent direct discharge • Delineation and protection during construction • Permittee-responsible mitigation • Mitigation banking through a USACE approved bank
Parklands	<ul style="list-style-type: none"> • National Environmental Policy Act • Section 4(f) – Department of Transportation Act 	<ul style="list-style-type: none"> • Capital improvements to impacted parks • Purchase of land for park expansion • Purchase of off-site land for future parklands • Preservation/replacement of hardwoods on park property
Threatened and Endangered Species	<ul style="list-style-type: none"> • National Environmental Policy Act 	<ul style="list-style-type: none"> • Scheduling construction to avoid breeding season (migratory birds) • The provision of habitat and/or protective barriers • Exclusionary netting • Relocate species in coordination with USFWS
Historic Resources	<ul style="list-style-type: none"> • National Environmental Policy Act • Section 4(f) – Department of Transportation Act • Section 106 – National Historic Preservation Act 	<ul style="list-style-type: none"> • Actions that preserve the historical integrity in coordination with SHPO office which vary dependent on nature of impact: <ul style="list-style-type: none"> ○ medium format photography ○ use of historic markers ○ relocation of historic resources ○ written narrative on the history of the resource ○ Use of context sensitive design to minimize visual impacts to the historic resource
Cemeteries	<ul style="list-style-type: none"> • National Environmental Policy Act • Grave Protection and Repatriation Act (State) 	<ul style="list-style-type: none"> • Relocation of grave sites*
Schools and Churches	<ul style="list-style-type: none"> • National Environmental Policy Act 	<ul style="list-style-type: none"> • Property acquisition • Provision of community amenities • Noise barriers (if noise impacts are anticipated)
Hazardous Material Sites	<ul style="list-style-type: none"> • National Environmental Policy Act 	<ul style="list-style-type: none"> • Subsurface Testing at UST/Hazardous Waste sites • Site remediation if contaminants are identified

* - Under GA law, the relocation of grave sites is highly regulated and difficult to accomplish.



5.3.1 Chattahoochee River Crossing

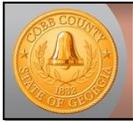
The primary environmental feature along the Tier 2 alignments is the Chattahoochee River National Recreation Area. As both a navigable river and a national park, it is subject to protection under the following regulations:

- National Environmental Policy Act
- Section 4(f) – Department of Transportation Act
- Section 404 – Clean Water Act
- Section 10 – Rivers and Harbors Act (1899)

Since it is a protected resource, there will likely be some level of mitigation necessary with any crossing of the Chattahoochee River – whether via modifications to the existing I-75 bridge, the construction of a new structure, or modifications to the planned US 41 bridge. For the AA, it is assumed that all of the Tier 2 Alternatives would operate on the existing I-75 bridge structure. The river crossing is shown in **Figure 21**.

A reasonable benchmark to identify potential mitigation that may be required for the Chattahoochee River crossing would be the Environmental Commitments Table of the CE Environmental Review, completed in 2010, for the US 41 bridge replacement over the river. This is particularly pertinent considering the proximity of the bridge to the Tier 2 alignments and the recent completion of the documentation. Potentially relevant mitigation strategies listed in the ECT include:

- Delineation of streams, wetlands and stream buffers on construction plans.
- Obtaining Nationwide Permits and Section 10 permit from the US Corp of Engineers for stream impacts.
- Obtaining a Stream Buffer Variance from the Georgia Environmental Protection Division.
- Provisions that construction and/or demolition not take place during the nesting season of the Eastern phoebes, cliff swallows and barn swallows (from April 1 to August 31) unless exclusionary barriers are erected prior to March 1 or after September 1.
- Survey for the Georgia aster during flowering season (October to mid-November) and, if found, development of a replacement plan for submittal to the National Park Service (NPS) and Georgia Department of Natural Resources (DNR).
- Minimization or reduction of bents (columns) to lessen intrusion into the river
- A provision in the construction plans to minimize reduction of hardwoods on NPS property.
- The construction of grassed swales to filter stormwater and prevent direct discharge of runoff into the Chattahoochee River.



The overall mitigation needs will become much clearer during the Preliminary Engineering phase - at which time more details on the project that influence needed mitigation will be examined.

5.3.2 Atlantic Station/Downtown Connection

All of the Tier 2 alignments are proposed to connect to the MARTA Arts Center Station via a tunnel under 17th Street in the vicinity of Atlantic Station - a major retail and residential development located on a 138-acre brownfield site. As the site of a former Atlantic Steel mill, it required extensive environmental cleanup and a remediation plan was put in place that addressed land use, transportation and environmental issues. From an environmental perspective, the two primary required actions were:

- The provision of permanent engineered barriers, or “caps”, to cover the contaminated ground beneath the site; and
- The provision of test wells to monitor the groundwater at the site.

As such, it is very likely the only mitigation technique with respect to these resources would be avoidance.

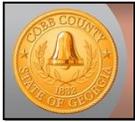
While not a fatal flaw, there is potential for community impacts associated with the project. As a component of their remediation, the developer was required to make zoning commitments, transportation control measure commitments, and neighborhood commitments for mitigation. It would be reasonable to assume that similar mitigation strategies may be necessary during construction and implementation of the LPA.

It should also be noted that within the EA for the Atlantic Station project, in response to comments received from the public, the EPA stated they believe “it is reasonable to expect that some form of future fixed transit (potentially rail) will be developed to serve the Atlantic Steel development.”

5.3.3 Northside Parkway/West Paces Area

In the vicinity of Northside Parkway and West Paces Ferry Road, all of the Tier 2 alternatives leave the I-75 corridor. This area is shown in **Figure 22**.

While not a fatal flaw, this area would constitute a hot spot due to the potential for community impacts. The intersection of these two roadways is surrounded by strip commercial land uses that rely heavily on automobile access. An at-grade fixed guideway transit line through this could restrict or reconfigure access to these properties to some degree which may, in turn, result in land use changes within the corridor. Also, to the north of the intersection is The Church of the Apostles – a significant community resource that could experience similar access restrictions from southbound Northside Parkway. To the south of the intersection are a collection of high-income condominiums. While the alignment does not directly impact the building



footprints, the presence of an at-grade fixed guideway would likely change the overall character of the area and require changes to parking and access.

As the LPA is brought forward through the FTA project development process, significant outreach will be needed to gather an accurate understanding of needed mitigation strategies to alleviate community opposition. A detailed traffic operations analysis will also be needed to further evaluate access, traffic operations, and intermodal operations in the area.

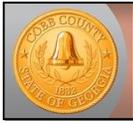
5.3.4 Lake Acworth / Acworth Terminus Station Area

As previously noted, the northern terminus of Alignment 2 was changed from Dallas-Acworth Highway (Upper SR 92) to Lake Acworth Drive (Lower SR 92) due to potential impacts to Lake Acworth Park. As such, much of the potential for 4f and Section 404 impacts and needed mitigation similar to those related to the Chattahoochee River crossing were eliminated.

Nonetheless, there is still potential for indirect and cumulative impacts related to the traffic, parking and redevelopment associated with the project. More specifically, impacts potential for stormwater runoff and additional traffic and safety issues. The character of the area is very suburban in nature. As shown in **Figure 23**, the area is characterized by strip commercial development and single-family residential neighborhoods – many of which are in proximity to Lake Acworth.

With the addition of a transit station, it is reasonable to assume that development pressures in the area will be increased. As new development occurs an important issue will be to minimize the addition of impervious surfaces in the area to reduce potential indirect impacts to Lake Acworth related to stormwater runoff. As shown, the area has a great deal of impervious surfaces related to surface parking for strip commercial uses. Furthermore, the potential for runoff mitigation increases should any significant earthwork be needed in this area.

Alternative 2a is characterized by a high number of stations (26), which lessens the attractiveness of this service as a commuter option. As such, the demand for park-and-ride lot spaces is also reduced. However, it is still reasonable to believe that some – particularly those who work within Cobb County – will utilize the service given that it serves as the northern terminus of the alternative. In conjunction with increased development, it is foreseeable that additional travel demand will result in the area. This not only includes automobile traffic, but also increased pedestrian and bicycle traffic in the area accessing the transit service. With the infusion of transit oriented development in the area, potential conflicts between these modes are increased.



5.3.5 Pineridge Cemetery / Kennesaw Community Resources

Along the US 41 corridor north of McCollum Parkway, there are several community resources in proximity – both to the road and to each other – within the city of Kennesaw. A map of the area is shown **Figure 24**. As shown, these resources include several churches, cemeteries, parks and schools.

Of these resources, the highest potential to be impacted directly exists at the Pineridge Memorial Cemetery and Funeral Home, located at 2950 North Cobb Parkway. While the corridor footprint is proposed within the existing US 41 right-of-way, the cemetery sits roughly 60 yards from the edge of pavement. Therefore, it will be important to avoid any disruptions to this property due to the difficulty associated with mitigating impacts to gravesites. As shown in **Table 15**, the only way to mitigate direct impacts to cemeteries is to relocate the gravesites within. However, Georgia law requires a thorough search for descendants of the deceased and permission to relocate said graves. This research and permission task can be lengthy and expensive. This, in turn, could represent a potential fatal flaw given the problematic nature of said mitigation.

As with the Acworth site, there is also potential for indirect and cumulative impacts to community cohesion, traffic and safety due to development changes in the area. However, the extent to which these issues can be mitigated cannot be determined until more detail is known regarding land use and planned transportation amenities to complement the build alternatives.

It should also be noted that this portion of the US 41 corridor is characterized by multiple grade changes, which may present the need for significant earthwork in order to accommodate a fixed-guideway transit technology. This could heighten the potential for community and visual and aesthetic impact mitigation.

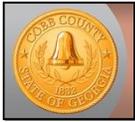
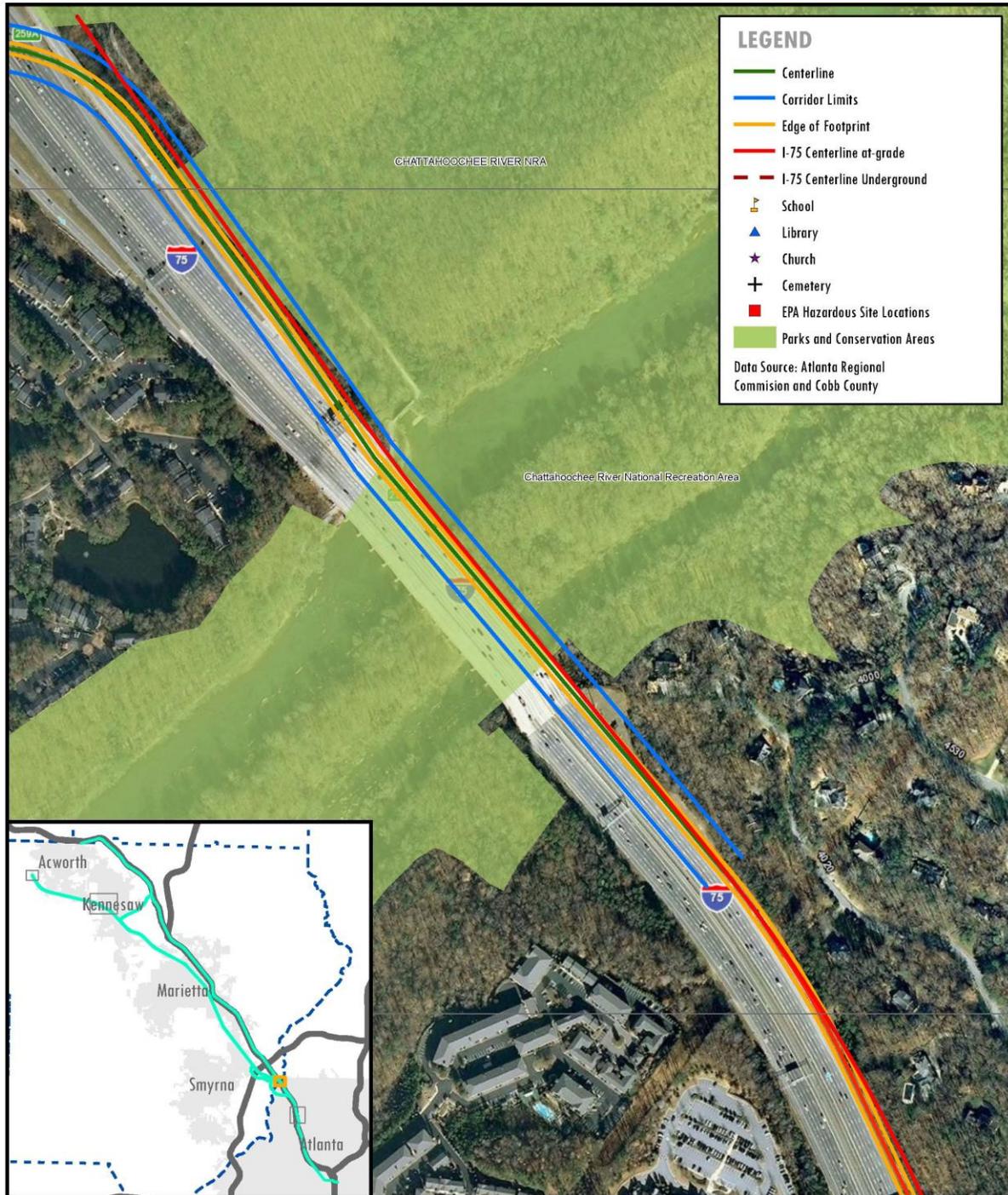


Figure 21: Chattahoochee River Crossing



Tier 2 Hot Spot: Chattahoochee River Crossing

Tier 2 Environmental Analysis
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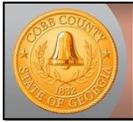
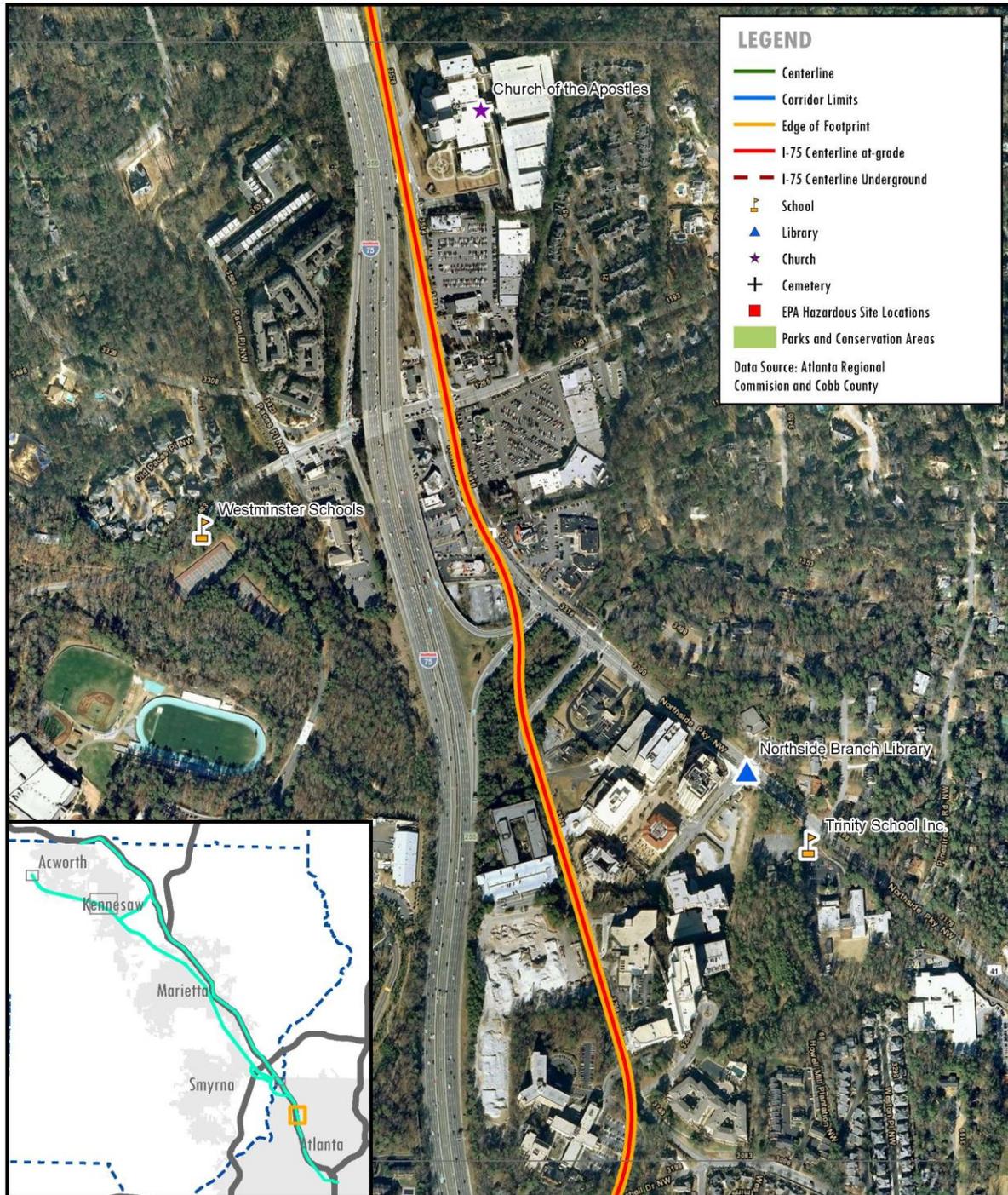


Figure 22: Northside Parkway/West Paces Area



Tier 2 Hot Spot: Northside Pkwy/West Paces Area

Tier 2 Environmental Analysis
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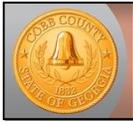


Figure 23: Lake Acworth / Acworth Terminus Station Area



Tier 2 Hot Spot: Acworth Terminus Station Area

Tier 2 Environmental Analysis
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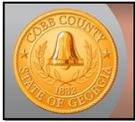


Figure 24: Pineridge Cemetery / Kennesaw Community Resources

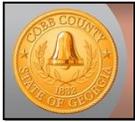


Tier 2 Hot Spot: Kennesaw Community Resources

Tier 2 Environmental Analysis

CONNECT COBB: Northwest Transit Corridor Alternatives Analysis





6.0 ENVIRONMENTAL JUSTICE ANALYSIS

Environmental Justice (EJ) is a federal policy that was initially embodied in Title VI of the Civil Rights Act of 1964 and later reaffirmed via Executive Order 12898 issued in 1994, which states:

"Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

There are three fundamental principles that guide EJ policy:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Given that this AA is federally funded and Section 5307 FTA funds will be sought throughout project development, it is important to examine whether the alternatives being carried into Tier 2 analysis are consistent with EJ principles.

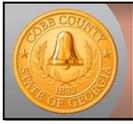
As shown in **Table 17**, the overall percentage of minority population along the alternative alignments is consistent with that of the study area. This, in turn, indicates that a disproportional impact to minority populations is not anticipated. However there is a slightly higher percentage of low-income populations in the alternative corridors than the study area as a whole. This can be seen as a benefit to populations with a higher propensity to use transit. Notwithstanding, care should be given to minimize impacts to low-income populations as the project advances.

Table 17: Environmental Justice Tier 2 Analysis

Environmental Justice Populations	Study Area	Alt 1-BRT	Alt 2a – LRT/BRT	Alt 4a – LRT/BRT
Minority Population Percentage	46.6%	48.6%	47.4%	49.0%
Low-Income Population Percentage*	9.1%	17.7%	16.6%	16.9%
Elderly Population Percentage	7.2%	6.3%	6.8%	6.7%

Source: US Census, 2010.

*- Based on American Community Survey Data, 2009. 2010 income status has not been released by the Census.



7.0 CONCLUSION

7.1 Summary

The analysis herein provides an overview of the environmental factors that have been assessed during the Tier 1 and Tier 2 analyses for the eventual selection of the LPA for the Cobb AA. This report also has provided a high-level overview of the environmental issues that could warrant attention as the LPA advances further into the FTA project development process. More specifically:

- As stated throughout, alternatives along US 41 have a greater potential to impact environmental resources than that along I-75 (Alt 1-LRT). This is primarily due to the surrounding land uses and access characteristics of US 41. As an established north-south thoroughfare through Cobb County, the potential to impact historic and community resources along US 41 is greater than along I-75. It should also be noted that the US 41 corridor presents grade challenges that would require earthwork in order to accommodate a fixed guideway transit technology. This, in turn, would create visual and aesthetic impacts as well as increase the potential to impact community cohesion.
- The only true 'fatal flaw' associated with the project would be any disturbance to the mitigation resources (monitoring wells and slag cap) at Atlantic Station as prescribed in the EPA mitigation plan. These resources will need to be avoided.
- While the Chattahoochee River crossing is certainly a 'hot spot,' mitigating potential impacts to the resource does not appear to be problematic. The proposed use of the existing I-75 bridge structure strengthens this assumption.
- Should one of the alternatives along Alignment 2 be selected as the LPA, special attention will be needed to avoid the Pineridge Cemetery in Kennesaw given its proximity to US 41. While the alternatives along this alignment are proposed within the centerline of the roadway, said avoidance would need to occur during construction.
- Given the distribution of EJ populations throughout the study area, the potential for disproportional impacts to these populations appear to be minimal.

7.2 Next Steps

As previously stated, the environmental analysis within this report will be considered in conjunction with an assessment of other factors such as ridership, land use, and costs to determine the LPA for the Cobb AA. While the type of documentation that will be required by FTA (EIS, EA, etc.) will not be determined until the selection of the LPA, the environmental issues identified in this report will be investigated in closer detail during the next phase of project development.