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0. EXECUTIVE SUMMARY

0.1 BACKGROUND

The United States (U.S.) Department of Transportation's (USDOT) Federal Railroad Administration (FRA) is working with states to improve high-speed and intercity passenger rail corridors via projects that range from upgrading existing services to developing entirely new rail lines and services. The FRA defines "high-speed rail" as having the ability to travel at speeds between 90 miles per hour (mph) and 150 mph, or even higher.[1] FRA is implementing this high-speed rail initiative through the High-Speed Intercity Passenger Rail Program (HSIPR), created to address the nation's transportation challenges by making strategic investments in an efficient network of passenger rail corridors connecting communities across the country.[2] These investments focus on three key objectives:

- Building new high-speed rail corridors that expand and fundamentally improve passenger transportation in the geographic regions they serve;
- Upgrading existing intercity passenger rail corridors to improve reliability, speed, and frequency of services; and
- Laying the groundwork for future high-speed rail services through corridor and state planning initiatives. [3]

What is the Southeast High Speed Rail Corridor?

The vision of the Southeast High Speed Rail (SEHSR) Corridor, which is one of eleven USDOT-designated high-speed rail corridors, is to develop an integrated passenger rail transportation solution for the Southeast (see Exhibit 0-1). [4] The SEHSR Corridor initiative proposes high-speed rail from Washington, DC through Richmond, VA and Raleigh and Charlotte, NC, and from Charlotte to Atlanta, Georgia.

Implementing the SEHSR Corridor and other corridor projects and programs within the Piedmont Atlantic Megaregion will serve as a catalyst for economic expansion, with benefits including:

- Creation of new jobs;
- Improved mobility by providing choices for travelers beyond flying or driving;
- Reduced growth in transportation-related air pollutant emissions;
- Reduced dependence on non-renewable fossil fuels; and
- Improved land utilization and investment in livable urban and rural communities.

Chapter 1 describes the status of various studies and projects related to implementing the SEHSR Corridor.

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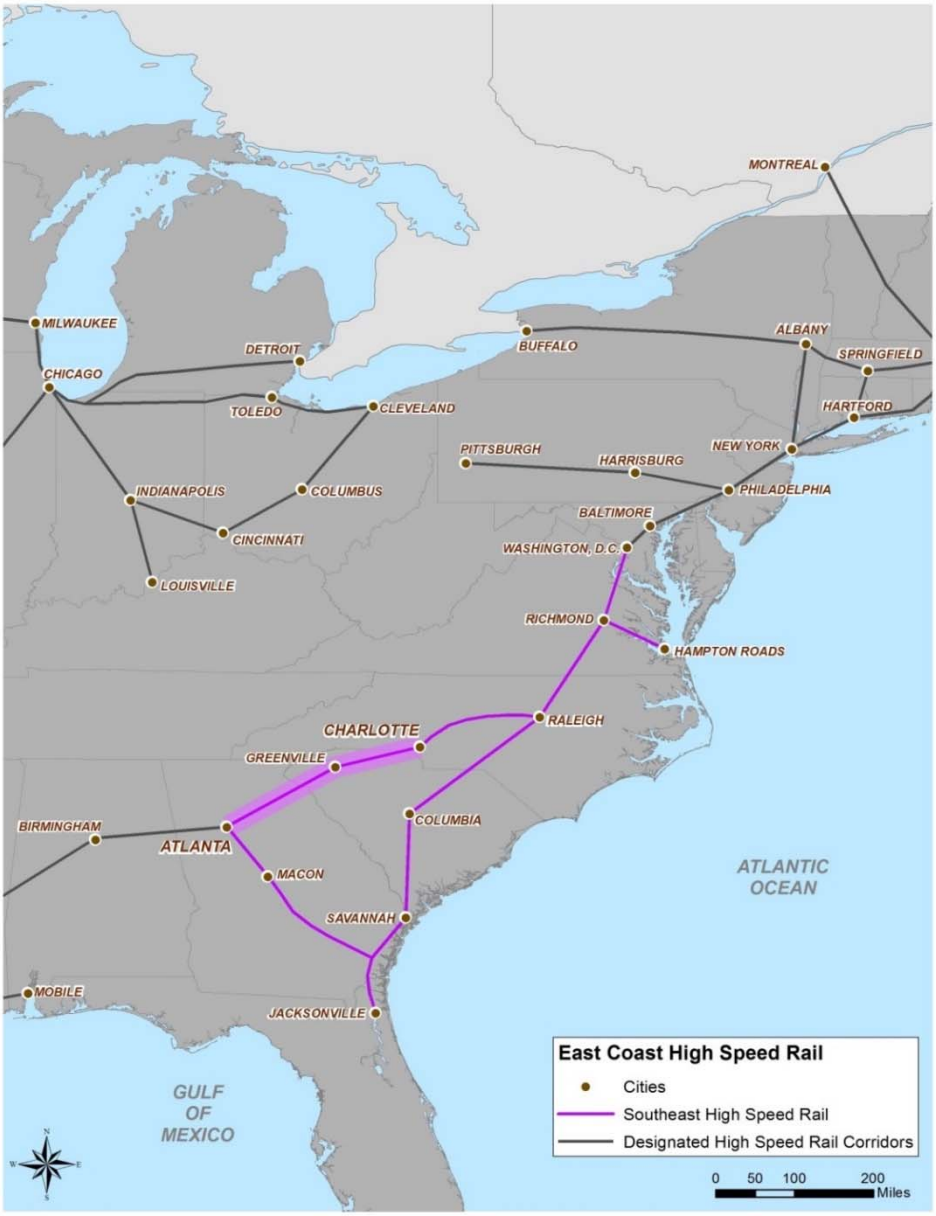
[1] *FRA's High Speed Rail Strategic Plan April 2009 website, https://www.fra.dot.gov/eLib/Details/L02833 (accessed on 3/3/17)*

2 FRA's High Speed Rail Overview, https://www.fra.dot.gov/Page/P0134 (accessed on 1114/18)

[3] *High Speed Rail Overview, https://www.fra.dot.gov/Page/P0060*

4 Southeast Corridor website, http://www.sehsr.org/ (accessed on 7/31/15)

Exhibit 0-1: SEHSR and East Coast Designated High-Speed Rail Corridors



Sources: HNTB and National Conference of State Legislators[5]

[5] http://www.ncsl.org/research/transportation/chart-of-federally-designated-high-speed-rail-corr.aspx *(accessed on 11/25/15)*

What is NEPA?

The National Environmental Policy Act[6] (NEPA) requires an assessment of potential environmental impacts for every federal action that could "significantly affect the quality of the human environment." NEPA applies to any project where there is major federal involvement, including federal financial assistance, the issuance of a permit, or a requirement for federal approval. This Project requires NEPA clearance due to potential involvement from the federal government, specifically FRA and the likelihood of the Georgia Department of Transportation (GDOT), South Carolina DOT (SCDOT), and North Carolina DOT (NCDOT) seeking federal financial assistance for implementation and construction. An Environmental Impact Statement (EIS) is required when it is either apparent, or becomes apparent through subsequent analysis, that the Project is likely to have a major effect on the natural and/or human environment. GDOT recommended and FRA determined that a Tier 1 EIS is the appropriate class of action for this Project.

What is a Tiered Environmental Process?

"Tiering" is a staged environmental review process applied to complex projects covering large geographic areas. This Tier 1 EIS establishes the Purpose and Need for the Project; provides a broad assessment of the potential transportation, social, economic, and environmental impacts of Corridor Alternatives (generalized area of travel) for the Project; and presents the outcomes of public and agency coordination that were considered during the Tier 1 assessment and decision-making processes. In this Tier 1 EIS, FRA will select a Preferred Corridor Alternative; identify general locations for potential stations; and identify potential technology, speed, and frequency necessary to support the Purpose and Need of the Project.

Due to the size and complexity of the Project, GDOT and FRA will defer the following decisions to a future Tier 2 analysis: the alignment of the corridor (including the approach into Atlanta), locations of stations and facilities, operating equipment, type of locomotive technology, and detailed operating characteristics. A future Tier 2 EIS will define an exact alignment within the broader Preferred Corridor Alternative, but could also consider additional alignment options identified by stakeholders or the public. A Tier 2 analysis will continue the public involvement and agency coordination that began during Tier 1, and will document the environmental impact.

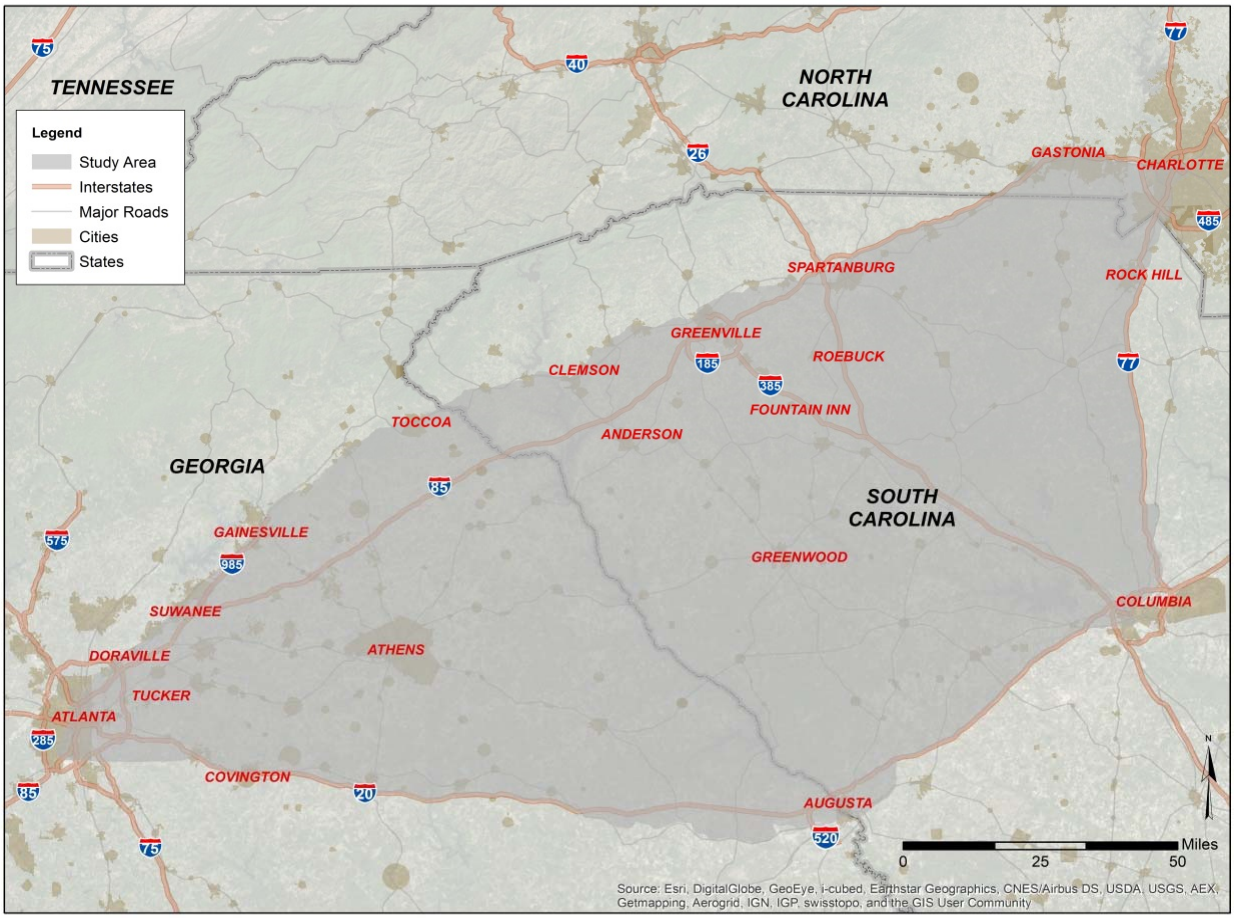
0.2 DESCRIPTION OF THE STUDY AREA

The Atlanta to Charlotte corridor spans approximately 280 miles and connects the cities of Atlanta, GA, and Charlotte, NC, in a general northeasterly direction. Due to the width of the Study Area, this Tier 1 EIS considers potential connections to various cities and destinations between Atlanta and Charlotte. The Study Area is defined as the area containing all reasonable Corridor Alternatives connecting the Project's termini, Hartsfield-Jackson Atlanta International Airport (H-JAIA) and the proposed Charlotte Gateway Station. Therefore, the boundary of the Study Area generally follows I-20 (between Atlanta and Columbia), I-77 (between Columbia and Charlotte), and the Norfolk Southern rail line (between Charlotte and Atlanta). The Study Area also contains I-85 between Charlotte and Atlanta as well as parts of surrounding metropolitan areas, as illustrated in Exhibit 0-2. Currently, the Study Area is served by Interstate highways, intercity bus

[6] *42 U.S.C. §4332, National Environmental Policy Act of 1969*

service, Amtrak, and three airports: Hartsfield-Jackson Atlanta International Airport (H-JAIA), Greenville-Spartanburg International Airport (GSP), and Charlotte Douglas International Airport (CLT).

Exhibit 0-2: Study Area



Source: HNTB

Between the years 2000 to 2010, the Project's Study Area has witnessed significant growth, specifically in the larger metropolitan areas, relating to population and employment. Future projections show similar growth trends. Exhibit 0-3 provides the employment and population growth trends of five metropolitan planning organization (MPO) areas within the Project's Study Area. This population and employment growth trend is a driving force for the Project's need, which is discussed further in Chapter 1 of this Tier 1 EIS.

Exhibit 0-3: Urban Population and Employment Trends

	Population			Employment		
Metropolitan Planning Organization Areas	**2010/2015**	**2040/2045**	**Change from 2010/2015 to 2035/40**	**2010/2015**	**2040/2045**	**Change from 2010/2015 to 2040/2045**
Atlanta	5,591,573	8,063,017	44%	2,923,956	3,965,194	36%
Augusta	511,686	712,986	39%	191,037	298,160	56%
Greenville	666,738	811,139	22%	368,204	499,100	36%
Columbia	647,091	860,437	33%	352,080	478,154	36%
Charlotte	1,394,800	2,250,500	61%	998,600	1,418,700	42%

Sources: Atlanta[7], Augusta,[8] Greenville[9], Columbia,[10] and Charlotte's LRTPs[11]

0.3 PURPOSE AND NEED

The Purpose of the Project is to improve intercity passenger travel between Atlanta and Charlotte by expanding the region's transportation system capacity, and improving trip time and reliability through high-speed passenger rail services. The Project will provide transportation system capacity necessary to accommodate current and projected population and economic growth occurring along the SEHSR Corridor network including the following metropolitan areas in the Piedmont Atlantic Megaregion: Atlanta, Charlotte, Greenville, and Spartanburg.

The Atlanta to Charlotte Project supplements the completed and ongoing intercity passenger rail studies along the SEHSR Corridor and supports FRA's HSIPR Program under USDOT's 2008 Passenger Rail Investment and Improvement Act (PRIIA).[12] This corridor would ultimately also provide linkages to other metropolitan areas along the East Coast (Washington, DC, New York, and Boston, MA).

GDOT has identified seven transportation system needs relevant to the Study Area, each corresponding to the anticipated population and employment growth with increasing travel demand. The Project would satisfy the following needs:

- Population and Employment Growth
- Improve Regional Transportation System Connectivity

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[7] *Atlanta Regional Commission, http://atlantaregionsplan.org/population-employment-forecasts/ (accessed on 3/20/19)*

[8] *Augusta Regional Transportation Study, https://www.augustaga.gov/2120/Transportation-Vision-2040 (accessed 3/20/19)*

[9] *Greenville-Pickens Area Transportation Study, http://www.gpats.org/wp-content/uploads/2018/10/GPATS_Horizon2040_10_15_2018.pdf (accessed on 3/21/19)*

[10] *Columbia Area Transportation Study Moving the Midlands 2040 Long Range Transportation Plan http:/centralmidlands.org/wp-content/uploads/2040-LONG-RANGE-TRANSPORTATION-PLAN-APPROVED-AUGUST-27-2015.pdf (accessed 6/14/2017)*

[11] *Charlotte Regional Transportation Planning Organization http://www.crtpo.org/PDFs/MTP/2045/2045_MTP.pdf (accessed on 3/20/19)*

[12] *Public Law No. 110-432. Passenger Rail Investment and Improvement Act of 2008.*

- Increase Transportation System Capacity
- Improve Travel Times and Reliability
- Provide an Alternative Travel Mode
- Traveler Safety
- Improve Energy Efficiency and Air Quality
- Maintain and Enhance Economic Growth and Vitality

0.4 PROJECT'S GOALS & OBJECTIVES

A set of goals and objectives, vetted through the scoping process and public-stakeholder engagement, served as a basis for developing the Project's Corridor Alternatives (discussed further in Chapter 2). Specifically, the goals and objectives helped evaluate whether a Corridor Alternative met the Purpose and Need of the Project. The goals and supporting objectives for the Project are to:

Goal 1: Develop a high-speed passenger rail link between Atlanta and Charlotte that addresses intercity passenger transportation needs by:

- Developing a high-speed intercity passenger rail system that can be integrated into and support the SEHSR Corridor Plan and other high-speed rail networks by incorporating existing and future plans;
- Improving intercity and regional connectivity by providing additional capacity to meet existing and projected travel demand;
- Providing high-speed passenger rail service that is competitive with travel times of other transportation modes (highway, intercity bus, and air); and
- Supporting the development of planned multimodal transportation hubs that complement existing and planned transit services.

Goal 2: Provide a cost-effective and financially efficient high-speed, intercity passenger rail corridor by:

- Creating a phased financial program for the Project that reflects funding and cost limitations. Presently, there is no state or federal funding available to develop the corridor;
- Improving the corridor through multiple-phased options that can be used to identify Tier 2 project-specific activities;
- Providing a long-term financial plan that identifies an initial capital investment and phased long-term expansion to reflect the projected level of ridership and revenue potential for the service; and
- Providing a long-term financial plan that defines the potential return on investment or annual operating subsidy required to operate and maintain the corridor by either a public or private entity or a joint public-private venture.

0.5 CORRIDOR ALTERNATIVES CONSIDERED

This Tier 1 EIS considered six reasonable Corridor Alternatives identified by a 2008 Volpe Center report, and selects three of the six for further evaluation based on how well they meet the Project's goals and Purpose and Need.[13] This screening process is detailed in Chapter 2. The initial six reasonable Corridor Alternatives are depicted in Exhibit 0-4 and are described as follows:

Southern Crescent

The Southern Crescent Corridor Alternative is a 268-mile route that primarily follows the Norfolk Southern (NS) Piedmont Division right-of-way (ROW), which hosts the existing Amtrak *Crescent* long-distance service between Atlanta and Charlotte. This alternative proposes sharing the NS ROW, with freight and passenger trains operating together on shared tracks in certain sections of the corridor and on separate tracks in certain sections.[14] This route serves three stations in North Carolina at Charlotte Gateway, CLT airport, and Gastonia; four stations in South Carolina in Spartanburg, Greer, Greenville, and Clemson; and six stations in Georgia in Toccoa, Gainesville, Suwanee, Doraville, downtown Atlanta, and H-JAIA.

Interstate 85

The I-85 Corridor Alternative is a 255-mile route located primarily within the interstate highway ROW on a dedicated high-speed passenger rail alignment following I-85 between Gastonia, NC and Suwanee, GA, then following a shared railroad ROW in the approaches to the Charlotte and Atlanta termini.[15] This route serves three stations in North Carolina at Charlotte Gateway, CLT airport, and Gastonia; three stations in South Carolina in Spartanburg, Greenville, and Anderson; and four stations in Georgia in Suwanee, Doraville, downtown Atlanta, and H-JAIA.

Greenfield

The Greenfield Corridor Alternative is a 274-mile route primarily on a new "greenfield" dedicated high-speed passenger rail alignment between CLT airport and Athens, GA, then following shared railroad ROW in the approaches to the Charlotte and Atlanta termini. This route serves three stations in North Carolina at Charlotte Gateway, CLT airport, and South Gastonia; two stations in South Carolina at GSP airport and Anderson; and five stations in Georgia in Athens, Suwanee, Doraville, downtown Atlanta, and H-JAIA.

I-20 and I-77

The I-20 and I-77 Corridor Alternative is a 321-mile route located primarily within the interstate highway ROW following I-77 between Charlotte, NC and Columbia, SC and I-20 between Columbia, SC, Augusta, GA and Atlanta. Similar to the I-85 Corridor Alternative, this corridor consists of a dedicated high-speed passenger rail alignment in the interstate ROW, then follows a shared railroad ROW in the approaches to the

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[13] *The Volpe Center, 2008, "Evaluation of High Speed Rail Options in the Macon-Atlanta-Greenville-Charlotte Rail Corridor", http://www.dot.ga.gov/InvestSmart/Rail/Documents/Atl-Char/VolpeCenterFeasibilityStudy2008.pdf*

[14] *"Shared ROW" or "shared use" refers to ROW that is used by both freight and passenger service.*

[15] *"Dedicated use" refers to new ROW dedicated solely for the purpose of providing passenger rail service. The addition of freight operations was not evaluated in this report. This does not necessarily preclude the operation of temporarily separated freight operations in that the engineering design standards used for the dedicated route alternative can support freight use where capacity is available. Heavy freight use will increase the maintenance costs associated with these tracks.*

Charlotte and Atlanta termini. This route serves one station in North Carolina at Charlotte Gateway; two stations in South Carolina in Rock Hill and Columbia; and four stations in Georgia in Augusta, Covington, downtown Atlanta, and H-JAIA.

CSXT and NS via Augusta (CSX Augusta)

The CSX and NS via Augusta Corridor Alternative is a 373-mile route that follows the NS Charlotte-Columbia Subdivision ROW from Charlotte, NC to Columbia, SC, then the CSX Georgia Subdivision ROW from Columbia, SC to Atlanta, GA. This corridor shares the NS and CSX ROW, with freight and passenger trains operating together on shared tracks in certain sections of the corridor and on separate tracks in certain sections where the alignment supports it. This route serves one station in North Carolina at Charlotte Gateway; two stations in South Carolina in Rock Hill and Columbia; and four stations in Georgia in Augusta, Covington, downtown Atlanta, and H-JAIA.

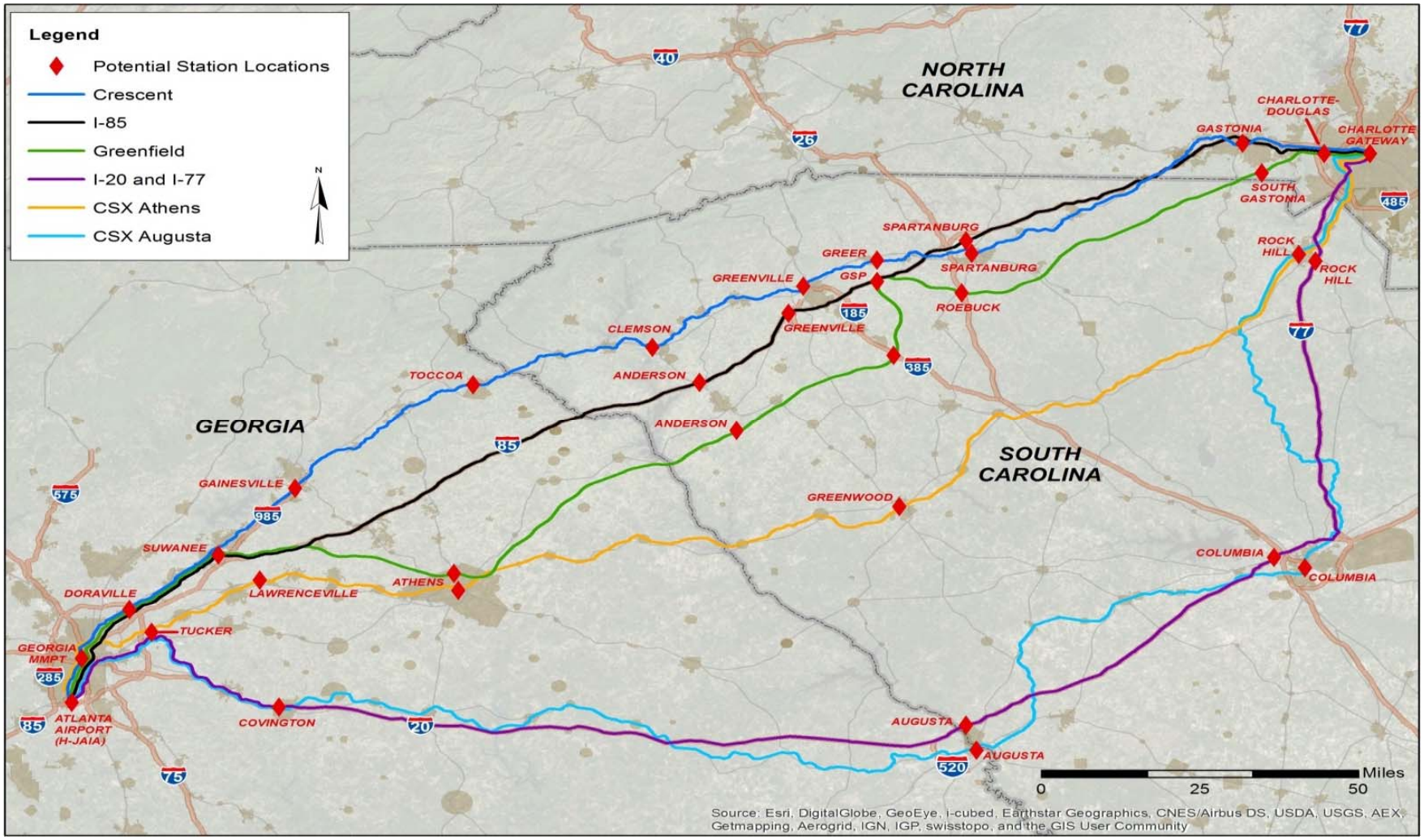
CSXT and NS via Athens (CSX Athens)

The CSX and NS via Athens Corridor Alternative is a 281-mile route that follows the NS Charlotte-Columbia Subdivision ROW from Charlotte, NC to Chester, SC, then the CSX Monroe and Abbeville Subdivisions to Athens and Atlanta, GA. This corridor shares the NS and CSX ROW with freight and passenger trains operating together on shared tracks in certain sections of the corridor and on separate tracks in certain sections where the alignment supports it. This route serves one station in North Carolina at Charlotte Gateway; two stations in South Carolina in Rock Hill and Greenwood; and five stations in Georgia in Athens, Lawrenceville, Tucker, downtown Atlanta, and H-JAIA.

Corridor Alternatives Advancing

Out of the six route alternatives, GDOT selected three to advance for further evaluation in the Tier 1 EIS, based on how well they addressed the Project goals and Need and Purpose Statement and input from the public. The I-20/I-77, CSXT and NS Augusta and CSXT and NS Athens route alternatives did not adequately address the Project's Purpose and Need, therefore GDOT decided not to advance them to the next stage of analysis. GDOT selected the Southern Crescent, I-85, and Greenfield Corridor Alternatives to advance. Chapter 2 provides more information on this screening process and the consideration of the No Build Alternative.

Exhibit 0-4: Corridor Alternatives



Source: HNTB

Comparison of Corridor Alternatives

Chapter 2 of this Tier 1 EIS further refines the three Corridor Alternatives and estimates preliminary service characteristics using train simulation and demand forecasting tools, the results of which are summarized in Exhibit 0-5. The ranges presented in Exhibit 0-5 reflect two technology options evaluated for each Corridor Alternative. The Southern Crescent was evaluated for two options using diesel technology, one following shared tracks and one with a combination of shared and dedicated passenger tracks. The I-85 Corridor Alternative was evaluated using a diesel and electric option, both following dedicated tracks. Likewise, the Greenfield Corridor Alternative was also evaluated for a diesel and electric option, both following dedicated tracks.

Exhibit 0-5: Route Alternatives Comparison

	Corridor Alternative		
Criteria	**Southern Crescent**	**I-85**	**Greenfield**
Capital Costs ($2012)	$2.0B-$2.3B	$13.3B-$15.4B	$6.2B-$8.4B
Top Operating Speed (mph)	79 to 110	125 to 180	125 to 220
End to End Travel Time (hours:minutes)	4:35 - 5:34	2:42 - 2:50	2:06 - 2:44
Projected Annual Ridership (2050)	0.94 M to 1.18 M	5.50 M to 5.62 M	5.38 M to 6.30 M
Source: Revenue and Ridership analysis, HNTB			

Travel time and operating speeds are a function of the technology type (diesel versus electric), the use of dedicated or shared tracks (and associated freight volumes), the presence of at-grade roadway crossings, the number and location of station stops, and the curvature and grade of the right-of-way. The Greenfield Corridor Alternative is able to reach the greatest top operating speed and can operate at top speed for the longest duration due to its gentle geometry. The I-85 Corridor Alternative has the second greatest top operating speed, and is limited by the curvatures of the Interstate right-of-way. The Southern Crescent Corridor Alternative has the slowest top speed due to the utilization of diesel trains, the geometry of the tracks, and the presence of freight train traffic and at-grade roadway crossings.

GDOT conducted a train simulation to determine the number of daily round trips possible, considering the technology, speed, and travel time. Due to its faster operating speed and shorter travel time, GDOT determined that the Greenfield Corridor Alternative would support the most round-trip frequencies among the Corridor Alternatives and, therefore, would generate the highest ridership. I-85 generates the second highest ridership and the Southern Crescent generates the lowest in this analysis. The Southern Crescent is least competitive with existing modes of travel, like automobile, air, and intercity bus, due to the longer trip time.

The I-85 Corridor Alternative is estimated to be the most expensive, which is primarily attributed to retrofitting to Interstate interchanges and constructing elevated structures where right-of-way is unavailable

due to existing development. The Greenfield Corridor Alternative is the second most expensive, primarily due to right-of-way costs. The Southern Crescent Corridor Alternative is the least expensive due to sharing an existing railroad corridor. Additional financial analysis, including operating and maintenance costs, revenue projections, and operating ratios, can be found in Chapter 2.

Environmental Analysis

Chapter 3 of this document details the potential environmental resources located within each of the three Corridor Alternatives. GDOT summarized these findings using a qualitative rating system, depicted in Exhibit 0-6. GDOT evaluated each Corridor Alternative on its potential impacts to environmental resources, relative to the other two Corridor Alternatives. Exhibit 0-6 is a sample of the environmental analysis conducted in this Tier 1 EIS for the purposes of comparing Corridor Alternatives. Chapter 3 provides detailed information on all environmental resources considered in this Tier 1 EIS, and describes the additional analysis that GDOT and FRA are deferring to future Tier 2 analysis.

Exhibit 0-6: Environmental Resources – Relative Ratings by Corridor Alternative

Rating/Criterion

- Highest Potential Impact
- Moderate Potential Impact
- Lowest Potential Impact
- Unknown Potential Impact

Environmental Resource	Alternative(s) & Approaches					
	Crescent		I-85		Greenfield	
	NS Approach	CSX Approach	NS Approach	CSX Approach	NS Approach	CSX Approach
Air Quality	?	?	?	?	?	?
Water Quality	○	○	◐	◐	●	●
Noise/Vibration	●	●	○	○	◐	◐
Biological	○	○	◐	◐	●	●
Social/Economic	●	●	◐	◐	○	○
Environmental Justice	●	●	◐	◐	○	○
Parks/Federal Lands*	●	●	◐	◐	○	○
Cultural Resources	●	●	◐	◐	○	○

** Parks/Federal lands rating is based on number of acres impacted.*

As illustrated in Exhibit 0-6, each Corridor Alternative generally has greater potential impacts in some categories and fewer potential impacts in other categories. None of the Corridor Alternatives performed perfectly using this comparative rating system. The Greenfield Corridor Alternative had the lowest potential impact in four categories, more than any of the other Corridor Alternatives. The I-85 Corridor Alternative scored "moderate" in nearly all categories. The Southern Crescent had the highest potential impact in five categories, more than the other two. Section 3.2 of Chapter 3 provides a more quantitative comparison of the Corridor Alternatives' potential environmental impact.

0.6 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

GDOT developed a Public Involvement and Coordination Plan early during the Tier 1 EIS process to guide all outreach with the public, stakeholders, and participating and cooperating agencies. GDOT and FRA held a series of public meetings during scoping, as well as meetings with stakeholders and agencies over the course of the project, which are described in Chapter 4 and documented in **Appendix C**.

FRA approved the Public Involvement and Coordination Plan on February 20, 2013, and it provided structure for coordination and communication between lead federal and state, cooperating, and participating agencies, including tribal governments, and was intended to guide the agency coordination process, ensure efficient reviews, and streamline the project decision-making process. The NEPA process for the Project began with early coordination and an agency scoping process. FRA announced the agency scoping meeting in a Notice of Intent (NOI) published in the Federal Register on May 16, 2013 (see **Appendix E**). FRA and GDOT held the agency scoping meeting on June 24, 2013. In addition, interagency coordination meetings between federal and state lead agencies, as well as stakeholder meetings took place throughout the development of the Tier 1 EIS. Meeting summaries are located in **Appendix C**.

In compliance with Section 106 of the National Historic Preservation Act[16], FRA sent coordination letters on July 9, 2015, to the state historic preservation officers (SHPO) of Georgia, South Carolina, and North Carolina, and to historic preservation-focused agencies and organizations to request information on known eligible historic properties within the Study Area. Section 106 also requires tribal consultation. GDOT contacted Native American Tribes with interests in natural or cultural resources located in the Study Area via letter during the scoping process.

FRA and GDOT held three public scoping meetings in early June 2013 in Suwanee, GA; Greer, SC; and Charlotte, NC. FRA and GDOT also provided the opportunity for both agencies and the public to review and comment on the Project.

0.7 NEXT STEPS

In accordance with NEPA and FRA's procedures, once the Tier 1 DEIS is available for public review, there will be a minimum 45 day public comment period. During that time, FRA, GDOT, SCDOT, and NCDOT will hold public meetings to provide interested parties an opportunity to learn more about the Project, submit comments on the Project, and obtain feedback from the Project team on the Tier 1 DEIS. After the close of the meeting and public comment period, FRA and GDOT will consider the public and agency input as well as the findings of the Tier 1 DEIS in selecting the Preferred Corridor Alternative.

After FRA publishes the Tier 1 DEIS and the public comment period is completed, GDOT will prepare a combined Tier 1 Final EIS (FEIS) and Record of Decision (ROD) wherein the Preferred Corridor Alternative will be presented. Should funding for further study become available, FRA and GDOT will then evaluate potential alignments (including the Atlanta Approach), stations, facilities, and detailed service characteristics in future Tier 2 analysis.

[16] *36 CFR 800. National Historic Preservation Act of 1966*