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1. INTRODUCTION

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

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 1-1**).⁴ The SEHSR Corridor initiative proposes high-speed rail from Washington, DC through Richmond, VA and Charlotte and Raleigh, NC, and from Charlotte to Atlanta, Georgia. The first designated segment of the SEHSR is between Washington, DC and Charlotte, NC, and is discussed further in Section 1.1.1.⁵

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

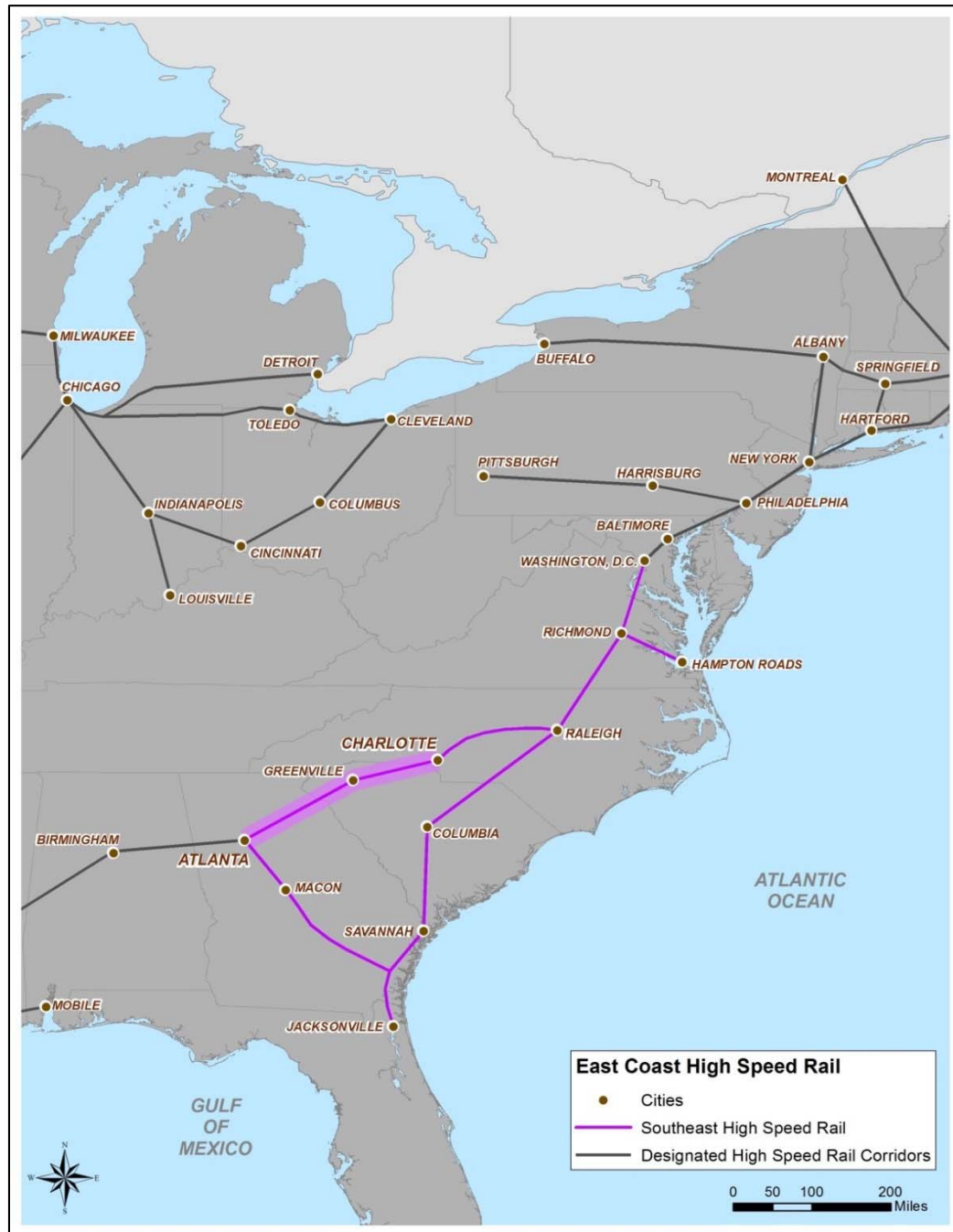
² FRA's High Speed Rail Overview, <https://www.fra.dot.gov/Page/P0134> (accessed on 11/14/18)

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)

⁵ FRA, <https://www.fra.dot.gov/Page/P0140> (accessed on 2/24/16)

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



Sources: National Conference of State Legislators⁶

⁶ <http://www.ncsl.org/research/transportation/chart-of-federally-designated-high-speed-rail-corr.aspx> (accessed on 11/25/15)

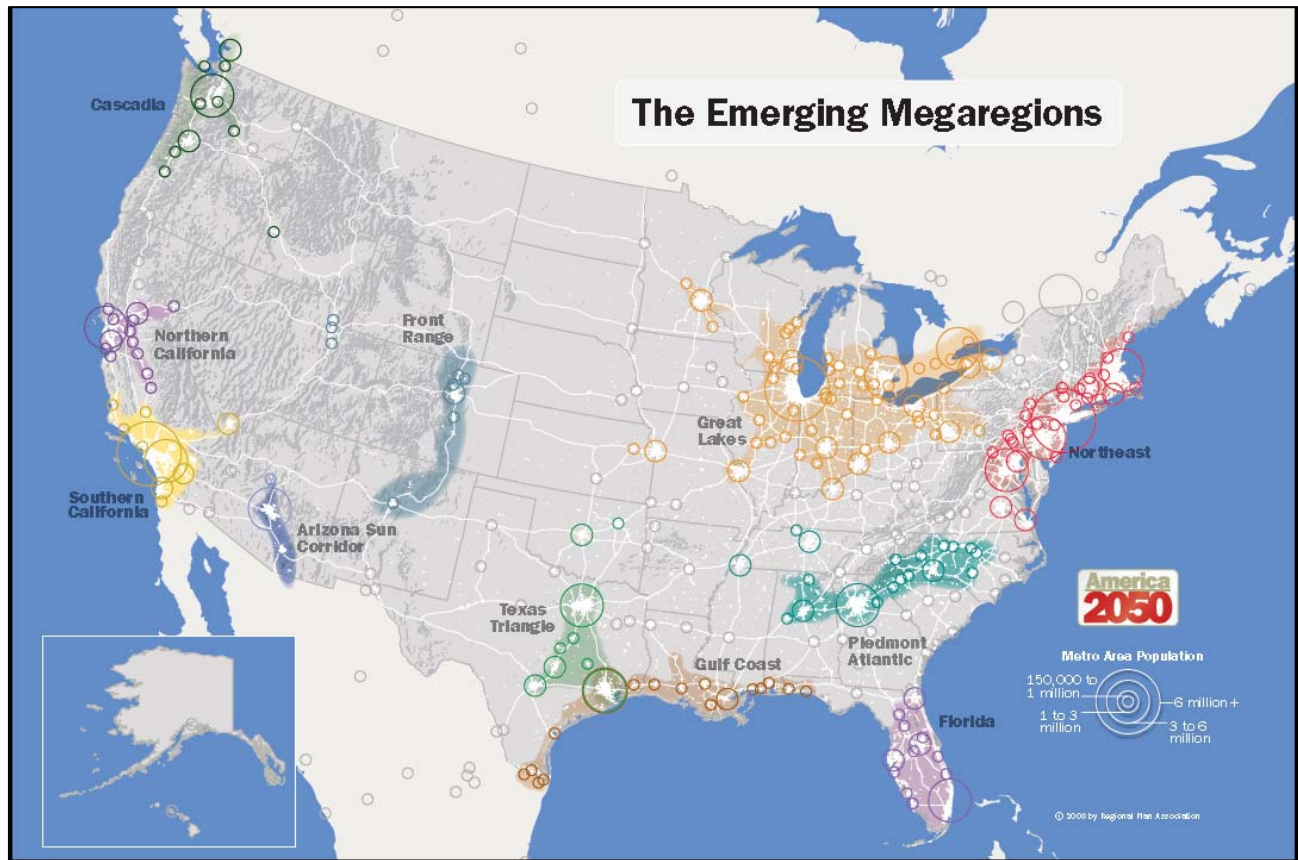
The segment connecting Atlanta to Charlotte crosses the core of the Piedmont Atlantic Megaregion. The term megaregion refers to a group of clustered geographic locations that are connected by economic, social and infrastructure relationships that resulted from the continued expansion of the metropolitan regions throughout the second half of the twentieth century.⁷ *America 2050*⁸ provides the following description regarding megaregions: “As metropolitan regions continued to expand throughout the second half of the twentieth century their boundaries began to blur, creating a new scale of geography now known as the megaregion. Interlocking economic systems, shared natural resources and ecosystems, and common transportation systems link these population centers together. As continued population growth and low density settlement patterns place increasing pressure on these systems, there is greater impetus to coordinate policy at this expanded scale”.⁹ *America 2050* recognizes eleven emerging megaregions in the U.S. (see **Exhibit 1-2**). One of which is the Piedmont Atlantic Megaregion, which represents over twelve percent of the U.S. population. There are six metropolitan cities in the megaregion, including Atlanta, Birmingham, Charlotte, Greensboro, Greenville, and Raleigh.

⁷ What Are Megaregions, FHWA, http://www.fhwa.dot.gov/planning/megaregions/what_are/ (accessed on 3/3/17)

⁸ *America 2050* is the Regional Plan Association’s (RPA) national infrastructure planning and policy program. The RPA is an urban research and advocacy organization based in the New York, New Jersey and Connecticut metropolitan region. <http://www.rpa.org/> (accessed on 1/25/16)

⁹ *America 2050* website, <http://www.america2050.org/megaregions.html> (accessed on 9/24/15)

Exhibit 1-2: U.S. Map of Megaregions



Source: America 2050

Implementing the SEHSR Corridor and other railroad 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 fuel; and
- Improved land utilization and investment in livable urban and rural communities.

FRA in cooperation with the Georgia Department of Transportation (GDOT) prepared this Tier 1 Environmental Impact Statement (EIS) for the extension of the SEHSR corridor from Charlotte, NC to Atlanta, GA, including the preparation of the Atlanta to Charlotte Passenger Rail Corridor Investment Plan, hereafter referred to as the “Project.” The Project includes two components: (1) an environmental analysis of the proposed routes, and (2) a Service Development Plan (SDP). This document includes the Tier 1 EIS portion of the Project. The Alternatives Development Report (ADR), included within the Tier 1 EIS as

Appendix B, identified and analyzed a range of Corridor Alternatives, their potential service speeds and frequencies, and examined their ability to meet the Project's Purpose and Need. The next phase of study will likely require multiple Tier 2 level environmental reviews throughout the corridor, as part of a Tier 2 EIS, GDOT will prepare an SDP report that defines the operating characteristics of the Project and a proposed approach to develop the corridor in logical phases. The environmental analysis and SDP report will lay the blueprint for ultimately delivering the full buildout of the preferred corridor alternative identified in this Tier 1 EIS.

North Carolina and South Carolina are key stakeholders for this Project, and have been actively involved. Coordination with these states will continue throughout the process.

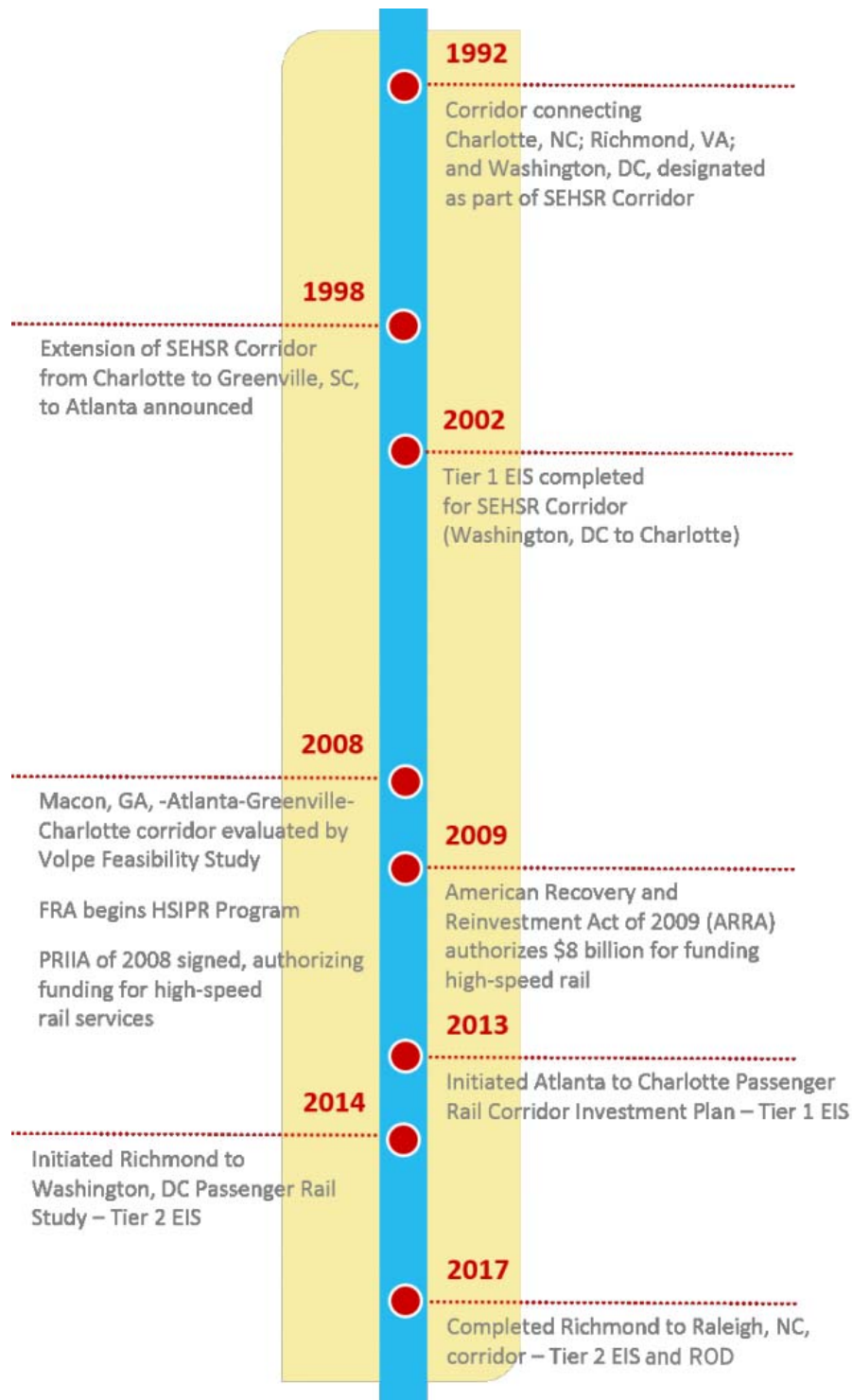
1.1 BACKGROUND

The following sections provide an overview of the history and development of high-speed intercity passenger rail and highlights key initiatives or studies that are under way or completed, specifically in Georgia, South Carolina, and North Carolina. Efforts in the Commonwealth of Virginia are also referenced.

1.1.1 High-Speed Intercity Passenger Rail Timeline

On October 20, 1992, the U.S. Secretary of Transportation announced the designation of five high speed rail corridors around the country, including the SEHSR Corridor. As originally proposed, the SEHSR Corridor connected Charlotte and Raleigh, NC, Richmond, VA, and Washington, DC. In DC, it would link to the Northeast Corridor (NEC) for continued service to New York, NY and Boston, MA. **Exhibit 1-3** depicts a timeline of major planning and funding milestones for the SEHSR Corridor.

Exhibit 1-3: SEHSR Timeline



In 1995, the USDOT extended the SEHSR Corridor to Hampton Roads, VA. In 1998, following the enactment of the Transportation Equity Act for the 21st Century (PL 105-187, Section 7201), USDOT created two more extensions:

- Charlotte through Spartanburg/Greenville, SC, to Atlanta and on to Macon, GA, and Jacksonville, FL
- Raleigh through Columbia, SC, and Savannah, GA, to Jacksonville, FL.

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA – Public Law No. 110-432) further defined high-speed rail and authorized the basic funding framework for high-speed rail service. PRIIA also authorized the appropriation of funds to USDOT to establish and implement a high-speed rail corridor program known as the High Speed Intercity Passenger Rail (HSIPR) program.

In the American Recovery and Reinvestment Act (ARRA) of 2009¹⁰, Congress appropriated \$8 billion to help create a national network of high-speed rail corridors. As authorized under PRIIA, FRA distributed those funds through the HSIPR program. Congress appropriated an additional \$2.5 billion in Fiscal Year 2010 for the HSIPR program. On April 1, 2010, FRA issued a Notice of Funding Availability soliciting applications for that \$2.5 billion. The USDOT Secretary of Transportation selected the Atlanta to Charlotte Passenger Rail Corridor Investment Plan (PRCIP) to receive HSIPR funding based on the corridor’s “... utility and... potential for future development”.¹¹

Between 2009 and 2017, FRA invested approximately \$742 million in planning and construction for development of the SEHSR Corridor from Washington, DC through Virginia and North Carolina. This investment includes the initiation, continuation, or completion of multiple tiered environmental documents for the SEHSR Corridor from Washington, DC, through Richmond, VA, to Raleigh and Charlotte, NC, and for the construction of some initial improvements on the segment of the SEHSR Corridor in Virginia and North Carolina.¹² The Project will serve as an extension of the investments made in the SEHSR Corridor to the north.

1.1.2 Existing Plans, Programs and Key Initiatives

The state departments of transportation (DOTs) of Georgia, South Carolina, and North Carolina, and the Virginia Department of Rail and Public Transportation (DRPT), along with other organizations, have undertaken various studies relating to passenger rail and this Project, some of which are still in progress. The following sections discuss the initiatives that provide additional context for the Project.

1.1.2.1 Georgia

The 2008 Volpe Feasibility Study¹³ - The Volpe National Transportation Systems Center (supported by FRA) assessed the feasibility of implementing high-speed rail connecting Macon and Atlanta, GA, to Charlotte, NC. The Volpe Study played a significant role in establishing the concept for the Project (Atlanta

¹⁰ Public Law 111-5, American Recovery and Reinvestment Act of 2009

¹¹ FRA’s website, <https://www.fra.dot.gov/eLib/details/L02692> (accessed on 10/29/15)

¹² FRA’s website, <https://www.fra.dot.gov/Page/P0554> (accessed on 10/29/15)

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> (accessed 11/7/2018)

to Charlotte corridor). The DOTs of Georgia, South Carolina, and North Carolina participated as stakeholders for this study.

The High Speed Rail Planning Services Final Report (2012)¹⁴ – Funded by an FRA HSIPR grant, GDOT evaluated the feasibility of high-speed rail for three corridors serving Atlanta, GA, and the southeastern U.S.

This study evaluated a southern extension of the SEHSR Corridor to Florida, a westward connection to the Gulf Coast HSR Corridor to Alabama, and a northward connection to Tennessee and Kentucky. The corridors were as follows:

- Atlanta, GA, to Birmingham, AL¹⁵;
- Atlanta, GA, to Macon, GA, to Jacksonville, FL¹⁶; and
- Atlanta, GA, to Chattanooga, TN, to Nashville, TN, to Louisville, KY¹⁷.

Georgia Multimodal Passenger Terminal (Georgia MMPT) – The Georgia MMPT is a proposed transit terminal to be constructed in downtown Atlanta that would provide connections for:

- Intercity Passenger rail;
- Commuter Passenger Rail
- Metropolitan Atlanta Rapid Transit Authority (MARTA) rail rapid transit;
- Regional and local bus transit;
- Intercity bus; and
- Other planned transit services (i.e., Atlanta Streetcar).

The Georgia MMPT is a proposed station-stop for this Project. FTA is the lead Federal agency on an Environmental Assessment (EA) analyzing the impacts of the Georgia MMPT, although that EA is on hold as of the publication of this DEIS. This Tier 1 DEIS assumes the development of a station serving downtown Atlanta, which is represented by the Georgia MMPT. This Tier 1 DEIS does not require service to the specific location of the Georgia MMPT, but rather a station providing convenient and accessible service to the population in Downtown Atlanta.

Georgia State Rail Plan (2015)¹⁸ – GDOT’s rail plan articulates Georgia’s vision and plans for freight and passenger rail service in Georgia. Pursuant to federal guidance,¹⁹ the Plan includes a description of the state rail network, its related transportation and economic benefits and deficiencies, and a program of proposed

¹⁴ GDOT, GDOT, <http://www.dot.ga.gov/InvestSmart/Rail/Documents/High%20Speed%20Rail%20Planning%20Services%20Report%20-Final%20Draft-ReducedSize.pdf> (accessed on 3/3/17)

¹⁵ <http://www.dot.ga.gov/InvestSmart/Rail/Documents/High%20Speed%20Rail%20Planning%20Services%20Report%20-%20Atlanta-Birmingham.pdf> (accessed on 4/14/17)

¹⁶ <http://www.dot.ga.gov/InvestSmart/Rail/Documents/High%20Speed%20Rail%20Planning%20Services%20Report%20-%20Atlanta-Macon-Jacksonville.pdf> (accessed on 4/14/17)

¹⁷ <http://www.dot.ga.gov/AboutGeorgia/Board/Presentations/HighSpeedRail-Feasibility-B-j-l.pdf> (accessed on 4/14/17)

¹⁸ GDOT, <http://www.dot.ga.gov/IS/Rail/StateRailPlan> (accessed on 11/4/15)

¹⁹ FRA State Rail Plan Guidance, <https://www.fra.dot.gov/eLib/Details/L04760> (accessed on 3/3/17)

investments for the rail system through 2040. Georgia’s rail plan serves as a basis for proposed and existing passenger rail service. Georgia’s rail plan explicitly mentions this Project, falling under its policy goal to: “Provide for a reliable, enhanced and interconnected passenger rail system.”

1.1.2.2 South Carolina

The 2008 Volpe Feasibility Study – See Section 1.1.2.1 above.

South Carolina Statewide Rail Plan²⁰ - South Carolina DOT’s rail plan (August 2014) establishes the role of rail statewide, assesses the current rail system (trends and forecasts), and identifies future rail improvements and investments around the state. A key component of the rail plan is setting the vision for South Carolina’s rail network, including high-speed passenger rail. The rail plan is a component of South Carolina’s 2040 Statewide Multimodal Transportation Plan (MTP), which also includes the following:²¹

- An Interstate Plan;²²
- A Freight Plan;²³
- A Strategic Corridor Network Plan;²⁴ and
- A Public Transportation and Coordination Plan.²⁵

South Carolina’s rail plan serves as a basis for proposed and existing passenger rail service. The plan also explicitly lists this Project as being part of South Carolina’s long-range rail service and investment program.

1.1.2.3 North Carolina

Charlotte, NC to Washington, DC, Southeast High Speed Rail Tier 1 EIS²⁶ - Virginia’s DRPT and North Carolina’s Department of Transportation (NCDOT) undertook a programmatic environmental study to assess the potential impacts of implementing high-speed passenger rail between Charlotte and Washington, DC. The Tier 1 EIS identified the preferred route of the SEHSR Corridor serving Washington, DC, through Richmond, VA, to Raleigh and Charlotte, NC, using existing or historic freight railroad right-of-way (ROW). The Tier 1 EIS defined the initial maximum speed for this segment at 110 mph using diesel powered locomotives with up to eight round-trips per day. Although the Tier 1 EIS did not recommend electrification, the document mentioned the potential for upgrading to higher speeds with electrification as population and transportation demand increases in the future. FRA and the Federal Highway Administration (FHWA) issued a Record of

²⁰ South Carolina DOT, https://www.scdot.org/Multimodal/pdf/SC_MTP_Rail_Plan_FINAL.pdf (accessed on 3/18/2019)

²¹ South Carolina Multimodal Transportation Plan website, (accessed on 05/04/2016)

²² South Carolina Multimodal Transportation Plan – Interstate Plan, https://www.scdot.org/Multimodal/pdf/SC_MTP_Interstate_Plan_FINAL.pdf (accessed on 03/18/2019)

²³ South Carolina Multimodal Transportation Plan – Statewide Freight Plan, http://www.scdot.org/multimodal/pdf/sc_mtp_freight_plan.pdf (accessed on 05/04/2016)

²⁴ South Carolina Multimodal Transportation Plan – Strategic Corridors Plan, https://www.scdot.org/Multimodal/pdf/SC_MTP_Strategic_Corridors_Plan_FINAL.pdf (accessed on 05/04/2016)

²⁵ South Carolina Multimodal Transportation Plan –Statewide Public Transportation and Coordination Plan, https://www.scdot.org/Multimodal/pdf/SC_MTP_Transit_Plan_FINAL.pdf (accessed on 03/18/2019)

²⁶ FRA, <https://www.fra.dot.gov/Page/P0427> (accessed on 11/4/15)

Decision (ROD) for this Tier 1 EIS in 2002. This segment serves as the northern portion of the SEHSR Corridor.

SEHSR Richmond, VA to Raleigh, NC, Tier 2 EIS – Building on the Charlotte, NC, to Washington, DC, SEHSR Tier 1 EIS, FRA, DRPT and NCDOT completed a Tier 2 EIS for the portion of the SEHSR between Raleigh and Richmond. FRA issued the ROD for this EIS in March 2017, selecting a preferred alternative for a specific route between Raleigh and Richmond.²⁷

The 2008 Volpe Feasibility Study – See Section 1.1.2.1 above.

Charlotte Gateway Station²⁸ - Located in the city’s center, the Charlotte Gateway Station is a proposed multimodal transportation facility that will serve the SEHSR Corridor and provide connecting services for:

- Amtrak intercity rail;
- Commuter rail;
- Local and express bus service through Charlotte Area Transit System;
- Bus rapid transit;
- Center City Corridor streetcar service; and
- Intercity bus.

The Charlotte Gateway Station is a proposed station-stop and the northern terminus for this Project. NCDOT and the City of Charlotte prepared a Multimodal Station Area Plan for Gateway Station with funding provided by the FRA through USDOT’s Transportation Investment Generating Economic Recovery “TIGER Discretionary Grants” Program.²⁹ USDOT has selected the City of Charlotte to receive \$30 million in additional TIGER funding, which will support the construction of initial track and platform facilities at the station. The City of Charlotte and NCDOT began construction on the bridges and tracks for the new station in 2018 and plan to be complete by 2022. The City of Charlotte and NCDOT are also preparing engineering designs for the station facility. Funding for the station building has not been identified as of the publishing of this DEIS.

The Piedmont Improvement Program³⁰ - Funded under FRA’s HSIPR program, NCDOT invested in modernizing the state’s railways through a series of railroad construction projects, including new rail-highway grade separations, and other enhancements known as the Piedmont Improvement Program (PIP). Funded projects included grade separations, double-track installations, and locomotive and passenger car acquisition and rehabilitation. PIP projects aimed to make train travel safer, faster, more frequent and more reliable, enhance opportunity for greater job growth and commercial development, and better connect the economic regions of Raleigh and Charlotte and the cities, towns and communities in between. All PIP projects were

²⁷ NCDOT, <https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/SEHSR%20Raleigh%20to%20Richmond%20Signed%20Record%20of%20Decision.pdf>.

²⁸ Charlotte Area Transit System (CATS), <http://charmeck.org/city/charlotte/cats/planning/facilities/gatewaystation/Pages/Projectfacts.aspx> (accessed on 11/4/15)

²⁹ CATS, <https://charlottenc.gov/cats/transit-planning/charlotte-gateway-station/Documents/CGS%20MSAP%20-%20Final%20Report.pdf> (accessed on 11/1/18)

³⁰ North Carolina DOT, <https://www.ncdot.gov/divisions/rail/Pages/piedmont-improvement-program.aspx> (accessed on 11/1/18)

completed in 2017, and the environmental documents prepared for the individual PIP projects also serve as Tier 2 EIS clearances for SEHSR between Charlotte and Raleigh. The PIP investments will support the operation of up to five daily round trip conventional speed trains between Raleigh and Charlotte. If funding becomes available, some of these trains could be extended from Raleigh to Richmond along the proposed SEHSR corridor. Additional trips beyond the five frequencies would require revised agreements with the railroad.

North Carolina Comprehensive State Rail Plan³¹ - NCDOT's rail plan, issued in August 2015, identifies needs and guides investments in the state's freight and passenger rail network for the next 25 years. Objectives of NCDOT's state rail plan are to:

- Establish the public vision for the state rail system;
- Analyze and prioritize rail corridors, programs, and proposed projects;
- Propose future improvements and investments, and assess funding options;
- Provide a current inventory of the rail system and identify trends, markets, and needs; and
- Describe how programs managed by the NCDOT Rail Division work together with other government agencies, businesses, and industries.

North Carolina's rail plan serves as a basis for proposed and existing passenger rail service. North Carolina's rail plan explicitly mentions this Project as a proposed passenger rail improvement and investment.

1.1.2.4 Virginia

Washington, DC to Richmond³² - Virginia DRPT and FRA are working to improve passenger rail service between Washington, DC and Richmond, VA, which is a corridor shared by growing volumes of intercity passenger, commuter, and freight rail traffic. A Tier 2 EIS, preliminary engineering and a service development plan are underway that will specify improvements for the 123-mile project corridor. The project will provide a critical link to enhancing public mobility and connectivity by providing faster, more frequent, and more reliable passenger rail service along the eastern seaboard. To develop a high-speed passenger rail link, additional tracks and other infrastructure improvements are under consideration. The EIS and preliminary engineering project is planned for completion in 2018.

In addition to the Tier 2 EIS between Washington, DC and Richmond, VA, DRPT is constructing multiple capacity improvement projects to enhance commuter, passenger and freight efficiency along the SEHSR Corridor. In 2012, FRA awarded Virginia DRPT \$74.8 million from the HSIPR program to construct 11 miles of additional third track along a section of the corridor passing through Quantico, VA. Eight miles of the project, along with a new intercity passenger rail station in Quantico, VA are planned for completion in 2020.³³ In 2016, USDOT selected Virginia DRPT to receive \$165 million from the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) grant program for the Atlantic Gateway project to improve transportation efficiency in Northern Virginia. Virginia's

³¹ North Carolina's Amtrak, <http://www.ncbytrain.org/projects/rail-plan.html> (accessed on 11/4/18)

³² Virginia State Rail Plan, Major Rail Initiatives, <http://www.drpt.virginia.gov/rail/major-initiatives/> (accessed on 2/9/17)

³³ <https://www.vre.org/projects-plans-facility/projects/arkendale-to-powells-creek-third-track-project/>

FASTLANE proposal includes approximately \$0.5 billion in rail improvements on the SEHSR Corridor, including the construction of 11 miles of additional track in the shared Virginia Railway Express (VRE) commuter territory approaching Washington, DC.

The Richmond/Hampton Roads Passenger Rail Project³⁴ - This study evaluated potential routes for high-speed rail service in both the Richmond to Petersburg to South Hampton Roads Corridor along Route 460, and the existing Amtrak Corridor from Richmond to Williamsburg to Newport News along I-64. New passenger rail service in these locations could ultimately provide rail connections to the Southeast, Northeast, and Mid-Atlantic regions as an extension of the SEHSR Corridor. DRPT and FRA completed the Tier 1 EIS for this project in 2009 and issued a ROD in December 2012.

Virginia State Rail Plan (VSRP)³⁵ – The plan, issued in November 2018, presents information on the future needs of Virginia’s rail system and identifies recommendations to meet those needs. The VSRP includes the following information and attributes:

- A defined vision for passenger and freight rail transportation in Virginia;
- Is consistent with the Six Year Improvement Program (SYIP) and VTrans 2040 Long-term Plan;
- Was prepared in coordination with FRA according to current guidelines;
- Includes a Rail Resource Allocation Plan; and
- Incorporates coordination with railroads, rail providers, regional planning groups and public.

1.2 STUDY AREA AND DESCRIPTION

The “Study Area” is defined as the area containing all reasonable Corridor Alternatives connecting the logical termini under study for the Project, for purposes of evaluating environmental impacts. 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 1-4**. The Study Area will likely shrink in size as the number of Corridor Alternatives continue through vetting and environmental analysis.

The Atlanta to Charlotte corridor spans approximately 280 miles and connects the cities of Atlanta, GA, and Charlotte, NC, in a general northeasterly direction from Atlanta (see **Exhibit 1-4**). 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 proposed logical termini for the Project are Hartsfield-Jackson Atlanta International Airport (H-JAIA) and the proposed Charlotte Gateway Station. Within the termini cities, this Tier 1 EIS also considers connections to downtown Atlanta and Charlotte-Douglas International Airport (CLT).

This Tier 1 EIS considers potential connections to various cities and destinations between Atlanta and Charlotte, generally following the Interstates. GDOT considers I-85, I-20, and I-77 to be viable Corridor Alternatives due to their proximity and connectivity to population centers in the Study Area.

³⁴ <https://www.fra.dot.gov/Page/P0481>

³⁵ *Virginia State Rail Plan*, <http://www.drpt.virginia.gov/media/1668/vsrp-print-version-full-report.pdf> (accessed on 3/1/17)

1.3.1 Tier 1 EIS Framework

The NEPA process for the Project began with the FRA’s publication of a Notice of Intent (NOI) in the Federal Register on May 16, 2013. The NOI, included in Appendix E advised the public and other agencies that FRA would prepare a Tier 1 EIS for the Project.

The FRA is using a tiered process, as provided for in 40 CFR 1508.28, to complete the NEPA environmental review of the Project. “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 for the Project; and presents the outcomes of public and agency coordination that were considered in the Tier 1 assessment and decision-making processes. For this Project, in the Tier 1 EIS, FRA will select a Preferred Corridor Alternative (generalized area of travel); identify general locations for potential stations; and identify potential technology, speed, and frequency necessary to support the Purpose and Need of the Project.

Following the Tier 1 ROD, GDOT will determine whether and how to move forward with implementing the Project. If GDOT decides to move forward, and if sufficient funding is secured, FRA, in coordination with Georgia, South Carolina, and North Carolina, as appropriate, will determine the type of Tier 2 EIS to be prepared at that time. FRA and GDOT will prepare a Tier 2 EIS that examines potential impacts of the proposed action. A Tier 2 EIS will select the exact alignment of the corridor (including the Atlanta Approach, defined in Chapter 2), locations of stations and facilities, and operating equipment. FRA and GDOT have deferred technology selection to a Tier 2 EIS as several high-performance technology options are being studied to maximize cost savings and service delivery. GDOT and FRA will conduct a separate Tier 2 EIS for the Atlanta Approach, which could introduce additional locations beyond those identified in this Tier 1, including coordination with other rail and transit studies and initiatives in Atlanta. The Tier 2 EIS could also include any of the following based upon the proposed action:

- Categorical Exclusions (CEs) for actions that do not individually or cumulatively have a significant environmental effect;
- Environmental Assessments (EAs) for actions in which the significance of the environmental impact is not clearly established. EAs can lead to the development of EIS documents or a Finding of No Significant Impact (FONSI); or
- Environmental Impact Statements (EISs) for actions with known significant environmental effects.

The detailed environmental analyses undertaken during the Tier 2 EIS will more specifically assess the environmental impacts of each action and identify ways to avoid, minimize, and mitigate impacts. FRA will use the Tier 2 EIS to determine the exact location and magnitude of each action, such as types of structures, proposed station locations and configurations, storage and maintenance facility sites, and routing within existing ROW, among others. The Tier 2 EIS will continue the public involvement activities and agency coordination that began during the Tier 1 EIS process.

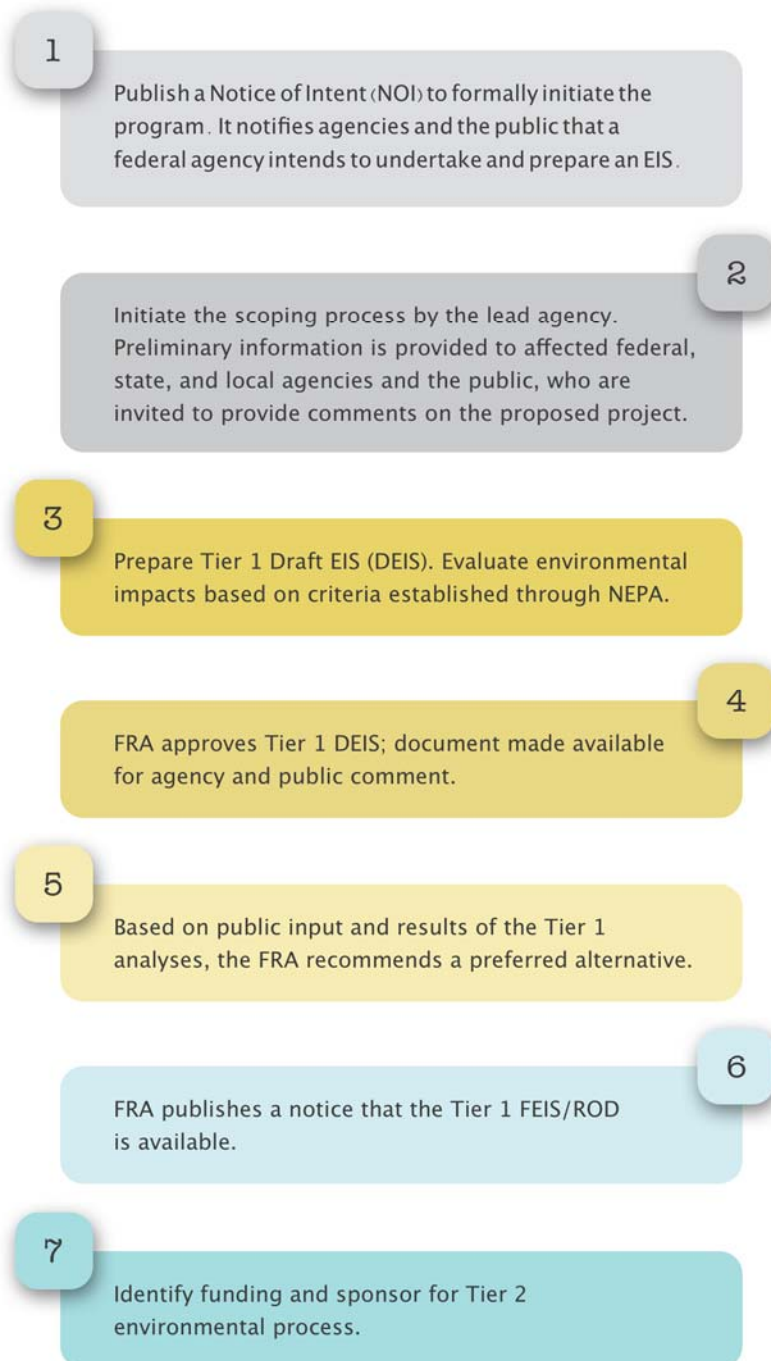
FRA and GDOT developed this Tier 1 EIS pursuant to the following guidance and federal regulations:

- National Environmental Policy Act of 1969 (NEPA) (42 USC § 4332 et seq.), and implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508);
- 49 USC § 303 (formerly Department of Transportation Act of 1966, Section 4(f));

- National Historic Preservation Act (16 USC § 470), and the Advisory Council on Historic Preservation’s NHPA-implementing regulations (36 CFR Part 800);
- Clean Air Act as amended (42 USC §7401);
- Endangered Species Act of 1973 (16 USC § 1531-1544);
- Clean Water Act (33 USC § 1251-1387);
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC § 4601);
- Executive Order 12898 (Environmental Justice);
- Executive Order 11990 (Protection of Wetlands);
- Executive Order 13988 (Floodplain Management);
- FRA’s Procedures for Considering Environmental Impacts (64 Federal Register [FR] 28545);
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (Public Law 109-59; SAFETEA-LU); and
- Moving Ahead for Progress in the 21st Century (MAP-21).

Exhibit 1-5 provides an illustration of the key activities for the Tier 1 EIS. GDOT plans to utilize the streamlining measure available and combine the FEIS and ROD.

Exhibit 1-5: Tier 1 EIS Key Milestones



1.4 PURPOSE AND NEED

The Charlotte to Washington, DC Tier 1 EIS covered the original USDOT-designated segment of the SEHSR Corridor. GDOT recognizes that, as part of the overall SEHSR Corridor, the purposes for the Charlotte to Washington, DC project are similar to those for the Atlanta to Charlotte Project. The following are key project purposes for the Charlotte to Washington, DC project:

- Provide the traveling public, particularly special populations such as the elderly and the disabled, with improved transportation choices;
- Help ease existing and future congestion (air, highway, passenger rail) within the corridor;
- Improve safety and energy effectiveness within the transportation network;
- Reduce the overall air quality related emissions per passenger mile traveled within the corridor; and
- Improve overall transportation system efficiency within the corridor, with minimal environmental impacts.

1.4.1 Purpose

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 PRIIA. This corridor would ultimately also provide linkages to other metropolitan areas along the East Coast (Washington, DC, New York, and Boston, MA).

1.4.1.1 Goals and 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 in the Tier 2 EIS;
- 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.

1.4.2 Needs

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
- 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

1.4.2.1 Population and Employment Growth

A primary Project need is the forecasted population and employment growth in the Study Area, particularly in the larger metropolitan areas. In determining population and employment growth, GDOT reviewed the approved long-range transportation plans (LRTP) of Metropolitan Planning Organizations (MPOs) in the Study Area. An MPO is a designated local decision-making body that is responsible for carrying out the metropolitan transportation planning process for census-designated urbanized areas with populations greater than 50,000 residents and within a contiguous boundary.³⁷ One of the responsibilities for an MPO is the adoption of an LRTP, and population and employment growth are key factors considered during its development.

³⁷ FHWA's Census website, https://www.fhwa.dot.gov/planning/census_issues/urbanized_areas_and_mpo_tma/faq/page01.cfm (accessed on 05/04/2016)

The Study Area includes several metropolitan areas that have historically been some of the fastest-growing cities in the southeastern United States. Population and employment information provided by five MPOs within the Study Area (Atlanta, Augusta, Greenville, Columbia, and Charlotte) served as the basis for the Project's needs. Each urban area expects a steady and significant growth trend for population and employment from 2010/2015 through 2040/2045 (see **Exhibit 1-6**)³⁸. Atlanta (44%) and Charlotte (61%) have the highest estimated population increases from 2010/2015 through 2040/2045, while Augusta (56%) and Charlotte (42%) estimate the highest increases in employment projections. In the future, these metropolitan areas expect to have considerable growth in both population and employment by 2040/2045. According to the U.S. Census as of 2015, Atlanta was the ninth largest Metropolitan Statistical Area in the U.S., Charlotte was 33rd, and Greenville was 83rd³⁹. To date, this rapid growth has predominantly relied upon the Interstate highway system to accommodate intercity travel demand.

Exhibit 1-6: Urban Population and Employment Trends

Metro Areas	Population			Employment		
	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: Atlanta⁴⁰, Augusta,⁴¹ Greenville⁴², Columbia,⁴³ and Charlotte's LRTPs⁴⁴

1.4.2.2 Improve Regional Transportation System Connectivity

Maintaining and improving regional transportation system connectivity aligns with the SEHSR Corridor's vision. This Project provides an integral link for the southeastern United States by providing a connection between Atlanta, the largest southeastern metropolitan area, and the East Coast (including the northeastern region of the U.S.). Furthermore, the Project enhances regional connectivity within the Piedmont Atlantic Megaregion. By implementing the Project, Atlanta could become a passenger rail hub, serving other intercity passenger rail proposals connecting various cities within the Southeast and the Gulf Coast.

³⁸ Some of the MPOs in the Study Area use 2010 as their base year and 2040 as their horizon year, others use 2015 and 2045, respectively.

³⁹ American FactFinder, MSA Annual Population Estimates: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk> (accessed 3/25/19)

⁴⁰ Atlanta Regional Commission, <http://atlantaregionsplan.org/population-employment-forecasts/> (accessed on 3/20/19)

⁴¹ Augusta Regional Transportation Study, <https://www.augustaga.gov/2120/Transportation-Vision-2040> (accessed 3/20/19)

⁴² 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)

⁴³ 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)

⁴⁴ Charlotte Regional Transportation Planning Organization http://www.crtpo.org/PDFs/MTP/2045/2045_MTP.pdf (accessed on 3/20/19)

With respect to improving regional transportation systems linkages, providing seamless connections to local transportation systems along the corridor is equally important to improving mobility. The Project will improve transportation options along the corridor by integrating with other local and regional travel networks, such as Atlanta's Metropolitan Atlanta Rapid Transit Authority (MARTA) and the Charlotte Area Transit System (CATS), travel nodes such as H-JAIA and CLT airports, and multimodal transportation facilities such as the proposed Georgia MMPT and Charlotte Gateway Station.

H-JAIA serves not only the Atlanta region, but also much of Georgia, for commercial air travel. H-JAIA has been ranked as the world's busiest airport since 1998. Twenty-one passenger airlines operate at H-JAIA, serving at least 150 domestic destinations and 75 international destinations in 50 countries.⁴⁵

Currently, MARTA provides public transit access to H-JAIA within its service area. GRTA Xpress, Gwinnett County Transit (GCT), and CobbLinc provide commuter bus services from suburban metro-Atlanta counties with stops in downtown Atlanta, where travelers can transfer to MARTA rail and access H-JAIA. GRTA's long range service plans include new direct routes to H-JAIA from Cobb and Gwinnett Counties, as well as other modifications to commuter service that better reflect employment and ridership trends.⁴⁶

Some private operators offer van-based airport shuttle service between H-JAIA and surrounding cities, including Augusta and Athens. Privately operated intercity buses offer service between Atlanta and Athens and between Atlanta, Greenville, and Charlotte, with continuing service north to Richmond, VA, Washington, DC, New York City, NY, and Boston, MA, as well as points in between. Not all parts of the Study Area are served, thus, there is a need to enhance transportation access to H-JAIA.

The CLT airport offers non-stop service to 150 destinations and is one of the fastest growing airports in the U.S. Some of this growth is attributed to CLT's position as American Airlines' largest hub and the addition of a third parallel runway in 2010.⁴⁷ CLT is served by three CATS bus routes, connecting travelers to central Charlotte and surrounding areas, including connections to the LYNX light rail.⁴⁸

Improving regional transportation system linkages helps accommodate projected travel patterns and demand stemming from the population and employment increases described in Section 1.4.2.1.

1.4.2.3 Increase Transportation System Capacity

Several transportation modes, including the highway system, intercity bus, passenger rail, and air, accommodate passenger travel between Atlanta and Charlotte; some are frequently at or near capacity. Automobile travel along Interstate highways is the most widely used form of transportation between Atlanta and Charlotte, particularly I-85. Although capacity improvements to highways and the interstate system within the Study Area are planned or underway (see Chapter 2, Exhibit 2-7), they alone will likely not address long-term travel demand and mobility needs. According to projections of local transportation planning studies and reports, automobile traffic volumes will increase and congestion will worsen for each of the metropolitan

⁴⁵ ATL Master Plan, http://www.atl.com/wp-content/uploads/2016/12/ATL_ExecSumm_2015_101415_Spreads.pdf (accessed 9/7/2017)

⁴⁶ GRTA Direct Xpress Service Plan, <http://directxpress.xpressga.com/downloads/> (accessed 8/29/2017)

⁴⁷ Charlotte-Douglas Master Plan, <http://www.cltairport.com/AboutCLT/Documents/Development%20Master%20Plan/CLT%20ACEP%2002232016%20-%20FINAL.pdf> (accessed 8/29/17)

⁴⁸ CATS Routes, <http://charlottenc.gov/cats/Pages/default.aspx> (accessed 8/29/17)

areas along the roadways within the Study Area, particularly on the interstates.⁴⁹ Furthermore, these planning studies project that demand for I-85 will exceed capacity in the Atlanta, Greenville, and Charlotte metropolitan areas, causing significant delay for highway travelers throughout the Study Area. **Exhibit 1-7** provides projected levels of service (LOS) on the Interstate highways within six metropolitan areas in the Study Area, highlighting areas of over-saturation. Future LOS projections are derived from MPO travel demand models for the respective areas. The projection year varies based on the date provided in each MPO's long range plan. LOS A-C describes at or near to fully free-flowing traffic patterns and indicates a roadway is operating within acceptable parameters. LOS D-F describes congested conditions (D) to gridlock (F), indicating that a roadway has more demand than capacity.

Exhibit 1-7: Interstate Level of Service within Study Area Metropolitan Areas

Metropolitan Area	Interstate Corridor	Future LOS	Future Year
Atlanta	I-85	LOS F	2040
Augusta	I-20	LOS F	2040
Spartanburg	I-85	LOS E or worse	2035
	I-26	LOS D or worse	2035
Greenville	I-85	LOS F	2030
Columbia	I-20	LOS D or worse	2035
	I-77	LOS D or worse	2035
Charlotte	I-85	LOS F	2030
	I-77	LOS F	2030

Sources: Georgia DOT Statewide Travel Demand Model, Atlanta Regional Commission, Augusta Regional Transportation Study, Spartanburg Area Transportation Study, Greenville-Pickens Area Transportation Study, Charlotte Regional Transportation Planning Organization, and Columbia Area Transportation Study

According to the 2016 Georgia Statewide Transportation Plan, the mileage of federal-aid highways in Georgia experiencing LOS F will more than double by the year 2040. On the Interstates in Georgia, the volume-to-capacity ratio is expected to increase by about 30 percent statewide. Furthermore, Georgia's statewide travel demand model projects that much of the state's increase in congestion will be concentrated in metro Atlanta and the surrounding communities north and east of the city.⁵⁰

Much of the highway congestion within the Study Area results from the Southeast region's population and economic growth. Many large corporations are headquartered in the Southeast and Atlanta and Charlotte in particular, including Home Depot, UPS, Coca-Cola, Delta Air Lines, Bank of America, and Goodrich, among others.⁵¹ This economic success has resulted in the expansion of residential and commercial development into rural areas, further broadening the effects of automobile traffic congestion.

⁴⁹ Metropolitan Planning Organizations' long range transportation plans and travel demand models

⁵⁰ Georgia Statewide Transportation Plan/Strategic Transportation Plan: Evaluation of Future Deficiencies Technical Memorandum, <http://www.dot.ga.gov/IS/SSTP> (accessed 8/30/17)

⁵¹ Fortune 500 by City and State, <http://fortune.com/fortune500/> (accessed on 8/21/15)

As for air travel between Atlanta and Charlotte, there are currently twenty flights per day, demonstrating the high demand for intercity travel between the Project's terminal cities.⁵² As of 2015, CLT ranked the fifth busiest nationwide in departures (over 700 daily flights) and ninth in the nation for passengers (over 22 million enplanements annually).⁵³ H-JAIA is the busiest passenger airport in both the U.S. and the world with over 49 million annual enplanements in 2015 (approximately 2,500 daily flights).⁵⁴ Both airports provide international as well as domestic connections.⁵⁵ Recent studies conducted by H-JAIA and CLT show that air traffic at and between these airports will continue to grow, signaling a need for greater system capacity.⁵⁶

In 2014, the percentage of on-time arrivals into H-JAIA and CLT was 78 and 79 percent, respectively.⁵⁷ The Greenville-Spartanburg International Airport (GSP) provides regional air service to both the Atlanta and Charlotte hubs; however, this service is oriented toward connecting longer distance service. There is no commercial air service available to the intermediate population centers along the corridor.

Amtrak operates one round trip daily between Atlanta and Charlotte as part of its New York-New Orleans *Crescent* service; this infrequent and relatively slow service is not suited to accommodate future growth in travel demand. A one-way trip between Atlanta and Charlotte takes approximately 5 hours and 17 minutes and service stops at the following stations: Atlanta, Gainesville, Toccoa, Greenville, Spartanburg, Clemson, Gastonia, and Charlotte.

Based on the Study Area's existing and future travel demand and transportation system capacity, there is a need to supplement Interstate highways and other travel modes to increase system capacity by diverting more trips from these modes to trains. The Project would supplement the Study Area's transportation system capacity.

1.4.2.4 Improve Travel Times and Reliability

Deficiencies with the existing transportation system hinder travel time reliability between Atlanta and Charlotte. To improve intercity travel and mobility between Atlanta and Charlotte, a proposed travel mode must provide competitive travel times and reliability in comparison to existing modes. The Study Area's projected travel demand, resulting from population and employment growth, further underscores the need for a travel mode that offers competitive and reliable travel times.

⁵² Quarterly, the Bureau of Transportation Statistics (BTS) collects a 10% sample of origin and destination data of airline tickets from reporting carriers. According to its sample size, BTS for 2014 reported just fewer than 2,500 passengers flying to and from Atlanta and Charlotte, [http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=247&DB_Short_Name=Origin and Destination Survey](http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=247&DB_Short_Name=Origin%20and%20Destination%20Survey) (accessed on 3/1/17).

⁵³ Charlotte Douglas International Airport Report of Achievement 2015,

<http://www.cltairport.com/News/Documents/ReportofAchievement/CLTReportAchievement2015.pdf> (accessed 11/7/2018)

⁵⁴ H-JAIA Comprehensive Annual Financial Report 2015,

http://www.atlanta-airport.com/docs/BusinessInformation/Reports/FY15_Comprehensive_Annual_Financial_Report.pdf (accessed 11/7/2018)

⁵⁵ Hartsfield-Jackson Atlanta International Airport website, http://www.atlanta-airport.com/Airport/ATL/Mayor_Welcome.aspx (accessed on 2/3/17)

⁵⁶ H-JAIA's 2031 Master Plan, https://www.atl.com/wp-content/uploads/2016/12/ATL_ExecSumm_2015_101415_Spreads.pdf; Charlotte-Douglas' Master Plan, <http://charmeck.org/city/charlotte/Airport/Pages/DestinationCLT.aspx> (accessed on 3/3/17)

⁵⁷ Bureau of Transportation Statistics, http://www.transtats.bts.gov/HomeDrillChart.asp?URL_SelectMonth=5&URL_SelectYear=2015 (accessed on 7/29/15)

The most direct roadway route from Atlanta to Charlotte is I-85 via Greenville and Spartanburg. An alternative route is I-20 from Atlanta to Columbia and I-77 north to Charlotte. Private intercity bus companies provide, on average, twelve scheduled trips per day between Atlanta and Charlotte. As previously noted, Amtrak runs two trips per day between Atlanta and Charlotte (one in each direction). In comparison, airlines provide 20 flights daily between Atlanta and Charlotte.

Exhibit 1-8 presents the available travel modes serving the corridor, travel times, and frequency of service offered. The Project would provide improved travel times and more reliable service between the two cities compared to other modes, with the possible exception of air travel. However, the air travel time listed below does not include time spent within each airport including passing through security.

Exhibit 1-8: Available Travel Modes and Average Travel Times

Travel Mode	Frequency of Trips (One-Way)	Average Travel Time between Atlanta and Charlotte
Automobile⁵⁸		
I-85	N/A	3 hours, 45 minutes
I-20, I-77	N/A	4 hours, 43 minutes
Intercity Bus⁵⁹	14	5 hours, 14-16 minutes, depending on carrier
Intercity Rail		
Amtrak Crescent ⁶⁰	2	5 hours, 17 minutes
Air		
American⁶¹	18	1 hour 17 minutes (direct flight time only)
Delta	18	1 hour, 10 minutes (direct flight time only) ⁶²
<i>Sources: HNTB Revenue and Ridership Results, May 2013; Websites of intercity bus providers; Google maps</i>		

There is a need for faster and more reliable travel options that are less negatively impacted by variable external factors such as automobile traffic congestion, freight railroad traffic, airport system delays, or weather-related travel delays. Furthermore, the current Amtrak service is only offered once a day with slow moving overnight service. The current schedule from Atlanta leaves northbound around 8:00 PM and arrives in Charlotte after 1:00 AM. The return service from Charlotte leaves southbound after 2:00 AM and arrives in Atlanta after 8:00 AM.⁶³

⁵⁸ Travel times reflect start/end points from city-centers of Charlotte and Atlanta Google Maps Driving Directions, assumes vehicles are driving the posted speed limits

⁵⁹ Greyhound website: <https://www.greyhound.com/> (accessed on 4/14/17); and Megabus website: <http://us.megabus.com/Default.aspx> (accessed on 7/14/17)

⁶⁰ Amtrak website <http://www.amtrak.com/home> (accessed on 7/31/15)

⁶¹ Estimate based on information provided by searching for weekday flights between Atlanta and Charlotte (<https://www.google.com/flights/#search?f=ATL;t=CLT;d=2017-05-05;r=2017-05-09;so=c;q=flights+atlanta+to+charlotte+nc>).

⁶² This number is dependent on which rail alternative is preferred. However, The Volpe Center in their "Evaluation of High-Speed Rail Options in the Macon-Atlanta-Greenville-Charlotte Rail Corridor." (2008) provides this estimate.

⁶³ Amtrak website <https://tickets.amtrak.com/itd/amtrak> (accessed on 2/14/17)

Highway travel time varies by time of day, congestion levels, crashes, and weather events, affecting vehicular travel as well as intercity busses. The FHWA estimates the travel time index (TTI) for major cities in the U.S. each year and publishes these scores in its quarterly Urban Congestion Reports. TTI is the ratio of travel time in the peak period to travel time in uncongested conditions, and represents the level of reliability for highway travel times. In December 2016, FHWA reported the TTI for metro Atlanta and Charlotte was 1.32 and 1.24, respectively. Both Atlanta's and Charlotte's TTI scores have gradually increased since 2014.⁶⁴

The on-time performance for the Amtrak Atlanta-Charlotte *Crescent* Route as of December 2016 was 55.8 percent for the preceding twelve months.⁶⁵ For air travel, during November 2015, almost 15 percent of flights departing H-JAIA and CLT had delays of more than 15 minutes. For those flights delayed, the average departure delay for each airport was approximately 48 minutes.⁶⁶ The benchmark for the Project is in comparison to automobile travel. As of now, automobile travel is the fastest way to travel between Atlanta and Charlotte with average commute times between 3 hours 45 minutes via I-85 and 4 hours 43 minutes via I-20 and I-77.

1.4.2.5 Provide An Alternative Travel Mode

There is a need for a competitive alternative to auto and air travel modes between Atlanta and Charlotte that accommodates the Study Area's existing and forecasted population and employment growth. Current transportation system-capacity constraints and the estimated increase in travel demand substantiate this need (See Section 7 of Chapter 3 of this Tier 1 EIS for further information). Contemporary travel patterns also require alternative transportation choices for those who cannot or choose not to drive, and those seeking alternatives to congested highways, airports, and other transportation modes. Additionally, the commuting distance between jobs and people has been increasing between 2000 and 2012.⁶⁷ The Project provides an alternative travel mode that can compete with automobile and air travel as housing spreads out away from the employment centers.

A United States Conference of Mayors' report estimated that potential travel efficiency gains through high-speed intercity rail could lead to increased business productivity.⁶⁸ Automobile travelers would benefit from reduced road congestion, airport users would benefit from reduced airport congestion, and travelers without car access would benefit from much faster and more frequent public transportation service.

1.4.2.6 Traveler Safety

An additional benefit of high-speed intercity rail as an alternative travel mode is its contribution to the overall net improvement in traveler safety. Based on national data provided by the Bureau of Transportation Statistics,

⁶⁴ FHWA Urban Congestion Report: https://ops.fhwa.dot.gov/perf_measurement/ucr/index.htm

⁶⁵ Amtrak website <https://www.amtrak.com/crescent-train&mode=perf&overrideDefaultTemplate=OTPPageVerticalRouteOverview> (accessed on 2/14/17)

⁶⁶ FlightStats, Departure month of November 2015, <http://www.flightstats.com/company/monthly-performance-reports/airports/> (accessed on 09/30/15)

⁶⁷ Brookings Metropolitan Policy Program "The growing distance between people and jobs in metropolitan America," http://www.brookings.edu/~media/research/files/reports/2015/03/24-job-proximity/srvy_jobsproximity.pdf (accessed on 09/30/15)

⁶⁸ The United States Conference of Mayors report "The Economic Impacts of High-Speed Rail on Cities and their Metropolitan Areas," <http://www.usmayors.org/highspeedrail/documents/report.pdf> (accessed on 09/28/15)

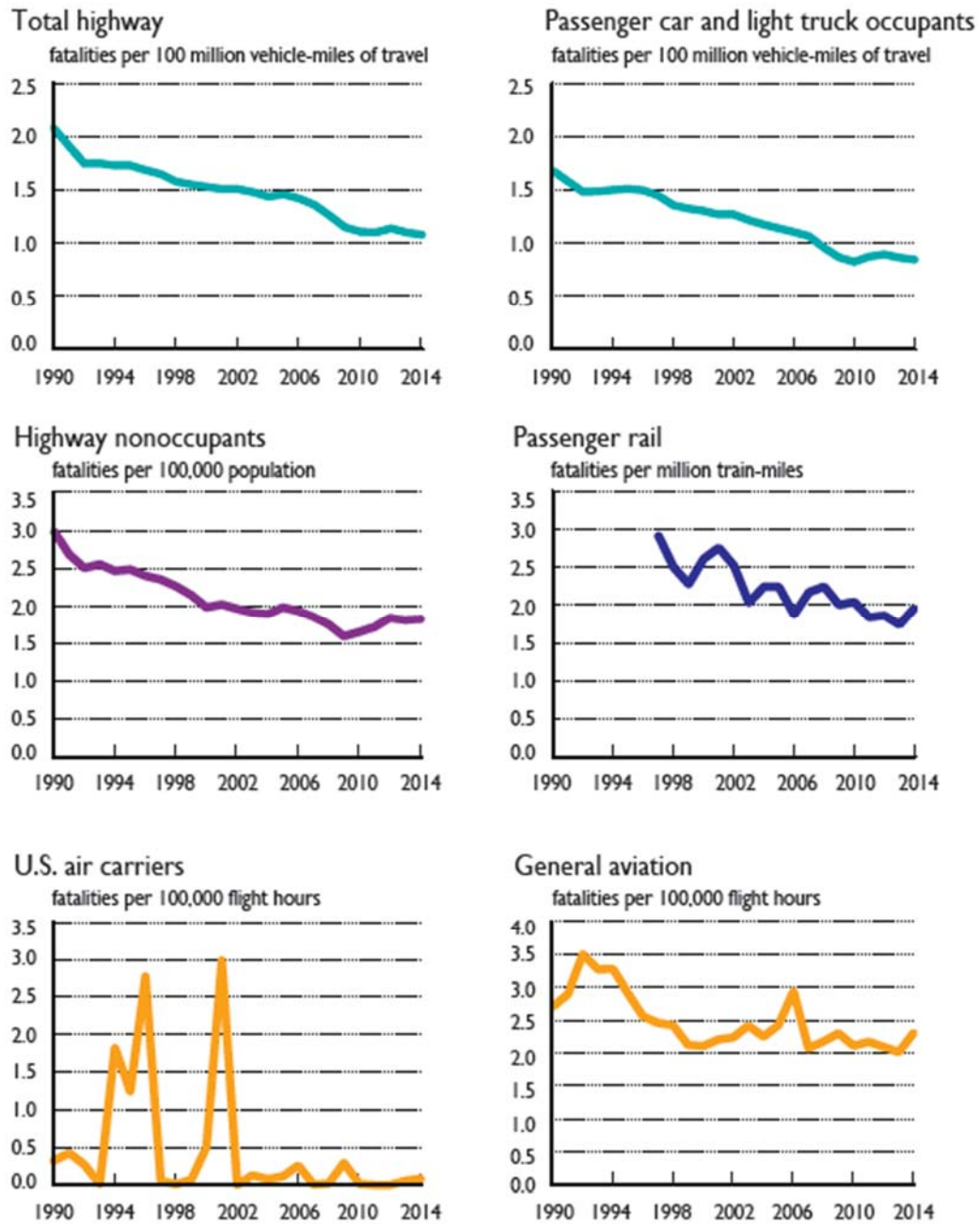
between the years 2008 and 2013, rail service had lower fatality rates compared to auto and air travel, as displayed in **Exhibit 1-9**.⁶⁹ Data presented in **Exhibit 1-9** and **1-10** is for reference purposes only to help illustrate how various travel modes compare to one another on a macro level. Implementing high-speed rail passenger service between Atlanta and Charlotte could potentially lower the incidence of fatalities within the Study Area.

Exhibit 1-9: Fatalities by Travel Mode – United States

Travel Mode	2008	2009	2010	2011	2012	2013
Air	568	548	476	489	449	429
Highway	37,423	33,883	32,999	32,479	33,782	32,719
Water	854	865	821	904	765	642
*Train	317	252	269	256	239	242
<i>Source: United States Department of Transportation, Bureau of Transportation Statistics⁷⁰</i> <i>*Includes train accidents and incidents at highway-rail grade crossings</i>						

⁶⁹ Bureau of Transportation Statistics, https://www.bts.gov/archive/publications/national_transportation_statistics/table_02_01 (accessed on 12/16/15)

⁷⁰ https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_02_01.html

Exhibit 1-10: Fatalities per vehicle miles traveled (United States)⁷¹

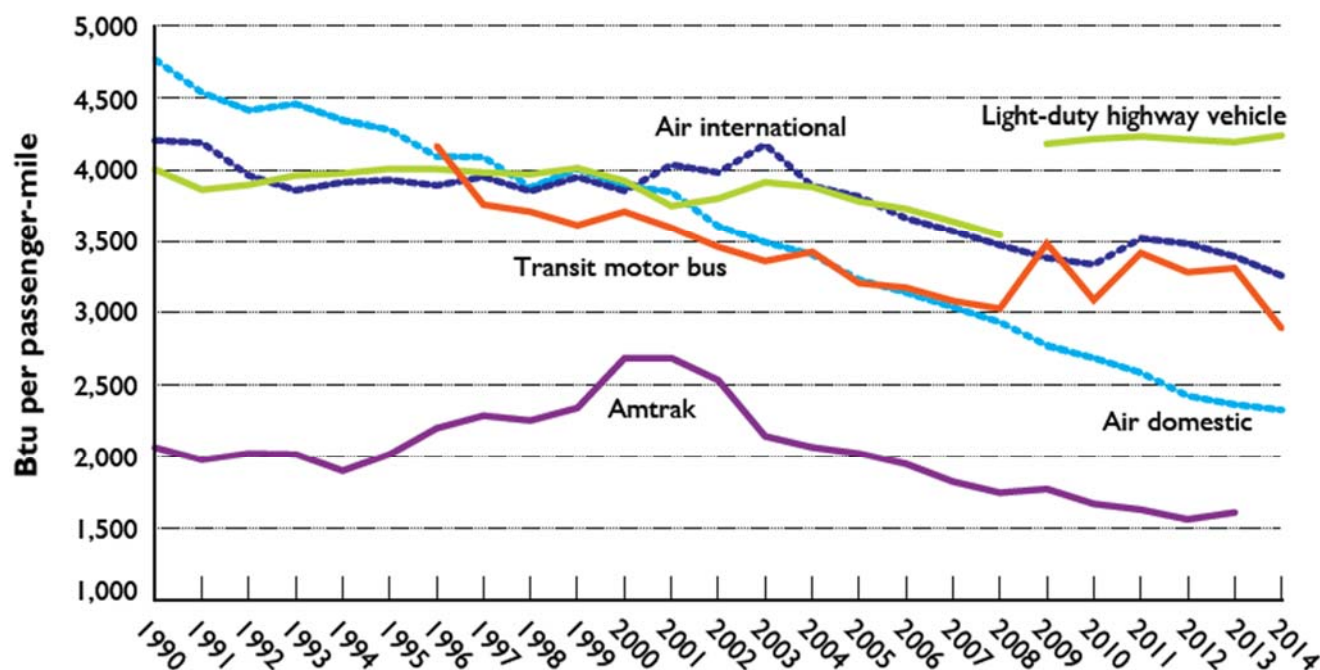
⁷¹ Bureau of Transportation Statistics, https://www.bts.gov/archive/publications/passenger_travel_2016/tables/fig5_1 (accessed 11/7/2018)

1.4.2.7 Improve Energy Efficiency and Air Quality

There is a need to improve energy efficiency by reducing dependence on non-renewable energy sources such as oil, and to improve air quality via reduced emissions of pollutants contributing to greenhouse gases (GHG). Energy efficiency and improving air quality are essential considering anticipated population and employment growth trends within the Study Area. See **Exhibit 1-11** for how different transportation modes compare in the pollutants emitted.

The Study Area includes 26 counties in three states. Under the EPA's 2015 ozone standard, DeKalb, Fulton, Gwinnett, and Clayton Counties in metro Atlanta are nonattainment status, meaning they exceed national standards for ozone levels. Mecklenburg, Gaston, and York Counties near Charlotte, NC, and Rock Hill, SC are in maintenance status for EPA's 2008 ozone standard, meaning they were previously in nonattainment. Furthermore, several counties near Atlanta, GA (Hall, Barrow, Gwinnett, DeKalb, Fulton, Clayton, and Walton) were previously in nonattainment for the annual fine particulate matter (PM_{2.5}) standard, which has since been revoked. All counties in the Study Area are in attainment for PM_{2.5}. Mecklenburg County in North Carolina is in maintenance status for carbon monoxide (CO). All other counties meet attainment for all other pollutants.⁷²

Exhibit 1-11: Energy Intensity of Passenger Modes, 1990–2014 (United States)⁷³



GDOT anticipates that the Project would reduce roadway vehicle miles traveled (VMT), which would result in an overall beneficial impact on air quality. Local air quality impacts due to the Project, particularly near station locations, will be evaluated in the Tier 2 EIS.

⁷² EPA Green Book, <https://www.epa.gov/green-book>

⁷³ USDOT Bureau of Transportation Statistics https://www.bts.gov/archive/publications/passenger_travel_2016

The Chicago to St. Louis High-Speed Rail Tier 1 EIS assessed impacts relative to GHG emissions. The EIS found that construction of the proposed intercity passenger rail service would decrease GHG emissions via the reduced use of other more polluting transportation modes. Compared to the no-build alternative, the Chicago-St. Louis proposed passenger rail service would reduce CO₂ emissions by 20,150 metric tons per year.⁷⁴ GDOT believes it is reasonable to assume that this Project will also result in reduced emissions by diverting trips from current travel modes and onto passenger rail service with a lower per passenger emissions rate.⁷⁵

1.4.2.8 Maintain and Enhance Economic Growth and Vitality

Based on the stakeholders' collective vision and plans to foster economic development within the Study Area, there is a need for a travel mode that helps sustain current and future economic vitality. In Georgia, South Carolina, and North Carolina, there are economic development plans and efforts currently in place on the statewide, regional, and local levels. All three states' long-range transportation plans explicitly identify economic growth as a statewide goal (i.e., Georgia DOT Statewide Strategic Transportation Plan 2016, 2040 SC DOT Multimodal Transportation Plan, and NC DOT 2040 Statewide Transportation Plan).⁷⁶ The following information provides additional examples of how economic development plays a role in each state:

Georgia:⁷⁷ *The Georgia Competitiveness Initiative Report 2012*, under its goals and vision for expanding and maintaining the state's infrastructure, specifically states that transportation improvements and funding be allocated for enhancing connectivity within Georgia and with other states. This Project would provide intra-regional connectivity as well as regional connectivity with South Carolina and North Carolina.

South Carolina:⁷⁸ Since 2007, the SCDOT Commission has prioritized projects based on criteria established in Act 114.⁷⁹ Under Act 114, the Commission is required to establish priority lists of projects for federal-aid and non-federal aid funding programs. One of the criteria used for project prioritization is evaluating the potential for economic development.

North Carolina:⁸⁰ The Association of Regional Councils of Government for North Carolina specifically mentions that transportation investments in the state should provide viable multimodal options for travelers. Additionally, one of its performance metrics used for gauging how effective transportation investments are allocated is tracking the number of non-freight rail miles added to North Carolina's transportation system. This Project qualifies as a non-freight rail investment.

⁷⁴ Illinois DOT website, http://www.idot.sr.org/environmental_documentation/tier_1/feis.aspx (accessed on 07/31/15)

⁷⁵ More detail in Chapter 2 and in Appendix B – Alternatives Development Report

⁷⁶ Georgia -

<http://www.dot.ga.gov/BuildSmart/Programs/Documents/SSTP/Plan/Statewide%20Strategic%20Transportation%20Plan%20Update.pdf>; South Carolina - http://www.dot.state.sc.us/multimodal/pdf/sc_mtp_executive_summary.pdf; and North Carolina - http://www.ncdot.gov/download/performance/NC DOT_2040TransportationPlan.pdf

⁷⁷ Georgia Competitiveness Initiative Report 2012, http://www.georgiacompetitiveness.org/uploads/GCI_Report.pdf (accessed on 12/6/15)

⁷⁸ South Carolina DOT website FAQs, <https://www.scdot.org/inside/planning-project-prioritization.aspx> (accessed on 11/1/18)

⁷⁹ South Carolina Code of Laws, Section 57-1-370(B)(8)

⁸⁰ North Carolina Regional Councils' "North Carolina Tomorrow 2014 Report," http://www.ncregions.org/NC_Regional_and_Statewide_Strategies.pdf (accessed on 12/6/15)

As previously mentioned, one of North Carolina's PIP also has an economic development goal of seeking to enhance the opportunities for greater job growth and commercial development, and to better connect the economic regions of Raleigh and Charlotte and the cities, towns, and communities in between these cities.

Economic growth in terms of employment and tourism is monitored in Atlanta and Charlotte by their respective visitors bureaus and economic development agencies. Atlanta has become one of the nation's leading tourist destinations and is a major convention and meeting destination. In 2016 Atlanta reported 52 million visitors generating \$15 billion in spending.⁸¹ The Charlotte region hosted 27.8 million visitors in 2016, and Mecklenburg County, NC experienced \$5.2 billion in visitor spending, more than any other county in the state.⁸²

Tourism's impact on the state and national economy is reported annually by the U.S. Travel Association, which ranks both Georgia and North Carolina in the top ten states for travel industry employment and travel expenditures. In 2015, travel activities in Georgia generated \$27.5 billion in spending and supported 262,600 travel-related jobs, worth \$8.7 billion in payroll. North Carolina followed closely behind by generating \$22.8 billion in spending and supporting 220,700 travel-related jobs, worth \$5.5 billion in payroll. South Carolina's travelers spent \$13.4 billion in 2015 and supported 126,900 jobs, worth \$2.4 billion in payroll. In Georgia, North Carolina, and South Carolina, jobs created by travelers represented 7.5 percent, 6.4 percent, and 7.9 percent of their state's total private industry employment in 2015.⁸³

High-speed intercity passenger rail has the potential to promote economic development and job creation through construction of the system, establishment of stations, and land development spurred by its provision. For example, the Richmond and Raleigh Tier 2 EIS indicates that in North Carolina, the SEHSR Corridor would generate the following benefits over a twenty-year period:⁸⁴

- \$700 million in new state and local tax revenues;
- \$10.5 billion in employee wages;
- 31,000 new one-year construction jobs;
- 800 permanent railroad jobs; and
- 19,000 permanent full-time jobs.

GDOT anticipates that this Project could also result in positive economic impacts.

⁸¹ Atlanta Convention & Visitors Bureau, <http://www.atlanta.net/acvb/> (accessed 9/6/2017)

⁸² Charlotte Regional Visitors Authority, <http://www.crva.com/news/visitors-spent-67-billion-charlotte-region-2016-nearly-52-billion-mecklenburg-county> (accessed 9/6/2017)

⁸³ U.S. Travel Association, <https://www.ustravel.org/economic-impact> (accessed 9/6/2017)

⁸⁴ Southeast High Speed Rail, Richmond, VA, to Raleigh, NC - TIER II Final Environmental Impact Statement and Final Section 4(F) Evaluation, <https://www.fra.dot.gov/eLib/Details/L17056> (accessed on 11/25/15)