U.S. Department
of Transportation
**Federal Transit
Administration**

REGION IV
Alabama, Florida, Georgia,
Kentucky, Mississippi,
North Carolina, Puerto
Rico, South Carolina,
Tennessee, Virgin Islands

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July 19, 2021

Sharon Hollis, AICP
Principal Planner
BCD Council of Governments
5790 Casper Padgett Way
North Charleston, SC 29406

RE: Categorical Exclusion – Lowcountry BRT

Dear Ms. Hollis:

The Federal Transit Administration (FTA) has received and reviewed the Categorical Exclusion (CE) documentation submitted by your office on, May 28, 2021for the subject project ("Project"). Based on our review of the material submitted, the project qualifies as a CE pursuant to 23 CFR 771.118(d).

If there are changes to the Project, you must notify FTA in writing. You are required to consult with FTA prior to requesting major approvals or grant awards for this Project to determine the validity of this CE. FTA will determine if any additional environmental review will be required. FTA may require reevaluation of this CE for compliance with other statutes at its discretion.

Please attach this signed CE concurrence letter from FTA, the CE document, and supporting documentation to the TrAMS grant for the above referenced project. If we can be of further assistance, please contact Ms. Julia Carrie Walker of my staff at 404-865-5643/5645 or julia.walker@dot.gov.

Sincerely,

B. Keith Melton for

Yvette G. Taylor, Ph.D.
Regional Administrator

L C
R T

Documented Categorical Exclusion

Lowcountry Rapid Transit

Berkeley-Charleston-Dorchester Council of Governments

June 2, 2021

5790 Casper Padgett Way, North Charleston, SC 29406

Tel: 843.529.0400 **Fax:** 843.529.0305.

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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disability Act of 1990
APE	area of potential effects
ACS	American Community Survey
BCDCOG	Berkeley-Charleston-Dorchester Council of Governments
BFE	base flood elevation
BMP	best management practices
BRT	bus rapid transit
CARTA	Charleston Area Regional Transportation Authority
CT	census tract
CHATS	Charleston Area Transportation Study
CSA	community study area
CZC	Coastal Zone Consistency
CZMA	Coastal Zone Management Act
DCE	Documented Categorical Exclusion
DO	dissolved oxygen
EJ	environmental justice
EPA	US Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FMP	fishery management plans
FTA	US Federal Transit Administration
GP	general purpose
GPR	ground penetrating radar
HOP	Hospitality on Peninsula
HUC	hydrologic unit code
HSM	Highway Safety Manual
i-26*ALT*	I-26 Fixed Guideway Transit Alternatives Analysis
LCRT	Lowcountry Rapid Transit
LEP	limited English proficiency
LRFD	load and resistance factor design
LUST	leaking underground storage tank
MANLAA	May Affect-Not Likely to Adversely Affect
MPO	Municipal Planning Organization
NAVD	North American Vertical Datum
NCITC	North Charleston Intermodal Transportation Center
NEPA	National Environmental Policy Act
NLEB	Northern long-eared bat
NOAA-NMFS	National Oceanic and Atmospheric Administration - National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places

NRTR	Natural Resources Technical Report
PJD	preliminary jurisdictional determination
REC	recognized environmental condition
ROW	right of way
SCDHEC-OCRM	SC Department of Health and Environmental Control - Office of Ocean and Coastal Resource Management
SCDNR	SC Department of Natural Resources
SCDOT	SC Department of Transportation
SFHA	special flood hazard area
SPF	safety performance functions
SUP	shared use path
TMDL	total maximum daily load
TSP	traffic signal priority
USACE	US Army Corps of Engineers
USCB	US Census Bureau
USFWS	US Fish and Wildlife Service
WoUS	Waters of the US

A. Detailed Project Description

A.1 Project Identification

The Berkeley-Charleston-Dorchester Council of Government (BCDCOG) is the governmental agency responsible for transportation planning in Berkeley, Charleston, and Dorchester counties of coastal South Carolina. The BCDCOG, as project sponsor to the Federal Transit Administration (FTA), is proposing to introduce bus rapid transit (BRT) into an existing bus transit corridor with the implementation of the Lowcountry Rapid Transit (LCRT) project. Figure 1, the 21.4-mile LCRT corridor begins in the north at Exchange Park/ Fairgrounds in unincorporated Ladson. The route proceeds southeast on US 78, crosses Interstate 26 (I-26), continues east onto University Avenue, turns south onto Rivers Avenue, and continues south along Rivers Avenue through the King Street Extension. At Mt. Pleasant Street, the route turns east then south onto Meeting Street to downtown Charleston, west on Calhoun Street, north on Courtenay Street, west on Bee Street, north on Lockwood Drive, east on Fishburne Street, south on Westedge Street, west on Line Street to the southern terminus Hagood/Line Station. The LCRT buses would depart the Hagood/Line Station by traveling west on Line Street, north on Hagood Avenue, and west on Fishburne Street, returning to the Exchange Park via the same corridor.

Figure 1 LCRT Corridor and Station Locations

The LCRT is a committed project in the Charleston Area Transportation Study (CHATS) Metropolitan Planning Organization's (MPO) 2040 Long Range Transportation Plan. This Documented Categorical Exclusion (DCE) has been prepared to meet the requirements of the National Environmental Policy Act (NEPA) of 1969 and other applicable regulations. Table 1 is a summary of estimated travelway impacts, at 30 percent design, for the LCRT BRT project described in the DCE and the FTA Region 4 DCE Worksheet.

Table 1 Summary of Estimated Travelway Impacts

Resource	Resource Quantity	Estimated Impacts
Right of Way		
Residential	5 parcels	2,201 sq. feet
Business	95 parcels	172,538 sq. feet
Institutional	5 parcels	32,517 sq. feet
Vacant/Undeveloped	28 parcels	41,715 sq. feet
Total	133	248,971 sq. feet or 5.72 acres
Prime/Statewide Important Farmland	0	0
Water Resources		
Streams	24 streams (12 perennial flow, 11 seasonal flow, 1 tidal flow)	989 linear feet - permanent impacts 216 linear feet - temporary impacts
Wetlands	28 wetlands (6.82 acres in study area)	1.15 ac. permanent impacts 0.75 ac. temporary impacts
100 Year Floodplain (AE)	51.4 acres	No-Rise
100 Year Floodplain - Coastal High Hazard Areas (V/VE)	1.8 acres	No-Rise
500-Year Floodplain (X)	44.2 acres	No-Rise
Endangered Species		
(See Chapter O and Appendix H for a list of the 24 species)	24 species	23- No Effect or no habitat present NLEB[1]- May Affect- Not Likely to Adversely Affect
Golden and Bald Eagles	0	No nests in the study area. No Effect.
Historic Properties (Section 106)	TBD	TBD under separate study
Archaeological Sites	TBD	TBD under separate study
Section 4(f) Resources		
Wannamaker Park	1	9,638 sq. feet de minimis impacts
Harmon Field Park	1	2,501 sq. feet de minimis impacts
Environmental Justice and Title VI Populations	Yes	Minor
Limited English Proficiency Populations	Yes	Minor

Resource	Resource Quantity	Estimated Impacts
Indirect and Cumulate Effects- Land Use Scenario	Yes	Yes
On-Street Parking Spaces	undetermined	28 removed
Noise	17 areas	0
Vibration	0	0
Hazardous Materials	98 sites	7 low risk, 86 medium risk, 5 high risk

[1] NLEB- Northern long-eared bat; the project relies on the concurrence in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) which satisfies Section 7 consultation and includes applicable adoption of avoidance and minimization measures.

A.2 Purpose and Need

A BRT service was recommended in BCDCOG's 2016 i-26 Fixed Guideway Transit Alternatives Analysis (i-26ALT) study for improving transit service and enhancing mobility along the I-26 corridor connecting Summerville, North Charleston, and Charleston.

The purpose of the LCRT project is to provide a high quality, high capacity, and cost-effective premium transit service along a 21.4-mile corridor that will:

- improve mobility, accessibility, and connectivity of the transit system and region;
- promote a cost effective and accessible transit alternative; and
- support land use and transit objectives in the region.

The corridor is central to the economic activity of the metropolitan area, linking the residential areas east and west of the corridor with the employment centers, medical facilities, colleges, and commercial activities downtown and along the corridor. Commuting patterns are a source of significant travel demand in the corridors and travel times are slow. Traffic is also a contributing factor. In 2018, average daily vehicular traffic accounts for as many as 38,900 trips on Rivers Avenue and as much as 92,000 trips on I-26.[1]

The continued population and employment growth of the region puts ever increasing demand on the transportation system that serves the area and the roadway network is increasingly congested. Existing development and the natural environment limit the ability to widen the roadways to accommodate additional travel lanes to support the increasing mobility needs as the population continues to grow.

The LCRT would improve service by reducing trip times, as described in Section C. The LCRT would also address congestion by providing a transit option that can compete (in terms of travel time) with driving. Additionally, the LCRT would complement the existing regional bus service provided throughout the corridor by Charleston Area Regional Transit Authority (CARTA). The LCRT BRT's Durant Avenue station would provide convenient access to the Amtrak, CARTA,

[1] BCDCOG's Regional Travel Demand Model for Horizon Year 2040.

and Southeastern Stages motorcoach services, all located and having connections at the North Charleston Intermodal Transportation Center (NCITC).

A.3 BRT Operations and Proposed Operations and Maintenance Facilities

A.3.1 Operations

The LCRT Operating Plan, located in Appendix A, describes the high-level parameters of the BRT service along the corridor. The LCRT service is projected to achieve parameters in the Operating Plan as described below:

- one-way travel time of approximately 60 minutes
- twenty-one hours of service each weekday, 19 hours on Saturday, and 16 hours on Sunday
    - fifteen hours of service with 10-minute headways and 6 hours of 30-minute headways during the week
    - fifteen hours of 20-minute headways and 4 hours of 30-minute headways on Saturday
    - sixteen hours all with 30-minute headways on Sunday
- average end to end travel speed of 27 miles per hour for both northbound and southbound directions
- dwell time at each station of approximately 20 seconds
- ticket machines on the station platform to streamline fare collection
- avoid vehicle layover facilities along the alignment, bus layover areas are proposed at the existing Leeds Avenue CARTA facility and at the newly proposed Exchange Park/Fairgrounds site

Since the Operating Plan was developed, additional technical reports have included the following operational efficiencies, based on LCRT BRT modeling as described in this DCE:

- transit vehicle travel time in 2045 is projected to be faster than general purpose traffic by approximately 7-25 minutes, depending on time of day and direction
- proposed raised medians along US 78/US 52/Rivers Avenue are predicted to reduce crashes by 20-37%
- annual reduction of 8.3 million vehicle miles of travel in 2040

A.3.2 Operations and Maintenance Facility

Two sites are proposed for LCRT operations and maintenance (O&M) facility, as described below. Both facilities would include space for CARTA and TriCounty Link connecting routes, charging stations for BRT electric vehicles, and offices for administrative and operations staff.

Leeds Avenue

The existing CARTA Fixed Route and Paratransit Facility, located at 3664 Leeds Ave in North Charleston, would be modified to accommodate initial LCRT operations for bus storage, bus maintenance and service, bus operations, and bus charging. While no ground-disturbing site modifications are required, electric bus charging infrastructure would be provided for the LCRT electric buses. Reconfiguration of parking for LCRT buses, fixed route buses, paratransit buses,

and support vehicles would be required. Portions of the existing building would require upgrades and modifications for LCRT bus maintenance and operations. Figure 2 shows the proposed facility with access from both Dorchester Road on the right and Leeds Avenue at the bottom of the figure.

This facility would maintain the current developed footprint, and therefore, an environmental assessment is not required. Cultural and EJ analysis is also not required for reconfiguring this existing transit operations site to accommodate LCRT operations and maintenance activities.

Figure 2 Proposed Operations/Maintenance Facility – Leeds Avenue

Fairgrounds

The Fairgrounds site will be purchased to accommodate a larger operations and maintenance facility. Located at 9850 Highway 78 in Ladson, this site is approximately 10.4 acres in extent, and located approximately 4.42 miles east of the City of Summerville and 4.25 miles northwest of Goose Creek.

A preliminary concept consists of a single two-story building with transit operations and maintenance areas. Frontage of the building is proposed to be parallel to Acres Drive. Parking areas are planned to accommodate 75 vehicles for employees and visitors. Primary bus entry/exit will be from Market Street (a fairground-interior road) with secondary bus access off

Acres Drive. Cultural, environmental, and Environmental Justice analyses were conducted for this site.

Cultural Resources Analysis

The archaeological Area of Potential Effect (APE), is considered to be the limits of the Fairgrounds Site. An archaeological survey of the APE was conducted on May 5-6, 2021. No archaeological resources were identified during the survey of the Fairgrounds Site. There are no historic architectural resources near the Fairgrounds Site. There are no previously recorded historic properties within 0.5 mile of the Fairground Site. The proposed development of the Fairgrounds Site as currently planned will not affect any historic properties. A draft of the archaeological survey was submitted to the State Historic Preservation Office on May 12, 2021, in support of the ongoing Section 106 consultation process.

Natural Resources Analysis

Results from a desktop analysis and on-site field reconnaissance indicate the preliminary design may affect natural resources including wetlands and jurisdictional waters of the US and federally protected species. On May 7th and 11th 2021, the study area was examined for jurisdictional waters. Protected species surveys were conducted in tandem with the waters of the US surveys.

The Fairgrounds O&M study area contains three freshwater (non-tidal) wetlands totaling 2.53 acres, of which 2.28 acres could potentially be impacted by construction activities. Approximately 1.3 acres of wetlands may be filled or excavated resulting in permanent impacts. A Clean Water Section 404 permit is required for impacts to waters of the US, including wetlands. In addition to the Section 404 permit, SC Department of Health and Environmental Control must grant, deny, or waive a Water Quality Certification (WQC), in accordance with Section 401 of the Clean Water Act.

Ten federally protected species are listed within the study area. No candidate species or US Fish and Wildlife Service-designated critical habitat for federally listed species exists within the study area. No bald eagle nests were observed during field surveys. As such, the proposed project is expected to have “no effect” on the bald eagle. A “may effect - not likely to adversely affect” biological determination is anticipated for the northern long-eared bat, due to presence of suitable roosting trees identified within the study area. In addition, it was determined that the project would have “no effect” on the remaining federally protected species and 26 migratory birds listed for Berkeley County.

Equity Analysis

An Equity Analysis of EJ populations within the Study Area, defined as within a 0.25-mile radius of the Fairgrounds O&M Facility Site, was performed to determine if the Project would cause potential disproportionately high and adverse effects on EJ populations. The existing conditions analysis indicates that there are no identified minority, low income, elderly or disabled populations within the census tracts that intersect with the study area where the project would be constructed. Although these populations are present, they do not exist in numbers that are greater than 50 percent or meaningfully greater than the general population. Therefore, there are no impacts to environmental justice populations.

The project will require the acquisition of vacant property. No displacements will occur. FTA Circular 4702 1B specifically requires that *"the location of projects requiring land acquisition and the displacement of persons from their residences and businesses may not be determined on the basis of race, color or national origin."*

Because there are no impacts to environmental justice populations; and because no displacements will occur, it is reasonable then, to ascertain that the location of the project site was selected without regard to race, color, or national origin. A copy of the Equity Analysis for the Fairgrounds Site is available in Appendix A.

Figure 3 shows the Fairgrounds site with the proposed configuration. Acres Drive is located on the right side of the figure.

Figure 3 Proposed Operations/Maintenance Facility – Fairgrounds

A.4 Guideway Treatment

BRT offers flexibility allowing a single route to operate on several different guideway types. Lane configurations were determined based on the existing street configuration and traffic volumes.

The corridor includes a mix of non-exclusive, semi-exclusive, and exclusive BRT operation. The semi-exclusive guideway includes portions of dedicated guideway and portions of mixed traffic. Where applicable, a center-running guideway was selected as the preferred treatment as it provides more reliable BRT service; higher BRT vehicle speed; and reduced pedestrian crossing length to reach platforms. An eligibility requirement for the federal New Starts program requires that a minimum of 50 percent of the route operate in a separated right of way (ROW) dedicated for public transportation use. The center running service between Rivers Avenue/ Carner Avenue and Trident Medical Center satisfies this requirement.

The project would require minor curb realignments near stations and at intersections, though lane widths would be maintained to accommodate traffic flow. The guideway treatments in the corridor along with mileage are shown on Figure 4. The LCRT Alignment Refinement Technical Memo located in Appendix B discusses the guideway treatments analyzed for the LCRT BRT project.

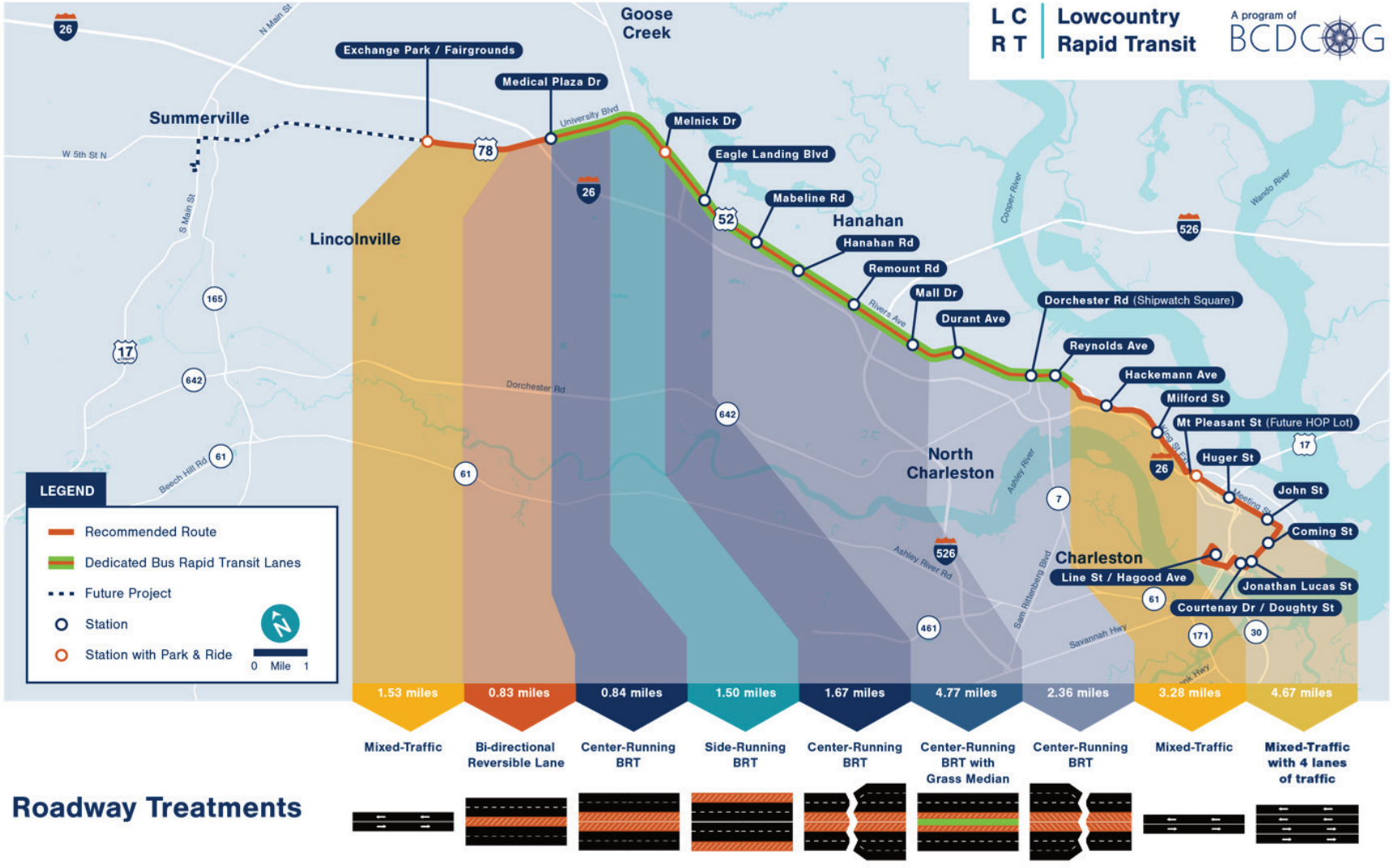

Figure 4 LCRT BRT Guideway Treatments

Traveling in a northern to southern direction, the corridor guideway treatments and mileage for each, as shown in Figure 4, are described as:

- The BRT operates in mixed traffic for 1.53 miles along US 78 from Exchange Park/Fairgrounds to the US 78/Ingleside Blvd intersection, just north of the I-26 interchange.
- From Ingleside Blvd, the BRT operates for 0.83 mile in a bi-directional reversible lane through the I-26 interchange and to the northern intersection of Medical Plaza Drive and University Blvd.
- The BRT operates in two exclusive, center running guideways for 0.84 mile along University Blvd from Medical Plaza Drive to Fernwood Drive.
- Between the Fernwood Drive intersection with University Blvd and the Melnick Drive intersection with Rivers Avenue, the BRT operates in a side running guideway for 1.50 miles.
- The BRT returns to operating along Rivers Avenue in a center running guideway for 1.67 miles from Melnick Drive to Ashley Phosphate Road.
- At Ashley Phosphate Road, the BRT continues south along Rivers Avenue operating in two exclusive, center running directional guideways with a grassed median for 4.77 miles to Piggly Wiggly Drive. The I-526 interchange area is an exception to this treatment. The South Carolina Department of Transportation (SCDOT) has plans for future improvements to the Rivers Avenue and I-526 interchange, including replacement of the existing bridges over Filbin Creek. The LCRT project is not proposing any guideway improvements to Rivers Avenue through the I-526 interchange and as such will operate in mixed traffic through the interchange.
- From Piggly Wiggly Drive to Success Street, the BRT returns to operating in a center running guideway without grassed median for 2.36 miles.
- Beginning at Success Street, the BRT operates for 3.28 miles in two lanes of mixed traffic along US 52/Rivers Avenue through its name change to King Street Extension to the Hospitality on Peninsula (HOP) parking lot north of Mt. Pleasant Street. The HOP parking lot is being funded and constructed as a separate project in the area north of Mt. Pleasant Street/Morrison Drive between King Street and Meeting Street.
- From Mt. Pleasant Street, the BRT operates for 4.67 miles through downtown Charleston in four lanes of mixed traffic. The mixed traffic guideway turns south on Meeting Street, west on Calhoun Street, north on Courtenay Street, west on Bee Street, north on Lockwood Drive, east on Fishburne Street, south on Westedge Street, west on Line Street to the southern terminus Hagood/Line Station.

A.5 Traffic Signal Priority

FTA requires that BRT projects implement traffic signal priority (TSP) technology and other transit priority treatments to reduce delay and promote more reliable travel times throughout the day. Significant travel time improvements can be realized in the peak hours. In mixed traffic guideway treatments TSP will give LCRT buses special treatment at signalized intersections prone to transit delay. Using existing vehicle location and wireless communication technologies, TSP tools modify traffic signal timing or phasing when transit vehicles are operating under

certain conditions (i.e., late), or all the time. TSP technology is planned for all signalized intersections along the corridor.

A.6 Bus Fleet

Sixty-foot articulated battery-operated electric buses with doors on both sides are proposed for the LCRT BRT using a fleet of 19 vehicles. Fourteen vehicles will be used during peak hours in revenue service. FTA requires an additional 20 percent of the fleet for reserve, as such, an additional five vehicles will available for revenue service, as needed. Buses would be charged at the beginning and ending of the line at layover locations. In-line bus charging will be addressed as part of the vehicle procurement process. Buses used to provide service on the LCRT BRT would be purchased as a component of this project and branded in accordance with future LCRT BRT guidelines.

A.7 BRT Station Locations and Architecture

Twenty open station shelters are proposed along the 21.4-mile BRT corridor. The station locations are identified in Appendix C Station Matrix and shown in Figure 1[2].

Most stations are located as tandem or offset pairs on either side of the roadways, with shared bi-directional stations in the Rivers Avenue median. Depending on the guideway treatments the stations include side or center located platforms, and level boarding where possible (to be determined in Final Design). The center-running stations will have double sided platforms. All stations will include bicycle and pedestrian amenities, benches, trash/recycling containers, bike racks, area lighting for safety, ticket vending machines, ticket validators, variable message signs/speakers, and security cameras. Materials will be robust, self-finished, resistant to vandalism and environmental conditions in order to minimize operational costs and optimize life cycle of parts. Elements will be interchangeable, adaptable, expandable, and easy to replace to minimize site work and avoiding closures that are disruptive to passengers and pedestrians. An average annual ridership is projected at 2.9 million riders.

The Station Matrix includes specific design elements for each station, including platform location. Figure 5 and Figure 6 show the station design concepts for center and side platforms. The concepts illustrate the two different canopy designs under consideration. The concepts are under review by local governments and subject to change.

[2] Since the completion of technical documents located in the Appendix or referenced in previous LCRT documents, some station names have changed. The new names are interchangeable with earlier versions and do not change report conclusions or analysis.

Figure 5 Station Concept Showing a Center Platform with Night Lighting Considerations

Figure 6 Station Concept Showing a Side Platform

A.8 Bicycle and Pedestrian Accommodations

Bicycle and pedestrian improvements included in the LCRT project support users on their first- and last-mile journey. These include shared use path (SUP), new sidewalk, and other pedestrian enhancements to improve and encourage station accessibility along the LCRT alignment and directly parallel to it in some places. These facilities will be designed based on the LCRT Design Standards and described in the Walking and Biking Access to Stations Memo (Appendix D).

The proposed improvements as part of the LCRT project include 8.5 miles of new and reconstructed sidewalk and 17.9 SUP. The asphalt-paved SUP would be 10-feet wide to accommodate multiple recreational uses. The project includes 38 new pedestrian crossings, in addition to the 78 existing crossings. A key future component includes a pedestrian and bicyclist bridge connecting Hackemann Avenue station to the east side of the rail tracks (see Section A.9).

Depending on its location along Rivers Avenue and the existing right-of-way limits, the SUP may require minor right of way acquisition for its construction. Its location will also determine whether it is curb-adjacent or set-back from the curb with a 5-foot grass buffer. The Walking and Biking Access to Stations Memo includes details on the proposed sidewalk and SUP improvements.

A.9 Potential Project Improvements

The following potential project improvements are included in this environmental evaluation as part of the on-going design:

- An eastbound ramp relocation is proposed at US 17 and Meeting Street. This improvement is within existing right of way.
- A future pedestrian bridge is proposed at Hackemann Avenue in North Charleston. This improvement will be needed to provide access for the nearby transit dependent community of Union Heights at the Hackemann Avenue Station across the Seaboard Coastline railroad tracks- which are located between Meeting Street and King Street Extension. Freight rail providers using this section of tracks have future plans for the queuing of freight rail cars servicing the Hugh K. Leatherman Terminal. Future queues are planned to be more than one mile in length and would require safe and reliable pedestrian station access over the tracks once implemented. Prior to construction of the pedestrian bridge, the project proposes an improved at-grade pedestrian crossing with Z-gate to maintain safe station access.
- The LCRT riders and/or vehicles may not be able access the Line Street, Courtenay Drive/Doughty Street, and Jonathan Lucas Street stations due to saltwater inundation of the roadways during rain, tide, or flood events. Improvements are under development to provide safe pedestrian access to the Line Street/Hagood Avenue station and reliable operation of the BRT (see Section H).
- Drainage improvements, pavement replacement, and new traffic signals are also proposed. Most of these improvements would occur along Calhoun Street, King Street Extension, and Meeting Street.

B. Location and Zoning

B.1 Surrounding Land Uses and Zoning

Impacts to land uses and zoning do not rise to the level of significant under NEPA, due to the presence of existing transit service and compatible land use along the corridor. Zoning designations support transit in the project corridor. Population growth is expected within and around the project corridor. Current zoning designations support increased development and mixed-use and multi-family development in the project corridor.

Land use and zoning conditions were reviewed to determine if the LCRT would have any impacts or benefits upon the existing built environment as well as to examine its compatibility with those of BCDCOG, Charleston County, the City of Charleston, and the City of North Charleston's land use vision along the corridor. Figure 7 shows existing land uses along the LCRT corridor.

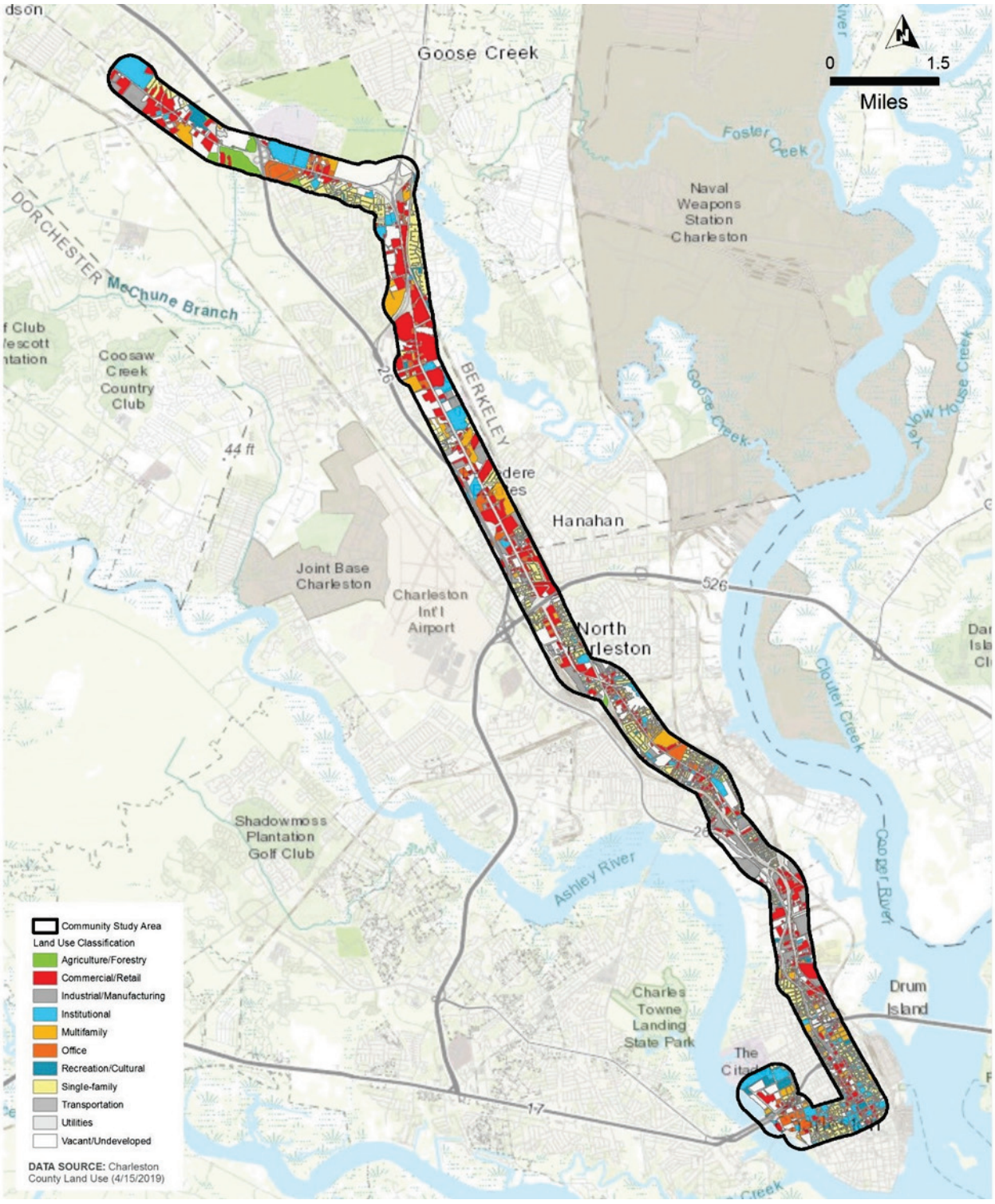

Figure 7 Existing Land Use

Downtown Charleston is characterized by its historical buildings, schools, parks, emergency facilities, and hospitals. Downtown Charleston has limited space for additional development and is regulated by a historical commission. The northern portion of Charleston is presently characterized by well-established residential, commercial, and industrial land uses.

North Charleston is characterized by commercial areas along Rivers Avenue, where many shopping centers, such as Northwoods Mall, are set off the roadway and framed by large parking areas. Parks and community centers, along with numerous churches, are primarily located within established residential areas. Educational facilities include Trident Technical College, a two-year college. The northern portion of North Charleston is primarily a transportation corridor with US 78/US 52 traversing north to south in the central portion of the segment. A portion of Charleston County's Wannamaker Park is within the northern portion of the North Charleston community area.

The community area of Ladson encompasses the unincorporated remaining portions of the project study area that lie north of the North Charleston community area. Major community features consist of churches, numerous businesses, emergency facilities, and the county fairgrounds, mostly surrounding US 78.

The Goose Creek and Hanahan community area encompasses small, incorporated areas located within Berkeley County. The community area is entirely composed of residential areas to the east of commercial areas along US 78/US 52. Goose Creek and Hanahan both serve as important bedroom communities to Charleston and North Charleston.

Figure 8 and Figure 9 show current zoning within the corridor.

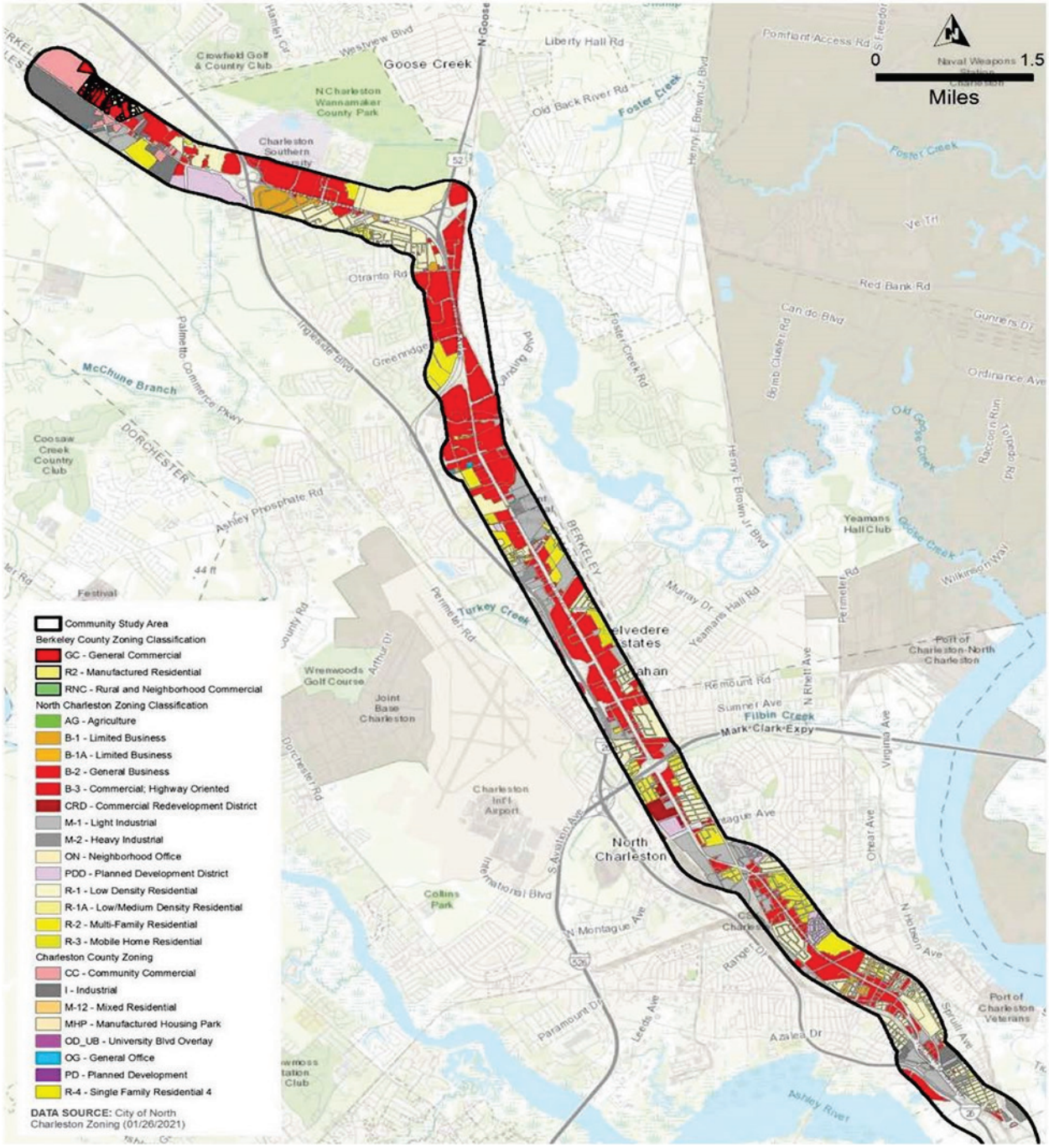

Figure 8 City of North Charleston Zoning

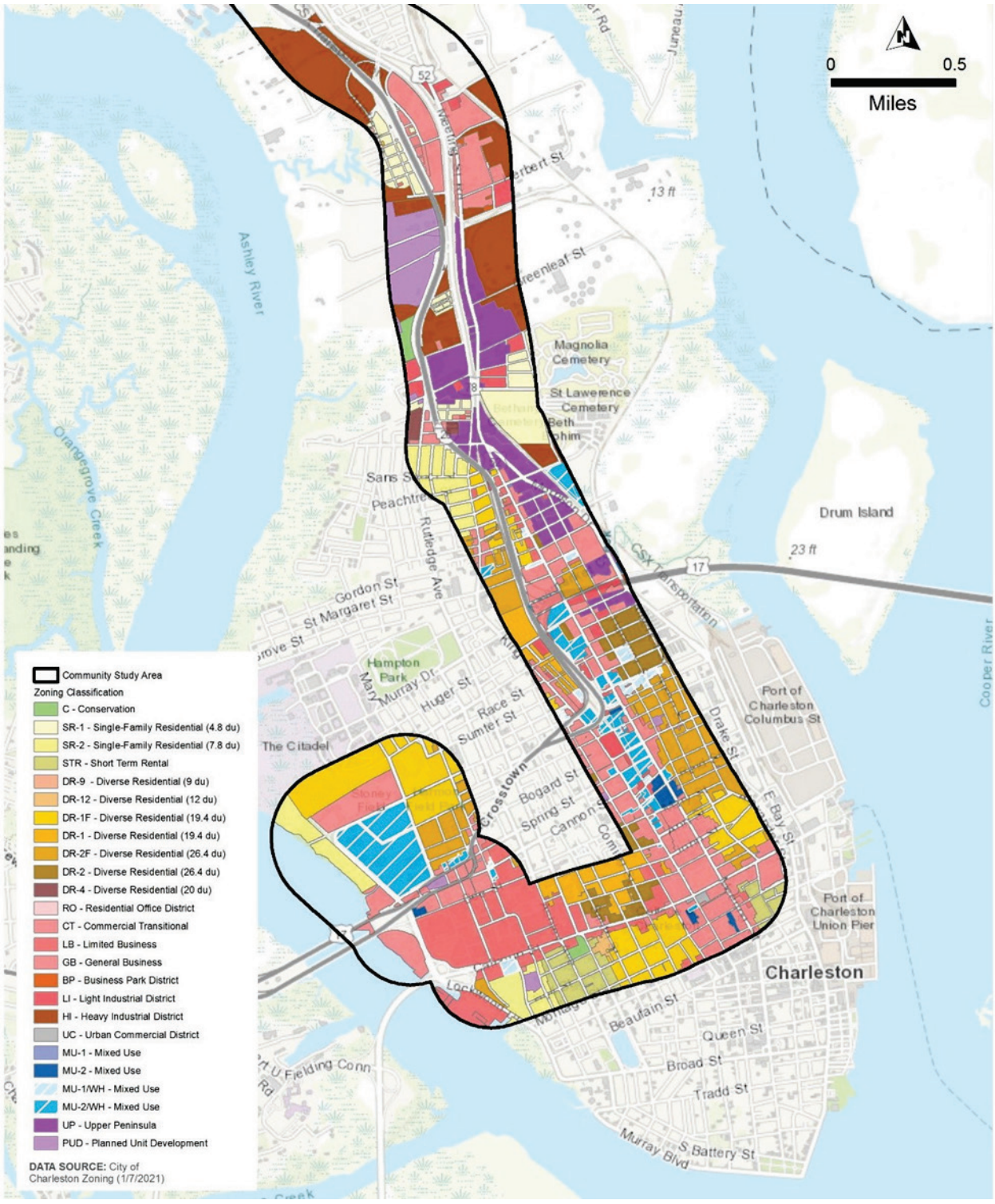

Figure 9 City of Charleston Zoning

Zoning does not differ greatly across most of the project corridor, especially in the North Charleston, Ladson, and Goose Creek and Hanahan community areas, where commercial, light industrial, and multi-family residential designations dominate. These dominant zoning designations generally surround scattered areas of low- to medium-density residential, as well as some planned neighborhood districts. While downtown Charleston has more diverse zoning, generally, than the rest of the project corridor, general business, mixed use 2 workforce housing (MU-2/WH), and "upper peninsula" zoning classifications are predominant.

As described in the Community Impact Report, located in Appendix E the LCRT is consistent with existing land use and zoning policy within the corridor as it is reusing an existing transportation corridor, enhancing transit service for population and employment centers, and meets BCDCOG, Charleston County, the City of Charleston, and North Charleston's key goals of enhancing regional mobility along the Rivers Avenue corridor with BRT. The LCRT would not have any adverse impacts on existing land uses. See the Community Impact Report for land uses and zoning in specific areas of the corridor. Refer to Section K of the DCE for a discussion on noise or vibration impacts as they relate to land uses.

B.2 Community Description and Project Vicinity

The CSA (community study area) encompasses the proposed LCRT route and the surrounding 0.25-mile vicinity. The CSA totals approximately 12 square miles (7,489 acres) situated in central Charleston County and extreme portions of southwestern Berkeley County and overlaps the incorporated boundaries of four municipalities and one unincorporated community. The areas of those four municipalities and one unincorporated community are:

- Areas within Charleston County
  - City of North Charleston (64 percent of the CSA)
  - City of Charleston (27 percent of the CSA)
- Areas within Berkeley County
  - City of Hanahan (2 percent of the CSA)
  - City of Goose Creek (0.2 percent of the CSA)
  - Unincorporated Ladson (some portions are in Charleston County) (4 percent of the CSA)

The CSA overlaps varying portions of 34 United States Census Bureau (USCB) 2010 census tracts (CTs). According to the 2018 American Community Survey (ACS), approximately 127,114 people currently reside in the CSA comprised of 52.2 percent minorities and 11.9 percent of people with disabilities. The Spanish-speaking Limited English Proficiency (LEP) population was the only LEP population to meet the Department of Justice LEP threshold across the CSA.

The median house value in the CSA was higher than Berkeley County and the state but lower than Charleston County. The average per capita income rate in the CSA was lower than the county and state rates. Approximately 6.8 percent of the civilian workforce was unemployed, slightly lower than the state rate and higher than the county rates in the same period. Poverty rates averaged 28 percent across the CSA, substantially higher than the counties and state rates. See the Community Impact Report in Appendix E for data and analysis of each

community area. Additional discussions of community impacts are described in Section G Environmental Justice.

C. Traffic, Parking, and Connectivity to Other Modes

C.1 Traffic Impacts

Impacts to traffic are not expected to rise to the level of significant under NEPA. Operating the BRT would not result in any significant impacts on traffic operations. Under assumed parameters within the microsimulation model some increase to travel times for general purpose traffic along the existing roadways in certain sections of the project is projected. The increase in travel time for general purpose traffic is highest in the peak direction for each time-of-day period; conversely, transit riders will experience the most benefit to travel time by taking BRT in the peak direction of traffic flow for each time-of-day period. Providing an efficient, reliable alternative mode of transportation will further benefit regional mobility and would be beneficial by shifting some automobile users to public transit as congestion continues to grow.

VISSIM traffic microsimulation software, by PTV, and Synchro traffic analysis software by Trafficware was used to simulate conditions on the corridor under No Build and Build conditions. Both 2025 and 2045 scenarios were modeled, with 2025 representing the opening year and 2045 representing the design year.

Results of the 2025 analysis provided in Table 2 indicate how the BRT will affect the general purpose (GP) traffic travel speeds.

Table 2 2025 Travel Time Comparison

2025	AM		PM	
	Northbound	Southbound	Northbound	Southbound
No Build Travel Time (minutes)	58.7	58.8	66.7	60.2
Build General Purpose (GP) Travel Time (minutes)	63.1	76.1	79.8	58.2
% Difference	-7.5%	-29.4%	-19.6%	3.3%
Build BRT Travel Time (minutes)	55.5	51.2	56.6	50.5
% Difference (to Build GP)	12.0%	32.7%	29.1%	13.2%

Note: Approximate Station Dwell Time Range: 6-9 min

When comparing 2025 Build travel times to No Build travel times, the LCRT project typically incurs an increase in general purpose traffic end to end travel time, with over a 17-minute end-to-end increase in the AM southbound direction. In the southbound direction of the PM period, the LCRT project resulted in an improvement to travel time for GP traffic by 3.3 percent, or 2 minutes.

The transit vehicle travel time is projected to be faster than general purpose traffic by approximately 7-25 minutes, depending on time of day and direction. The most benefit is

observed in the AM peak southbound direction, where a time savings of 32.7%, or 24.9 minutes is observed.

Table 3 is the 2045 analysis results indicating how the BRT will affect the general-purpose traffic end to end travel speeds.

Table 3 2045 Travel Time Comparison

2045	AM		PM	
	Northbound	Southbound	Northbound	Southbound
No Build Travel Time (minutes)	76.8	85.2	99.1	90.0
Build General Purpose (GP) Travel Time (minutes)	83.1	107.7	114.8	76.2
% Difference	-8.2%	-26.4%	-15.8%	15.3%
Build BRT Travel Time (minutes)	66.9	68.7	77.9	58.4
% Difference (to Build GP)	19.5%	36.2%	32.1%	23.4%

Note: Approximate Station Dwell Time Range: 6-9 min

When comparing 2045 Build travel times to No Build travel times, the LCRT project typically incurs an increase in general purpose traffic end to end travel time, with a 22.5-minute end-to-end increase in the AM southbound direction. In the southbound direction of the PM period, the LCRT project resulted in an improvement to travel time for GP traffic by 15.3 percent, or 13.8 minutes.

The transit vehicle travel time is projected to be faster than general purpose traffic by approximately 16-39 minutes, depending on time of day and direction. The most benefit is observed in the AM peak southbound direction, where a time savings of 36.2%, or 39 minutes is observed.

C.2 Traffic Impact Mitigation

The impacts to general purpose traffic identified in Table 2 and Table 3 are generally concentrated around the section of LCRT along US 78 between the interchange with I-26 and Ashley Phosphate Road.

In the AM period, the southbound direction is influenced by traffic conditions at the intersection of Melnick Drive and spilling back through the signal at Otranto Road, the US 52 interchange, and the signal at Fernwood Drive.

In the PM period, the northbound direction is influenced by traffic conditions around the intersection of US 78 at Fernwood Drive, spilling back through the US 52 interchange, and the signals on US 78/US 52 at Otranto Road and at Melnick Drive.

It is understood that this section of US 78/US 52 has some of the highest hourly and daily volumes on the project's proposed alignment. The analysis suggests that the combination of transit-only signal phases and displaced U-turns at Fernwood Drive and at Melnick Drive is contributing to this additional travel time. It is likely that the congestion experienced at these

locations is spilling back to adjacent signals during the peaks and metering throughput at those locations too. As the project progresses through design, additional mitigation measures will be investigated and considered.

C.3 Traffic Safety Benefits

Much of the corridor is congested and several sections along US 78/US 52/Rivers Avenue were identified as experiencing up to twice the number of crashes projected for a road of its character, per SCDOT Office of Traffic Engineering Safety's safety performance functions (SPF). Proposed raised medians in these areas are predicted to reduce crashed by 20-37% using Highway Safety Manual (HSM) methodology on sections where a raised median is being installed.

C.4 Bicyclist and Pedestrian Benefits

Several improvements for pedestrian and cyclist safety are being proposed throughout the LCRT project route. A shared-use path is proposed along the LCRT alignment. This will physically separate cyclists from motorized vehicles. Additionally, spot improvements (i.e. pedestrian scramble phasing) are proposed within the City of Charleston at specific high pedestrian-traveled intersections and BRT stations.

The traffic report and project mitigation options memo are included in Appendix F.

C.5 On-Street Parking Impacts

Parking impacts from the removal of parking spaces or use of flex-time parking at select areas will not rise to a level of significant under NEPA, due to adequate, convenient off-street parking availability for residential and commercial use. Access will be maintained as much as practical to businesses during times of limited access.

To accommodate mixed traffic operation in downtown Charleston, the LCRT BRT design would require the removal of 28 on-street parking spaces.

The City of Charleston's 2018 Citywide Transportation Plan includes several policy considerations including improving transit access and services. The BRT project is specifically referenced in the 2019 Comprehensive Parking Study, as it relates to the relative priority of improving transit access and services. Advancement of the LCRT supports transit options and effective, flexible, and dynamic curb lane management.

To allow for reliable transit speeds and on-time performance while minimizing ROW impacts, general on-street and emergency parking/running lanes are proposed to be removed in certain locations of the LCRT corridor. Existing parking garages in downtown Charleston provide an alternative to on-street parking. Additionally, some on-street parking would be retained but would be restricted to off-peak and weekend parking only (Marion Square area). The commercial loading/unloading zones on Calhoun Street in downtown Charleston would remain as time-of-day flex space, to retain the ability for deliveries to be made during off-peak times while also providing adequate roadway capacity and lane continuity during peak traffic times.

The On-Street Parking Memo in Appendix G indicates areas where existing, on-street parking would be removed. Table 4 quantifies proposed parking impacts.

Table 4: LCRT Parking Impacts

Street	From	To	Spaces Removed	Amount Removed
Meeting Street (southbound)	John Street	Marion Square	11 metered parking spaces	230'
Calhoun Street (eastbound)	King Street	Meeting Street	8 metered parking spaces and 2 loading zones	200' parking 175' loading
Calhoun Street (westbound)	King Street	St Philip Street	4 metered parking spaces 1 handicapped space[1] and 2 loading zones[2]	100' parking
Calhoun Street (westbound)	St Philip Street	Coming Street	4 metered parking spaces	85' parking
Rivers Avenue	Success Street	Piggly Wiggly Drive	No designated parking, continuous paved shoulder on both sides of Rivers Avenue	10,400'
Rivers Avenue (median separated)	Piggly Wiggly Drive	Ashley Phosphate Drive	No designated parking, continuous paved shoulder on both sides of Rivers Avenue	7,800'

[1] The handicap space could potentially be retained but may need to be relocated closer to the intersection with St. Phillip Street during detailed design.
[2] Implement a time-of-day delivery restriction, which allows delivery vehicles to use the space during certain times of the day while keeping the lane open for motorized vehicle flow during peak traffic times.

C.6 Connectivity to Other Transportation Facilities and Modes

Connectivity using transfers would be available the Shipwatch Square Transit Center, the NCITC located on Gaynor Avenue, and any future shared transit stops with CARTA (to be determined). The transportation center provides connectivity between the CARTA and inter-city bus services, Amtrak intercity passenger trains, and for-hire transportation services. Bicycle and pedestrian connectivity to the BRT includes the SUP, sidewalks and pedestrian crosswalks as described in Section A.8.

D. Aesthetics

The project will not significantly degrade the existing visual character or quality of its surroundings. The BRT features (vehicles, stations, and infrastructure) would be consistent with the transportation character of the corridor in which they would be located. The height and scale of vehicles would be similar to CARTA buses that pass along the streets, as would their transportation vehicle character.

The LCRT involves the construction of BRT stations within existing developed road rights of way and would not result in substantive changes to the landscape or viewshed proximate to these rights of way. The area surrounding the corridor generally consists of a mix of commercial and residential land uses within a local and regional roadway network. New stations have been sited along the project corridor in proximity to major activity and employment centers, residential

areas, and at intervals consistent with BRT operations for this project. In downtown Charleston, the potential for visual impacts on historic structures is limited since the project is an existing transportation corridor and the proposed action is not expected to disturb or alter any of the characteristics that qualify the identified buildings as being historic.

The LCRT would introduce a new built component, the BRT stations, into viewsheds. Although the open station shelters would be visible to motorists and pedestrians and represent a change from the existing viewshed, the BRT stations would not obscure views along these roadways and would not materially change the visual quality or experience of these viewsheds due largely to the small size and open design of the BRT stations. The City of Charleston Design Review Committee has been coordinated with and provided review of proposed station architecture.

Similarly, within downtown Charleston views from the historical monuments and landscaped squares would be unobstructed. Therefore, no adverse visual effects are anticipated along the BRT corridor or to historic properties.

E. Air Quality

The project is anticipated to reduce vehicle miles travelled (VMT) and would result in beneficial effects under NEPA on regional air quality.

Since 2016, Berkeley and Charleston counties have remained in attainment with all air quality standards in the Federal Clean Air Act and its amendments. A conformity analysis would not be required for this project. Ozone (O3) is not a concern at the project level because it is an area-wide pollutant. The project has been evaluated for increased carbon monoxide (CO) concentrations in the area. The traffic analysis report was reviewed to verify that an air quality analysis was not necessary. The traffic analysis did not indicate serious traffic impacts at any affected intersections. No CO hot spots would be created as a result of the project.

The two counties are currently classified as attainment for both particulate matter less than 2.5 microns in diameter (PM2.5) and particulate matter less than 10 microns in diameter (PM10). As such, the area already conforms to the applicable PM standards and does not require a PM conformity analysis. The LCRT is not likely to be considered a project of concern for PM as the project proposes to use electric vehicles, which would emit no additional PM during operations.

F. Coastal Zone

The project is located in one of South Carolina’s coastal zone counties, but the BRT construction activities and alignment are within the existing roadway. Minor impacts may be associated with New Market Creek, but they do not rise to the level of significant under NEPA.

Appendix H, the Natural Resources Technical Report (NRTR), indicates the study area is located within Berkeley and Charleston counties, which are considered coastal counties, and contains waters of the US (WoUS) that are also defined as “critical area”. Critical area is defined by the SC Department of Health and Environmental Control Office of Ocean and Coastal Resource Management (SCDHEC-OCRM) as any of the following: 1) coastal waters; 2) tidelands; 3) beach/dune systems; and 4) beaches. Any person wishing to alter a critical area must apply for a critical area permit from SCDHEC-OCRM. A Coastal Zone Consistency (CZC)

Certification is also required for all land disturbing activities that require permits under the National Pollutant Discharge Elimination System (NPDES) permit program. This project includes land disturbing activities necessary to maintain existing roadway lane widths predominately related to the exclusive lanes for BRT operation in the Rivers Avenue median.

Direct impacts to the critical area associated with New Market Creek, Wetland 8 may occur based on the study area boundary. This area is previously disturbed from SCDOT's construction of the Arthur Ravenel Jr. Bridge. Best Management Practices (BMPs) would be used to minimize the potential for impacts to critical areas within the study area. Full compliance with the Coastal Zone Management Act (CZMA) permitting regulations, and any associated mitigation if identified, will be established during project design and prior to any ground disturbing activities. The Environmental Resources Maps in the NRTR indicate resources within the study area that are described through the remainder of the DCE.

G. Environmental Justice

Although the study area includes concentrations of minority and low-income populations greater than the City of Charleston, North Charleston, Goose Creek, Hanahan, and Ladson, the BRT would not result in disproportionately high and adverse impacts on minority and/or low income populations. The alignment is constructed within existing right of way and would not create a barrier to any neighborhoods. Property acquisitions are required for the SUP and primarily at intersections or along the Rivers Avenue median. Right of way impacts for the project total less than six acres. None of the property acquisitions will result in the displacement of any residences.

FTA provides guidance on evaluating social and economic impacts, including effects to minority and low-income populations, collectively referred to as Environmental Justice (EJ) populations (FTA 2020). According to this guidance, transit projects often result in both positive and negative social and economic impacts and may influence community character and development trends. The assessment of effects presented in the DCE is intended to help ensure that the project addresses concerns and minimizes effects to communities where possible.

Figure 10 provides a map of the minority populations for Census Tracts (CTs) in the CSA. The map shows that high concentrations of minority populations are present in the Charleston and North Charleston community areas.

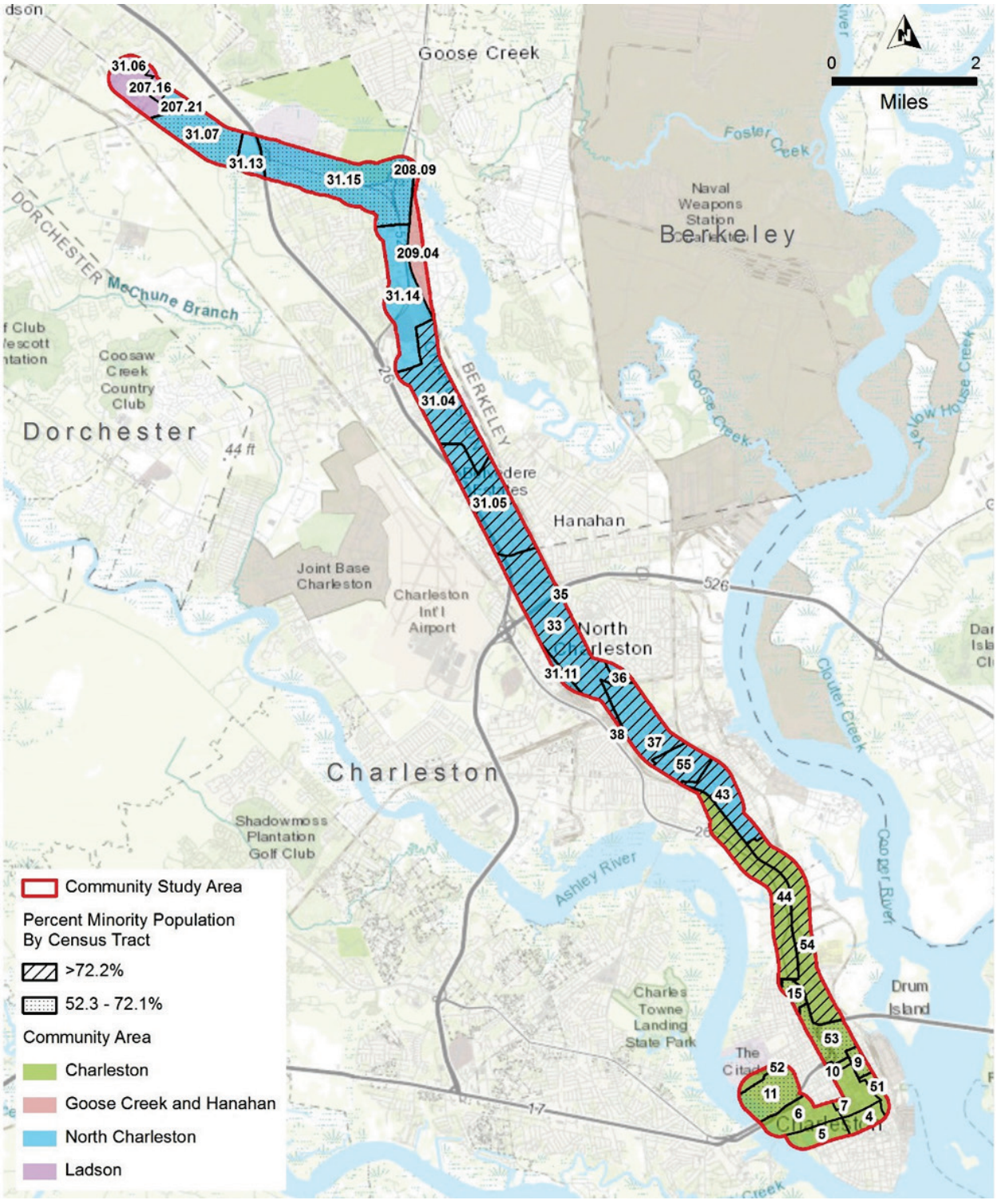

Figure 10 Minority Populations Along the Corridor

Figure 11 provides a map of the low-income populations by CT in the CSA. The map shows that high concentrations of low-income populations are present in the Charleston and North Charleston community areas. The North Charleston, Charleston, and Goose Creek and Hanahan community areas all qualified as low-income populations, and collectively represented nearly 87 percent of the CSA population based on the 2018 ACS.

Seven African American neighborhoods located in the southern portion of North Charleston and one neighborhood located in the Charleston community area are established, well-known EJ neighborhoods in the CSA. Characteristics of these neighborhoods include low-income rates, high rates of foreclosure and hindered access due to railroad tracks limiting economic opportunities and connectivity between the residential areas. These existing conditions suggest that these neighborhoods may be more vulnerable to future impacts and the compounding nature of cumulative changes to the area.

Based on the 2018 ACS, the CSA is home to a Spanish-speaking LEP population that met the Department of Justice LEP threshold. Overall, 3.3 percent of the CSA is considered a Spanish-speaking LEP population. Data indicate that this population is concentrated in the North Charleston community area. Due to these findings, Spanish translation services for all publicly offered project-related materials are used where needed to better inform LEP populations of the project. Per capita income throughout the CSA was equal to or above the 2018 U.S. poverty threshold of $13,064. However, poverty rates remained equal to or higher than the 2018 U.S. poverty rate of 11.8 percent in the North Charleston, Charleston, and Goose Creek and Hanahan community areas as well as 28 individual USCB CTs. Eighteen of the 28 CTs also exceed the CSA's overall poverty rate of 28 percent, making them more vulnerable to disproportional environmental and human health effects from the project. Located in the Charleston community area, four of these CTs had poverty rates that exceeded the CSA poverty rate by 20 or more percentage points making them the most vulnerable in the CSA.

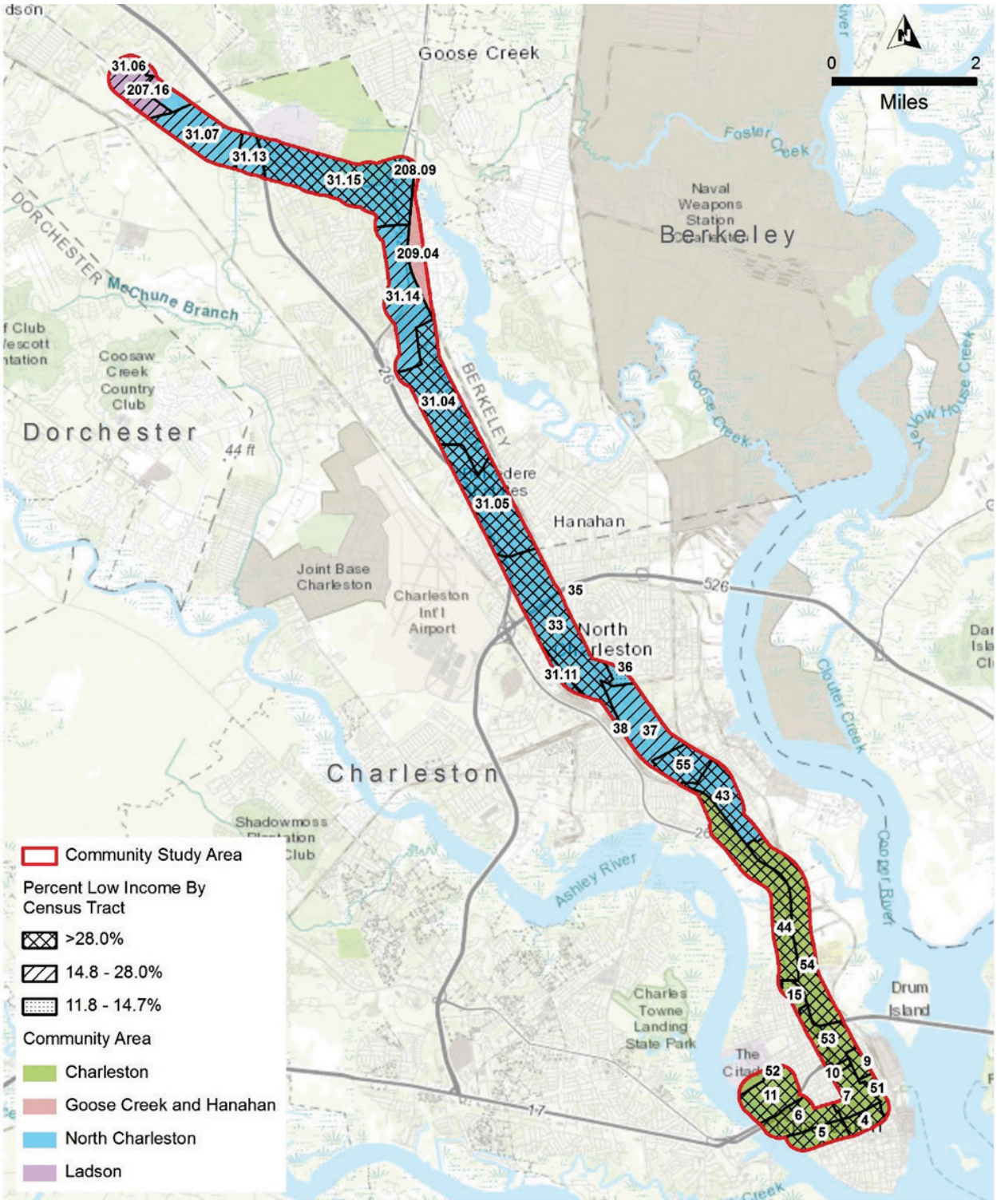

Figure 11 Low-Income Populations Along the Corridor

Due to the high incidence of EJ populations in the CSA, the most vulnerable minority and low-income populations are considered for EJ impacts. The most vulnerable EJ populations consist of seven CTs in the North Charleston community area and five CTs in the Charleston community area. The CTs generally concentrate in central and southern portions of the North Charleston community area and northern and western portions of the Charleston community area. These CTs also include homeless and transient populations and the highest percentages of the overall Spanish LEP population in the CSA. Together, the populations of these CTs average 41.8 percent below poverty level, 73.4 percent minority, and 5.3 percent Spanish LEP. These areas have the highest chance for disproportional environmental and human health effects from the project. Potential positive and negative effects include:

- Potential Positive Effects:
  - The mobility of the CSA population and the general vicinity would generally increase, and access to individual properties in the CSA would improve.
  - Potential general improvement to public health and increased safety in the CSA with the addition of signalized crosswalks and designated multimodal paths and bicycle lanes.
  - Reduction in traffic congestion would improve access to commercial services in the CSA, potentially increasing patronage of existing businesses along the LCRT and stimulating new businesses to locate in the vicinity.
  - Redevelopment and land use changes are expected to be compatible with existing land uses or uses that are currently zoned or planned in the CSA.
  - The visual effects of the project are anticipated to be compatible with the existing visual character of the CSA and are anticipated to result in positive changes to the visual qualities of the community areas.
  - The project is expected to improve economic and business conditions within the CSA.
- Potential Negative Effects:
  - The corridor-wide unifying aspect of the LCRT may not align well with some inward-oriented communities that lack a sense of belonging with the larger community, resulting in impacts to community cohesion.
  - The otherwise positive effects of improved economic and business conditions could also affect the social and cultural character of existing areas exacerbating perspectives of disassociation with the larger community among the most vulnerable EJ populations.
  - Redevelopment may change the social and cultural character and the racial and ethnic composition of existing areas and lead to existing EJ populations relocating to other areas of the CSA and beyond in order to reside in more racially and ethnically cohesive communities and neighborhoods.

Cumulative effects could occur in some portions of the CSA in relation to the project. These would concentrate in portions of the CSA where the long-term effects of past actions have affected the character and cohesion of long-established, primarily African- American

communities in the northern portion of the Charleston community area and the southern and central portion of the North Charleston community area.

During the public outreach process described further in Section W, requests made from the community members indicated a need for safe and convenient access to stations. The project addresses this community concern with the inclusion of a shared-use path and access improvements to both the Hagood Avenue/Line Street station and the Hackemann Avenue Station. To provide safe, reliable, and dry access to the Hagood Avenue/Line Street Station, the project elevates Hagood Avenue to reduce flooding risk and provide access to the Gadsden Green community. A survey using ground penetrating radar (GPR) was performed for the Hagood Avenue station area at the Gadsden Green community. The GPR Survey Report on Harmon Park is attached to Appendix E, Community Impact Report. See Section M for details on the report. For access to the Hackemann Avenue Station, the project includes a pedestrian bridge across the active railroad tracks to maintain safe station access.

Additional potential mitigation measures to address community impacts will be developed as needed through data collected during ongoing public engagement opportunities and/or stakeholder conversations. The LCRT Community Impact Report includes the survey data and analysis on EJ, low-income, and LEP populations in the CSA; and, it discusses potential effects in more detail.

H. Floodplains

The risk of flooding during rainfall events is present throughout the region and along the LCRT project corridor. The LCRT project is located primarily within Charleston County, and much of the project corridor is at risk of flooding from intense rainfall, high tides, or a combination of both. There is a greater risk of flooding in areas that do not have adequate capacity to convey stormwater runoff, are low-lying, and/or are tidally influenced. Areas along the project alignment that frequently flood are typically found where the storm drainage system is older and/or not well maintained. There are many projects in various phases of study, design, or construction that should improve the existing and protect against future flood risks along the corridor, particularly on the Charleston Peninsula. Additionally, the LCRT project will be required to build new or upgrade portions of the existing stormwater drainage system in areas where the project footprint will change drainage patterns, which may allow for improved drainage in these areas.

Throughout the project area, floodplain and floodway protection are required under several federal, state, and local laws. Executive Order 11988 entitled Floodplain Management requires federal agencies to avoid making modifications to or supporting development in floodplains wherever practical. Flood Resiliency Design Requirements in Executive Order 13690 requires the avoidance and minimization of impacts within 100-year floodplains.

Approximately 2.8 miles of the LCRT alignment and five proposed stops, all located in downtown Charleston, are within mapped FEMA 100-year (1 percent annual exceedance probability) flood zones. Special Flood Hazard Areas (SFHAs) are classified by the Federal Emergency Management Agency (FEMA) as high-risk zones. Flood Insurance Rate Maps

(FIRMs) depict the boundaries of these flood hazard zones[3]. Table 5 lists the project's three types of floodplains, special flood hazard areas (SFHAs) acreage, LCRT stations impacted, associated base flood elevations (BFEs), and areas outside of these zones still at risk from flood impacts associated with stormwater runoff. BFEs are based on storm surge flood risk. The NRTR includes a discussion on floodplains and FIRM mapping identifying the project location.

Table 5 Floodplains within the Study Area

Type of Floodplain (FEMA Zone Designation)	SFHA Area (acre)	LCRT Stops	BFE (ft)1	Approximate Existing Elevation (ft)[1]
100 Year Floodplain (AE)	51.4	Line St. & Hagood Ave. Courtenay Dr. & Doughty St. MUSC/Jonathan Lucas St. Calhoun St. & Coming St. Meeting St. & Huger St.	11 11 11 10 11	6.1 4.3 4.9 8.2 5.7
100 Year Floodplain - Coastal High Hazard Areas (V/VE)	1.8	0	N/A	N/A
500-Year Floodplain (X)	44.2	0	N/A	N/A

[1]All elevations reference North American Vertical Datum (NAVD) 88 Datum

The SFHAs referenced in Table 5 are located within Charleston County and within both the City of North Charleston and the City of Charleston. These flood-prone areas are regulated under the county's Flood Damage Prevention Ordinance (Charleston County Ordinance No. 2075), which seeks to promote public health and safety by minimizing the losses to public and private land within flood-prone areas. Under this ordinance, a Floodplain Development Permit is required for any development activities located within the SFHA. In addition, a certification to verify that activities will not result in a rise to base flood elevations may also be required.

H.1 Calhoun Street & Charleston Medical District (CMD)

Tidal flooding along the western Calhoun Street Corridor and within the Charleston Medical District (CMD) has the potential to inundate roads until they become impassible. Roadways in this impacted by tidal flooding include Hagood Avenue between Line Street and Fishburne Street. Hagood Avenue is located adjacent to the Gadsden Green community and parallels tidally influenced Gadsden Creek.

In the Gadsden Creek area, the elevation raise of Hagood Avenue is being planned in association the City of Charleston. This would allow area residents, local employees, and BRT vehicles to access the Hagood Avenue/ Line Street station during flood events.

The LCRT project will require the acquisition of approximately 2,501 square feet (0.0057 acre) of new right of way from Harmon Field, located on the east side of Hagood Avenue. Right of way needs and impacts to the Gadsden Green community necessary to mitigate localized flooding do not rise to the level of significant under NEPA.

[3] Zone AE floodplains are subject to inundation by the 1-percent-annual-chance flood event being equaled or exceeded in a given year (or 100-year flood). Zone VE floodplains are areas subject to inundation by 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. Zone X is a moderate flood hazard area subject to inundation by the 0.2-percent-annual-chance flood event (or 500-year flood).

Appendix I, the Hydrological Report, discusses and documents the flood risks along the corridor. The report is under review and will follow.

I. Hazardous Materials

Although no impacts are anticipated, Best Management Practices would include contractors preparing and implementing soil management plans. Additionally, the contractors will be instructed to stop subsurface activities, and call BCDCOG if hazardous materials are encountered.

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), 42 U.S. Code (USC) § 6901 et seq., are defined as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may; (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or; (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.”

The LCRT project area has 98 sites of concern. Each of these sites has the potential to impact the project via the presence or potential presence of contaminants in soil and/or groundwater:

- 7 low risk sites, 86 medium risk sites, and 5 high risk sites
    - One high risk site located at 264 Huger Street. This location is a former brownfield site with a land use restriction of no groundwater use. It is likely that soil contamination is present. Road construction is planned in this area to improve access to US Route 17.
    - Three high risk sites located on or near the HOP lot. Two of these locations are Recognized Environmental Conditions (RECs) from previous site investigations. One of these locations is the HOP lot itself.
    - One high risk site located at 8120 Rivers Avenue. This site is an active gas station with a past leaking underground storage tank (LUST). Though the site is listed with no further action by regulatory agency in 2003, it is noted that there was groundwater contamination and that groundwater was flowing southwest towards the study area.

Based upon the identified sites of concern for the study area, the following steps are recommended:

- Perform additional assessments or soil and groundwater sampling at the five high risk sites.
- Develop and implement a soil management plan during construction. The soil management plan should include protocol for handling and disposing of contaminated soils, specifically at high risk sites. The plan should also include protocols for management of unexpected contaminated soil.
- Instruct construction contractors to immediately stop subsurface activities and contact the BCDCOG in the event potentially hazardous materials are encountered, a non-natural odor is identified, or significantly stained soil is visible. Contractors shall be

instructed to follow applicable regulations regarding discovery and response for hazardous materials encountered during the construction process.

The full findings of the hazardous materials report including records reviewed, mapping, photographs, and the sites of concern table are available in Appendix J, the Limited Environmental Records Review.

J. Navigable Waterways and Streams

Temporary and permanent impacts to streams are anticipated but they will not rise to a level of significant impacts under NEPA. Prior to construction a joint Clean Water Act Section 404 permit and Section 401 Water Quality Certification permit from the USACE and SCDHEC, and SCDHEC-OCRM critical area permit will be required for impacts to WoUS and critical areas.

WoUS are defined by 33 CFR 328.3(b) and protected by Section 404 of the Clean Water Act (33 U.S.C. 1344), which is administered and enforced in South Carolina by the U.S. Army Corps of Engineers (USACE), Charleston District. Tidal wetlands and waters are regulated as “critical area” by SCDHEC-OCRM. Tidal WoUS are also regulated by USACE under Section 10 of the Rivers and Harbors Act of 1899, which permits certain activities within navigable waters, including those subject to the ebb and flow of the tide.

The study area contains 12 streams with perennial flow, 11 streams with seasonal flow, and one stream with tidal flow. The preliminary design includes permanent and temporary impacts to streams within the study area. Impacts to surface waters have been avoided and minimized to the greatest extent practicable. As the project moves into final design, efforts will be made to further minimize impacts to these resources. Approximately 989 linear feet of permanent impacts to streams are associated with the extension of pipes and culverts to accommodate an increase or shift in right of way. Rip-rap outfalls are also anticipated within the permanent impact area. Approximately 216 linear feet of temporary impacts to streams would occur as a result of erosion and sediment control measures and construction access. Specific permitting requirements and strategies for the project will be determined once impacts to wetlands and other WoUS are quantified following establishment of proposed project construction limits. All efforts will be made to avoid and minimize impacts to WoUS.

A joint Clean Water Act Section 404 permit and Section 401 Water Quality Certification permit from the USACE and SCDHEC, and SCDHEC-OCRM critical area permit will be required for impacts to WoUS and critical areas. Coordination with the USACE commenced with the submittal of the preliminary jurisdictional determination (PJD) in December 2020. A request to have a critical line established and survey plat are being prepared for tidal waters (critical areas) and will be submitted to OCRM. A permit from the USACE and SCDHEC Water Quality Certification will be required for impacts to WoUS and a permit from SCDHEC-OCRM will be required for impacts to critical areas. Details on WoUS are available in the NRTR (Appendix H).

K. Noise and Vibration

K.1 Noise

Operation of the project does not produce any noise levels that would approach or exceed applicable NEPA thresholds. Construction of the project would result in temporary increase in noise levels in the area of construction. The increase in noise levels would depend on the type of equipment and the duration of the activity.

The noise analyses for the LCRT were prepared in accordance with FTA's Transit Noise and Vibration Impact Assessment (FTA 2018). The manual includes noise assessment methods and impact thresholds.

Seventeen areas with unique combinations of speed and existing noise were monitored along the LCRT corridor. Analysis results determined that noise-sensitive land uses do not exist within any of the 17 areas. The project also includes two park-and-ride lots; at Melnick Drive and the future HOP Lot. Per FTA guidance, these are considered stationary sources of noise. Both lots were conservatively assumed to have turnovers of 200 cars/hour for a peak hour, 100 cars/hour for an average daytime hour, and 50 cars/hour for an average nighttime hour. Analysis results determined that noise-sensitive land uses do not exist within any of the park-and-ride areas.

Operation of the project will not be subject to state or local noise regulations. Construction contractors will have to comply with local construction noise limits if they exist.

K.2 Vibration

For the LCRT BRT FTA considers vibration impact unlikely. The project will not result in significant vibration impacts under NEPA.

FTA guidance (FTA, 2018) includes a vibration screening procedure for projects that propose to use rubber-tired vehicles. The screening assessment considers the following three criteria:

- roadway irregularity
- operation close to vibration-sensitive buildings, and
- vehicles operating within buildings.

The only expansion joints in the LCRT corridor are on the King Street Extension Bridge and the US 78 bridge over I-26. A review of land uses near the two bridges determined that there are no vibration-sensitive land uses within 75 feet of the expansion joints. Also, there are no speed bumps located along the LCRT corridor. The proposed project does not meet the roadway irregularity criterion.

On Bee Street in downtown Charleston, the proposed LCRT route travels past the Ralph H. Johnston Veteran's Administration (VA) Medical Center. Land use within 100 feet of the nearest lane consists of parking lots and driveways for the VA facility. These areas are not considered vibration-sensitive, nor do they contain vibration-sensitive equipment. The proposed project does not meet this criterion.

The proposed LCRT does not operate inside or directly underneath buildings, and therefore does not meet this criterion.

The proposed project does not meet the three conditions described above, therefore FTA considers vibration impact unlikely and no further vibration assessment is necessary.

Construction noise and vibration is expected to be minor and manageable; construction noise and vibration impacts are not expected to occur. Details of the analysis including maps of the areas analyzed for noise and vibration impacts are in Appendix K the Noise and Vibration Technical Report.

L. Prime and Unique Farmlands

The project study area does not include prime and unique farmlands.

M. Section 106 Historic and Cultural Resources

The LCRT BRT is a federal undertaking because the FTA may provide funding, and therefore, is subject to compliance with the National Historic Preservation Act of 1966 (NHPA), as amended (16 USC 470 et seq.) and its implementing regulations (36 CFR 800). Specifically, Section 106 of the NHPA requires FTA to consider the effects of its undertakings on historic properties and affords the Advisory Council on Historic Preservation (ACHP) and consulting parties a reasonable opportunity to comment on the undertaking. A Section 106 kick-off meeting and corridor tour was held on January 24, 2018 to introduce the LCRT BRT to the State Historic Preservation Office (SHPO) and participating Section 106 consulting parties. On May 22, 2019 representatives from BCDCOG and FTA drove the corridor. Subsequently, the BCDCOG and the FTA determined the extent of the architectural APE and submitted it to SHPO in August 2020. A GPR survey of Hagood Avenue and adjacent areas was conducted March 9 to 12, 2021 for cultural resources. The Survey Area included 10 survey blocks and covered 3.47 acres, extending across portions of Harmon Park, Hagood Avenue, Line Street, and adjacent shoulders and sidewalks. A copy of the draft GPR Survey Report is included in Appendix E. Appendix O includes Section 106 coordination and correspondence. **Section 106 compliance and consultation is ongoing and will be completed separately from the approval of the DCE**.

N. Biological Resources

No candidate species or USFWS designated critical habitat for federally listed species exists within the study area. Twenty-six species of migratory bird were listed for Berkley and Charleston counties. It was determined there would be “no effect”. Impacts to Essential Fish Habitat (EFH) are anticipated at New Market Creek. Impacts will be minimal or short-term in nature; as design progresses, efforts will be made to avoid, minimize, and mitigate these impacts. Impacts to biological resources will not rise to the level of significant under NEPA.

The Endangered Species Act (ESA) of 1973, as amended, is the federal regulatory tool that serves to administer permits, implement recovery plans, and monitor federally protected (endangered and threatened) species. The lead federal agencies with jurisdiction for protected species within the corridor are the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS).

Because of the federal nexus of this proposed project, consultation with USFWS and/or NOAA-NMFS is required under Section 7 of the ESA, as amended (16 U.S.C. 1531-1534) for proposed projects that “may affect” federally classified endangered and threatened species.

Twenty-four federally endangered and threatened species, under the exclusive jurisdiction of USFWS and under shared jurisdiction with NOAA-NMFS are listed within the study area. The NRTR (Appendix H) contains a table of these species. No candidate species or USFWS-designated critical habitat for federally listed species exists within the study area. The Effect Determination for 23 species is No Effect. An Effect Determination for the northern long-eared bat is May Affect-Not Likely to Adversely Affect (MANLAA).

The Ashley River and Goose Creek Reservoir may provide suitable foraging habitat for the bald eagle; however, construction activities are not planned within these waterbodies. No nests were observed during field surveys. As such, the proposed project is expected to have “no effect” on the bald eagle.

Additionally, the project relies on the concurrence in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) which satisfies Section 7 consultation and includes applicable adoption of avoidance and minimization measures. A central conservation measure USFWS recommends is tree clearing activities be conducted during the inactive season for northern long-eared bat, November 15 through March 31 and other minimization measures relate to reduced lighting and contractor knowledge of commitments.

USFWS online references were used to identify potential migratory birds existing within the study area. Twenty-six species of migratory birds were listed as “may” occur within the study area. It was determined that the project would have “no effect” on migratory birds listed for Berkeley and Charleston counties.

Essential fish habitat (EFH) within the study area includes estuarine emergent wetlands and tidal creeks, primarily associated with New Market Creek and Gadsden Creek. The Snapper-Grouper Complex of the South Atlantic Region fishery management plans (FMPs) overlaps with the study area. Impacts to EFH are anticipated at New Market Creek. The addition of fill would result in direct, permanent impacts to EFH, including estuarine emergent wetlands. Shading of salt marsh may result in indirect, permanent EFH impacts.

Temporary impacts to EFH could occur during construction for access. Temporary clearing within the estuarine emergent wetlands would result from the installation of erosion and sediment control measures. Impacts will be minimal or short-term in nature; as design progresses, efforts will be made to avoid, minimize, and mitigate these impacts. Consultation with NOAA has begun, and EFH impacts have yet to be determined. Any potential EFH impacts are currently reported as wetland impacts in Table 1. Appendix H provides details on biological resources in the study area.

As the project progresses into final design, tree surveys will be used to minimize impacts to grand trees protected under local ordinances. A grand tree is, defined by the Charleston

Ordinance Sec. 54-327, a tree with 24-inch or greater diameter at breast height, excluding pine and sweetgum trees.

O. Section 4(f) Recreational Resources

Right of way is needed at two Section 4(f) resources. Approximately 0.22 acre is needed from Wannamaker County Park and 0.057 acre from Harmon Field. FTA has determined that use of these two public parks would result in a de minimis determination. These acquisitions will not rise to the level of significant impacts to Section 4(f) recreational resources under NEPA.

In accordance with Section 4(f) of the Department of Transportation Act of 1966, which prohibits the use of park and recreational lands, wildlife and waterfowl refuges, and historic sites for transportation projects, the corridor was examined to determine the location of such lands along the proposed LCRT corridor.

Within the project study area are 16 publicly owned parks and no trails. Since the parks are publicly owned, they are afforded protection under Section 4(f).

The Ladson Fairgrounds/Exchange Park/Coastal Carolina Fair is a publicly owned fairground. The general non-annual fair use of this property is not considered to be for park or recreation purposes; therefore, this property does not qualify as a Section 4(f) property.

There are six school playgrounds/recreation areas; however, none are open to the public and no new right of way will be obtained from any of the schools. Therefore, there are no Section 4(f) issues with regards to school playgrounds/recreation areas.

In downtown Charleston, Marion Square (Site 38CH1586), Wragg Square (Site 38CH2553), and Wragg Mall (Site 38CH2554) are eligible for listing on the National Register of Historic Places (NRHP) as archaeological sites. As such, Section 4(f) is applicable to these resources as both publicly owned parks and as significant historic resources. The LCRT project will not result in the acquisition of any new right of way from any historic properties. There are no Section 4(f) issues regarding historic properties.

The current design includes acquisition of 0.22-acre of right of way from Wannamaker County Park located in North Charleston. A shared BRT and westbound right turn lane will be provided for the entrance into the park. Additionally, the SUP between the park and US 78/University Boulevard will be shifted slightly to the north in this area. Wannamaker County Park is owned and managed by Charleston County. The permanent right of way and temporary easement acquired from the county park for construction constitutes a transportation use of a Section 4(f) property. Use occurs when land from a 4(f) resource is converted from a recreational use to transportation use. Construction would require 9,638 square feet of new permanent right of way from the park, but would not adversely affect the activities, features, or attributes of this property, including the SUP. FTA has determined that use of this public park would result in a de minimis determination. A de minimis determination results when, after considering any measures to minimize harm, the impact would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

The current design also includes the acquisition of 2,501 square feet of right of way from Harmon Field Park located at the intersection of Hagood Avenue and Line Street. Harmon Field Park is owned and managed by the City of Charleston. Harmon Field Park is an eligible Section 4(f) resource under the US Department of Transportation Act of 1966. Construction would require 2,501square feet (0.057 acres) of new permanent right of way from the park, but would not adversely affect the activities, features, or attributes of this property. FTA has determined that use of this public park would result in a de minimis determination. A de minimis determination results when, after considering any measures to minimize harm, the impact would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

A request for concurrence with the de minimis determinations for Wannamaker Park and Harmon Field have been submitted to Charleston County and the City of Charleston, respectively. The public will be afforded an opportunity to review and comment on the effects of the project on the protected activities, features, or attributes of these Section 4(f) properties.

See Appendix N for Agency Coordination letters.

P. Seismic and Soils

Charleston is a highly seismic area of South Carolina. There are soils throughout the project limits that are susceptible to liquefaction and/or strain soften, which occur during a seismic event causing the underlying soils to lose their strength.

Currently, any new standalone structures will be designed in accordance with the latest SCDOT Geotechnical Design Manual and Bridge Design Manual with additional guidance/requirements from the latest American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications.

For modifications to existing structures and roadways, the project is only designing the modifications to be in accordance with the seismic requirements if the original feature was designed for seismic concerns. The US 52 Connector (Rivers Avenue) bridge was not designed for seismic concerns. Therefore, the proposed cut retaining wall located beneath the bridge and in the existing bridge embankment will not be designed for seismic.

The current Hagood Avenue was likely not designed for seismic considerations. Therefore, any improvements to the road to mitigate flooding in the area would also not consider the impacts of a seismic event.

As noted in the NRTR, the project is situated at and close to sea level and some soils within the study area could potentially be erodible and/or poorly drained, especially area that are hydric or have hydric inclusions or within the coastal critical areas. Soil corrective measures may be taken to stabilize roadway, roadway shoulders, and culvert crossings by augmenting existing soils with soils with stable properties. Soil erosion resulting from construction activities would be controlled using appropriate environmental protective measures, including BMPs to prevent soil erosion.

Q. Water Quality

The proposed project would not contribute to the impairment of 303(d) streams or have long term impacts on water quality within the watershed. Impacts to water quality do not rise to the level of significant under NEPA.

A total maximum daily load (TMDL) for dissolved oxygen (DO) has been established within Charleston Harbor, Cooper, Ashley, and Wando Rivers. There are 19 303(d) listed waters[4] in proximity to the project. The proposed project is not anticipated to contribute to these impairments or have long term impacts on water quality within the watershed; however, due to the existing water quality impairments and approved TMDL within Cooper River Basin (Hydrologic Unit [HUC] 03050201), SCDHEC may require additional water quality protection and stormwater treatment measures during and after construction. The waters identified in the 303(d) list and discussion on TMDL calculations are available in the NRTR.

New impervious areas will be created along the project for dedicated BRT guideway, station areas, multiuse paths, etc. Increases in impervious cover and/or modifications to site hydrology will be properly mitigated per SCDOT and/or local municipality requirements.

R. Wetlands

The amount of permanent impacts (1.15 acres) and temporary impacts (0.75 acre) to wetlands does not rise to the level of significant under NEPA.

The study area contains 22 freshwater (non-tidal) wetlands and 6 tidal wetlands or critical areas (Section 10 Waters, Rivers and Harbors Act).

The preliminary design avoids most of the wetlands located within the study area. Impacts to approximately 1.9 acres of wetland would occur. Approximately 1.15 acres of wetlands would be filled or excavated resulting in permanent impacts, while 0.75-acre would be temporarily impacted as a result of erosion and sediment control and/or clearing.

Specific permitting requirements and strategies for the project will be determined once impacts to wetlands and other WoUS are quantified following establishment of proposed project construction limits. All efforts would be made to avoid and minimize impacts to WoUS. Pursuant to Section 404, regulated discharges would include, but are not necessarily limited to, the placement of fill material, riprap, pipes, culverts, etc., into WoUS. Wetland documentation is available in the NRTR (Appendix H) along with a table of wetland resources and estimated impacts within the study area. Additionally, impacts are summarized in Table 1.

S. Construction Impacts

Construction would primarily consist of earth removal and hauling, grading, repaving, and restriping of lanes, installation of the BRT corridor in existing medians, sidewalk improvements, construction of the SUP, installation of accommodations under the Americans with Disability Act of 1990 at existing intersections, and placement of BRT stations and features. Construction

[4] Source: 2018 draft 303(d) List of Impaired Waters.

activities are expected to result in some temporary effects, which would be mitigated as described in the following sections. No adverse impacts during construction are anticipated.

S.1 Community Character

The presence of construction equipment in the LCRT corridor could be perceived as visually disruptive or incongruent and could cause temporary effects to the character of the corridor and the community areas. Traffic would also be temporarily affected during construction of the project. Short-term construction impacts could include increases in dust, noise, and vibration; traffic disruption, congestion, and diversion; as well as limited access to individual properties.

Motorists, pedestrians, and bicyclists would be temporarily affected during construction, as traffic detours and some temporary road closures may be required and are expected to change frequently throughout construction. Detours and road closures could temporarily increase commute times, fuel use, and air pollutant emissions. Construction could also temporarily increase response times for emergency service vehicles. Access to individual properties could also be temporarily disrupted, potentially resulting in loss of revenue for affected businesses.

These effects would be greater surrounding station locations and other places where project infrastructure would be installed or constructed. Recommendations would also be set forth that the contractor minimize these impacts through implementation of construction BMPs.

S.2 Noise and Vibration

Noise and vibration resulting from construction activities would be temporary, short-term, and vary throughout the construction period. In some areas, construction noise impacts can be expected to be greater due to the proximity of existing housing. However, these impacts are not expected to be substantial given the relatively short-term nature of construction noise at any one location and daytime scheduling of construction activities. Additionally, construction noise will be minimized through maintenance of equipment and exhaust mufflers. Construction noise and vibration would cease when construction is complete.

S.3 Disruption of Utilities

Throughout the project limits within the right of way, existing utilities are present including underground gas, fiber optic, cable, telephone, electric, water, sanitary sewers, and storm sewers. In addition, above-ground electric, telephone, and cable is within the project limits. Utility relocation at station areas is likely to consist of valves, fire hydrants, utility poles, utility boxes, and vaults. Utility relocations may be required; however, this work would be short-term in duration and could be completed in tandem with other roadway restriping and paving work to minimize impacts on traffic flow during this time.

S.4 Disposal of Debris and Spoil

Any material to be disposed of is likely to be the result of site preparation activities, such as demolition materials, vegetation clearance, and general construction debris. There may also be the removal of any soil unsuitable for construction or soil volumes in excess of that needed for station construction. Responsibility for disposal will be that of the contractor, subject to all

applicable regulations and requirements. Contractors will be expected to follow all applicable laws and regulations concerning the proper disposal of construction debris and spoil.

S.5 Access and Distribution of Traffic

During construction, small areas of adjoining parcels at proposed stations may be temporarily impacted by minor ground surface disturbance to accommodate concrete work.

Partial road and sidewalk closures may be needed around station locations to accommodate construction, although these closures will be temporary and short-term. Detailed maintenance of traffic plans would be developed during final design in coordination with the respective public works departments and SCDOT to ensure safety of all workers and users during construction and to ensure emergency vehicle access is not impeded.

To provide dedicated space for transit-only lanes, a raised concrete median is proposed. This raised median will introduce more restrictive access accommodations on the following sections:

- US 78/University Boulevard between Medical Plaza Drive/Excellence Way and the US 52 interchange
- US 78/US 52/Rivers Avenue between the US 52 interchange and Ashley Phosphate Road
- US 78/US 52/Rivers Avenue between Piggly Wiggly Drive and Reynolds Drive

This modification to the corridor is proposed for the purpose of improving BRT vehicle headway reliability and operating speed.

S.6 Water Quality and Runoff

Erosion is usually greater during construction due to the exposed soil during grading and earth-moving operations, although such is expected to be minimal given the developed condition of the LCRT corridor and the small size of the platforms to be constructed. Temporary soil disturbance during construction will be addressed by compliance with soil erosion and sedimentation control laws. Recommendations would also be set forth that the contractor minimize this impact through implementation of construction BMPs.

S.7 Air Quality and Dust Control

Construction specifications will indicate when dust control is needed and the method of control to be used. Appropriate industry standards will be specified and used. Vegetation and mulching specifications will be provided.

T. Cumulative and Indirect Impacts

No significant adverse cumulative impacts are anticipated from the BRT project. Constructing the project along with constructing other planned projects in the downtown Charleston area could result in cumulative impacts.

While the project would improve economic and business conditions as well as visual aesthetics, future redevelopment may lead to changes in the social and cultural character and the racial and ethnic composition of existing areas. Because minority and low-income populations would

be at particular risk for the changes from redevelopment, the project could have disproportional environmental and human health effects on the most vulnerable EJ and LEP populations. These populations are primarily the African-American communities in the northern portion of the Charleston community area and the southern and central portion of the North Charleston community area. This could lead to existing EJ populations relocating to other areas of the CSA and beyond to reside in more racially and ethnically cohesive communities and neighborhoods.

Past effects from transportation infrastructure, industrial facilities, and redevelopment, especially during the time of urban renewal in the 1970s, led to limited economic opportunities and a lack of connectivity within neighborhoods and with the larger community beyond and hindered familial and community relations. The project's direct benefits to EJ populations would include improved mobility, access, and increased public health and safety, which could improve conditions for the most vulnerable EJ and LEP populations. These benefits would improve access to employment, health care, and recreation opportunities and would partially offset potential negative effects to EJ populations.

U. Property Acquisition

Estimated right of way needs of 248,971 square feet (5.72 acres) will not result in significant impacts under NEPA as the project corridor is 21.4 miles in length.

Design efforts are made to maximize use of existing right of way and minimize any takes. Table 6 summarizes right of way acquisitions by type of property and estimated total square feet amounts. Based on the 30 percent design, proposed right of way acquisitions are indicated on the roadway plans sheets available in Appendix L and quantified in Table 6.

Table 6 Right of Way Acquisition Estimates by Type of Property

Type of Property	Number of Parcels	Estimated Right of Way Totals (sq. feet)
Agriculture/Forestry	1	4,582
Commercial/Retail	71	121,077
Industrial/Manufacturing	3	3,988
Institutional	5	32,517
Multifamily	3	930
Office	16	35,118
Single-family	2	1,271
Utilities	1	231
Vacant/Undeveloped	28	41,715
Other	3	7,542
TOTAL	**133**	**248,971 sq. feet or 5.72 total acres**

V. Energy

Factors that could influence a reduction in energy consumption include the combination of improved transit operations, possible reductions in single occupancy vehicle passengers who switch to the improved transit system, and amenities being provided by the LCRT system (dedicated lanes/safety, real-time schedule information, accommodation of bicycles, etc.). This increased use of public transportation would result in decreased traffic congestion and vehicle idling, thereby increasing the transportation related energy efficiency within the project corridor for both public transportation and private vehicle use.

Additionally, electric battery buses are inherently more energy efficient and produce fewer emissions than diesel buses. The LCRT project will construct transit shelters, therefore, opportunities to conserve energy exist through sustainable construction material selection and with the addition of recycling containers and energy efficient lighting at the transit shelters. Specific construction materials will be determined as the project is refined.

In the 2040 Build condition, based on the 2019 FTA's Simplified Trips-on-Project Software (STOPS), estimated person miles of travel (PMT) indicates savings of 30,400 miles each weekday[5]. This is about 27,600 vehicle miles of travel (VMT) on a weekday. Using an annualization factor of 300, results in an annual reduction of 8.3 million vehicle miles in 2040.

[5] Source: LCRT Ridership Forecasts from Calibrated Model 02/08/2019

W. Public Involvement

Due to the project's complexity and length, and the cultural and historic nature of the proposed corridor, early and frequent engagement are critical to the project's success. The project team has implemented a robust strategic communications program to enable a multi-level engagement to foster communication and coordination among differing parties, stakeholders, communities, and organizations. Tools implemented included a custom project website, social media engagement, videos, and participation in community and neighborhood meetings—virtually and in-person. To date, the project team has held over 250 stakeholder meetings and community events throughout the corridor and reached thousands of individuals through online engagement efforts.

The Berkeley-Charleston-Dorchester Council of Governments (BCDCOG) hosted a series of interactive community workshops along the proposed Lowcountry Rapid Transit corridor. These workshops spanned three consecutive nights beginning January 29 to January 31, 2019. Each of the workshops included a presentation, interactive visioning exercise and an open house portion. Members of the public were able to learn about the project, provide input on their vision for the system and what they want to celebrate in the community, and finally, interact with project team members to ask questions in the form of an open house. In total, 178 individuals signed in for the series of workshops, including:

- 83 - Charleston
- 59 - Summerville
- 36 - North Charleston

Feedback collected during the three workshops was summarized into three categories: nature, culture, and lifestyle. The workshops resulted in a total of 19 comments. One comment was received at the public meeting, one comment was received on the Hot Line, three comments were emailed, and 14 comments[6] from left on the project's web page. Of the 19 comments received 4 supported the project, 2 did not support the project, 8 provided suggested improvements, and 4 requested additional information or to be added to the project mailing list.

Public comments requests made from the community members indicated a need for safe and convenient access to stations. To address the community concerns the project elevates Hagood Avenue for access to the Hagood Avenue/ Line Street station and providing a pedestrian bridge across railroad tracks to access the Hackemann Avenue Station. Public information meetings conducted for the LCRT project through January 31, 2021 are shown in Appendix M, Public Meetings Conducted.

The April 2021 Communications Report, also in Appendix M, graphically shows project outreach activities since December 2018. A virtual public meeting was held on April 26, 2021 which resulted in a spike in web pageviews and visitors. The comment period for the public meeting runs through May 26. Currently 40 comments have been received and are being categorized. As needed, responses will be sent.

[6] Source: LCRT Community Workshops Report 03/28/2019

Overall, 719 comments have been received between January 28, 2019 and May 21, 2021, of which 464 comments were submitted using an online meeting form during virtual public meetings. Comment positions reflected from those received break out to 68 comments of General Support, 623 comments of Neutral, and 28 comments of General Opposed (mainly due to the voiced desire of mode i.e. a preference for light rail). Comment types with the highest number included mailing list requests, and proposed corridor followed by preferred route, roadway/design, and traffic/safety. Comments received throughout the entire planning process have helped design and plan a BRT system that is cognizant of and responsive to the local community. Figure 12 shows comment topics.

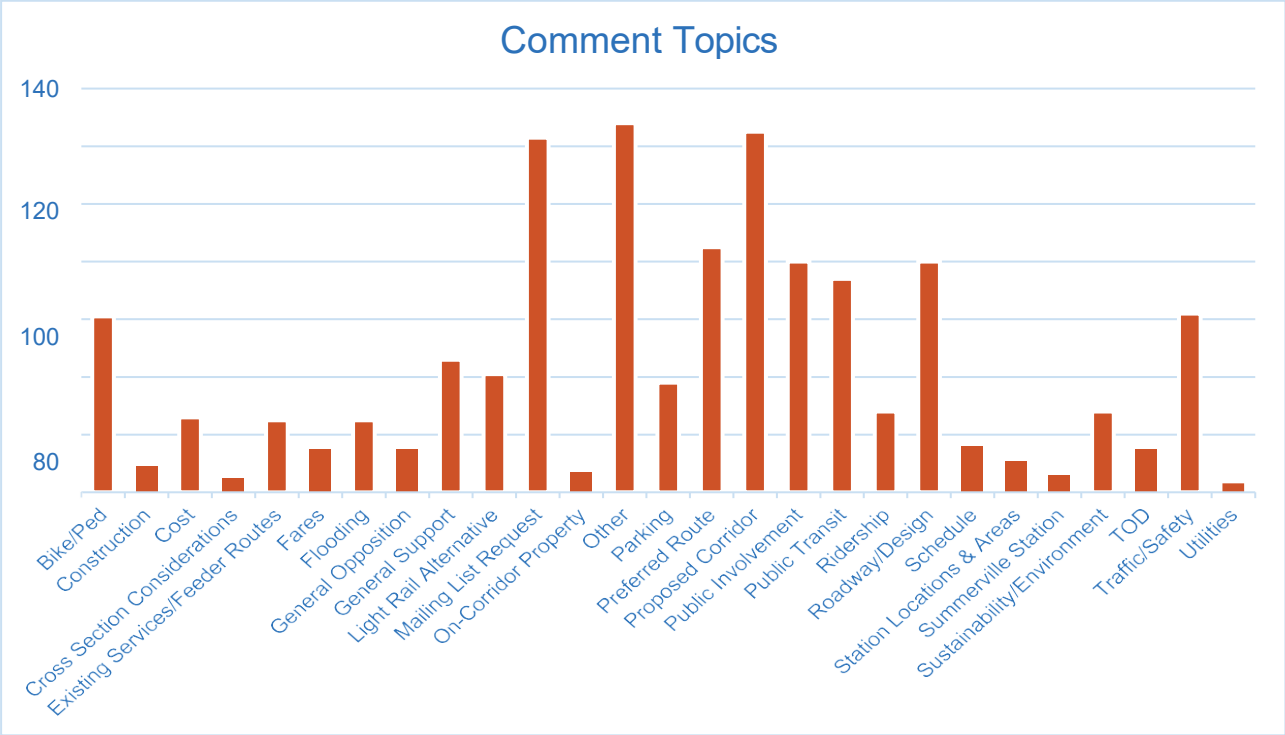

Figure 12 Comment Topics (January 28, 2019 through April 30, 2021)

X. Mitigation Measures

Mitigation for impacts discussed in previous sections includes:

Environmental

- Preliminary design avoids and minimizes impacts to the existing waterway crossings. The project improvements do not include significant grading and are not anticipated to impact coastal flood elevations. Charleston County's Flood Damage Prevention Ordinance will be complied with. As the design progresses, these conditions will be documented in hydrologic and drainage studies and provided to the local floodplain administrators for their review and concurrence. Additionally, an assessment will be performed for compliance with Flood Resiliency Design Requirements in Executive Order 13690.

- During construction activities, temporary siltation may occur in adjacent waters and erosion may be of a greater degree than presently occurring. Recommendations would be set forth that the contractor minimize this impact through implementation of construction BMPs reflecting policies contained in 23 CFR 650 B and S.C. Code of Regulations 72-400.
- Compensatory mitigation is normally required to offset unavoidable losses of WoUS. It is anticipated that compensatory mitigation for permanent project impacts will be attained through the purchase of mitigation credits from a USACE approved mitigation bank. Specific mitigation requirements will be established during the Section 404 permitting process.
- Tree clearing activities will be conducted during the inactive season for NLEB (November 15th through March 31st) and other minimization measures relate to reduced lighting and contractor knowledge of commitments.
- BMPs will be put in place prior to and during construction to minimize impacts to vegetation communities. Tree surveys will be used to minimize impacts to grand trees protected under local ordinances.
- Contaminated material encountered during construction will be disposed of at a facility permitted to accept such material.

Roadway/SUP

- Impacts to existing right of way for sidewalks and the SUP will be minimized where possible. Retaining walls are under consideration to mitigate potential right of way impacts adjacent to the rail corridor and at business parking areas along Rivers Avenue.
- Drainage improvements, pavement replacement, pavement markings, and new traffic signals are proposed throughout the corridor. Final placement of these improvements is under discussion.

Community

- Section 106 compliance and consultation for historic properties is ongoing and will be completed separately.
- A request for de minimis findings for Wannamaker Park and Harmon Field have been submitted to Charleston County and the City of Charleston, respectively. The public will be afforded an opportunity to review and comment on the effects of the project on the protected activities, features, or attributes of these Section 4(f) properties.
- Potential mitigation measures to address community impacts will be developed through data collected during public engagement opportunities and/or stakeholder conversations. Four methods to address impacts will include: avoidance, minimization, mitigation, and enhancement. If appropriate, recommendations will be made regarding mitigation measures that would help alleviate or offset an impact. Project enhancements that would add a desirable or attractive feature and, thus, result in the project being more fitting with the community will also be considered and developed, as appropriate.
- To provide safe, convenient pedestrian access for the transit dependent community of Union Heights a pedestrian bridge is proposed at Hackemann Avenue in North

Charleston. This improvement is needed to provide access to the Hackemann Avenue Station located in the median and across the Seaboard Coastline railroad tracks.

- To address last mile connectivity to stations 8.5 miles of new and reconstructed sidewalk and 17.9 miles of a SUP are included in the design. The asphalt-paved SUP would be 10-feet wide to accommodate multiple recreational uses.
- In the Gadsden Creek area mitigation strategies are under discussion with the City of Charleston to raise the elevation of Hagood Avenue. This would allow area residents, local employees, and BRT vehicles to access the Hagood Avenue/ Line Street station during flood events.

Y. Other Federal Actions

The following are other federal NEPA actions related to the proposed project or in the vicinity:

SCDOT I-526 (Lowcountry Corridor WEST Project) - The project includes widening I-526 from four to eight lanes for approximately seven miles from Virginia Avenue to Paul Cantrell Boulevard in Charleston County. In addition to mainline widening, interchange improvements are expected throughout the corridor. The project website, including proposed improvements to the I-526/Rivers Avenue interchange within the project corridor, is located at https://www.526lowcountrycorridor.com/

Z. State and Local Policies and Ordinances

The proposed project is in compliance with all applicable state and local policies and ordinances including those of BCDCOG, Charleston County; and the two primary municipalities; the cities of Charleston and North Charleston. See Appendix P for a list of policies and ordinances.

AA. Related Federal and State/Local Actions

Related federal and state/local actions are listed in the LCRT DCE Worksheet and below:

- Charleston Ordinance Sec. 54-327 (Tree Removal Restrictions)
- Corps of Engineers Permit (Section 10, Section 404)
- SCDHEC-OCRM Critical Area Permit
- ESA and EFH Consultation
- Hydraulic Project Approval
- Local Building or Site Development Permits
- Local Clearing and Grubbing Permit
- National Historic Act- Section 106 consultation
- National Pollutant Discharge Elimination System General Construction Permit
- Section 4(f) (Historic or Recreational Properties; Wildlife Refuges)
- Temporary Erosion and Sediment Control Plan (TESC)
- SCDHEC Water Quality Certification—Section 401
- Tribal Consultation
- Charleston County Floodplain Development Permit

BB. List of Preparers

Appendix Q provides a list of all preparers for this DCE.