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# PUBLIC TRANSPORTATION

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# Introduction

Public transportation is an important component of the region’s multimodal transportation system. As the region continues to grow and evolve, it is essential that investments in transit be made to provide mobility alternatives for all residents and visitors. Closely coordinated transit and land use planning initiatives will help manage the region’s anticipated growth in a sustainable and equitable manner. This Element envisions the development of new high capacity transit corridors linking key employment and activity centers, supported by enhanced local and commuter express transit service throughout the region.

## Relevance to Project Vision and Goals

The transit recommendations presented in this chapter support the CHATS LRTP Vision and Goals in the following ways:

<p><b>IMPROVE THE SAFETY OF THE TRANSPORTATION SYSTEM FOR ALL TRANSPORTATION USERS</b></p>	<p><b>IMPROVE TRAVEL MOBILITY FOR EVERY TRAVELER, REGARDLESS OF HOW THEY TRAVEL</b></p>	<p><b>PLAN AND DESIGN TRANSPORTATION PROJECTS THAT SUPPORT A RANGE OF BENEFITS TO THE COMMUNITY, ESPECIALLY TRADITIONALLY DISADVANTAGED POPULATIONS, OR SERVE PRIORITY JOB &amp; ACTIVITY CENTERS</b></p>	<p><b>MODIFY EXISTING AND ADOPT NEW POLICIES AND PROGRAMS TO ENSURE THAT THE LRTP CONTEMPLATES LOCAL LAND USE PLANS, PARTNERS, AND BEST PRACTICES TO PRESERVE AND ENHANCE VALUABLE INFRASTRUCTURE</b></p>
<p>When coupled with investments in pedestrian, bicycle, and roadway infrastructure that promotes walkable communities, transit helps support a safe and equitable transportation system for all users.</p>	<p>Investment in transit benefits all travelers in the Charleston region. High quality public transportation benefits not only those who depend on it for daily travel, but also helps attract new riders. Building transit ridership also benefits auto commuters by taking cars off the road and thereby reducing congestion.</p>	<p>By linking residential communities to employment centers, shopping centers, and education and healthcare facilities, transit provides mobility alternatives to traditionally disadvantaged populations that otherwise may not have the means travel via other modes.</p>	<p>Closely coordinated transit and land use planning will help promote effective growth management policies and outcomes. Transit Oriented Development around future transit hubs will serve as a catalyst for attracting and retaining ridership and reducing congestion.</p>

# Public and Stakeholder Input

Public and stakeholder input was collected throughout the course of the LRTP update process through a variety of methods, including a series of public symposiums, stakeholder interviews, and an online survey. Targeted stakeholder input was collected through interviews with local elected officials and administrators from jurisdictions throughout the BCD region. The stakeholders were asked a series of open ended questions regarding their opinions on existing service in the region, existing and future unmet needs, and suggestions for improving the regional transit network.

The project symposium provided an opportunity for the public to participate in collaborative activities and share input on how the region's transit services can be improved for the future. Participants were asked questions to solicit feedback regarding issues identification and priorities for transportation investment. At each of the three symposiums, participants identified enhanced mobility, congestion relief, increased transit alternatives including Bus Rapid Transit, and improving infrastructure condition as key priorities.

In addition to the public symposiums, a public survey utilizing WikiMaps was made available online to allow participants to identify specific transit needs, including new bus routes and corridors that should be served, bus stop locations, park-and-ride locations, and other service improvements such as expanded service hours. A summary of WikiMap survey results is presented in Figure 5-1.

The feedback received from regional stakeholders and the public is summarized below according to reoccurring topics and categories of transit needs.

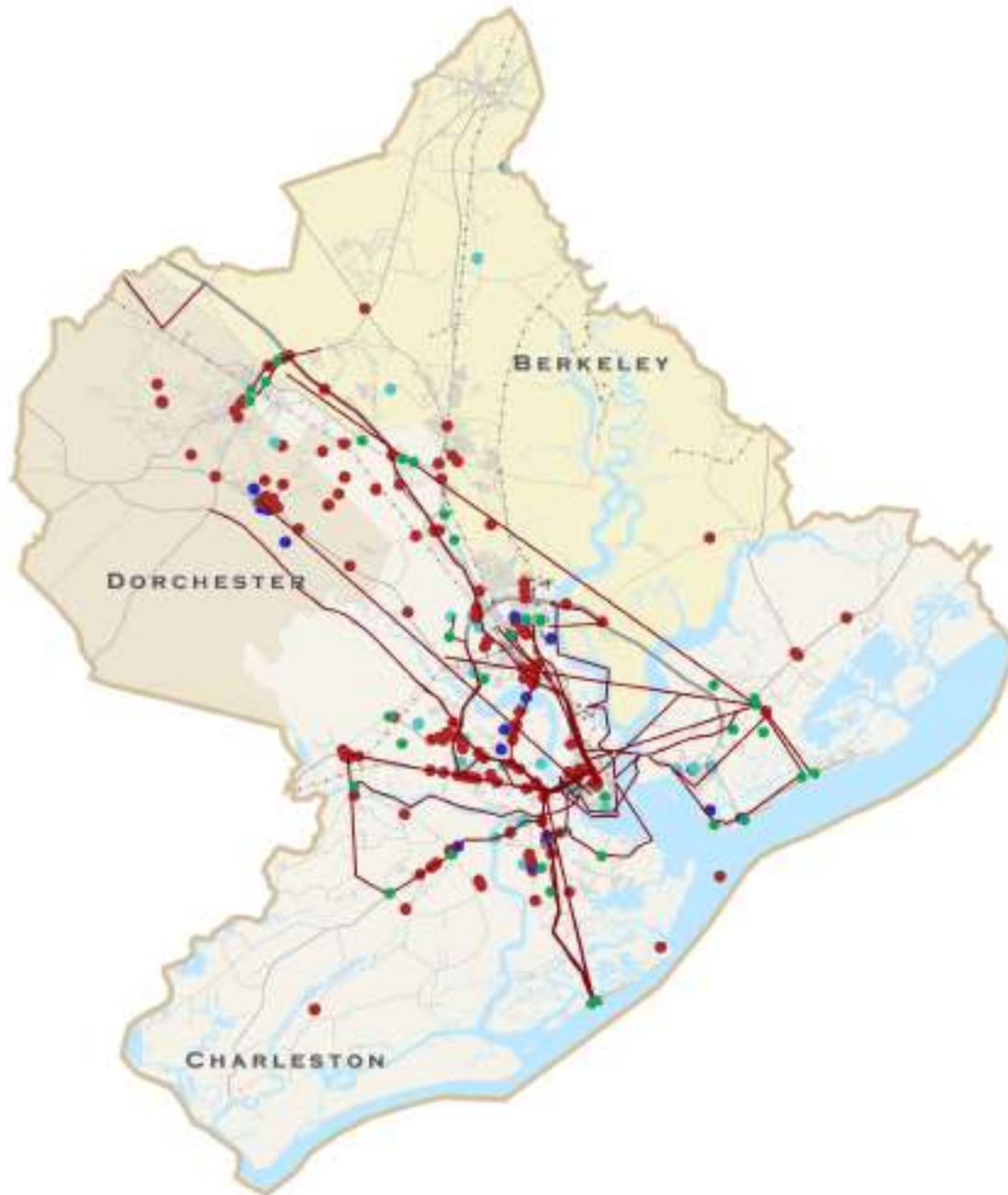
- **Regional Connections and Access to Employment Centers and Tourist Destinations:** Regional connections to major activity and employment centers were noted as a key need. Transit service to the beaches on Folly Island and Isle of Palms was also highlighted by stakeholders and the public as a need.
- **Expanded Park-and-Ride/Commuter Service:** Expanded commuter service from more park-and-ride lots was mentioned during several interviews as a need to connect the region's relatively low density residential areas with

employment centers. This could also help alleviate parking challenges downtown.

- **Passenger Amenities:** The quality of bus stops was noted as a deficiency throughout the region, for both CARTA and TCL services. In particular, more bus shelters were noted by several interviewees as a key need given the region's climate.
- **Technology/ITS Improvements:** Long transit travel times and poor on-time performance were noted as a deficiency. Several interviewees proposed technology improvements such as signal priority/preemption and timing enhancements to help alleviate these issues.
- **Activity Center Circulators:** Circulator service, similar to the existing DASH service, was suggested to help address mobility needs within/between core urban areas and activity centers.
- **Capital Facilities:** Depending on expansion plans, CARTA will likely need another maintenance facility in the future and/or layover/storage yard(s) to reduce deadhead.
- **Regional Waterway Transit:** There is an interest in establishing ferry service geared towards the commuter market. Feasibility of regional waterway transit is currently being assessed and potential departure points are being identified.
- **Policy:** Several recommendations were made concerning policy and regional coordination issues, including updated zoning regulations to encourage increased density and transit-oriented development (TOD) surrounding planned transit nodes and corridors, enhanced coordination between land use and transportation planning initiatives, service coordination and consolidation between the region's transit providers, and increased public outreach and programs to incentivize transit use.

Appendix D provides the Transit Needs Assessment Report developed during the LRTP process. The results of this analysis was used in the development of the public transportation component of the LRTP and the supplemental *Regional Transit Framework Plan (2018)*.

Map 5-1: Transit Public Input Received



- Suggested Transit Stops
- Suggested Bus Routes
- Public Comments**
- Destination to Bike
- Destination to Walk
- Intersection Improve Needed
- Transit Destination
- Railroad



# Previous Planning Efforts

Several planning initiatives pertaining to transit have been undertaken in recent years by BCDCOG and other entities throughout the region. The transit needs and opportunities identified as a result of these efforts provide the foundation for the identification of regional long-range transit investments. A summary of these studies is provided below.

## CARTA Comprehensive Operations Analysis (2016)

In 2016, BCDCOG completed a Comprehensive Operations Analysis (COA) of the existing CARTA transit system. The COA provides an in-depth review of the CARTA network and includes a detailed market, service, and operational analysis to develop short-range and mid-range transit recommendations. The objectives of the COA were to enhance reliability, increase efficiency, respond to changing travel patterns, and provide the foundation for future investment in upgraded equipment, facilities, and system expansions.

The short-range recommendations involved route realignments, schedule adjustments, and route elimination, resulting in a proposed systemwide reduction of service hours by 8.6% and a net reduction in operating costs of \$1.4 million. The purpose of restructuring service in the near term was to build capital reserves for state-of-good-repair investments and future system upgrades.

The mid-range recommendations are proposed for a five to ten-year implementation horizon in conjunction with the proposed Lowcountry Rapid Transit (Bus Rapid Transit) project along US78/Rivers Avenue. The mid-range recommendations are focused on improving frequencies and connections across the system, and include five new feeder routes, one express route, and two seasonal trolleys.

## Lowcountry Rapid Transit

The I-26 Corridor between Summerville and Charleston is a key thoroughfare in the region linking major employment and retail centers, military installations, and transportation hubs including the Charleston International Airport and the Port of Charleston. Multiple plans and studies over the years identified transit alternatives in the I-26 corridor as a key regional transportation need. The I-26 Alternatives Analysis (i-26ALT) was conducted over 15 months beginning in 2014 to consider the effects of alternative transit investments in the corridor.

Multiple alignments and mode technologies were considered, with a preferred alternative of Bus Rapid Transit (BRT) along Rivers Avenue/US 78 connecting downtown Charleston, North Charleston, and Summerville selected as the final outcome of the study. Referred to as Lowcountry Rapid Transit, the proposed BRT project is moving forward to start project development and environmental review under FTA's Capital Investment Grant program in 2018. Service is anticipated to begin by 2025.

## TCL Route Study (2014)

BCDCOG sponsored a Route Study for TCL in 2014 to review the existing TCL route network and provide recommendations for optimizing service to better serve the needs of the communities in which it operates. The study offered near-term and long-term recommendations for modifying existing service and adding new routes, along with policy recommendations concerning planning, capital, and organizational issues. The key recommendations involved adding four new routes, eliminating three routes, modifying alignments and/or schedules of six routes, and making capital investments in bus stop signage and amenities.

## Transit Consolidation Feasibility Analysis (2013)

In 2013, BCDCOG initiated a study to evaluate the potential of consolidating CARTA and TCL into a unified system to serve the BCD region more effectively. The Transit Consolidation Feasibility Analysis was a collaborative effort between CARTA, TCL, and BCDCOG and identified and evaluated options regarding consolidation. The four options considered, ranging from lowest to highest level of commitment were: Connection, Coordination, Collaboration, and Consolidation. The study identified the main financial, operational, and governance barriers and benefits of consolidation. The findings of the study pointed towards full consolidation as a viable and potentially beneficial long-term goal from a service coordination and delivery standpoint. However, it was determined that consolidation would not result in any significant cost reductions given that there are relatively few areas of duplicative service between the two agencies. The final recommendation was to keep the agencies legally separated in the near time, but to work towards consolidation over time through a phased approach.

### Our Region Our Plan and the Regional Transit Framework (2012 & Ongoing)

As part of the Our Region Our Plan (OROP) process, the 2040 Transit Vision Plan set a policy objective to establish a comprehensive transit system that attracts new riders, connects major centers, reduces congestion on major arterials, enhances affordability, protects the natural environment, provides for sustainability of the region, and provides a viable alternative to personal automobile travel. OROP proposed a set of rapid transit corridors linking key activity nodes throughout the Charleston region.

To advance this vision, OROP proposed the development of a Regional Transit Framework (RTF) plan to study the viability of the various high capacity corridor alternatives and help guide long range transit decisions in the future. To date, BCDCOG has completed the *Regional Transit Framework Plan (2018)*, the result of which is incorporated as part of this Long-Range Transportation Plan update.

### Partnership for Prosperity: A Master Plan for the Neck Area of Charleston and North Charleston (2014)

The Partnership for Prosperity: A Master Plan for the Neck Area of Charleston and North Charleston is a transportation and development framework developed in 2014 to guide public and private investments in the Neck Area of Charleston and North Charleston. The plan includes a multi-modal transportation element that proposes a phased approach to enhancing transit in the Neck Area. The first phase involves improving coverage and frequency of existing services, followed by implementation of BRT along Rivers Avenue to form a high capacity spine between downtown Charleston, through the Neck Area, and to points northward. Local feeder bus service is planned to connect neighborhoods and activity centers to BRT stations to form an integrated network along with express routes connecting to other regional destinations. The third phase envisions development of transit-oriented-development nodes along the BRT spine. The final phase, if development warrants, contemplates replacing the BRT with light rail transit (LRT).

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## Transit Recommendations

### Summary of Transit Needs and Strategies

An assessment of transit needs for the Charleston region was developed based on the analysis of existing transit conditions, a review of previous and ongoing transit planning initiatives, and public and stakeholder input (See Appendix D). Local agencies and the community have identified a goal to replace the fixed route fleet with zero emission, battery electric transit buses. Based on this analysis, general strategies were developed regarding improvements to existing service, implementation of new modes and corridor expansion projects, and transit supportive policies, as discussed below.

#### Service Improvements

- **Improve transit access to major employment centers:** The Charleston region is home to many major employers in the defense, health care, manufacturing, and tourism sectors. Connecting workers to employment centers is critical to sustaining economic growth into the

future. Improved transit access to employment is a key need that can be addressed through enhanced local and express service, including the development of new park-and-ride lots throughout the region.

- **Enhance local service to provide improved frequency and travel times:** Travel time competitiveness is a key component that influences one's decision to use public transportation versus other modes, especially in the case of "choice" riders who have access to a personal automobile. For choice and transit dependent riders alike, however, transit trip times that are competitive with other modes enhance customer satisfaction and ultimately serve as a catalyst to attracting ridership to the system. Improvements in local service frequency should be prioritized along with technology enhancements to the roadway network to reduce delay such as signal timing modifications and transit signal priority on key routes.

- **Build upon success of DASH circulator service to expand activity center circulators into new markets:** CARTA’s DASH service has proven to be a successful model for providing mobility in Charleston’s urban core. As neighborhoods in the Upper Peninsula, Neck Area, and West Ashley continue to develop and add density, similar service models should be explored as viable transportation alternatives. Other activity centers such as major retail and employment centers, colleges and universities, and tourist destinations such as the beaches could benefit from activity center circulators or trolley service that tie into the core network.
- **Continue investment in fleet modernization and state-of-good-repair needs:** CARTA is actively working towards modernizing its aging local and express bus fleet. As the CARTA and TCL systems expand in the future, emphasis should be placed on maintaining an asset management and fleet replacement program in accordance with FTA regulations and industry standards to ensure system safety and reliability. It is recommended that the Fixed Route Vehicles are replaced with zero emissions battery electric buses or other clean fuel alternatives.
- **Enhance bus stop amenities and pedestrian access to transit network:** A relatively small percentage of bus stops throughout the region are equipped with shelters and many are lacking in adequate pedestrian access facilities. Such amenities enhance safety, system usability, and customer satisfaction, and should be prioritized to the extent possible, especially at high-volume stops.
- Additional recommended, future actions include making the “LowGotober” event annual; identifying additional, permanent sources of financial support for the LowCountry Go programs; continuing to build upon and enhance the *www.ridegolow.com* app resource; and consider partnering with private peer-to-peer rideshare companies to integrate public and private sector ridesharing efforts.

## New Modes & Technologies / Corridor Expansion Projects

- **Implement the Lowcountry Rapid Transit BRT and explore new corridors for rapid transit implementation:** The region’s first rapid transit corridor, the Lowcountry Rapid Transit BRT (formerly i-26ALT), is an important first step in developing a network of high capacity public transportation lines in the Charleston region. The project is moving forward into project development. As a next step, BCDCOG is currently studying the viability of additional corridors through its Regional Transit Framework plan. The outcome of this effort should inform the identification and programming of new rapid transit corridors to support current and projected areas of transit supportive land use.
- **Explore commuter ferry as a transportation alternative:** The Charleston region’s waterways present an opportunity to add commuter ferry as an alternative transportation mode within the overall transportation network. An initiative is currently underway to study the viability of commuter ferry between various points throughout the region, including downtown Charleston, North Charleston, West Ashley, Mount Pleasant, James Island, and Daniel Island. The outcome of this effort should inform the identification and programming of new commuter ferry routes, as well as the supporting local service improvements necessary to ensure its success.

## Policy Strategies

- **Public outreach and marketing:** As evidenced in data and comments received through public and stakeholder input, the commuting habits of residents in the Charleston region is overwhelmingly auto-centric, with many transit riders relying on the service out of need rather than choice. A general lack of awareness of available transit services, coupled with a lack of incentives to explore alternative forms of travel, perpetuates this trend. CARTA and TCL and other regional stakeholders should explore opportunities to expand marketing and public outreach efforts to promote the various benefits of public transportation, especially to niche markets such as commuters, universities, and visitors. Further engagement with local

elected officials and major employers to explore opportunities to develop programs that incentivize transit use, such as subsidized transit passes, is another key strategy to encourage ridership among choice riders.

- **Continue to strengthen coordination between CARTA and TCL:** The 2013 Transit Consolidation Feasibility Analysis identified opportunities for closer coordination between the CARTA and TCL services. While full consolidation is potentially a viable long-term outcome, the study recommended an incremental approach with increased levels of coordination phased in over time. In the near-term, CARTA and TCL should seek to identify further opportunities for service coordination to enhance mobility throughout the region.
- **Coordinate land use and transportation policy at the regional and local levels:** As the Charleston region moves forward towards implementing its first BRT corridor, it is imperative that supportive land use policies are in place at the local level to fully capitalize on this transportation investment. Effective Transit Oriented Development (TOD) land use policies that encourage higher density, mixed use development around planned BRT stations and intermodal hubs will serve as a catalyst for attracting and retaining ridership. To achieve this goal, local zoning regulations should be reviewed and updated as necessary to incorporate TOD design principles around station-area nodes to the extent possible within the local planning context. While emphasizing TOD is a key objective along rapid transit corridors, an opportunity also exists to further incorporate transit-supportive amenities such as set-asides for bus stops or shelters, park-and-ride lots, and pedestrian access facilities into site plan review processes in jurisdictions throughout the entire service area. At the regional level, land use and transit planning initiatives should be closely coordinated to ensure that appropriate levels of transit investment serve future development patterns.

## Transit Revenue Sources

Funding for transit operations and capital investments in the BCD region comes from a combination of federal, state, and local revenue sources, as well as from fare revenues and other miscellaneous sources. A brief description of the primary funding sources is provided below.

### Federal

- **FTA Section 5307/5304 Urbanized Area Formula Program:** This program provides grants to urbanized areas for transit capital, planning, job access and reverse commute projects. Preventative maintenance, state-of-good-repair, and fleet rehabilitation/replacement activities are eligible expenses under this program. In limited circumstances, these funds can be used for certain operating expenses. The federal share for these activities is 80%.
- **FTA Section 5309 Capital Investment Grant Program:** This discretionary grant program provides capital funding for fixed guideway investments. Transit agencies compete for funding through four categories including New Starts, Small Starts, Core Capacity, and Programs of Interrelated Projects. The maximum federal share for these programs is 80%.
- **FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities:** This program provides formula funding to states to assist private non-profit groups and public agencies in meeting the transportation needs of older adults and persons with disabilities. SCDOT manages this program on behalf of the state and distributes funding to local agencies. The maximum federal share for these programs is 80% for capital costs and 50% for operating assistance. Up to 10% of grant funds are eligible to fund program administrative costs.
- **FTA Section 5311 Formula Grants for Rural Areas:** This program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000. SCDOT manages this program on behalf of the state and distributes funding to local agencies. The maximum federal share for these programs is 80% for capital costs and 50% for operating assistance.

- **FTA Section 5339 Bus and Bus Facilities:** This funding program provides both formula and competitive grant funding for bus acquisitions, replacement, and rehabilitation. This program also allows for the purchase of related equipment and construction of bus-related facilities including technological changes or innovations to modify low or no emissions vehicles or facilities. The federal share for these activities is 80%.

### State

- **State Mass Transit Fund (SMTF):** The South Carolina Department of Transportation (SCDOT) administers the distribution of a quarter cent per gallon fuel tax based on formula allocations to transit agencies across the state. Along with local funds, the SMTF grants provide the local match required for federal grant eligibility.

### Local

- **Charleston County Transportation Sales Tax:** Local transit funding is provided through a portion of the proceeds from the Charleston County half-cent transportation sales tax, which was originally instituted in 2004. A second half-cent sales tax was passed in 2016 which identified an additional \$600 million in funding for transit capital programs and operations. These sources provide the local match required for federal grant eligibility.

### Other

- In addition to fare revenues, various partners provide funding contributions to CARTA and TCL including the City of Charleston, College of Charleston, and the Medical University of South Carolina, and other local social service agencies that purchase contracted service.

## Recommended Transit Vision Projects

Based on the needs and strategies described above, specific long-range transit vision projects for the region were identified, as defined in Table 5-1. These recommended capital investment projects fall into four categories:

- **High Capacity Rapid Transit:** High capacity rapid transit projects entail fixed-guideway modes, such as BRT, operating in exclusive or semi-exclusive lanes with enhanced stations and extensive use of transit signal priority treatments. High capacity projects are envisioned to provide frequent, all-day service, seven days per week.
- **Medium Capacity Rapid Transit:** Medium capacity rapid transit projects predominantly operate in shared lanes with general traffic, with “BRT-lite” treatments including limited transit signal priority, queue jump lanes at selected intersections, and enhanced station stops. Medium capacity projects are envisioned to provide frequent, all-day service, seven days per week.
- **Commuter Express Bus:** Commuter express bus projects typically operate in general purpose or HOV/managed travel lanes on limited access highway facilities and provide service between park-and-ride lots and major employment and activity centers. Express service is typically geared towards the weekday peak period commuter market; however midday trips may be provided as demand warrants.
- **Commuter Ferry:** Commuter ferry projects serve dock locations throughout the region using pedestrian-only vessels. Commuter ferry projects serve both the commuter and visitor markets and will include park-and-ride facilities at select dock locations.

The 12 recommended long-range transit vision projects are identified in Table 5-1, along with estimated capital costs and implementation horizon, and displayed in Map 5-2. Order-of-magnitude capital costs were estimated based on a methodology established for each project category. High and medium capacity rapid transit projects were estimated using a capital cost per mile based on previous BRT planning efforts and national peer data. Commuter express bus and commuter ferry project costs were estimated by applying general unit costs to the quantity of estimated fleet vehicles/vessels and new park-and-ride lots and docks required to operate service on each route.

Of the 12 projects, the Lowcountry Rapid Transit BRT project has identified funding and is in the process of entering FTA's Capital Investment Grant program's project development and environmental review phase, and is thus included in the LRTP as a committed transit project. BCDCOG has conducted and completed a *Regional Transit Framework Plan (2018)* to study the remaining vision project corridors in detail. The result of this effort supplements this public transportation component and is incorporated as part of the CHATS 2040 LRTP update.

**Table 5-1: Committed and Recommended Transit Vision Corridor Projects**

Map ID	Project	Mode	Estimated Capital Costs	Implementation Horizon
1*	Lowcountry Rapid Transit Project – Bus Rapid Transit on US 78/US 52/Rivers Avenue Corridor	High Capacity Rapid Transit (BRT)	\$361,150,000	2020 - 2030
2	Peninsula/Summerville - Dorchester Road Corridor	High Capacity Rapid Transit (BRT)	\$381,300,000	2030 - 2040
3	Peninsula/West Ashley/Folly Beach - Folly Road Corridor	Medium Capacity Rapid Transit (BRT Lite)	\$25,800,000	2030 - 2040
4	Peninsula/Moncks Corner - US-52 Corridor	Medium Capacity Rapid Transit (BRT Lite)	\$94,500,000	2030 - 2040
5	West Ashley/Peninsula/Mount Pleasant/ East Cooper - US-17 Corridor	Medium Capacity Rapid Transit (BRT Lite)	\$59,400,000	2030 - 2040
6	Moncks Corner/Summerville/East Edisto - US-17 Alt Corridor	Commuter Express Bus	\$5,180,000	2030 - 2040
7	West Ashley/Peninsula/Daniel Island/East Cooper - I-526 Corridor	Commuter Express Bus	\$8,780,000	2030 - 2040
8	Ridgeville/Summerville/North Charleston/ Downtown - I-26 Corridor	Commuter Express Bus	\$6,830,000	2030 - 2040
9	West Ashley Express	Commuter Express Bus	\$6,630,000	2030 - 2040
10	Cooper River Commuter Ferry	Commuter Ferry	\$15,500,000	2030 - 2040
11	Ashley River Commuter Ferry	Commuter Ferry	\$15,850,000	2030 - 2040
12	Charleston Harbor Commuter Ferry	Commuter Ferry	\$10,800,000	2030 - 2040

Note - \*Lowcountry Rapid Transit (LCRT) project identified as committed transit project; other transit projects identified as visionary. Estimated BRT capital costs reported in 2015 dollars (projects 1-5). All other costs reported in 2018 dollars.

## Map 5-2: Committed and Recommended Transit Vision Corridor Projects

