

8. Transportation

North Charleston is the hub of regional transit for the Charleston Metropolitan Area. North Charleston is home to two interstates, two U.S. highways, an Air Force Base, an international airport, multiple rail lines, two rivers, an Amtrak station, and two seaport terminals (with a third in progress). Most cross-regional travel originates, terminates or passes through North Charleston. This produces both major benefits (industry, retail, housing demand) and major problems (traffic and pollution). 'Traffic' is the most common reply when North Charleston's residents are asked to name their primary concern for the city's future. This is especially true in the northern half of the city, where roadway connections are sparser and development is growing at a more rapid pace. However, North Charleston's growth is only part of the cause for concern. As shown in Chapter 2, many of the region's municipalities (especially in Berkeley and Dorchester Counties) are growing at an even faster pace than North Charleston – this of course intensifies the city's traffic problems, given its regional transportation importance.

This chapter will assess the conditions of North Charleston's various transportation systems (roads, rail, mass transit, etc.), examine future changes to those networks, and offer suggested goals and policies for improving transportation in the future. A general basemap of all of North Charleston's transportation systems is provided in figure 8.1



8.1 Road Network

North Charleston is the hub of regional transit for the Charleston Metropolitan Area. Running through North Charleston are Interstate 26, which terminates in downtown Charleston, and Interstate 526, the regional beltway. Within North Charleston are 7 highway exits off Interstate 26, six exits off I-526, and the interchange between the two highways. Additionally, two U.S. Highways (US 52 and US 78) also run through North Charleston.

Other major thoroughfares in North Charleston include:

Dorchester Road – Dorchester Road is the primary thoroughfare for all traffic in Planning Areas 2 & 3, and is generally the only means of transportation within those areas – especially Area 3. This is also a heavily used road for commutes between Summerville, and North Charleston.

Ashley Phosphate – Ashley Phosphate Road is the main route for travel for all east-west trips within the northern half of the city.

International Boulevard – International connects Charleston International Airport to I-526, the Centre Pointe complex, and Montague Avenue.

Remount Road – Remount is an east-west business highway that nearly aligns itself with the North Charleston-Hanahan border. Remount provides direct access from I-26 to the south gate of the Naval Weapons

Station and the North Charleston Port Terminal. It is a four-lane road that is primarily strip commercial.

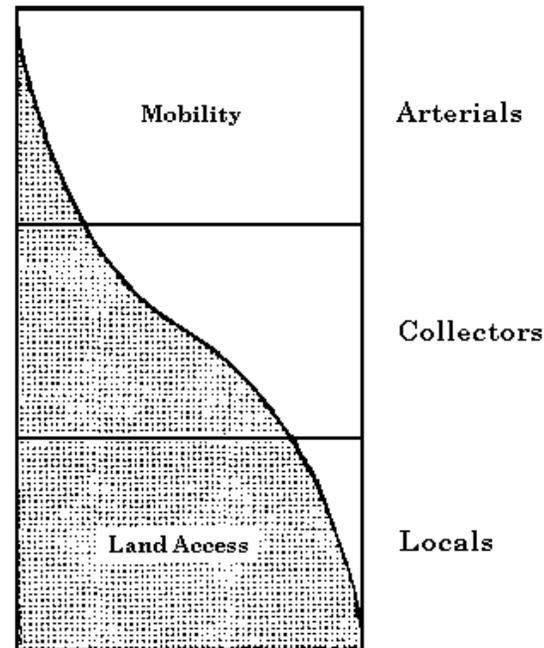


8.2 Functional Classification

National and State Departments of Transportation categorize roadway systems into a hierarchy of “functional classification.” This system allows for evaluation and analysis of specific road segments within the overall functioning of the road network. Functional classification systems organize roadways based on accessibility and mobility. There is an inverse relationship between accessibility and mobility in transportation planning. (See Figure 8.2) At the top of the spectrum, Arterials provide the highest level of mobility due to their high travel speeds. However, these high travel speeds necessitate a restricted system of access points. At the other end of the spectrum, local serving roads provide the highest level of access to land, with numerous curb cuts and driveways. However, local roads must necessarily limit speed and mobility as a result of increased access.

Roadway systems are also classified in terms of urban and rural networks. Urban and rural areas have fundamentally different characteristics as to density and types of land use, density of street and highway networks, nature of travel patterns, and the way in which all these elements are related in the definitions of highway function. Because of the intensity of land use and travel through urban areas, it is more difficult to pinpoint specific travel generation centers. The roadway network throughout North Charleston is classified as an urban network.

Figure 8.2.1 – Functional Classification by Mobility and Accessibility



Source: Federal Highway Administration

Interstate Highways

Interstate highways accommodate travel between states, and provide the greatest level of mobility, with access points limited to highway interchanges. Interstate highways are the highest level of principal arterial roadway. I-26 is the primary north-south interstate running through North Charleston south into Charleston. I-526 is an interstate bypass road around the City of Charleston that passes through the southern end of North Charleston.

Principal Arterials

An arterial is a road that has the primary function of carrying through traffic over relatively long distances accommodating travel between towns or major areas of a county. The principal arterial system serves major activity centers, the highest traffic volume corridors, and the longest trips. For principal arterials, the concept of service to abutting land is subordinate to the provision of travel service to major traffic movements. Dorchester Road and Rivers Ave/US-78/US-52 are both principal arterials running northwest to southeast through the City of North Charleston. North Rhett Avenue is a principal arterial that connects North Charleston to the cities of Hanahan and Goose Creek. Meeting Street and SC-7 are also classified as principal arterials passing through the southern tip of the City of North Charleston.

Minor Arterials

The minor arterial street system interconnects with and augments the urban principal arterial system. The minor arterial system provides service trips of moderate length (generally from one end of a town or city to another end), and distributes travel to geographic areas smaller

than those identified with the principal arterial system. The minor arterial system also provides more emphasis on land access with a somewhat lower level of traffic mobility. Minor arterials passing through North Charleston include Ashley Phosphate Rd, Montague Ave, and Spruill Ave.

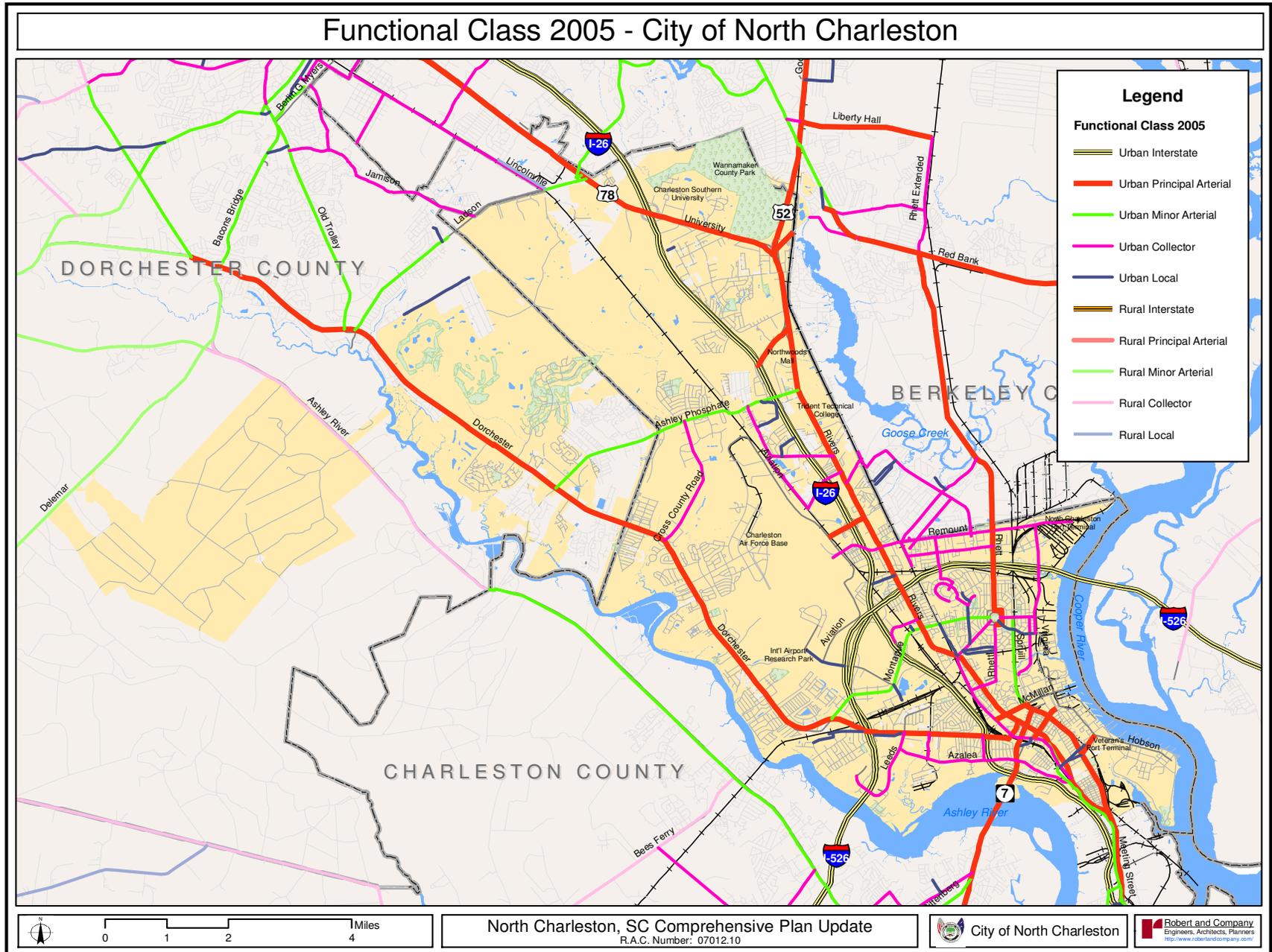
Urban Collectors

The collector street system provides land access service and traffic circulation within residential neighborhoods, commercial and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the area to the ultimate destination. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. Well-traveled urban collectors within the City of North Charleston include Remount Road, South Rhett Ave, Cross County Rd, Aviation Ave, Azalea Dr, and Leeds Avenue.

Local Streets

Local streets feed the collector system from low volume residential and commercial areas.

Map 8.2 – Roadway Functional Classification – City of North Charleston



Structurally Insufficient Bridges

In August 2007 a bridge in Minneapolis, MN spanning the Mississippi River collapsed, causing several deaths and injuries. This tragedy brought bridge infrastructure issues to the forefront throughout the country. Charleston's *Post & Courier* released a report by the U.S. DOT's Federal Highway Administration, documenting 104 bridges in the Berkeley-Charleston-Dorchester region with insufficient structural ratings. Of these 104 spans, nine were in North Charleston. The following is a list of these bridges, with their locations, age and sufficiency rating. The sufficiency rating (scale of 1 to 100, with 100 as the best) is based on a formula that rates the age, amount of traffic, and other factors.



Table 8.2.2 – Structurally Insufficient Bridges

Bridge	Crossing	Built	Age	Last Inspected	Average Daily Traffic	Sufficiency Rating
US 78 (Rivers Ave.)	CSX RR & S-39 (Meeting St.)	1926	81	12/03	8,400	12.4
S-10-60 (S. Rhett)	NOISETTE CREEK	1952	55	01/05	2,200	35.4
S-10-32 (Spruill Ave.)	NOISETTE CREEK	1943	64	01/05	10,100	48.6
S-10-379 (O'Hear Ave.)	BRANCH OF NOISETTE CREEK	1962	45	01/05	1,300	49.4
S-10-379 (O'Hear Ave.)	NOISETTE CREEK	1963	44	01/05	1,300	50.2
I-526 RAMP	RAMP TO I-26WB FROM I-526WB	1989	18	11/03	15,961	58.4
S-10-894 (Azalea Dr.)	BRICKYARD CREEK	1961	46	01/05	12,000	61.9
I-26	S.C.642 (Dorchester Rd.)	1961	46	12/03	83,000	70.9

Source: Federal Highway Administration, reported by Charleston Post & Courier

Roadway Operational Characteristics

The operational characteristics of a roadway include structural characteristics such as the number of through lanes, number of turn lanes, right of way, and paving material. These structural characteristics determine the amount of traffic that a roadway can safely handle before it becomes congested. In addition to the physical infrastructure, traffic regulating devices such as signalization and posted speed limit also have a strong effect on the operation of roadways. The number of lanes, the posted speed, and the number of access points are all factored into the theoretical capacity calculated for each roadway. This theoretical capacity is compared with the actual traffic volume in assessing the roadway level of service. Figure 8.4 illustrates the number of lanes, location of traffic signals, and posted speed limit of major roads in the City of North Charleston.

Traffic Counts

The South Carolina Department of Transportation (SCDOT) maintains annual average daily traffic (AADT) count information for all counties throughout the state. Count stations are set up along major roadways in order to directly measure the existing volume of traffic traveling in both directions. Traffic sample data are then adjusted to reflect the average daily traffic across an entire year. Traffic counts for the City of North Charleston are displayed in Figure 8.5.

Following the hierarchy of roadway functional classification, the interstates passing through North Charleston accommodate the greatest volume of traffic, with traffic counts ranging between 75,000 to 136,000 trips

per day on I-26 and traffic counts between 70,000 to 80,000 trips per day on I-526.

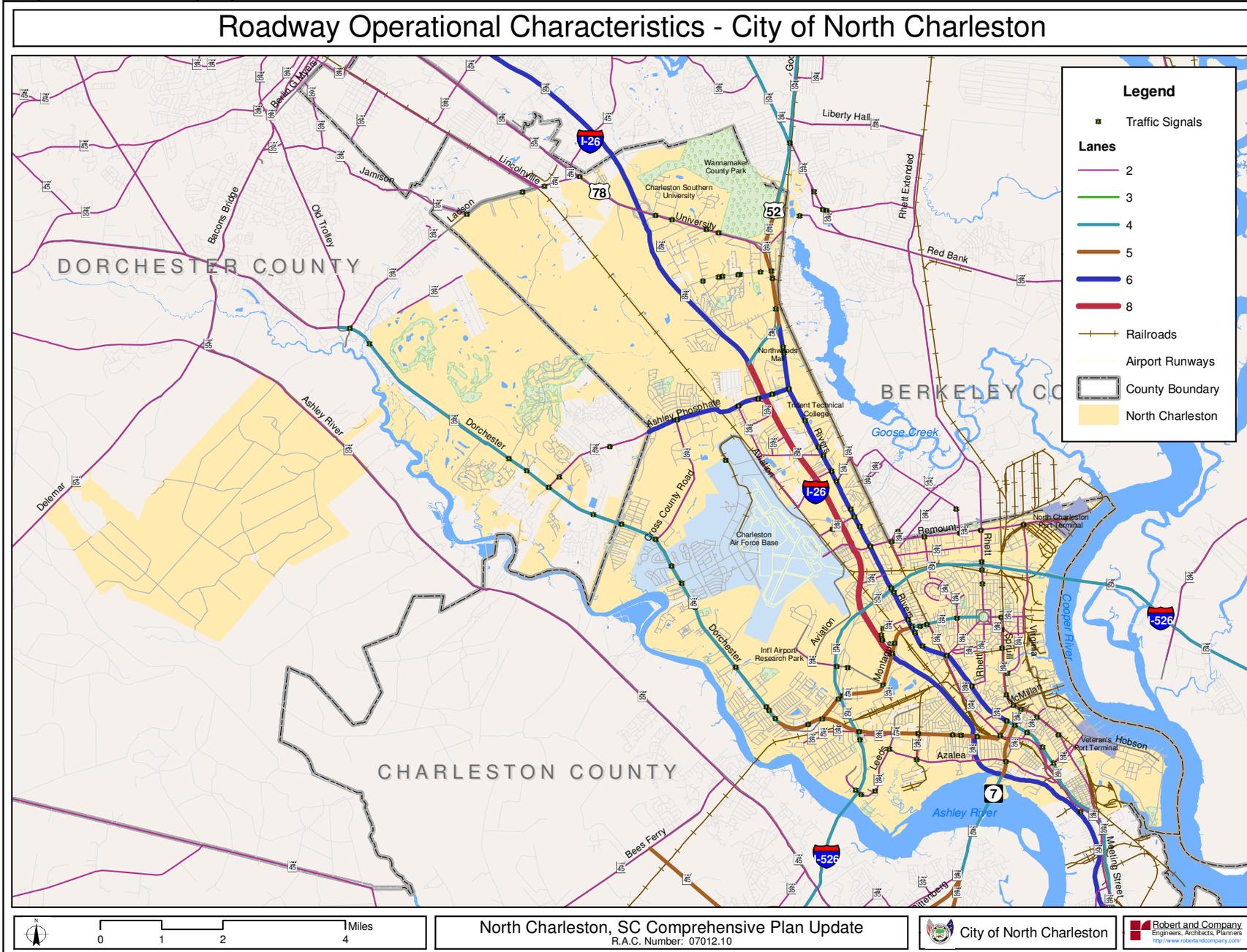
Among principal arterials passing through North Charleston, Rivers Ave between University Blvd and Northwoods Mall displays the highest traffic volume with traffic counts between 60,000 to 70,000. The two arterials of merging into Rivers Ave, US-52 and US-78, also show high traffic counts ranging between 40,000 to 50,000 trips per day. Among minor arterials passing through North Charleston, Ashley Phosphate Road had the highest recorded traffic count as of 2006, with approximately 55,000 trips per day.

Traffic Increase 2000-2006

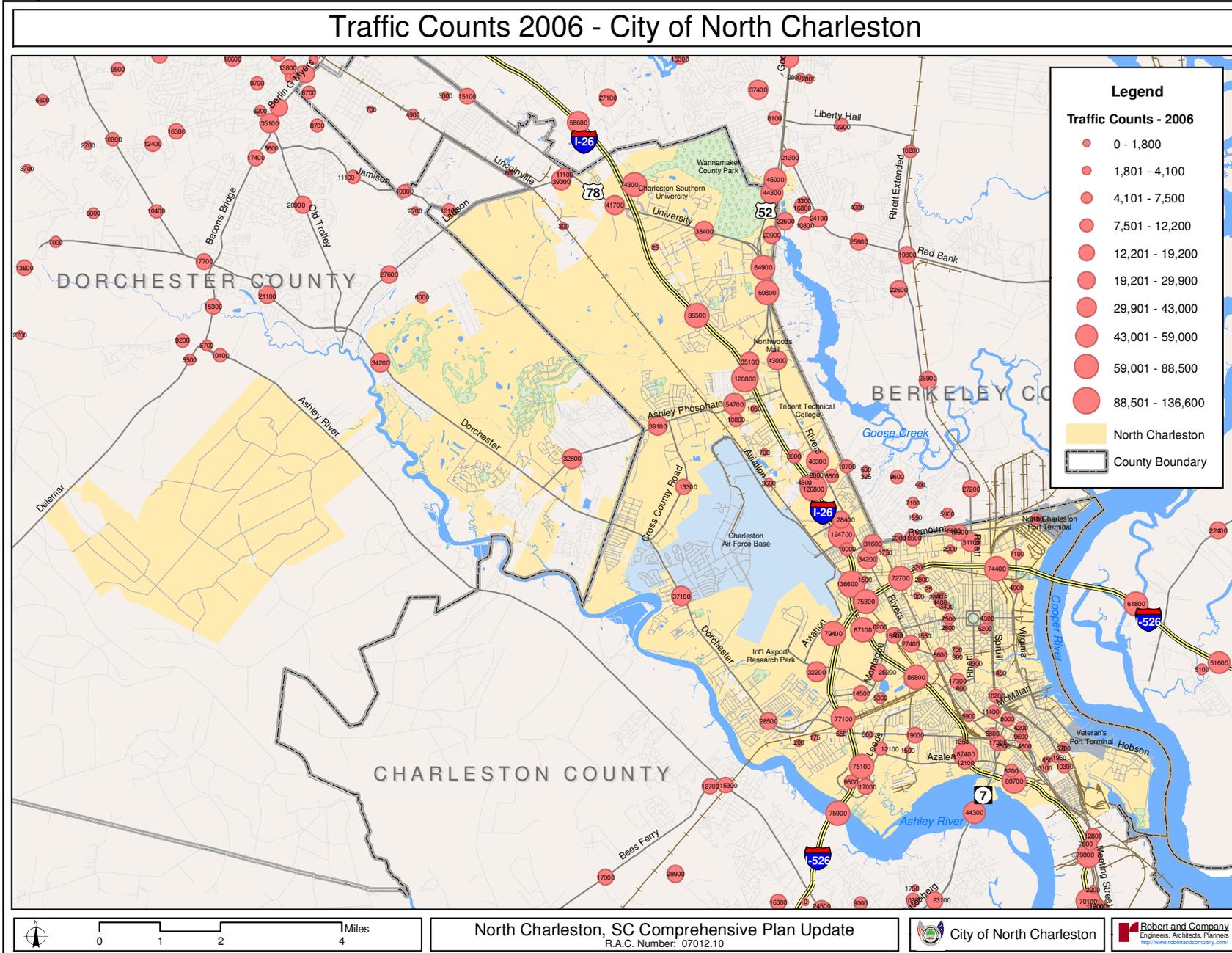
Traffic count stations are deployed at regular locations each year. Annual Average Daily Traffic figures are compiled for each count station on each year. This allows for a comparison of traffic counts across time. Figure 8.6 shows the percentage of increase in traffic in the ten years between 1997 and 2006.

Along I-26, traffic counts increased most substantially (46%) at the portion of the interstate north of Ashley Phosphate Road. The segments of I-26 south of Ashley Phosphate recorded traffic increases of approximately 20% between 1997 and 2006. These segments recorded some of the largest absolute increases over the time frame, given the already high traffic volume on the interstate. Traffic counts on the I-526 bypass also recorded substantial increases in traffic volume between 1997 and 2006. Among high-volume arterials, US-78/University recorded the largest percentage increases in traffic (67-72%).

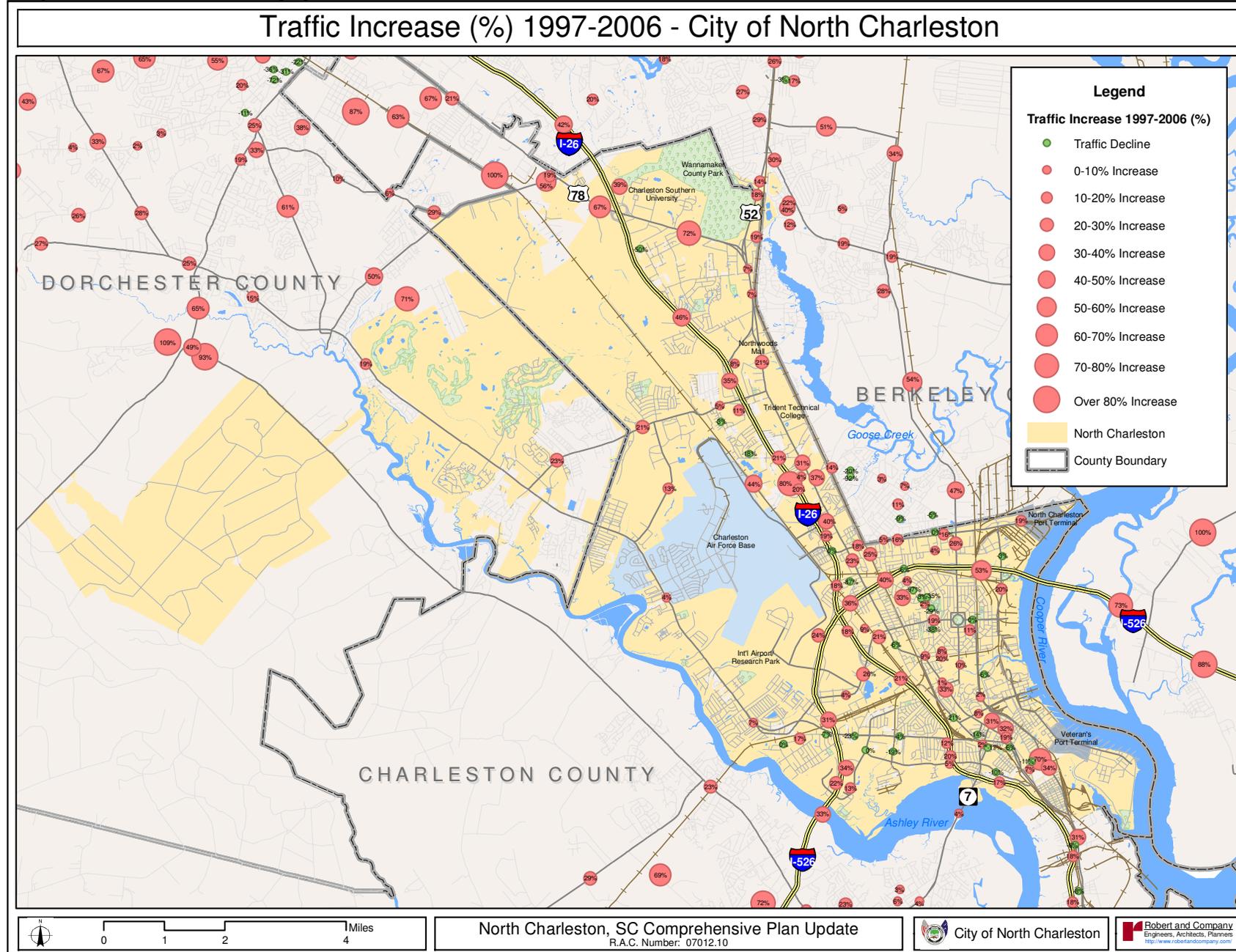
Map 8.3 – Roadway Operational Characteristics



Map 8.4 – Traffic Counts, 2006



Map 8.5 – Traffic Increase (%) 2000-2006



Level of Service (LOS)

The Berkeley-Charleston-Dorchester Council of Governments' (BCD-COG) travel demand model is used to determine the future capacity needs for the tri-county region. This travel demand model includes an analysis of the existing Levels of Service (LOS) for major roads in the region, as well as projected future Levels of Service that can be expected on the roadways for 2010, 2020 and 2030. Roadway Congestion maps are included for the years 2003, 2010, 2020, and 2030 in Figures 8.7 through 8.10. Future Levels of Service in this report reflect the anticipated LOS including transportation projects that already have existing or committed funding.

The daily volume-to-capacity ratio or level of service to be expected on that roadway is one of the measures used to predict future capacity needs in the region. The LOS is identified by corresponding alphabet letters that indicate whether a road's traffic volume has reached its capacity. A volume-to-capacity ratio (V/C) of less than 1.0 indicates that the road can remain at capacity, even with increased traffic volume. A V/C ratio of 1.0 indicates that the road is at capacity, and will be defined as less than acceptable if the amount of traffic on the roadway increases. A V/C ratio greater than 1.0 means that the road's volume exceeds its capacity to handle the amount of traffic, and therefore has an unacceptable LOS.

LOS identifies congestion levels. A table is provided comparing volume to capacity (V/C) ratios and Levels of Service (LOS). A description of the roadway conditions under each LOS is also provided in the subsequent guidelines table.

Congestion and Level of Service

LOS	Volume-to-Capacity Ratio
A,B,C	Less than 0.7
D	0.70 to 1.00
E	1.0 to 1.25
F	Over 1.25

Level of Service Guidelines

LOS	Conditions
A,B,C	Traffic can move relatively freely.
D	Vehicle speeds beginning to decline slightly due to increasing flows. Speed and freedom of movement are severely restricted.
E	Traffic volumes are at or close to capacity, resulting in serious delays.
F	Breakdown in vehicular flow. Flow rate exceeds roadway capacity. Describes traffic downstream from the bottleneck of breakdown.

While the letter-coded system for Level of Service provides a handy reference scale, it is important to distinguish LOS from the typical educational grading scale. The ideal roadway Level of Service from a cost-benefit perspective is a LOS of C or D. At this level, just enough investment in transportation facilities has been made to accommodate traffic flow. LOS ratings of A and B reflect situations where the road has excess capacity. Given the cost of road improvements and the magnitude of traffic problems across the region, it is not financially feasible or desirable to strive for a LOS of A or B on each roadway. Instead, traffic

engineers plan improvements to provide a target LOS of C or D.

As of the base year 2003, there were several roadways in North Charleston with a LOS of E or F. In the northern portion of the city, US-78/US-52 has a current LOS of F between University Ave and Northwoods Mall. Likewise, Ashley Phosphate Road between I-26 and Cross County Road maintains a severe level of congestion (LOS F). Finally, portions of N. Rhett Ave, Dorchester Road, and Michaux Pkwy also have a current LOS of F.

In the year 2030, the City of North Charleston will have several transportation challenges related to severely congested roadways. The Dorchester Road corridor is likely to experience significantly worse congestion as portions of Dorchester County along the corridor are developed. Portions of I-526 are also anticipated to function at a LOS of F by 2030. However, these projections do not take into account the recently constructed Patriot Boulevard, which connects Palmetto Commerce Parkway to Ashley Phosphate Road and Wescott Boulevard, providing a valuable alternative route to Dorchester Road. Conditions have already improved along Dorchester between Ladson Road and Ashley Phosphate. Conditions should also be helped by future projects – the extension of Palmetto Commerce to Ashley Phosphate Rd., the Northside Drive extension, and the widening of Dorchester Road in Summerville, between Old Trolley Road and US Highway 17-A.



Level of Service A



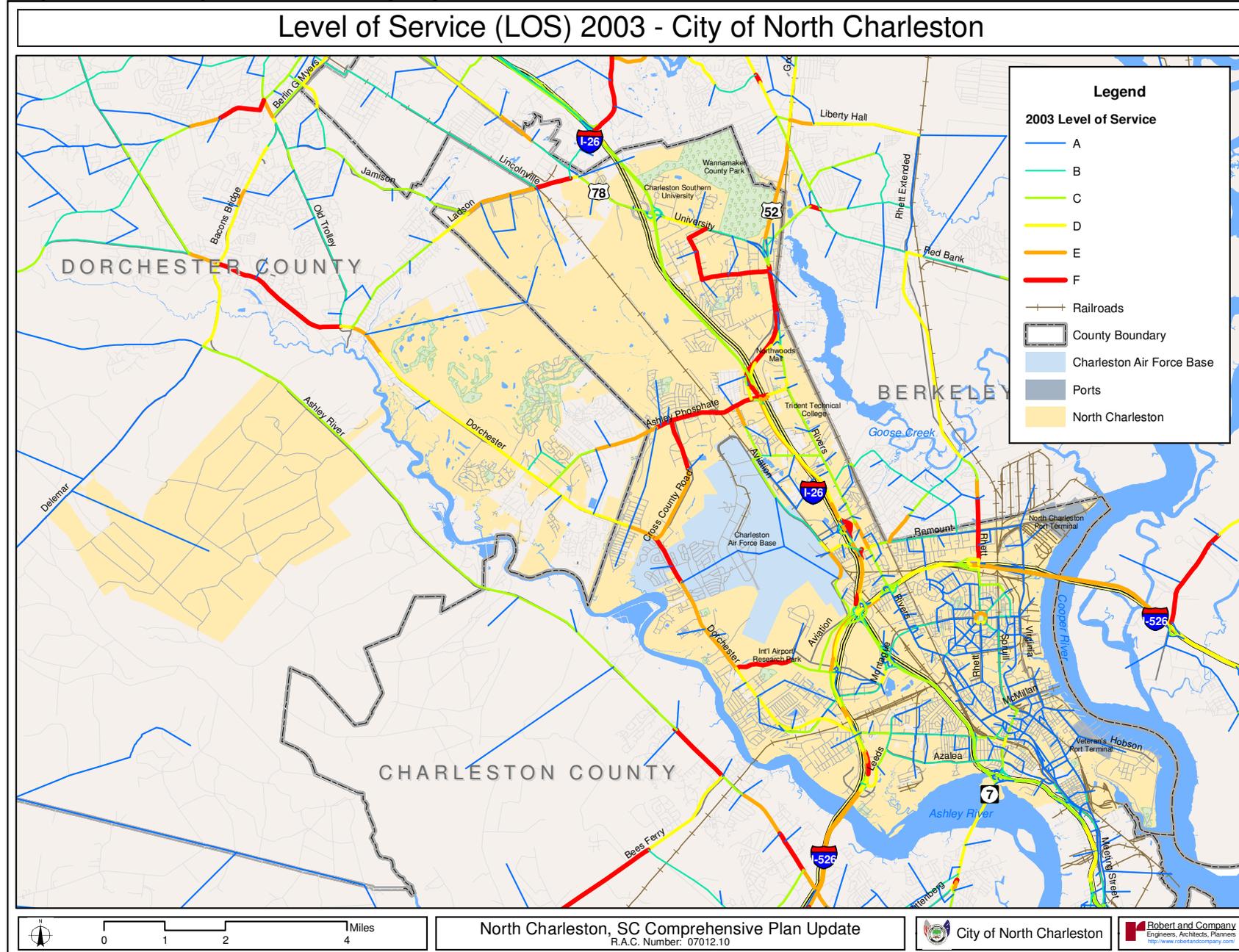
Level of Service C



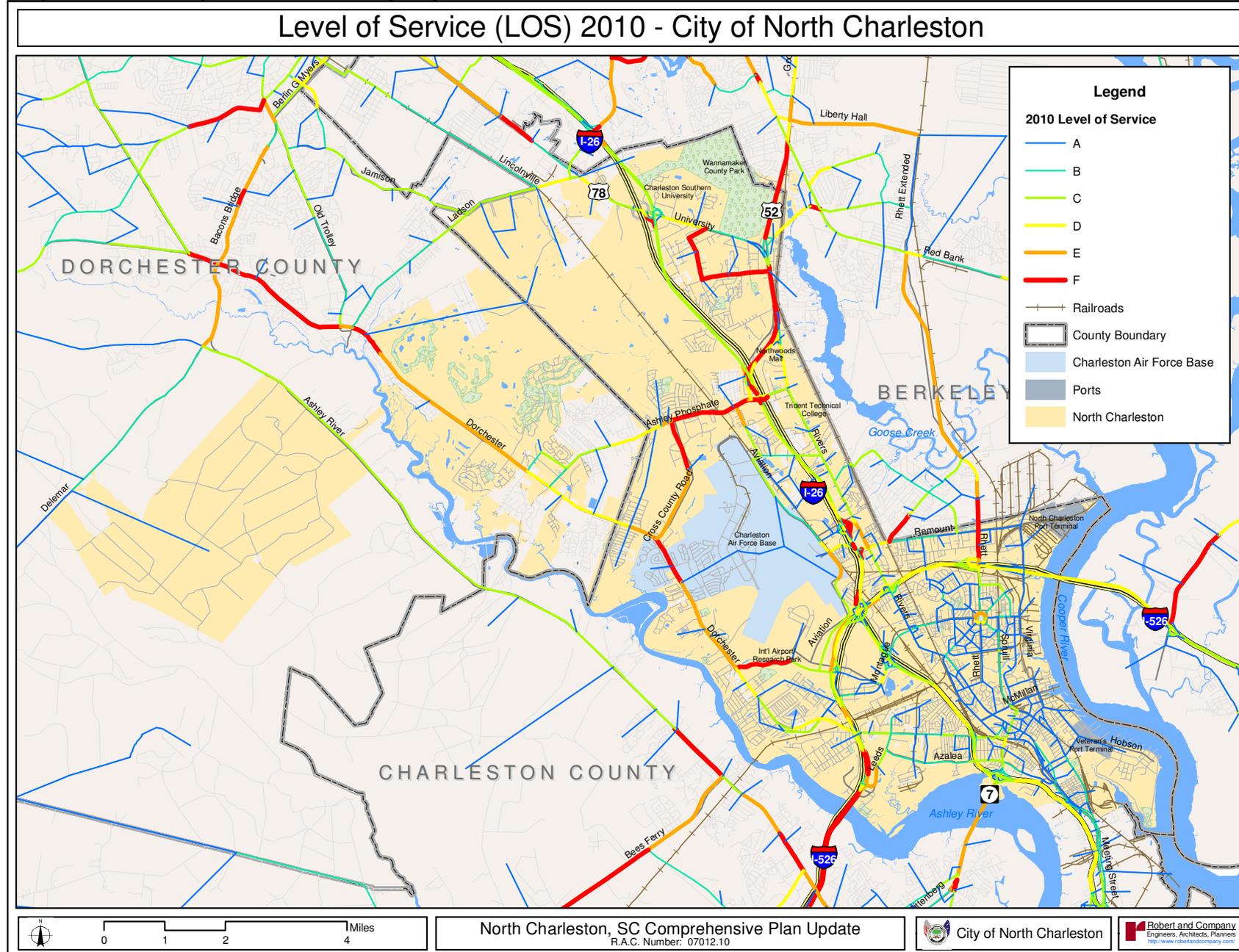
Level of Service F

The 2030 LOS projected in Map 8.10 reflects the anticipated congestion level including the benefits of transportation improvements that have existing or committed funding. Thus, there will likely be additional transportation improvements that will significantly offset many of the increases in projected traffic volume. Indeed, the CHATS long-range transportation study for the Berkeley-Charleston-Dorchester region includes numerous recommended improvements that would significantly improve the LOS of the city's road network.

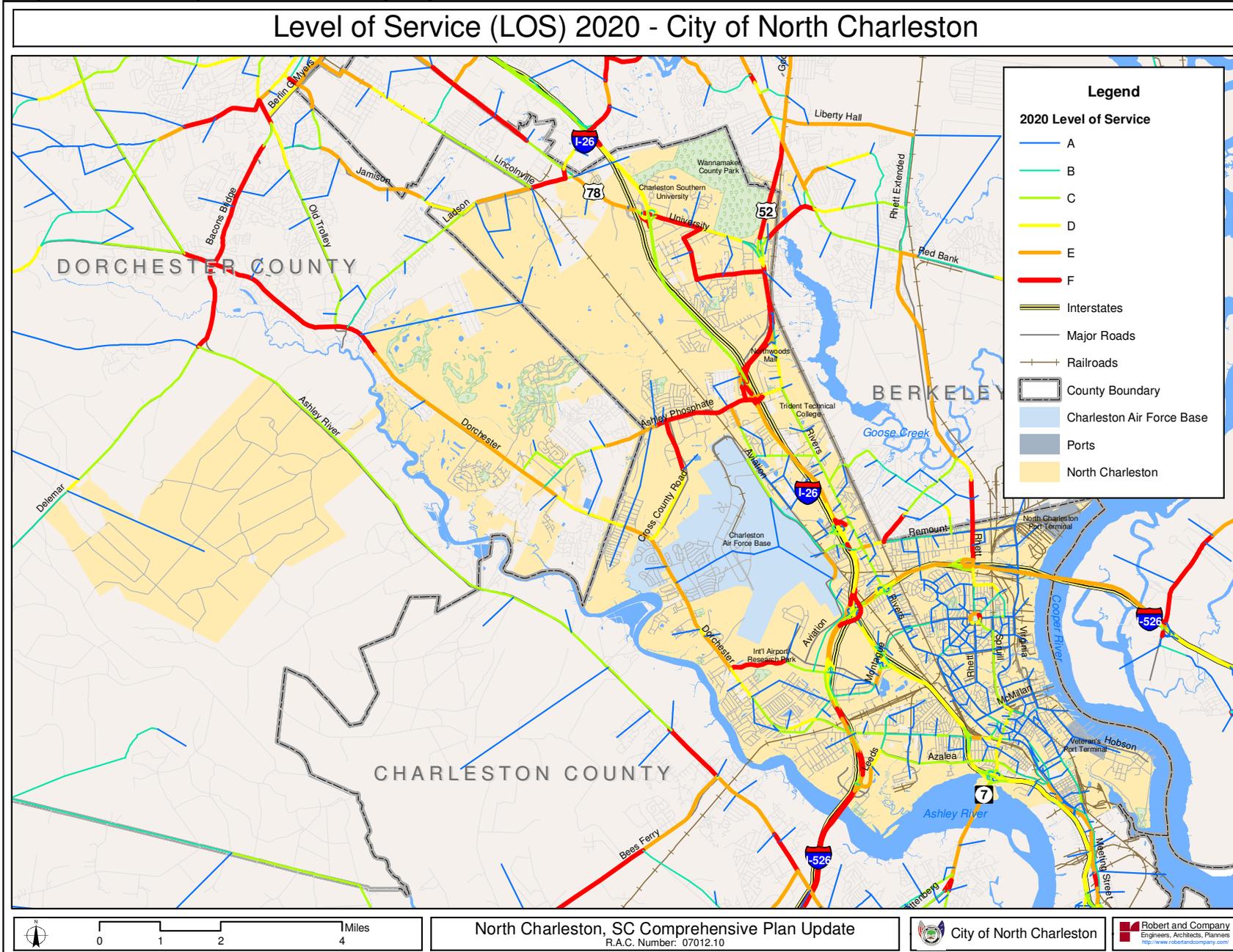
Map 8.6 – Roadway Level of Service (LOS), 2003



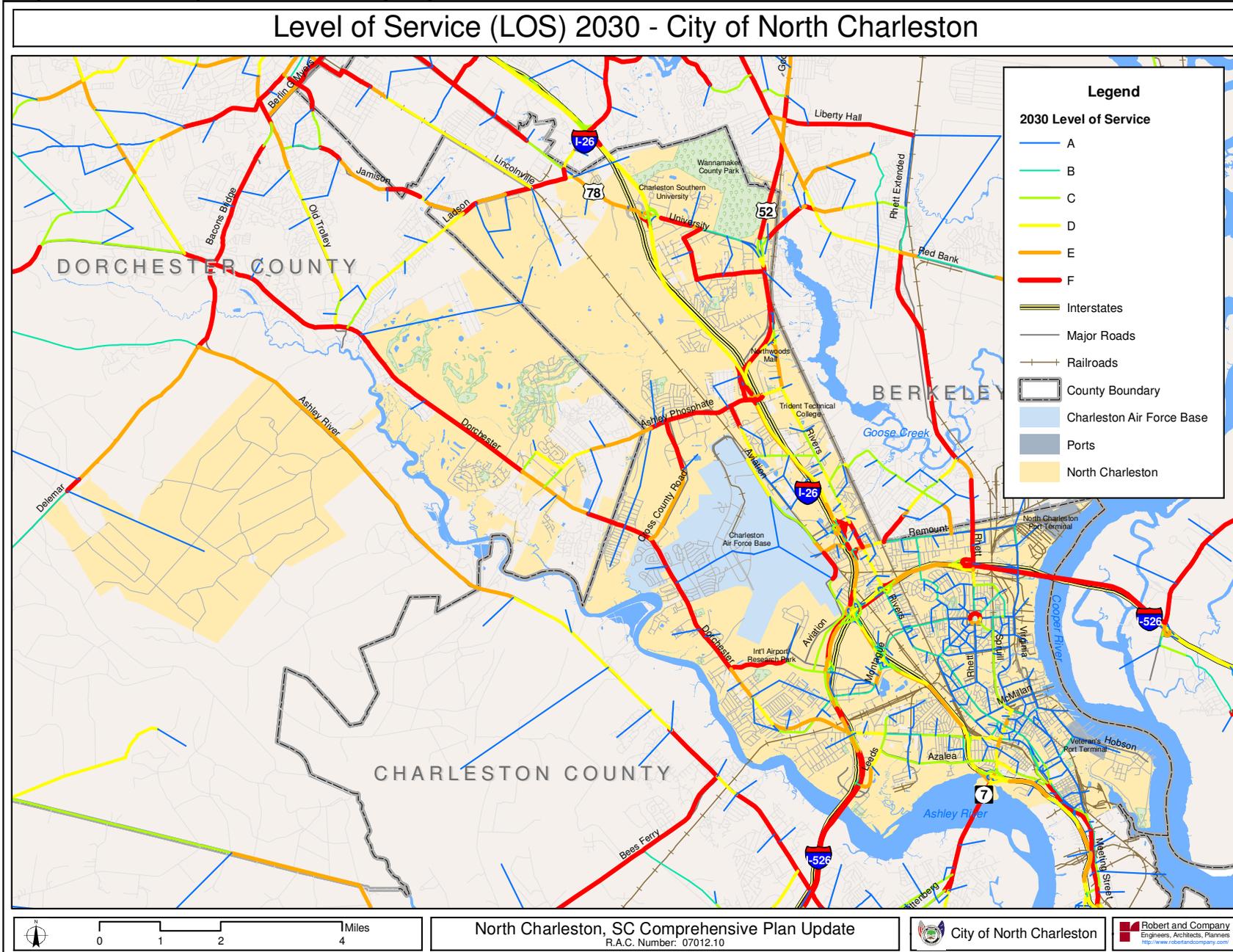
Map 8.7 – Roadway Level of Service (LOS), 2010



Map 8.8 – Roadway Level of Service (LOS), 2020



Map 8.9 – Roadway Level of Service (LOS), 2030



8.3 Public Transportation Facilities

CARTA

Bus transit in North Charleston is provided by CARTA (Charleston Area Regional Transit Authority), which provides bus service to the regions urban areas. CARTA offers several regular bus routes throughout most of the urbanized area of the Charleston region. CARTA also provides an express service route with non-stop service from North Charleston to downtown Charleston. Service originates in a free park-and-ride lot at Super Kmart near North Charleston's Northwoods Mall. This route offers 7 morning pickup and drop-off times, as well as 7 afternoon or evening return trips. The same is true for northbound riders commuting from downtown Charleston to North Charleston. The park-and-ride lot also provides an opportunity for Summerville, Goose Creek, and other regional commuters to drive into North Charleston and ride the express route into Charleston. Map 8.11 shows the current CARTA routes.

Additionally, CARTA also offers a nighttime Flex route service for night workers (service runs from 9:00 pm to 12:40 am). Flex routes serve as a demand-response service within established zones. Flex routes offer rides from any point within the zone to another point within the same zone. Below is a map showing the location of flex routes, along with a more detailed map of zone 1N, which serves North Charleston.

CARTA's Tel-a-Ride service provides curb-to-curb transportation for persons with disabilities. This service is provided to eligible riders to and from anywhere within ¼

miles of any CARTA bus route. All Tel-a-ride vehicles are wheelchair-lift equipped.

Tri-County Link

Tri-County Link, formerly Regional Transit Management Association (RTMA), provides bus services for rural areas of Berkeley, Charleston and Dorchester Counties. Currently, there is just one Tri-County Link route that runs through North Charleston. The Dorchester-305 runs from Moncks Corner through Summerville and into North Charleston. It terminates at the Super K-mart park-and-ride, where riders can transfer to the CARTA express route that runs to downtown Charleston, free of charge. Two new Tri-County Link routes have been proposed and approved for funding, and they should begin service in late summer 2008. This includes a route from the town of St. George and a route from Moncks Corner, both also terminating at the CARTA express route at the Super K-Mart park-and-ride. Maps 8.12 shows the current and future Tri-County Link routes, along with CARTA's express route.

Public Transportation Planning

The future of transit in North Charleston depends largely upon maintaining reliable funding mechanisms to support service expansion. CARTA has been forced to cut back service along several routes due to legal issues surrounding Charleston County's sales tax funding mechanism. The 2002 ballot referendum that approved a ½ cent sales tax to support transit was overturned following a legal challenge. While a subsequent sales tax was eventually passed, financial support for transit remains a key concern. Potential funding outside of

Charleston County should be pursued in order to facilitate regional service.

The "New CARTA Plan" was conducted to plan for transit expansion after a second sales tax funding program was approved. The New CARTA Plan provides an expansion plan for new transit connections, more frequent service, and longer hours of operation. Park and ride lots would be provided at the fringes of the service area to encourage commuters to ride transit. These park and ride lots would include connections to express busses serving major employment centers. Express bus service is planned for peak hours. Additional local and neighborhood routes are proposed utilizing smaller, less intrusive vehicles. Demand-response service may also be provided in lower-density areas that lack the demand for fixed regular routes.

Several strategies for transit service enhancement should be pursued in order to meet North Charleston's transportation needs. Transit should serve both home-to-work trips as well as shopping and recreational trips.

In order to alleviate peak-hour traffic, the primary focus must be on attracting commuters. Park and ride facilities should be expanded in order to attract commuters from outlying areas. Regional express bus service is also important in order for commuters to avoid the frequent stops of local bus routes. Express transit routes should target major employment centers. Next, coordination between CARTA and Tri-County Link must be improved to facilitate transfers between systems. Coordination between these transit systems is especially important for serving commuters who travel across the region. High-

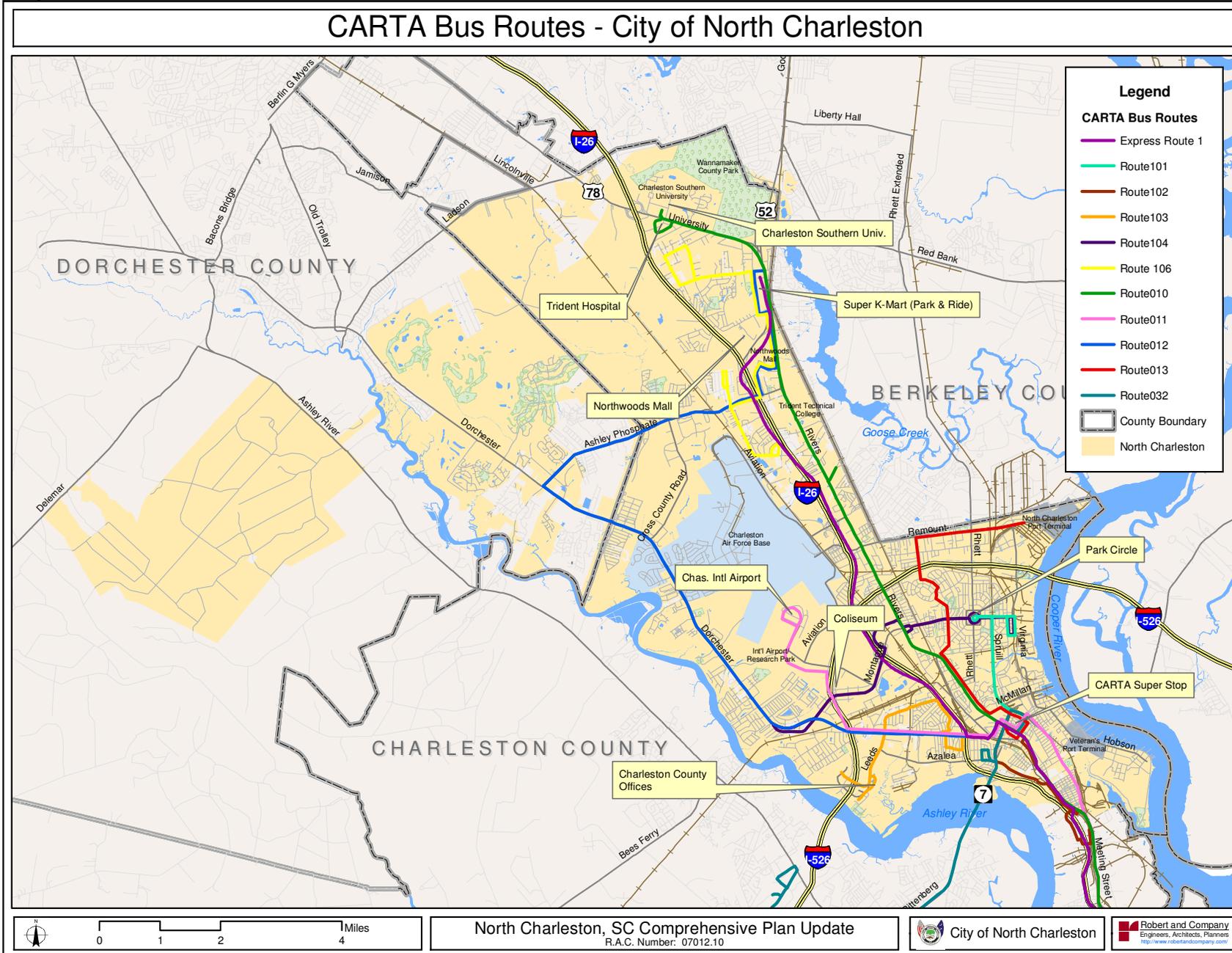
Occupancy Vehicle (HOV) lanes may provide another incentive to ride express transit service.

For lower-density residential areas, smaller vehicles should be utilized in order to minimize the impact on neighborhoods. Demand-response and flexible route systems can also help to provide service to areas that otherwise lack the density to support a regular fixed route. Consistent with the New CARTA Plan, additional SuperStops should be constructed in order to serve as neighborhood transit hubs. These SuperStops provide linkages between express bus systems, local routes, and flexible community-based services.

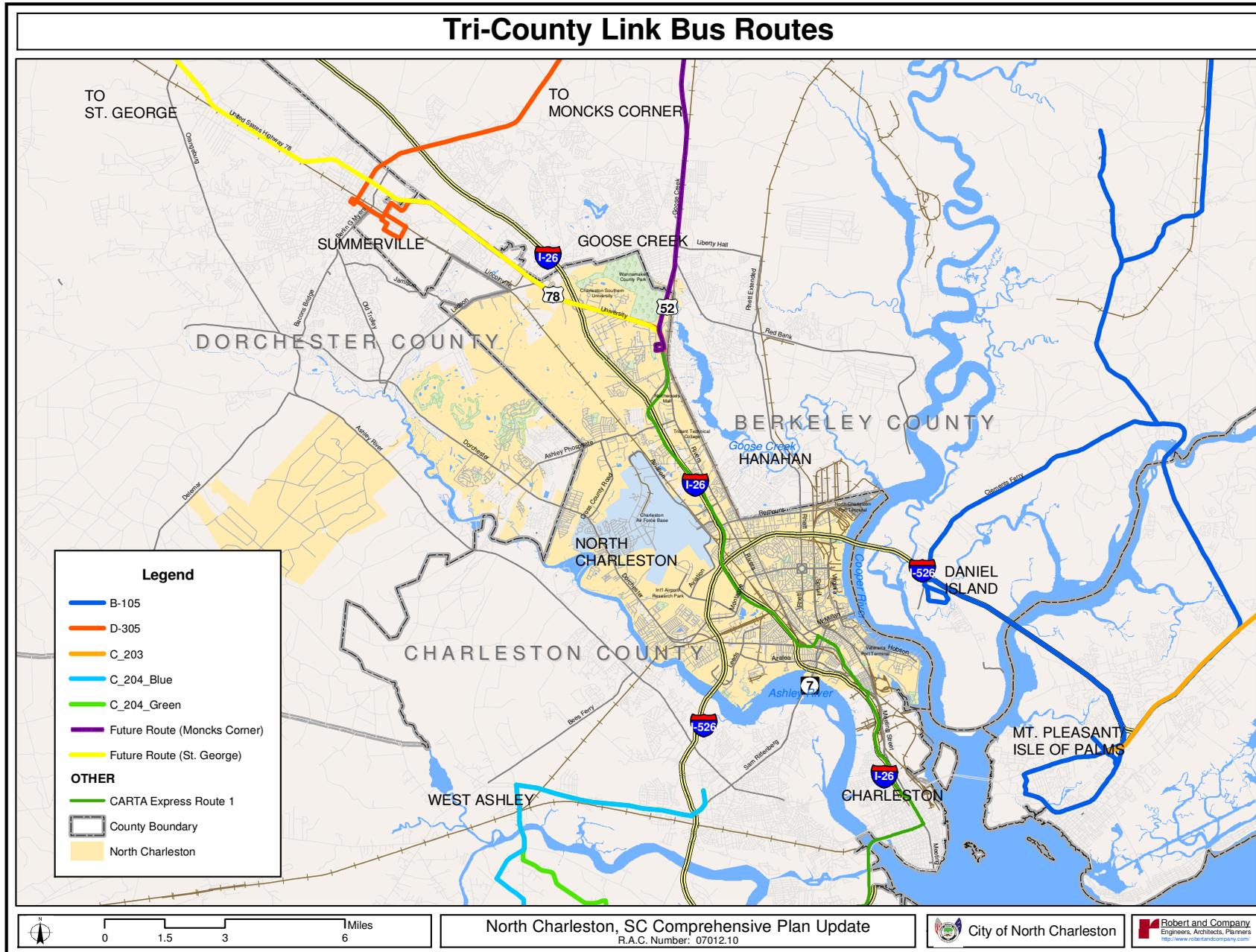
Land Use & Public Transportation

In addition to careful coordination of bus services, land use policies are a key component to reduce vehicular traffic. Public transit is most feasible in areas of dense development that create enough ridership demand. Strategic land use planning will create a pattern of high-density residential, commercial and mixed-use nodes along major transportation corridors that will support transit services. North Charleston should pursue Transit Oriented Development regulations for areas it wishes to increase density with the purpose of supporting transit. This would allow a mix of land use and higher density within walking distances of existing or future transit stops. It would also set requirements for developing pedestrian facilities, such as bus shelters, pedestrian signalization at intersections, and adequate sidewalks.

Map 8.10 – CARTA Bus Routes



Map 8.11 – Tri-County Link Bus Routes



Commuter Rail

A preliminary study released in 2006 for CHATS determined that commuter rail between Charleston and Summerville would be feasible. The proposed commuter rail would use existing operational rail lines running from Summerville, through North Charleston, into downtown Charleston, providing a commuting alternative to highway travel. A new in-depth study is currently under way to further examine a regional commuter rail. An FTA grant of \$450,000 was awarded for this study, along with a 20% local match and original start-up funding provided by Berkeley-Charleston-Dorchester Council of Governments. This study will be an investment-level study, which will examine cost estimates and ridership projections, and will also consider a line running to Moncks Corner, using the CSX rail line that parallels U.S. Highway 52. This study should be complete by early 2009.

When and if Commuter Rail becomes a reality for the BCD Region, North Charleston will certainly be an important part in the planning of stations. The land uses surrounding proposed stations will be a crucial component, so it will be important that high-density, Transit-Oriented Development occurs in conjunction with these stations to ensure a mix of uses and density that is conducive to a successful commuter rail system. The proposed JLUS receiving areas (explained later in this chapter, and in the Land Use Chapter) will allow increases in density to developers that purchase development rights from landholders in other areas. One of the goals of this Transfer of Development Rights program is to create transit-supportive corridors. Two of the proposed receiving areas (Rivers Avenue Receiving

Area and the Multi-modal Receiving Area) are located along rail lines that are part of the Commuter Rail Study, and will help create the type of land use patterns that are ideal for the location of transit stations.



8.4 Bike and Pedestrian Facilities

Biking and walking, as complements to the local transportation system provides numerous personal and societal benefits, both in terms of necessary means of travel, and for recreational opportunities. The personal benefits include healthy exercise and savings in transportation costs. Increased walking and biking also reduces vehicle miles traveled for personal automobiles, which reduces traffic congestion and the need for widening roads; this additionally creates less pollution. Pedestrian and bike activity also help support pedestrian-oriented mixed-use districts and neighborhood commercial establishments, leading to a more vibrant community and increased quality of life. For some residents, biking or walking are primary forms of personal transportation, whether out of desire or necessity. And for others, having facilities present for walking, biking, or both adds a quality of life factor that may determine where a person chooses to live and work. The presence of a network of accessible and well-maintained sidewalks and biking facilities has shown to help a city attract new residents. The public input process for this comprehensive plan update showed a citywide desire for more sidewalks and bicycle or multi-use trails, especially for routes that connect to parks, schools, open space, and other cultural amenities.

Safety for pedestrians and cyclists represents a key challenge, given the high volume of traffic passing through North Charleston's street network. If facilities in the form of sidewalks, trails or bike lanes are not provided, then pedestrians and cyclists are forced to try and share busy roads with automobile traffic, which can

often be dangerous. It is particularly important to ensure that safe routes to schools are provided. Sidewalks, crosswalks, and bicycle lanes are the primary means of ensuring safety. In addition to providing sidewalks and bicycle lanes, dedicated multi-use paths and greenways can provide a means of separating bicycles and pedestrians from vehicular traffic. These multi-use paths are typically 10-foot wide with a 5-foot planted strip between the path and roadway.

Existing Facilities

Existing and proposed sidewalks (by City Council members), and bicycle trails (existing and planned) in the North Charleston area are displayed in Map 8.12. Bicycle and pedestrian facilities serve as an alternative means of transportation that must be accommodated within the roadway environment. Cycling and walking may be the primary mode of transportation for groups such as children without driver's licenses, tourists, the elderly, and those without access to an automobile. In addition to serving as a mode of transportation, bicycle and pedestrian facilities serve as a neighborhood amenity that enhances the quality of life in the city.

Current bike lanes or bike trails:

- ❑ *Ladson Road*. A bike lane is provided on Ladson Road between Dorchester Road and University Boulevard.
- ❑ *University Boulevard*. A bike trail separate from the road exists between Charleston Southern University and the U.S. 52/U.S. 78 interchange.
- ❑ *Wescott Plantation*. A bike trail is provided along Wescott Boulevard from Dorchester Road to the intersection of Patriot Boulevard.

- ❑ *Patriot Boulevard.* A bike trail runs along Patriot Boulevard from Appian Way to Club Course Drive on the newly opened segment of the road.

Future and Proposed Sidewalks and Trails

The city has specific plans to add sidewalks in the following areas:

- ❑ Sidewalk extensions along South Rnett Avenue (CDBG funds)

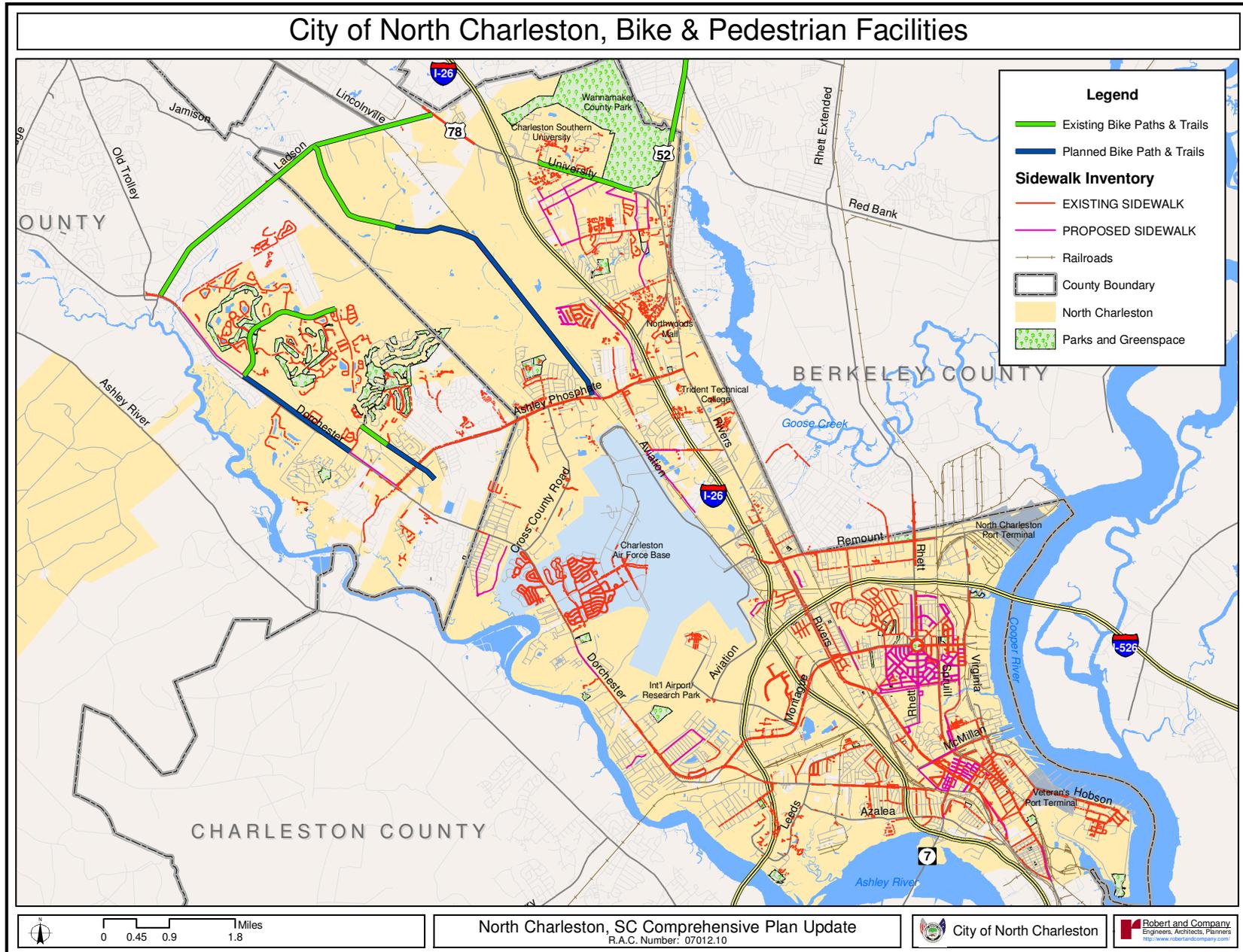
- ❑ Jonah Street (CDBG)
- ❑ Midland Park Road (CDBG)
- ❑ Gaynor Street (CDBG)
- ❑ Gale Street (CDBG)
- ❑ Greenridge Road (Charleston County Road Wise)
- ❑ International Boulevard (RoadWise)

The city also requires developers to build sidewalks for in new developments.

Specific plans for future bike or multi-use trails include:

- ❑ Extension of the current trail along Palmetto Commerce Parkway as the road is extended south to Ashley Phosphate Road in its second phase.
- ❑ A hiker/biker trail along Dorchester Road from Wescott Boulevard to Club Course Drive.
- ❑ A bike trail extending from Appian Way to Association Drive along Patriot Boulevard and Lincoln Boulevard.
- ❑ A bikeway along the Northside Drive extension up to U.S. Highway 78.
- ❑ A hiker-biker trail along East Montague, from Mixson Avenue to the CSX railroad crossing.

Map 8.12 - Bicycle and Pedestrian Facilities



8.5 Bike and Pedestrian Plan

Potential Funding Sources

There are a variety of financing resources available for constructing sidewalks, bike paths, and multi-use trails in North Charleston. This includes funding from federal, state, county and city resources. North Charleston should pursue or continue pursuing opportunities through these sources of funds.

SCDOT Transportation Enhancement Program

Since 1992 the South Carolina Department of Transportation (SCDOT) has allocated a portion of funding towards non-traditional transportation activities and projects via the Transportation Enhancement Program. These non-traditional activities and projects include among other things: streetscaping, scenic or landscaping programs, historic preservation, environmental mitigation, and bicycle and pedestrian facilities. The funds allocated by SCDOT for these projects fall under funds provided by the SAFETEA-LU/ISTEA federal transportation funds. Bike and pedestrian projects that are eligible for Transportation Enhancement funding are:

- ❑ Construction of new sidewalks, separate walking trails/paths, bike paths.
- ❑ Adding and/or modifying bike lanes on existing roadways, and related striping.
- ❑ Adding and/or modifying road shoulders to accommodate bicyclists.
- ❑ Installation of items at intermodal points and vehicular parking facilities such as: bike lockers and racks and facilities for bikes on buses and trains.

The CHATS study area, which is made up of the urban areas of the Berkeley Charleston Dorchester Region receives approximately \$639,000 annually for Transportation Enhancements. CHATS prioritizes regional projects to recommend to SCDOT for funding each year. Each project can receive up to \$200,000 with a local match.

Recreational Trails Program

The Recreational Trails Program (RTP) is a federally funded program administered by the Federal Highway Administration to build or improve trails. Applications for funding are administered through the South Carolina Department of Parks, Recreation and Tourism. Local governments are eligible, and funds are allocated on an annual grant cycle. The grant's funds are a minimum of \$10,000 and a maximum of \$100,000, and are reimbursable with a 20% local match.

Rails to Trails

The national Rails to Trails non-profit organization is not a funding program, but it provides technical assistance, public information, and local activism for converting abandoned railroad lines into usable trails.

Charleston County Roadwise

RoadWise is a county transportation-funding program that draws from a half-cent local sales tax. The program began in May 2005, and will run for 25 years or conclude after a total investment of \$1.3 billion. The program is separated into two programs- one for funding transportation projects, and the other for green space acquisition. Transportation projects will account for the majority (approximately 83%) of the \$1.3 billion in tax revenues. A total of \$500,000 per year is available specifically for pedestrian or bicycle facilities.

Tax-Increment Financing

TIFs are in place for four areas of the city: City Center, Noisette Community, the Former Naval Base, and Ashley Center. TIF funds can only be utilized within the designated districts, so they would not be able to fund long, citywide trails; however, the tax revenues within these districts could certainly be used to provide local sidewalks and small neighborhood trails.

Community Development Block Grants (CDBG)

Community Development Block Grants are funded through the U.S. Department of Housing and Urban Development, and are primarily used to assist local governments in providing affordable housing. The CDBG program also funds community facilities and community infrastructure, including sidewalks. Several of North Charleston's recent sidewalk construction projects have been funded through the use of Block Grants.

General Funds & Taxes

Some funding for sidewalks and other pedestrian facilities come from the city's general funds. The city could set aside a portion of its annual budget towards construction of bike trails and sidewalk improvements, and designate a specific portion towards providing local matches for state and national grants.

If enough local support is evident, the city might also consider holding a vote for a small local sales tax (half-cent or smaller) for funding improvements or providing leverage money. This would assure funding for North Charleston projects, rather than competing with other local governments.

Future Sidewalk Planning

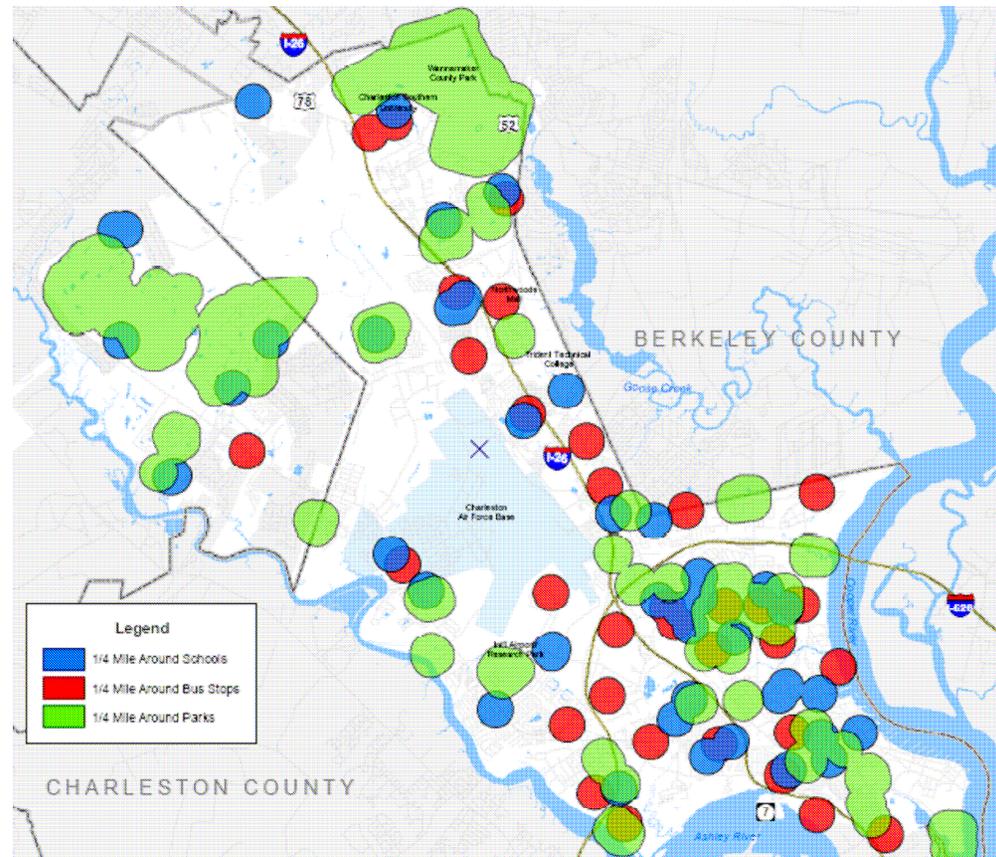
There are many gaps in the sidewalk network currently. It is not necessary that there be sidewalks on every street in the city – there are several areas (including industrial areas) that pedestrians simply are unlikely to want to walk to. However, there are numerous areas of the city where there is heavy foot traffic and the pedestrian facilities are either non-existent or inadequate. Other areas that lack adequate pedestrian facilities may see an increase in foot traffic if these facilities are provided. Prioritization should be made as to where sidewalks or trails should be added to accommodate the community's needs.

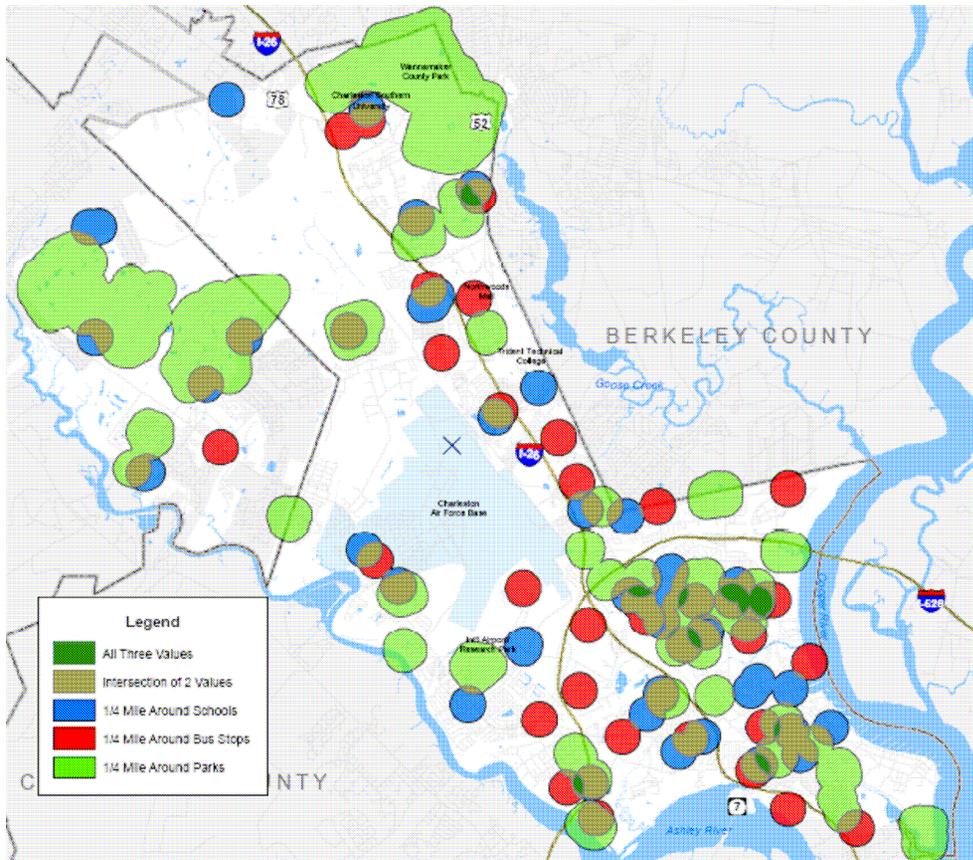
Priorities for Sidewalks:

- ❑ **Sidewalks Near Schools.** Not every school-aged child rides a bus to school. For kids that live near their school and walk to school, they must have a safe place to travel. Areas within ¼ mile of schools should be the highest priority for sidewalk improvements – ¼ mile is generally estimate as a 5-minute walk, a distance that people will usually choose to walk.
- ❑ **Transit Stops or Stations.** For those who do not own cars or choose to use public transportation, sidewalks leading to bus stops or transit stations are necessary for safe pedestrian travel.
- ❑ **Sidewalks Near Parks.** People are likely to walk to parks if they are located within a short walking distance (5-minute walk from a park).
- ❑ **Commercial Corridors.** Those who do not own cars will walk to commercial areas for their service needs, as well as some who enjoy walking from their home to retail or restaurants. Areas with a lot of foot traffic and inadequate pedestrian walkways should be a high priority for sidewalk investment.
- ❑ **Residential Areas.** People tend to take walks departing from their homes, either for exercise or for necessity. Because developers are required to construct sidewalks for new projects, and residential streets are often safe enough to walk down without sidewalks, residential areas are not as high of a priority. However, the city should identify residential areas that pose safety threats to pedestrians and target these areas for sidewalk improvements.

Parks, schools, retail, transit stops, and job centers are the most likely generators of pedestrian activity. Concentrated job centers are already likely to have bus stops nearby – the same can be said of retail centers. Additionally, the majority of shopping centers in North Charleston are auto-oriented. For these reasons, schools parks and bus stops were given highest priority in assessing sidewalk needs. Bus stops primarily serve populations that do not own automobiles. Some riders are choice riders, but the majority of riders use bus transit as their primary means of transportation, and thus need adequate sidewalks for mobility to and from stops. Students that live within a close distance of their school will likely walk to school rather than taking a bus – adequate sidewalks are needed to provide safe walks for kids to and from school. Parks are used for recreation and outdoor enjoyment, and patrons will often choose to walk or jog to a park, rather than drive there. Provision of sidewalks to and from parks will increase pedestrian safety, and often will increase use of the park as well.

A comfortable walking distance measure typically used in transportation planning is a 5-minute walk for a one-way trip. For the average person, this is approximately 1/4 mile, and this measure is commonly referred to as a pedestrian shed, or 'pedshed.' Quarter mile pedsheds were generated for North Charleston's schools, parks, and bus stops using GIS. The image shown here shows these radial pedsheds. Several schools are located next to other schools, so their pedsheds combine into a larger continuous pedshed in some cases.





In several areas, pedsheds of different categories (schools, parks, stops) intersect each other; and in some areas, all three types intersect. Areas of intersection are going to have the highest likelihood of generating high-priority pedestrian activity. The image to the left shows where two or more categories intersect, and where all three intersect. Areas where two or three types of pedsheds overlap, and where there are a lack of sidewalks, especially along arterials or collector streets, should be the top priority for new sidewalk construction.

Just at a quick glance, the map image shows large conglomerations of different types of pedestrian sheds form in the Park Circle area, especially close to Montague Avenue; the triangle formed by Cosgrove Avenue, Rivers Avenue and McMillan Blvd.; the Bridgeview and Faber Place office districts, and Northwoods Mall. Pedestrian sheds also line Remount Road, Rivers Avenue, and Dorchester Road at various concentrations along their routes.

For the future provision of sidewalk projects, major roads (arterials, collectors) within the pedshed areas, and connecting nearby pedshed areas should be identified, and where those roads are missing sidewalks, or have several disconnections of sidewalks, these should be targets for the addition of sidewalks. Major roads should take priority over neighborhood streets, because they will be the most heavily traveled by pedestrians, and higher speed limits will produce greater necessity to add sidewalks for pedestrian safety.

The city produced a GIS file of existing sidewalks, so this was used along with the street file to overlay with the previously shown pedsheds. The following is a list, by planning area of recommended sidewalk improvements that should be implemented over the next 5-10 years, based on the prioritization method noted above. In addition to this list, secondary

roads and streets within the pedestrian sheds shown on the previous maps and on Map 8.13 should be targeted for construction in the long-term (beyond the next 10 years).

Planning Area 1

- ❑ **South Rhett Avenue/Helm St., between Bexley Street and Rivers Avenue.** Rhett is an arterial; sidewalks will provide access between Park Circle and Rivers Avenue, with several nearby schools and a CARTA bus stop.
- ❑ **Noisette Blvd (Avenue D) between Virginia and Turnbull Avenue.** Provides a link to heavily walked East Montague district and the developing Navy Yard at Noisette.
- ❑ **Everglades Drive, from Avenue D to Riverfront Park.** Links Riverfront Park to the Storehouse Row area, which is within several school pedestrian sheds.
- ❑ **North Rhett, from Sumner Street to Sherwood Street.** Closes a gap in sidewalk connection along an arterial road.
- ❑ **Meeting Street, from Cosgrove Ave. to Carner Avenue.** Provides a pedestrian route in an area with several schools, bus stops, and neighborhoods that lack sidewalks.
- ❑ **Gaynor Avenue and Gale Street.** These are already funded by Charleston County tax funds.
- ❑ **Remount Road, from Lorraine Drive to Port of Embarkation.** Provides pedestrian access between CARTA stops and to Westvaco Park.
- ❑ **Virginia Avenue, from Mark Clark to Remount Road.** Completes sidewalk connectivity where partial sidewalks exist, and links Hendricks Park to a CARTA stop.
- ❑ **Rivers Avenue, from Aviation Ave. to Ashley Phosphate Road.** Rivers is a principal arterial that provides the only continuous link from the south part of the city to the north, east of the AFB. It also is a commercial corridor with several schools and bus stops located along or near this segment of the road.
- ❑ **Hanahan Road.** This will provide facilities for CARTA users and for the Trident One-Stop Career center.
- ❑ **Raymond Avenue.** Accommodates a combined school and bus stop pedestrian shed.
- ❑ **Maybeline Road.** Provides pedestrian safety for Trident Tech students, and pedestrian access to City of Hanahan.
- ❑ **Stall Road, from Fassett Road to Midland Park Road.** This would complete connectivity along Stall Road, which is a go between for two CARTA stops and a school.

Planning Area 2

- ❑ **International Blvd., from Lowcountry Graduate Center to Montague Avenue.** Provides pedestrian access for Lowcountry Graduate Center students and shoppers at Centre Pointe shopping district. It also provides a pedestrian route for several CARTA bus stops.

- ❑ **International Blvd., from Lowcountry Graduate Center to Charleston International Airport.** Provides a pedestrian link to the Airport from Lowcountry Graduate Center and the hotels at Centre Pointe. It also links the airport CARTA stop to the Graduate Center.
- ❑ **Leeds Ave, from Dorchester Road to Cummings Engine Plant.** Provides pedestrian facility links for three CARTA stops, Charleston County offices, Faber Place offices, and Southern Wesleyan University
- ❑ **Mall Drive, City Hall to Rivers Avenue.** Provides pedestrian access for Boykin Academy, City Hall, Rivers Avenue retail, and two CARTA stops
- ❑ **Bridge View Drive.** Provides links to a CARTA stop from the various County office buildings, and for access to the marina and park on the Ashley River.
- ❑ **Dorchester Road, from Great Oaks to Lambs Road.** Closes sidewalk gaps along Dorchester Road, the only principal arterial and continuous route on the west side of the city.
- ❑ **Dorchester Road, from Paramount Drive to Veneer.** This provides a continuous sidewalk along Dorchester. It also need for CARTA stop at the corner of Lees and Dorchester Road.
- ❑ **Baker Hospital Drive to Azalea Avenue.** Provides the only potential pedestrian link between the housing and offices in this area to the rest of the city. This will increase in importance as the Ashley River Center develops.

Planning Area 3

- ❑ **Dorchester Road, from Ashley Phosphate Road to Old Fort Road.** Provides a needed arterial route along Dorchester Road.
- ❑ **Appian Way, from Dorchester Road to Ft. Dorchester High School.** Provides safe pedestrian travel to and from the high school.
- ❑ **Patriot Blvd, from Appian Way to Ashley Phosphate.** Helps provide access to Ft. Dorchester High School, shopping areas, and a CARTA bus stop.
- ❑ **Appian Way, from Dorchester Road to schools (Eagle's Nest/River Oaks).** Provides safe pedestrian access to and from the two new schools.
- ❑ **Windsor Hill/Plantation Blvd.** Provides safe pedestrian travel to and from Windsors Hill Elementary.
- ❑ **Dorchester Road, from Maryland Avenue to Ashley Phosphate Road.** Closes sidewalk gaps along Dorchester Road.

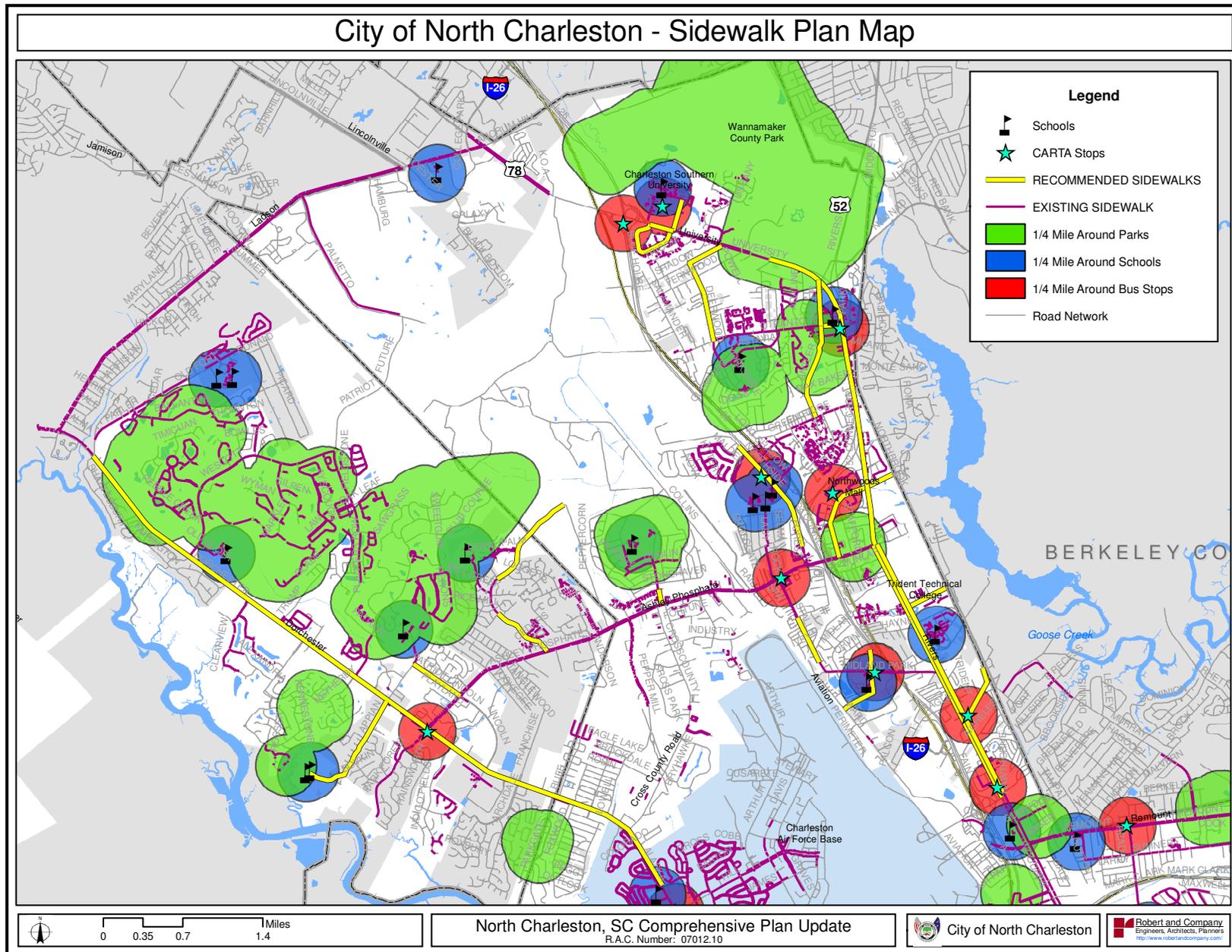
Planning Area 4

- ❑ **Medical Plaza Drive.** Provides pedestrian facilities for patients and employees of Trident hospital and associated doctors offices, as well as the nearby CARTA stop.
- ❑ **University Boulevard, between Charleston Southern Univ. and Trident Medical Center.** Provides pedestrian access around Charleston Southern University and the local CARTA stop.

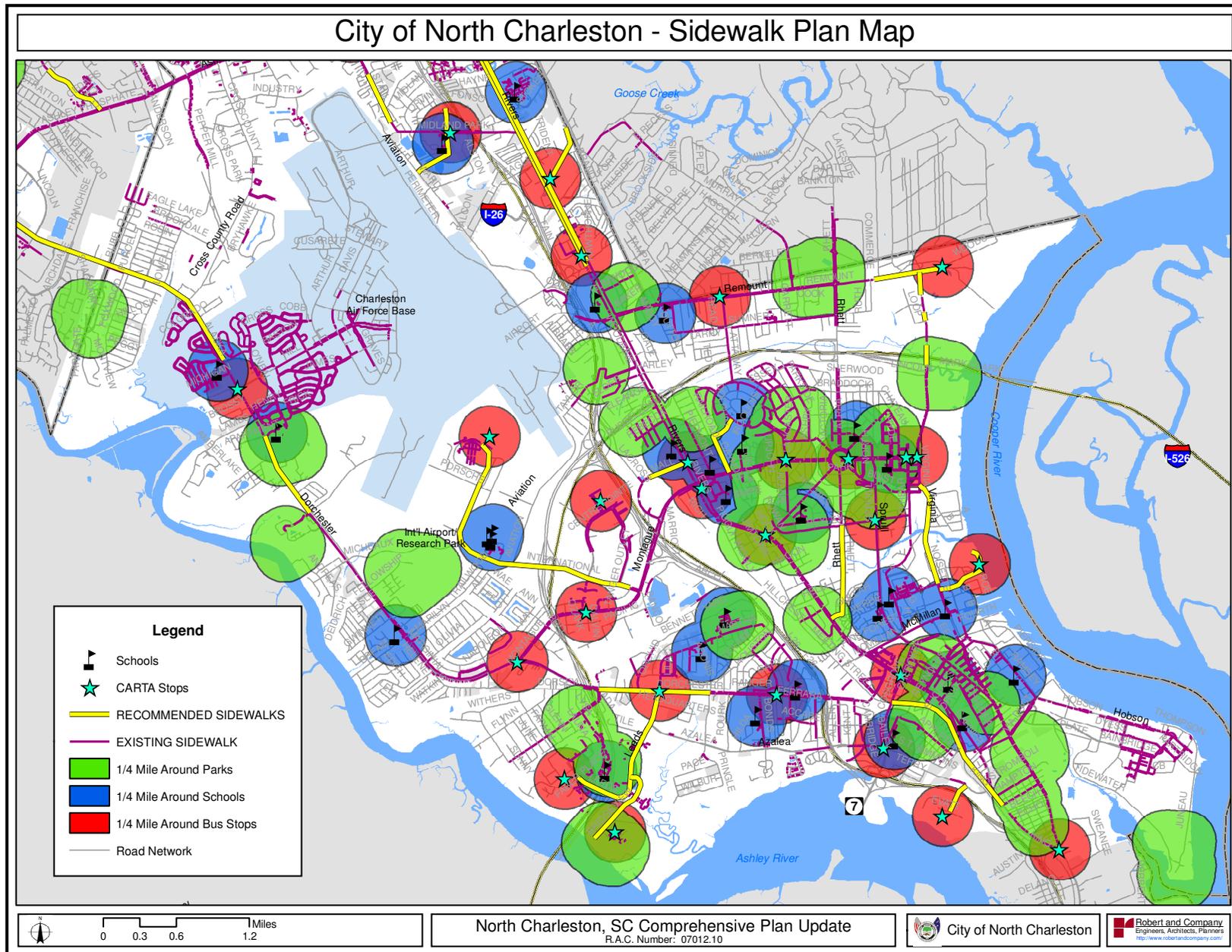
- ❑ **Otranto Road, from Antler Drive to Rivers Avenue.** Completes Otranto sidewalks to Rivers Avenue, providing pedestrian links for CARTA riders, Northwoods Academy, and local neighborhoods and parks.
- ❑ **Greenridge Road, from Crossroads Drive to Deerwood Drive.** New sidewalks are planned and funded for Greenridge Drive
- ❑ **Antler Drive.** Provides facilities for CARTA users, use of local parks, and Northwoods Academy.
- ❑ **University Blvd., from Gable Street to 52/78.** Provides pedestrian access to Wannamaker Park and down Rivers Ave. towards Northwoods Mall.
- ❑ **Rivers Avenue, from 52/78 to Ashley Phosphate Road.** Provides access between shopping areas and CARTA stops. It also links Northwoods to Wannamaker Park and towards the City of Goose Creek.
- ❑ **Northwoods Boulevard & Eagle Landing Boulevard.** Provides access between shopping areas and CARTA stops.
- ❑ **Brandywine Rd., from Stonehaven Drive to Ashley Phosphate Road.** Provides a safe pedestrian route to Pepperhill Elementary.
- ❑ **Northside Drive, from Colony North Subdivision to Ashley Phosphate Road.** Provides facilities for CARTA stops, Stall High School, Birney Middle School and Northside Christian Academy.
- ❑ **Shadow Lane & Deerwood Drive.** These two roads have a Level of Service of F, and they provide needed access from several neighborhoods to Charleston Southern Univ., Trident Hospital and Wannamaker County Park.

The Maps on the next two pages (Maps 8.13 and 8.14) show the locations of these proposed sidewalk projects, existing sidewalks, CARTA stops and pedsheds, schools and their pedsheds, and parks pedsheds.

Map 8.13 – Sidewalk Plan Map (North)



Map 8.14 – Sidewalk Plan Map (South)



Trails and Bicycle Facility Planning

Priorities for Bike or Multi Use (Hiker-Biker) Trails:

- ❑ **Project Tie-ins.** Adding a trail to an existing infrastructure projects in most cases will be easier and less expensive than constructing a new, stand-alone trail. Trails that can be built in conjunction with planned transportation projects, such as new roads or streetscape projects should be the highest priority.
- ❑ **Connective Network.** A trail that leads to another trail (rather than a dead end) will be used more frequently. High priority should be given to trails that extend or connect to existing trails within the city, and especially to regional networks or trails in other municipalities.
- ❑ **Connect to destinations.** Trails should carry people to and from places that they want to go – this includes parks, community centers, scenic vistas, schools, libraries, and concentrated retail or restaurants. People who choose to be active and use parks or recreation areas enjoy the ability to walk or bike to these facilities, and scenic areas add to the walking or biking experience, increasing the likelihood of a trail's use. North Charleston's wetland and tidal stream areas provide an excellent opportunity for trail usage.
- ❑ **Abandoned railroad tracks.** Unused railroad lines should be acquired for conversion into trails. Railroad lines provide a previously established linear right-of-way that should be utilized rather than sitting vacant.
- ❑ **Readily available funding.** Areas where funding mechanisms are in place, or areas that are likely to receive improvement or infrastructure grants are good candidates for trail construction. This could include TIF districts or CDBG-funded areas.
- ❑ **Part of the Urban Fabric.** Trails should utilize the natural beauty of parks and open space, but they should also be part of the urban fabric. Highly populated areas will create a higher demand for trails and ensure that they are being used. Additionally, trails that are highly visible from the public eye make potential users feel safer. This safety aspect can be especially important for generating more use amongst females.

Proposed Paths and Trails – South End

Based on the previously mentioned criteria, the following is a list of proposed bike path or multi-use (hiker-biker) trail segments for the southern half of North Charleston:

1. **East Montague** – A trail from Park Circle to Liberty Hill on East Montague is planned – this should extend to I-26 to give access to the Mall Drive area, and eventually connect across to trails in City Center.
2. **West Montague** – A West Montague trail would connect the future intermodal center, the City Center area, Liberty Hill, and Park Circle. Trails could be accommodated as part of the eventual streetscape projects for Montague Avenue.
3. **Horizon Village** – A trail running from Horizon Village through the Noisette Creek Preserve would create a recreational opportunity for the community's new residents.
4. **Michaux Promenade** – Another trail proposed by the Noisette Master Plan, this trail and greenway would convert an abandoned rail line and run along the north edge of the Noisette Creek Preserve.
5. **Danny Jones & Quarterman's Park** – A path through Danny Jones recreational complex could link Park Circle to Danny Jones, Oak Terrace Preserve, and beyond to Filbin Creek. A trail through Quarterman Park could link Park Circle to Spruill Avenue and the Noisette Navy Yard District.
6. **Cosgrove** – A path along Cosgrove Avenue would provide a link between North Charleston and West Ashley via the North Bridge, and could connect to trails within the Noisette Community.
7. **Spruill Ave.** – A trail running south down Spruill Avenue to the southern boundary of the city Meeting Street could help provide a link to downtown Charleston and provide a safe path in a heavily used area of bike and pedestrian activity. A spur off this trail to Stromboli Rd. could help promote trail use in this redevelopment area.
8. **Noisette Blvd.** – A trail linking the Noisette Navy Yard to Virginia Avenue and Park Circle would run through the Noisette Creek Preserve.
9. **Filbin Creek** – A trail along Filbin Creek would provide a scenic route and could connect to the Cooper River park off of Virginia Avenue.
10. **Spruill Rail** – A trail could be built along Spruill Avenue using an abandoned railroad corridor. This trail is proposed as part of the Noisette Master Plan.
11. **South Aviation** – A trail around South Aviation Avenue could provide an alternate access route to the north end of the city, particularly if Palmetto Commerce Parkway is extended south from Ashley Phosphate Road to Aviation.
12. **Dorchester Road** – Construct a bike path along Dorchester Road from the county line to Rivers Avenue. This path will provide bikeability along the west side of the city, connecting the south end and north ends of North Charleston.
13. **Michaux Parkway** – This trail follows Michaux Parkway, a scenic roadway with vegetative buffers along both sides, and then runs down International Boulevard to the City Center area. This trail connects Dorchester Road to South Aviation and West Montague.

*The map on the following page, Map 8.15 shows these proposed routes:

Map 8.15 Proposed Bike Trail and Path Segments, South

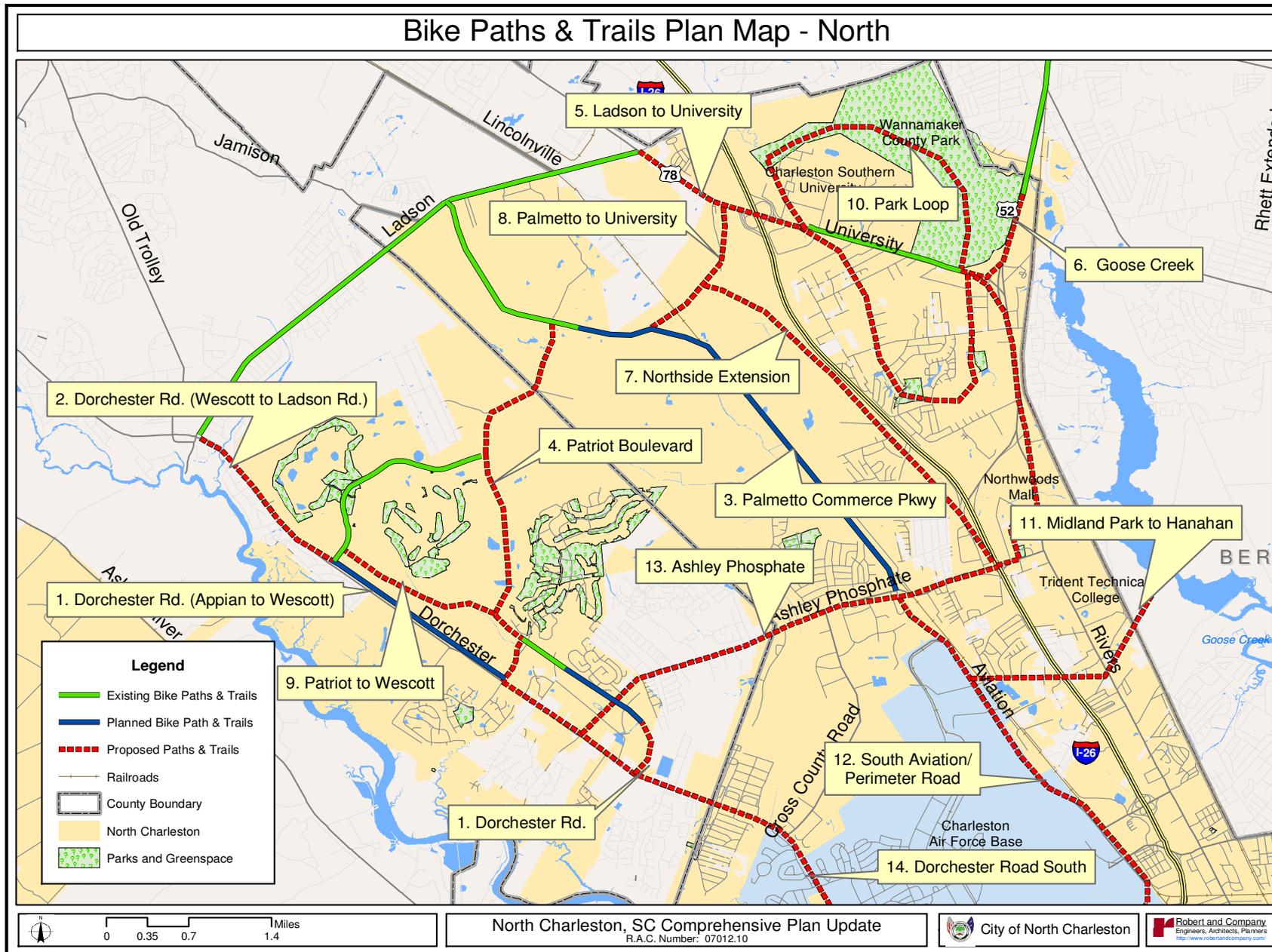


The proposed paths or trails for the northern half of the city are:

1. **Dorchester Rd. (Appian Way to Wescott)** – Complete the planned Dorchester Rd. hiker-biker trail.
2. **Dorchester Rd. (Wescott to Ladson)** - Extend the planned Dorchester Road hiker-biker trail to link up with the existing bike lanes along Ladson Road.
3. **Palmetto Commerce Parkway** – Complete the trail planned for the Palmetto Commerce Parkway extension.
4. **Patriot Boulevard & Appian** – Continue trails up Patriot Boulevard, to Palmetto Commerce Parkway. This would link existing trails on Wescott Boulevard, Palmetto Commerce Parkway, and Patriot Boulevard. Tie this into Dorchester Road via a spur trail on or near Appian Way.
5. **Ladson to University** – Extend the existing path on University Boulevard towards Ladson Road to link up with its existing bike lane.
6. **Goose Creek** – provides a continuous trail from University Boulevard up Highway 52 to provide a link to Goose Creek.
7. **Northside Extension** – Use the planned extension of Northside Road as an opportunity to provide a bike trail linking Northside with Palmetto Commerce Parkway and University Boulevard, providing recreational opportunities for Ingleside Plantation.
8. **Palmetto to University** – A connecting road is planned to connect the Northside Extension, Palmetto Commerce Parkway, and University Boulevard – bike facilities should be provided along this road.
9. **Patriot to Wescott** – Use a trail to connect Patriot Boulevard to Wescott Boulevard, running through the planned new park behind the Dorchester Road fire station.
10. **Park Loop** – A trail running through Wannamaker County Park could connect through Charleston Southern University to link up to the existing bike trail along University Boulevard. On the other side of University, a loop could be completed that would run through Deerpark and The Lakes, connecting to existing parks.
11. **Midland Park** – A trail down Midland Park Road, running through the edge of Trident Tech's campus could provide a trail link to the City of Hanahan, and would connect to South Aviation Avenue.
12. **South Aviation/Perimeter Road** - The trail proposed along South Aviation in the previous section should extend to Ashley Phosphate Road where Palmetto Commerce Parkway Phase II will terminate.
13. **Ashley Phosphate Road** – Providing bike facilities along Ashley Phosphate would provide a valuable east-west trail route, and would connect with several of the other proposed trails.
14. **Dorchester Road South** – Continue the planned Dorchester hiker-biker trail south towards Montague to the south end of the city.

The map on the following page, Map 8.16, shows these proposed routes:

Map 8.16 - Proposed Bike Trail and Path Segments, North



The following table lists the previously identified trails that should be implemented during the next five years (2008-2012) and the following five years (2013-2017), as well as other long-term trails that should be implemented beyond 2017 to help complete a citywide network of connected trails. The following bullets provide brief explanations of why these projects were chosen for the first 5 years over the other projects:

- ❑ Dorchester Road from Appian to Wescott is already planned and funded.
- ❑ Dorchester Road to Ladson provides connectivity to existing facilities on Ladson Road.
- ❑ The Palmetto Commerce Parkway extension (begins construction in 2008) will include a trail as part of the projected.
- ❑ University Boulevard extends an existing trail to link with other facilities.
- ❑ East Montague provides a trail in conjunction with a planned streetscape project within the next 5 years.
- ❑ Patriot Blvd/Lincoln Parkway is a planned trail. Northside Drive and Northside-Palmetto connector provide trails along with a planned road projects (2009-2011), and down the existing portion of Northside Drive.

Table 8.5.1 – Trail Implementation (2008-2012)

Trail	Approximate Length (feet)	Estimated Cost (low)	Estimated Cost (high)	Potential Funding Source(s)
Dorchester Road (Appian to Wescott)	9,250	\$370,000	\$925,000	City Funds/Grants
Dorchester Road (Wescott to Ladson)	8,350	\$334,000	\$835,000	City Funds/Grants
Palmetto Commerce Extension	20,500	\$820,000	\$2,050,000	County Roadwise tax
Patriot Blvd (Wescott to Palmetto)	7,700	\$308,000	\$770,000	City Funds/Grants
University Blvd	12,900	\$516,000	\$1,290,000	City Funds/Grants
East Montague Ave. (I-26 to Park Circle)	8,900	\$356,000	\$890,000	City Funds/Grants
Patriot Blvd./Lincoln Parkway	6,700	\$268,000	\$670,000	City Funds/Grants
Northside Drive	18,800	\$752,000	\$1,880,000	County Roadwise tax
Northside/Palmetto/University Connector	6,500	\$260,000	\$650,000	County Roadwise Tax
Patriot Boulevard (Appian to Wescott)	7,700	\$308,000	\$770,000	City Funds/Grants
TOTAL	107,300	\$4,292,000	\$10,730,000	
Annual Average	21,460	\$858,400	\$2,146,000	

The next table shows trail projects for 2013 through 2017. Whereas the trails chosen for the first 5 years (2008-2012) were chosen to connect existing trails and to dovetail into planned road projects, the trails chosen for the next 5 years were selected because they connect major activity centers, parks or emerging centers of development.

Table 8.5.2 - Trail Implementation (2013-2017)

Trail	Approximate Length (ft.)	Estimated Cost (low)	Estimated Cost (high)	Potential Funding Source(s)
West Montague Ave. (Dorchester to I-26)	9,300	\$372,000	\$930,000	City Center TIF
International Blvd. (Graduate Center to Montague)	7,800	\$312,000	\$780,000	City Center TIF
Horizon Village/ Noisette Creek	4,100	\$164,000	\$410,000	Noisette Creek Preserve
Michaux Promenade	7,700	\$308,000	\$770,000	Noisette Creek Preserve
Rivers (52/78 Interchange to Northwoods Mall)	13,500	\$540,000	\$1,350,000	City Funds/Grants
Patriot Blvd. To Ft. Dorchester Elementary (via new city park)	7,600	\$304,000	\$760,000	City Funds/Grants
Oak Terrace to Virginia Via Park Circle	9,500	\$380,000	\$950,000	City Funds/TIF
Cosgrove (Hobson to North Bridge)	8,600	\$344,000	\$860,000	City Funds/TIF
Spruill Ave & Stromboli Street	10,800	\$432,000	\$1,080,000	CDBG/city funds
Noisette Blvd. (Virginia to Cosgrove)	6,100	\$244,000	\$610,000	TIF
Filbin Creek	9,200	\$368,000	\$920,000	City Funds/TIF
Spruill Rail corridor (Hanahan to Cosgrove)	17,500	\$700,000	\$1,750,000	City Funds/TIF
TOTAL	111,700	4,468,000	\$11,170,000	
Annual Average	22,340	\$893,600	\$2,234,000	

The last trail table shows other recommended trail projects that should be implemented in order to produce an effective, connected network of trails throughout North Charleston. The previously listed trails help create area wide trail networks – the trails listed in Table 8.5.3 includes longer trails along major arterials that will create a full network of citywide trail connectivity. The Michaux Parkway trail listed below would be eliminated if the proposed runway extension of Runway 3 at Charleston International Airport were constructed.

Table 8.5.3 – Long-Term Trail Implementation (Beyond 2017)

Trail	Approximate Length (ft.)	Estimated Cost (low)	Estimated Cost (high)	Potential Funding Source(s)
University Loop (north)	17,200	\$688,000	\$1,720,000	TBD
University Loop (south)	18,500	\$740,000	\$1,850,000	TBD
Dorchester Road (Appian to Montague)	37,600	\$1,504,000	\$3,760,000	TBD
Spartan South to International via Aviation	27,500	\$1,100,000	\$2,750,000	TBD
Ashley Phosphate Rd. (Dorchester to Rivers)	20,600	\$824,000	\$2,060,000	TBD
Dorchester Road (Montague to Rivers)	17,600	\$704,000	\$1,760,000	TBD
Michaux Parkway	7,300	\$292,000	\$730,000	TBD
Aviation to Hanahan via Trident Tech	8,900	\$356,000	\$890,000	TBD
TOTAL	155,200	\$6,208,000	\$15,520,000	

These are merely suggested timetables and prioritization for implementing trails. North Charleston staff and the executive department may decide on a more or less aggressive trail implementation according to the amount of available budget that can be spent on trails.

8.6 Other Transportation Networks (Rail, Waterways, Air Facilities)

There are two port terminals located in North Charleston – Veteran's Terminal and North Charleston Terminal. A third terminal is proposed for the south end of the peninsula, formerly part of the Charleston Naval Base. An Environmental Impact Statement is currently underway to assess the environmental impacts of the new terminal. A new port terminal road is also proposed to give container trucks direct access to the port from Interstate 26.

The South Carolina State Ports Authority owns and controls all port terminals in the state, including all Charleston Ports. Aside from the ports located in North Charleston, Port Charleston also consists of three other ports: Union Pier and Columbus Street Terminals on the Cooper River in downtown Charleston, and Wando Welch Terminal in Mt. Pleasant on the Wando River.

There are two public boat landings in North Charleston, both operated by Charleston County Parks and Recreation. The Cooper River Marina is located at the tip of the former Navy Base peninsula, where Shipyard Creek flows into the Cooper River. The other, County Farm Boat Landing is located on the Ashley River, at the end of Bridge View Drive near the Charleston County offices.

Intermodal Center

The North Charleston Regional Intermodal Center broke ground in late summer 2007. Its first phase will provide a CARTA park-and-ride lot for CARTA's express bus service.

The Center will eventually serve as a regional center for bus service as well as function as the Amtrak and Greyhound stations, and will be a hub for taxi services and shuttles to and from Charleston International Airport.

The Intermodal Center is a strategic location for increasing development density in a transit supportive design. High-density residential, office, hotels, and retail uses within short walking distances will help generate ridership supportive of the services provided at the Center.

The Intermodal Center also presents an opportunity for a logical tie-in to the proposed regional commuter rail (discussed previously in Section 8.3)

Railroads

Freight railway systems running through the City of North Charleston are depicted on Map 8.17. CSX operates two north-south railways parallel to Rivers Ave and Rhett Ave as well as an east-west railway parallel to Bees Ferry Rd. Norfolk Southern operates a major north-south railway parallel to I-26.

AMTRAK

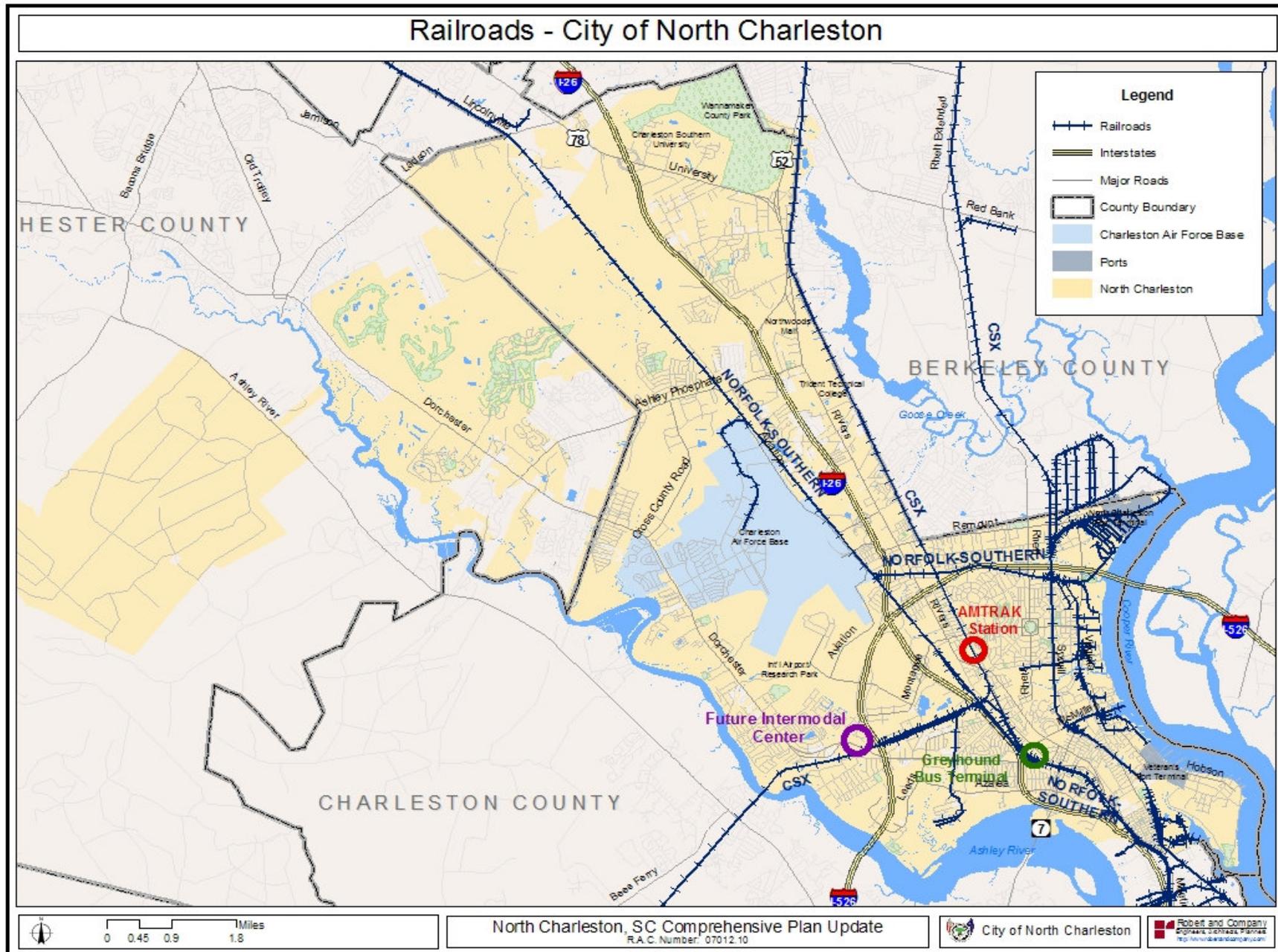
AMTRAK inter-city passenger rail offers a connection in North Charleston along the CSX rail line. Two routes run through – the Silver Service/Palmetto The Charleston,

which runs from New York to Miami, and the Auto Train Route, which carries automobiles and passengers from Lorton, Virginia to Sanford, Florida. The current AMTRAK station is located on Gaynor Avenue, just south of the intersection of Rivers Avenue and Montague Ave. Eventually, the station will move to the North Charleston Regional Intermodal Center. Both locations are shown on map 8.17.

Greyhound Bus Service

Greyhound Bus Lines provide national inter-city bus transportation. There are two regional bus terminals, one in Summerville, and one in North Charleston. North Charleston's Greyhound terminal is located on Dorchester Road, just east of the I-26 interchange. This terminal will also be relocated to the Intermodal Center once complete. Both locations are shown on map 8.17.

Map 8.17 - Railroads



Airports/ Air Force Base

There is one airport located in North Charleston. Charleston International Airport, the metropolitan area's air carrier service airport. The airport is owned and operated by the Charleston County Aviation Authority. The airport operates under a Joint Use Agreement with the adjacent Charleston Air Force, which owns, maintains, and operates the shared runways, taxiways, and navigational facilities.

Charleston International served a total of 1,073,309 commercial and charter airline passengers in 2005. Major air carriers at CIA include Delta, AirTran, United Express, Northwest, American Eagle, Continental and U.S. Airways. In addition to commercial passenger service, the airport also provides air cargo and general aviation facilities.

The Airport Authority is proposing to lengthen the runways to serve larger commercial jets, such as the Boeing 747 and Airbus A380. This would also allow the Air Force's C-17 cargo planes to take off with heavier loads and more fuel. Expanding the runways would create economic benefits for the region, but also create impacts for nearby land uses. As the runway expansion becomes a more realistic possibility, studies will be done to weigh the economic benefits and the extent of the negative environmental and land use impacts. This subject is also likely to be addressed during the Joint Land Use Study that is being conducted regionally for Charleston Air Force Base.

Charleston AFB Joint Land Use Study

The Charleston Air Force Base Joint Land Use Study to address cooperative planning between the AFB and surrounding communities. Primarily, the study is focusing on land use compatibility with airport operations, coordination of Air Force housing, and a possible Transfer of Development Rights program. More detail on the JLUS and the opportunities that are being studied can be found in Section 9.4 of this document.

From a transportation standpoint, the Joint Land Use Study presents a couple of opportunities for the city. The Transfer of Development Rights Program (TDR) that is being proposed in the study would allow landholders with property in AFB impact zones to sell their development rights, preventing development from occurring on those properties. Development rights that are sold in the system can be purchased by another developer to increase density of developments in designated 'receiving areas.' The proposed receiving areas for North Charleston are areas that the city feels could use increased density to support transit corridors. The preliminary areas that were identified are located in the Rivers Avenue corridor, between Aviation Ave. and Ashley Phosphate Rd.; along Dorchester Rd. and Montague Ave. near the future intermodal transit center; and adjacent to the AFB near the intersection of Dorchester and Cross County Roads.

The other impact of JLUS on transportation is with military housing. Most of the Air Force's personnel do not live on the base. They have a choice of where to live, and like many others who work in North Charleston, a large

amount of them choose to live in the outlying suburbs. Additionally, the Air Force has demolished much of its on base housing, further discouraging personnel to live on base property. This of course increases traffic congestion, especially along Dorchester Road where the main gate to the base is located. The Joint Land Use Study has opened up the possibility for cooperation between the city and Charleston Air Force Base to provide incentives for personnel to live close to the base.

Waterway Transportation

With North Charleston's borders fronting to navigable rivers, these waterways provide yet another mode of transportation.

The Cooper River is a deepwater river that provides the necessary means for cargo shipping and other shipyard functions, as well as some recreational boating. North Charleston has two major shipping terminals, operated by the South Carolina State Ports Authority, and a third terminal is under development and it is expected to begin operation in 2013. Additionally, there is a private shipyard located along the Cooper at the former Navy Base property.

The Ashley River is primarily used for recreational boating. The Ashley is a state designated Scenic River, protected from the Westmoreland Bridge (I-526) up to Summerville. As part of this protection, construction of new private docks is prohibited in this area, so the river in this section is lightly used. South of Westmoreland, the Ashley River is a heavily used recreational waterway, with marinas

located in both Charleston and North Charleston. The Ashley is not used for major commercial shipping.

The opportunity to use these waterways for local transportation, however, has not truly been utilized. Other than tourist boating (such as harbor cruises and tours to Fort Sumter), regional waterways have not been used to a great extent for human transportation outside of recreational purposes.

With increasing regional traffic congestion, it makes sense to at least consider the possibility of regional water transit – such as a ferry or water taxi service. North Charleston has public marinas on both rivers that could accommodate boat docking and loading. A feasibility study could determine whether or not there is a demand for this type of transportation in the region, and if a marine-based transit system between riverside activity centers could provide a valuable and cost-effective service. This should also involve coordination with SCDHEC's Office of Coastal Resource Management to assess the environmental impacts this type of transit would create.

8.7 Commuting Patterns

Berkeley-Charleston-Dorchester Council of Governments produced a study of commuting patterns in the region in 2005. This publication is an aggregate of data figures from the 2000 Census' CTPP (Census Transportation Planning Package). For the purposes of this study, the BCDCOG aggregated data concerning journey-to-work data into planning areas. The city of North Charleston falls into three of these planning areas. The North Charleston planning area includes all portions of the city south of Ashley Phosphate Road. The Ashley Phosphate North planning area is the rest of Charleston County above Ashley Phosphate Road, and the Dorchester Road Corridor planning area includes the portions of North Charleston within Dorchester County.

The following two tables show that while 44.9% of residents that live within the North Charleston area work in that same area, only 20.8% of those that work in the North Charleston area live in the area. This contributes to rush hour traffic coming into North Charleston in the morning, and then leaving in the afternoon. The large disparity between the 56,598 people who work in the area, and 26,220 who live in the area means that this area has a much larger daytime population.

Table 8.7.1: 'North Charleston' Commuting Patterns

Where do people who work here live?			Where do people who live here work?		
Area	Number	Pct.%	Area	Number	Pct.%
North Charleston	11,763	20.8%	North Charleston	11,763	44.9%
Goose Creek/Hanahan	10,913	19.3%	Charleston Peninsula	4,277	16.3%
West Ashley	6,327	11.2%	West Ashley	2,747	10.5%
Dorchester Road Corridor	5,406	9.6%	East Cooper	1,611	6.1%
East Cooper	4,682	8.3%	Ashley Phosphate North	1,270	4.8%
Central Summerville	2,970	5.2%	Goose Creek/Hanahan	1,182	4.5%
Ashley Phosphate North	2,764	4.9%	Coastal Islands West	883	3.4%
James Island	2,726	4.8%	Dorchester Road Corridor	691	2.6%
Charleston Peninsula	1,578	2.8%	James Island	604	2.3%
Northwest Berkeley	1,142	2.0%	Central Summerville	350	1.3%
Charleston County West	1,115	2.0%	Other	842	3.2%
Coastal Islands West	1,082	1.9%	TOTAL	26,220	100.0%
Santee East	690	1.2%			
Moncks Corner	627	1.1%			
Other	2,813	5.0%			
TOTAL	56,598	100.0%			

Source: BCDCOG

In the Ashley Phosphate North study area, only 13.2% of the people who work in the area actually live in the area, and only 15.7% of its residents stay in the area to work.

Unlike the North Charleston study area, the Dorchester Road Corridor study area loses large populations during the day. This is not surprising, given the residential character of the area. This study area dwindles from a 20,777 population at night, to just 9,376 during the workday. More people in this area work in the North Charleston Area (26%) than within this area (16.3%).

Table 8.7.2 - 'Ashley Phosphate North' Commuting Patterns

Where do people who work here live?			Where do people who live here work?		
Area	Number	Pct.%	Area	Number	Pct.%
Goose Creek/Hanahan	2,814	24.1%	North Charleston	2,764	28.1%
Ashley Phosphate North	1,544	13.2%	Ashley Phosphate North	1,544	15.7%
Dorchester Road Corridor	1,450	12.4%	Charleston Peninsula	1,394	14.2%
North Charleston	1,270	10.9%	Goose Creek/Hanahan	1,104	11.2%
Central Summerville	877	7.5%	West Ashley	814	8.3%
West Ashley	794	6.8%	East Cooper	566	5.8%
East Cooper	729	6.2%	Dorchester Road Corridor	474	4.8%
James Island	415	3.6%	Central Summerville	438	4.5%
Northwest Berkeley	305	2.6%	James Island	122	1.2%
Charleston Peninsula	285	2.4%	Moncks Corner	115	1.2%
Santee East	218	1.9%	Santee East	114	1.2%
Coastal Islands West	188	1.6%	Coastal Islands West	113	1.1%
St. George	182	1.6%	Other	271	2.8%
Charleston County West	113	1.0%	TOTAL	9,833	100.0%
Other	498	4.3%			
TOTAL	11,682	100.0%			

Source: BCDCOG, 2005

Table 8.7.3 - 'Dorchester Road Corridor' Commuting Patterns

Where do people who work here live?			Where do people who live here work?		
Area	Number	Pct.%	Area	Number	Pct.%
Dorchester Road Corridor	3,384	36.1%	North Charleston	5406	26.0%
Goose Creek/Hanahan	1,291	13.8%	Dorchester Road Corridor	3384	16.3%
Central Summerville	1,253	13.4%	Central Summerville	2680	12.9%
North Charleston	691	7.4%	Goose Creek/Hanahan	2019	9.7%
Ashley Phosphate North	438	4.7%	Charleston Peninsula	1949	9.4%
West Ashley	325	3.5%	Ashley Phosphate North	1450	7.0%
Dorchester County West	264	2.8%	West Ashley	1357	6.5%
Northwest Berkeley	260	2.8%	East Cooper	639	3.1%
St. George	248	2.6%	Dorchester County West	354	1.7%
East Cooper	232	2.5%	Moncks Corner	304	1.5%
James Island	209	2.2%	James Island	258	1.2%
Santee East	202	2.2%	Northwest Berkeley	243	1.2%
Colleton County	161	1.7%	Other	734	3.5%
Orangeburg County	129	1.4%	TOTAL	20777	100.0%
Charleston County West	97	1.0%			
Other	192	2.0%			
TOTAL	9,376	100.0%			

Source: BCDCOG, 2005

8.8 Future Projects (Proposed and Funded)

The Level of Service (LOS) figures provided earlier in this chapter project greater delays as traffic exceeds roadway capacity. This traffic projection model is based on currently funded and programmed transportation improvements. While the traffic analysis model projects severe traffic delays on major arterials in North Charleston, several additional long-range transportation projects have been proposed for the city. Sales taxes from both Charleston and Dorchester Counties are anticipated to fund several of these improvements.

CHATS/Long Range Transportation Plan

The Charleston Area Transportation Study (CHATS) Long Range Transportation Plan (LRTP) provides an evaluation of several alternative transportation improvements. Map 8.18 shows the location of the proposed long-range transportation improvements included in the CHATS study. These projects were evaluated on several cost/benefit factors such as potential mobility improvement, environmental impacts, and social equity.

Ashley Phosphate Road

From US 52 to Dorchester Road, this major arterial continues to experience high levels of congestion. By 2030 this roadway is projected to experience significant delays with traffic levels in excess of current capacity.

Ashley Phosphate Road Extension

An extension of Ashley Phosphate Road from US 52 and North Rhett Ave near the town of Hanahan was evaluated as a means of alleviating congestion on Red Bank Road and Remount Road.

Dorchester Road

The CHATS study recommended a widening of Dorchester Road from Trolley Road to Ashley Phosphate Road in order to accommodate the 50,000 vehicles per day that are projected for this corridor in 2030.

I-26 Port Access Road

A direct link from the area of the former Charleston Naval Base onto I-26 was evaluated in order to support potential redevelopment of the facility. The proposed access road would connect I-26 to the southern end of the Naval Base near Bainbridge Drive.

Rivers Ave

The portion of Rivers Ave from Northwoods Mall to the US-52/US-78 interchange is projected to carry more than 60,000 vehicles per day by 2030. In order to accommodate this increased traffic volume, the CHATS study recommends a widening from 6 to 8 lanes with the addition of a planted median. In addition, access management techniques are recommended to help improve mobility.

North Charleston Transportation Improvement Program

The following projects are part of the city's Transportation Improvement Program for Planning Areas 3 & 4.

Palmetto Commerce Parkway Phase II

Palmetto Commerce Parkway is a four-lane divided minor arterial providing access to Palmetto Commerce Industrial Park. It runs from Ladson Road and dead ends at the Daimler-Chrysler facility. An extension of Palmetto Commerce Parkway to Ashley Phosphate Road (via N.

Spartan Boulevard) is funded and planned for construction in 2009. Travel demand forecasts project that this proposed facility would carry 12,000 trips per day by 2030, providing a much needed alternative to Dorchester Road and helping improve street connectivity.

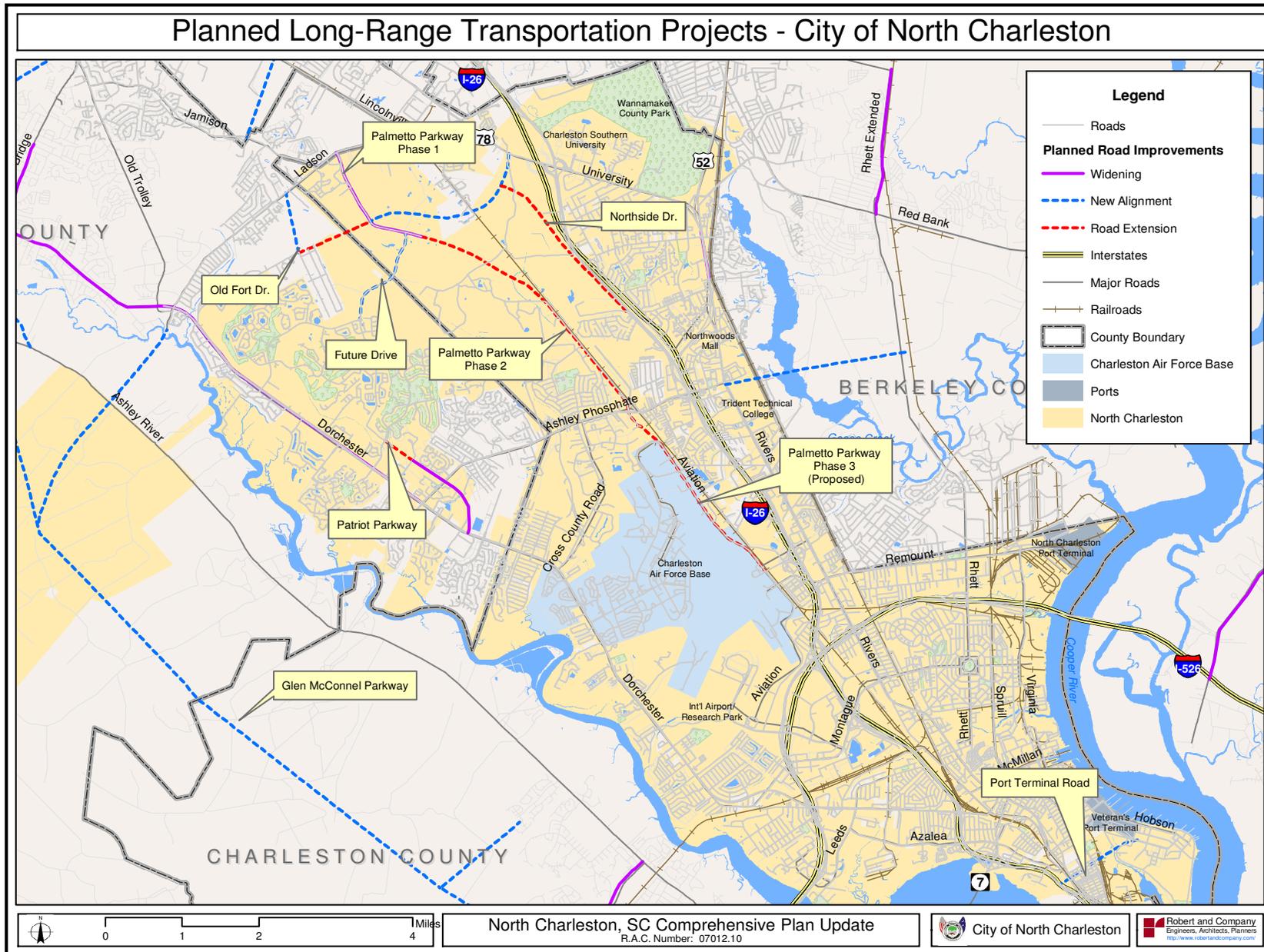
Palmetto Commerce Parkway Phase III (Proposed)

The city would like to eventually see Palmetto Parkway extended even further south. This proposal would extend the parkway south of Ashley Phosphate via South Spartan and Arthur Drive Extension (which runs along the back side of Charleston AFB) to Aviation Avenue. This extension would reduce congestion at the Ashley Phosphate/I-26 interchange, provide an alternate route to Charleston International Airport, and alleviate some traffic along Rivers Avenue. This would also provide more access to the Air Force Base's back gate, helping to relieve Dorchester Road traffic that backs up at the main gate.

Northside Drive

Northside Drive runs adjacent and parallel to I-26 from Ashley Phosphate Road, and dead ends in Colony North subdivision. The timetable for construction is undetermined, but Northside will be extended north towards University Boulevard, terminating at a new connector road that will link Palmetto Commerce Parkway to University Boulevard. This project will provide more street connectivity in the area, which will help traffic flow as Ingleside Plantation develops.

Map 8.18 – Planned and Proposed Long Range Transportation Projects



8.9 Goals & Policies

Goal 8.1: Continue coordinating transportation and land use planning

- ❑ Policy: Ensure that new development does not decrease the level of service (LOS) of roadways.
- ❑ Policy: Require Traffic Impact Analysis (TIA) reports for large new developments.
 - Action: Set development thresholds for requirement of traffic impact studies (E.g. Commercial > 175,000 sq. ft., Residential > 125 units).
- ❑ Policy: Provide for flexible, negotiated traffic mitigation measures for large new developments that facilitate pedestrian and transit access.
- ❑ Policy: Support context-sensitive roadway design in order to ensure that transportation facilities are compatible with surrounding neighborhoods and activity centers.
 - Action: Apply the Berkeley-Charleston-Dorchester Council of Government (BCDCOG) "Complete Streets" planning criteria to major transportation improvements in order to ensure that roadways accommodate all modes of travel and support surrounding business districts and neighborhoods.
- ❑ Policy: Coordinate regional transportation planning with local corridor improvement studies.

Goal 8.2: Provide a safe environment for pedestrian and bicycle use.

- ❑ Policy: Expand the city's system of multi-use trails, bicycle routes, and bike lanes.
 - Action: Link trails within North Charleston and to other cities or regional systems, to form a connective network.
 - Action: Provide annual budgeting to go towards trail development and local matches for regional, state and federal trail grants.
 - Action; Use the Bike & Pedestrian Plan to guide the prioritization of trails.
- ❑ Policy: Provide sidewalks throughout the city, especially in areas with high foot traffic.
 - Action: Prioritize sidewalk construction projects in priority areas, as outlined in the Bike & Pedestrian Plan
 - Action: Provide additional sidewalks using city funds and local, state and federal transportation grants.
- ❑ Policy: Actively pursue Charleston County greenbelt funds through the half-cent sales tax program.
 - Action: Planning and Parks and Recreation departments should work together to pursue identify possible parks and greenbelts, and apply for funding.

Goal 8.3: Create an efficient network of roads

- ❑ Policy: Encourage street connectivity to create a more grid-like street pattern.
 - Action: Continue connecting streets in Planning Areas 3 & 4, as outlined in the city's Transportation plan.

- ❑ Policy: Discourage cul-de-sac and dead-end roads in new developments where natural features do not prevent street connections.
 - Action: Require large new residential subdivisions to provide multiple entrances and exit points.
- ❑ Policy: Improve intersections and traffic light timing/signalization.
 - Action: Implement Intelligent Traffic Systems that utilize new technology to improve the flow of traffic.
- ❑ Policy: Improve traffic safety and flow through access management on major roads.
 - Action: Limit the number of curb cuts and driveways allowed for development along major roadways and at congested intersections.
 - Action: Encourage interparcel connectivity in order to allow internal circulation and compensate for reduced access points.
- ❑ Policy: Prevent conflicts between freight and vehicular traffic
 - Action: Enforce freight routes, and prohibit freight traffic on neighborhood roads.

Goal 8.4: Reduce traffic problems along congested major corridors such as Dorchester Road.

- ❑ Policy: Work with Charleston Air Force Base to prevent traffic congestion at the base's main gate on Dorchester Road.
- ❑ Policy: Work with railroad companies (CSX, Norfolk-Southern) to manage train schedules for at-grade road crossings, in order to prevent additional problems during rush hours.

Goal 8.5: Develop a multi-modal transportation system in North Charleston.

- ❑ Policy: Continue supporting regional efforts that would provide commuter rail, bus rapid transit (BRT), or other forms of regional mass transit.
- ❑ Policy: Use Transfer of Development Rights to increase densities for transit corridors.

Goal 8.6: Develop Travel Demand Management (TDM) programs to reduce traffic.

- ❑ Policy: Coordinate with regional planning agencies to develop and implement TDM programs.
- ❑ Policy: Support flex-time and telecommuting programs in order to shift travel demand into off-peak hour travel times.
- ❑ Policy: Encourage carpooling and high-occupancy vehicles to reduce vehicular traffic.
 - Action: Establish a city vanpool/rideshare program.
 - Action: Create High-Occupancy Vehicle (HOV) lanes on interstate highways for carpools, busses, and motorcycles.