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1.0 INTRODUCTION/BACKGROUND

The Charlotte Area Transit System (CATS) and the Charlotte-Mecklenburg Planning Commission are developing an integrated land use and supportive transit plan. Building on the 2025 Integrated Transit/Land Use Plan for Charlotte-Mecklenburg, four corridor Major Investment Studies (MISs) are being prepared for the North, Northeast, Southeast and West corridors. The purpose of the MIS is to analyze alternative transit and land use strategies and select a preferred option for implementation. A previously prepared MIS for the South Corridor resulted in a light rail transit (LRT) project for that corridor.

As a complementary effort to the four MISs, system planning issues, including how the five corridors connect in the Center City (Charlotte’s Central Business District), were identified and analyzed. An objective of this planning effort is to provide quality Center City linkages between and among:

- Transit modes of individual corridors
- Individual corridors and non-corridor buses, and
- Individual corridor buses (and enhanced Center City circulator services)

This report presents the background and study results showing how the corridor transit improvements come together as an integrated land use-urban design-transit system in Center City. For the purposes of this study and report, Center City Charlotte is defined as the area encompassed by I-277 as well as the communities and districts immediately surrounding this area. Figure 1-1 illustrates the area for the Center City Study.

1.1 2025 Integrated Transit/Land Use Plan

To ensure the continued economic vitality of Charlotte’s core areas, while accommodating growth throughout the region, Charlotte-Mecklenburg established a Centers and Corridors vision as its preferred land use and development pattern. This vision, adopted by the Charlotte City Council and Mecklenburg County Board of Commissioners in 1994, identified five major transportation and development corridors extending from Center City Charlotte to Mecklenburg County’s border and beyond. This vision was re-affirmed by the Mecklenburg-Union Metropolitan Planning Organization (MUMPO) and included in the Long Range Transportation Plan for the region.

In support of the Centers and Corridors vision, the 2025 Integrated Transit/Land Use Plan for Charlotte-Mecklenburg was completed in 1998. A key element of this plan was the development of a regional rapid transit system that would improve mobility, encourage balanced growth, and support the proposed land use initiatives in each of the county’s five growth corridors. A wide range of alternative transit options and land use scenarios were evaluated for each of the five major corridors: South, North, Northeast (University), Southeast (Independence), and West (Airport). The Plan also called for the expansion of bus service throughout Mecklenburg County while identifying the following key changes in existing land-use patterns targeted for the transit corridors that must be achieved for the corridors to work effectively:

- Promote more compact, pedestrian-friendly developments
• Encourage a mix of multi-and single-family residential development
• Develop areas that include a mix of residential, shopping and employment opportunities in close proximity.

On April 1, 1999, a half-cent sales tax became effective in Mecklenburg County. The tax increase, approved by Charlotte-Mecklenburg residents in November 1998, provides funding to implement the 2025 Integrated Transit/Land Use Plan for Charlotte-Mecklenburg.

Figure 1-1. Center City Urban Context
1.2 Center City 2010 Vision Plan

The Center City 2010 Vision Plan (2010 Vision Plan) was adopted by Charlotte City Council on May 8, 2000 and the Mecklenburg County Board of Commissioners on May 9, 2000. The vision statement of the 2010 Vision Plan was “to create a livable and memorable Center City of distinct neighborhoods connected by unique infrastructure.” The 2010 Vision Plan identified the following ten priorities related to liveability, memorability, and distinct neighborhoods that are essential to the plan’s success:

- Support private efforts to develop at least 6,000 more residential units for a variety of densities, types, and income levels in the Center City.
- Continue efforts to redevelop the former convention center site as a mixed-use facility, which can serve as a demonstration project to similar efforts in Uptown.
- Issue a Request for Proposal for the government land along North Tryon Street and create a development strategy for an “urban village.”
- Acquire land for West Park.
- Build a linear park adjacent to I-277.
- Redesign Second, Ninth, Poplar, and Davidson streets as “green” streets.
- Consolidate government uses in the proposed Government District neighborhood.
- Prepare a master plan for the redevelopment of Second Ward into a neighborhood, with focused attention on housing, a reconfigured Marshall Park, and a new school.
- Encourage development around a revitalized Little Sugar Creek.
- Prepare a master plan for the Sports and Entertainment District.

1.3 Center City Description

1.3.1 Regional Context

The Charlotte region boasts one of the most robust economies in the United States. It has become not only the commercial capital of the Carolinas but also the nation’s second-largest banking center. While Charlotte’s Center City has developed into the region’s premier financial and business center, major activity centers located throughout the area also have attracted substantial business growth. Based on recent projections, job growth will continue with Mecklenburg County’s employment increasing from 530,000 in 1997 to 777,000 in 2025. The expansion of the regional economy also has resulted in a larger population in the seven-county region, up to 1.4 million residents. Although much of this population increase has occurred within the City of Charlotte, residential growth throughout Mecklenburg, southern Iredell, and western Union counties also has been significant. By 2025, Charlotte-Mecklenburg’s population is estimated to grow by 345,000 residents, a 57 percent increase over 2000 figures.

1.3.2 Housing and Employment

Charlotte-Mecklenburg is unusual as a large and rapidly growing metropolis. Much of the region’s economic strength resides in the central city and inner county, rather than in outlying areas. The region’s population and businesses have decentralized much less than is typical of other comparable metropolitan areas. Even within Mecklenburg County, Charlotte’s downtown remains the strongest office market by far, accounting for about 37 percent of the county’s total office space. By comparison, Kansas City’s central business district accounts for 33 percent of
the regional office market while Denver’s downtown office market represents approximately 30 percent of that region’s total.

The past few years have seen unprecedented growth in downtown office construction. Uptown Charlotte’s multi-tenant office inventory is currently 14.1 million square feet, up from 9.5 million square feet in 1995.

Based on U.S. Census data, there were 2,741 housing units in downtown Charlotte (defined as inside I-277) in 2000. Over the past two years, there has been significant residential growth within the Center City. In 2002, there were approximately 50,000 jobs downtown, with over 80 percent being office employees.

1.3.3 Districts, Neighborhoods and Major Attractions

Center City is comprised of numerous distinct districts. Its core is the Central Business District (CBD) centered at Trade and Tryon Streets. Other districts include the First, Second, Third and Fourth Wards and the Government District. Newly emerging districts include North Tryon, Gateway Village and the sports and entertainment area around Ericsson Stadium.

Fourth Ward had the highest number of residential units in Center City Charlotte in 2000 with over 1,500 housing units. First and Third Wards also include housing with U.S. Census figures of 770 and 430 homes respectively in 2000. Major new residential developments have been completed in each of these areas since 2000. The Second Ward Neighborhood Master Plan, completed in August 2002, recommends 2,000 to 2,250 new housing units for this neighborhood.

Other key attractions include the Charlotte Transportation Center on Trade Street and the Convention Center located on College Street. Downtown Charlotte is a business, government and cultural center. Some of the major cultural sites include the Afro-American Cultural Center, the Mint Museum of Craft + Design, the Blumenthal Performing Arts Center, Discovery Place, the main library and Spirit Square. Higher educational institutions provide east and west anchors to Center City with Johnson C. Smith University, with a current enrollment of 1,530 students, located on West Trade Street and the Central Campus of Central Piedmont Community College (CPCC), with approximately 13,000 students, located to the east on Elizabeth Avenue. In addition, Johnson & Wales University, a culinary institution, is planned on West Trade Street as part of the Gateway Village. Johnson & Wales will open in 2004 with an enrollment of 900 students and could grow to 2,800 students by 2007.

There are areas of Center City that have the potential for infilling and redevelopment, particularly the areas along East Trade Street between the Government District and Tryon Street, between Tryon Street and Gateway Village along West Trade Street, and in Third Ward between Ericsson Stadium and South Tryon Street. Figure 1-1 illustrates these areas.

1.3.4 Transportation Facilities and Services

Streets
The Center City street network includes a wide variety of streets bounded by I-277. A series of one-way street pairs (College and Church, Brevard and Caldwell, Third and Fourth, and Fifth and Sixth) deliver traffic to the CBD and provide driveway access to major parking garages during peak hours. Tryon and Trade streets are the two primary two-way streets through the Center City. Tryon has been upgraded from Stonewall to Eighth Streets to include widened sidewalks, shelters, and kiosks while Trade has a similar treatment between College and Church Streets.
**Transit**

The focal point of CATS' bus services in the Charlotte region is the Charlotte Transportation Center bounded by Trade, Brevard, Fourth, and the South Corridor LRT line. The center is open during CATS normal operating hours (5:00 a.m. to 1:30 a.m. daily). The facility provides 20 off-street passenger platforms plus passenger-boarding locations for express routes on Fourth Street and eastbound local routes along Trade Street. The center is adjacent to the NCRR where the South Corridor LRT and vintage trolley services will operate. Approximately 15,000 persons daily get off or on CATS buses at the Transportation Center. The center's two pavilions include transit information services, a bank branch, postal services, retail businesses, and fast food restaurants.

The most heavily used east/west street is Trade Street with two-way hourly bus volumes ranging from 92 between College Street and Brevard Street to 61 through the Trade/Tryon intersection and 43 west of Church Street. North-south buses are evenly divided among Tryon, College and Church Streets with approximately 20 to 30 buses on each street in the morning peak hour.

**Pedestrians**

The Tryon Street Mall extends along Tryon Street from Eighth Street to Stonewall Street and along Trade Street from Church Street to College Street. It includes a number of urban design features to enhance the pedestrian environment. The Mall has wide sidewalks, information kiosks, street furniture, extensive plantings including mature trees, and few driveway entrances. The City of Charlotte plans to extend the Tryon Street Mall from Brookshire Freeway to Belk Freeway.

In 1984, the City implemented an Uptown Mixed Use District requiring new development along North Tryon, College, and intersecting streets (Stonewall to Ninth) between Tryon and the South Corridor LRT line to provide streetscape improvements similar to what is found on the Mall. This zoning classification provides private developers with a standard to which they must build.

**Parking**

In 2001, there were 41,500 parking spaces in the Center City according to a survey performed by Central Parking System. Center City parking has traditionally been driven by market forces, and follows rational economic motivation and laws of supply and demand. Parking has typically been provided with each new building as the Center City has expanded. The city’s new Uptown Mixed Use District includes reduced parking requirements as compared to similar uses in other zoning districts.

As development of vacant sites and surface parking lots occurs, Center City parking resources will be predominantly structured parking rather than the current proliferation of surface lots.

### 1.4 Forms of Transit Services

A number of forms of transit have been considered for the system plan and Center City improvements because no single transit mode or technology can serve all the particular land use and mobility needs and opportunities of the region.
Light Rail Transit (LRT). Powered by an overhead electric line, LRT typically operates in exclusive rights-of-way serving stations that can be spaced as close as a mile apart. LRT also can operate in mixed traffic on tracks embedded in the street.

Streetcar. This is the 21st century’s version of the early 20th century streetcar. Innovations in vehicle design and in-street construction techniques have shown that this mode can be a viable option for corridors that have high bus patronage. Modern streetcars are smaller and lighter than LRT vehicles and operate similar to a bus with passengers getting on and off at stops along the street rather than at stations.

Bus Rapid Transit (BRT). BRT is similar to LRT in that it can employ exclusive “busways” with on-line stations and off-vehicle ticketing for fast, convenient service. Because buses can operate outside the busway, they are able to travel through neighborhoods picking up passengers at local stops and then enter the busway to take advantage of its higher speed and reliability.

Commuter Rail. Typically this mode serves longer distance trips and stations spaced two to five miles apart. It consists of locomotives pulling or pushing two or more commuter cars. Diesel Multiple Units (DMU) is a form of commuter rail technology that employs self-propelled passenger cars that can operate singly or as trains of several cars. DMU technology is used when there are shorter distances between stations and where there are no potential conflicts with freight trains. The Federal Railroad Administration (FRA) has not yet approved any DMU for mixed operation with freight trains in the United States.

“Gold Rush” Service. This free service involves operation of replica rubber-tire trolley buses on three routes. Service is provided on all routes at a seven-minute frequency on weekdays from 7:00 a.m. to 6:00 p.m. The “Gold Rush” is a cooperative effort of CATS and Charlotte Center City Partners (CCCP). The two agencies divide operating costs equally, and CCCP will contribute 50 percent of the vehicle acquisition costs for the trolley replicas over a ten-year period.
2.0 UNDERLYING ISSUES

2.1 Land Use and Economic Development

The Center City Study involved the identification of system-planning issues, including how the five transit corridors connect in the Center City. This section focuses on land use and economic development considerations as they set the context and vision for the study. The 2010 Vision Plan is the primary point of departure for this assessment of how the planned regional transit system will operate in and serve the Center City.

2.1.1 Center City 2010 Vision Plan

The 2010 Vision Plan includes a number of recommendations for improved transit service within a high quality urban design environment. It recommends an east-west transit corridor to supplement the operations of the existing Charlotte Transportation Center and one or more transit hubs for the five transit corridors.

The 2010 Vision Plan states that the Center City should provide substantial alternatives to the single-occupant automobile through future rapid transit, additional bus lines, improved shuttle operations, and the Historic Charlotte Trolley. It also recommends that the transit system must include “efficient points of transfer” to facilitate movements between various transit lines and modes including the proposed Multi-Modal Station at the Center City’s western edge and the Charlotte Transportation Center.

The 2010 Vision Plan estimates that the number of housing units will grow to a total of 10,000 units by the year 2010.

Surface parking is a prominent land use in the Center City. The 2010 Vision Plan suggests that this amount of surface parking is an obstacle to creating a pedestrian environment and to Charlotte’s becoming a “memorable” city from an urban design perspective. The 2010 Vision Plan recommends consolidation of parking resources and a reduction in required parking ratios.

2.1.2 Government District Joint Facilities Master Plan

Mecklenburg County, the City of Charlotte, and Charlotte-Mecklenburg Schools, using the urban design objectives introduced in the 2010 Vision Plan, developed a master plan to guide future building actions to achieve a positive location configuration, both in terms of efficiency and integration into adjoining areas. Employment for these three agencies in the 16-block Government District is projected to increase from 1,600 to an estimated 4,600 by 2020.

A major transportation/urban design recommendation of the government district master plan focuses on making West Trade Street similar in design and feel to Tryon Street as a major urban street of the Center City. The plan recommends a median between Caldwell and Myers Streets with newly designed and widened crosswalks. The master plan also recommends new street trees, furniture, and special markers to reaffirm the civic nature of this place in the Center City.

2.1.3 North Tryon “Urban Village”

Mecklenburg County and the City of Charlotte are continuing to explore the development of an “urban village” using government-owned property along North Tryon Street. The 2010 Vision Plan

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Plan recommended the North Tryon “urban village” as a transition between proposed new neighborhood development in First Ward, the trolley line, and Tryon Street. According to the 2010 Vision Plan, an “urban village” that includes offices, housing, and regional destination shopping and entertainment would create an area of 18-hour activity.

2.1.4 Johnson & Wales University

Johnson & Wales University will open a Charlotte campus within the Gateway Village district in September 2004 with 900 students. The University estimates that it will invest $75 million in dormitory, administrative, culinary labs, classroom and recreational facilities, and leasehold improvements. Johnson & Wales estimates that enrollment at the Charlotte campus will be 2,800 students within three years.

2.1.5 New Uptown Arena and New West Park

Mecklenburg County and the City of Charlotte have been working to develop a plan for an Uptown arena and park in Third Ward, two blocks north of Ericsson Stadium. The plan closes portions of Third and Mint streets as well as re-locates Graham Street between Second and Fourth streets. The New West Park would be located on 8.5 acres just east of the arena.

2.1.6 Other Development Plans

In 2000, CPCC, which currently serves 13,000 students on its Central Campus, completed a new master plan for this campus on Elizabeth Avenue. The college plans to develop an urban-scaled block between Fourth and Elizabeth and develop new buildings along Independence Park when the existing stadium is removed. Several new academic buildings and other facilities are planned.

Just east of CPCC, the City of Charlotte is developing a urban design/streetscape project to improve Elizabeth Avenue between Independence Boulevard and Hawthorne Lane.

2.2 Traffic and Transit Service/Operations

2.2.1 Vision Plan Concepts

According to the 2010 Vision Plan, the following three goals for the Center City’s transportation system are the basis for the concepts presented in that document:

- Balanced – Provide a system of transportation modes and services that offers alternatives to commuters. Congestion, parking, air quality, mobility, growth accommodation and other issues must be addressed.
- Varied – Offer a multi-modal approach to Center City’s transit options.
- Designed – Architectural and urban design solutions should be developed to maximize the livability, beauty, and distinctiveness of each transportation element.

Streets

The 2010 Vision Plan proposed a hierarchy of streets ranging from traffic carrying “workhorse” streets to pedestrian-friendly “green” streets. The one-way “workhorse” streets emphasize high vehicular capacity from the freeway loop to the Center City core. The 2010 Vision Plan designated four “workhorse” pairs:

- College and Church Streets
• Brevard and Caldwell Streets
• Third and Fourth Streets
• Fifth and Sixth Streets

The 2010 Vision Plan also recommends a series of “green” streets intended to connect neighborhoods and parks throughout the Center City. These two-way streets would have narrow lanes, extensive landscaping, and wide sidewalks. They would carry local traffic and could include separate bikeways. The “green” streets also could be designed to add a Center City bus/trolley circulator at a later date. The 2010 Vision Plan suggests Ninth, Davidson, Second, and Poplar streets be converted to “green” streets.

Transit
The 2010 Vision Plan recommends that an east-west transit corridor accommodate a combination of automobile traffic, transit service and pedestrians, with an emphasis on creating a high-quality, pedestrian-friendly environment. The 2010 Vision Plan calls for further study to locate the east-west transit corridor within a zone bounded by Fourth and Sixth Streets. In addition, the 2010 Vision Plan suggests operating express bus services on Tryon Street to take advantage of the streetscape improvements already implemented on this street.

Pedestrian
The 2010 Vision Plan recommends promoting an area bounded by Seventh Street, Poplar Street, Second Street, and the South Corridor LRT line as the Center City’s pedestrian core. Within this core area, traffic calming devices would slow cars and protect sidewalk activity. Although these streets would remain open to vehicular traffic, streetscape elements, landscaping, and public art could be used to enhance the pedestrian ambiance. The Vision Plan suggests updating and applying the successful elements of the Tryon Street Mall throughout the pedestrian core.

2.2.2 “Gold Rush” Service
In September 2001, CATS initiated a new Center City circulator called the “Gold Rush”. This free service involves operation of replica rubber-tire trolley buses on three routes. Service is provided on all routes at a seven-minute frequency on weekdays from 7:00 a.m. to 6:00 p.m.

The “Gold Rush” is a cooperative effort of CATS and Charlotte Center City Partners (CCCP). The two agencies divide operating costs equally, and CCCP will contribute 50 percent of the vehicle acquisition costs for the trolley replicas over a ten-year period.

The “Gold Rush” replaced the Center City Circuit, a similar free circulator operated by CCCP since 1997. The City and CCCP also shared the operating costs of the Center City Circuit.

Over the past year, patronage on the “Gold Rush” has grown to approximately 100,000 riders a month, a 33 percent increase since introduction of the trolley buses.

2.2.3 Charlotte Multi-Modal Station Project
In July 2002 the North Carolina Department of Transportation (NCDOT) completed an engineering feasibility study of an improved rail and transportation center located on West Trade Street in Center City Charlotte. The site boundaries for the proposed station building include Third Street, Fifth Street, Graham Street, and the Norfolk Southern (NS) Railroad.
The study included an analysis of the number of tracks serving the station, the location of grade separations and whether these separations are feasible, and the right-of-way needs for the station. The study also assessed the preliminary space needs for intercity rail, intercity bus, commuter rail, and local bus. It also includes a cost analysis, determination of the project’s timeframe, and potential environmental impacts resulting from Multi-Modal Station construction. NCDOT will begin preliminary engineering for the station in early 2003.

In recent years, NCDOT has purchased much of the land immediately east of the NS line in order to accommodate future implementation of the station and associated track improvements.

2.2.4 Streetcar Services

Circulation within the Center City could be enhanced by the introduction of modern streetcar operations along Trade Street and a Center City loop comprised of Graham, Second, Davidson, and Tenth streets as proposed in the 2010 Vision Plan.

These streetcar services could be similar to the system implemented during 2001 in Portland. The vehicles could operate in the curb lane in both directions with the car’s low-floor design permitting frequent stops for passengers. Passenger waiting areas could be designed for bus services and streetcar operations.

Portland’s Streetcar System
3.0 CENTER CITY TRANSIT SYSTEM DEVELOPMENT

Planning principles used to guide the Center City Study were developed based on the 2010 Vision Plan, the 2025 Integrated Transit/Land Use Plan for Charlotte-Mecklenburg, and the current work of the Corridor MISs. These principles are discussed in this section.

3.1 Planning Principles

3.1.1 Urban Design

Center City Charlotte when served by high quality rapid transit will be characterized by an equally high quality urban design environment that:

- Provides a pedestrian-friendly physical environment with the following features:
  - Ample sidewalks with special paving in selected areas
  - Ample and attractive pedestrian lighting
  - Street trees, shrubs and flowers
  - Pedestrian-oriented wayfinding signage and graphics
- Protects and retains the existing high quality pedestrian environment and ambiance along Tryon Street and the two blocks on Trade Street on either side of Tryon Street.
- Provides safe and weather-protected transit stops and stations.
- Encompasses a full range of active and attractive destinations (housing, office, retail/service, cultural, leisure and landscaped civic spaces) along transit streets and at points of transfer between various transit lines and modes.
- Infills existing surface parking lots with new buildings.
- Improves urban design connections between the various districts within Center City including the government center, employment center associated with the intersection of Trade and Tryon Streets, cultural/entertainment nodes, the four wards, and nearby neighborhoods outside I-277. This would also include ways to overcome the difference in grade between the LRT/trolley line and Tryon Street.

3.1.2 Transit Planning

As CATS grows to accommodate future travel demands and the advent of rapid transit, the service operating in the downtown area also will change. These changes will include the need to accommodate the new rapid transit services as well as to incorporate changes to existing routes.

A key requirement affecting all CATS services, whether rapid transit or not, will be the need to institute through-routing on as many services as possible. Through-routing of similar services reduces the proportion of transferring passengers and removes bus layovers from Center City streets.
Transit service in the Center City should be anchored by the Charlotte Transportation Center on East Trade Street and the proposed Multi-Modal Station on West Trade Street and potentially include:

- A north/south LRT alignment along the trolley corridor allowing connections to all potential LRT services.
- A north/south commuter rail line to the proposed Multi-Modal Station.
- A central east/west alignment connecting potential LRT or bus rapid transit (BRT) services, the Multi-Modal Station and the Charlotte Transportation Center.
- Intra-Center City circulation, from Trade Street and the LRT corridor to existing and emerging residential, hotel, and attraction districts.

Transit operation should permit:

- The through routing of similar technologies and modes between corridors.
- Easy, safe and convenient transfer between different transit modes.
- The maximum use of Trade Street for circulation services whether streetcars or buses are used.
- The maximum use of circulation services for trips within the Center City.

### 3.2 Charlotte Transportation Center

As the anchor of public transit services on the east side of Center City Charlotte, the Charlotte Transportation Center will continue to function as a terminal and as an interchange location between local and express bus services as well as proposed LRT and BRT services. As the number of buses using the center increases, it is critical that there is sufficient capacity for both vehicles and passengers.

During this study, five alternatives were analyzed for increasing the capacity of the Charlotte Transportation Center to accommodate more buses during peak periods. The alternatives also addressed improving the connection of the Center with the LRT and trolley line located adjacent to the Transportation Center. The proposed development of the West Trade Street Multi-Modal Station should help to alleviate bus capacity issues at the East Trade Street Transportation Center.

### 3.3 West Trade Multi-Modal Station

#### 3.3.1 Overall Concept

NCDOT has developed various station concepts that locate key components of the complex in different blocks between Third and Fifth Streets, east of the NS rail line. Under all alternatives, CATS facilities, including off-street passenger platforms, are located between Fourth and Trade Streets. All station concepts provide for through running of BRT vehicles and other CATS bus services by developing on-street platforms along Trade Street. The primary difference in NCDOT’s station concepts involves the locating of the intercity bus terminal and the mail handling facility within the three blocks already purchased by NCDOT for the station.
3.3.2 CATS Needs

**Commuter Rail**

NCDOT’s preliminary concepts for the proposed Multi-Modal Station would include two tracks and passenger platforms for commuter rail service to the North Corridor. CATS staff has worked with NCDOT on an acceptable location for these tracks and platforms.

**Bus Operations**

The CATS component of the Multi-Modal Station is intended to complement the existing Charlotte Transportation Center. The Multi-Modal Station could serve a similar function as the Charlotte Transportation Center for the west side of the CBD, acting as a terminal and interchange location among local and express services. Because CATS expects significant growth in its bus services – local, express, BRT, and other types - the capacity of the Charlotte Transportation Center could become strained. The Multi-Modal Station would function as a second “transportation center” for CATS bus operations in the Center City. This could include commuter rail “tripper” services and special shuttles/circulators, such as the “Gold Rush” circulator in the CBD. The CATS facility at the Multi-Modal Station also could meet the passenger and operational needs of the system, such as layover, comfort break, and recovery time functions.

3.4 Rapid Transit Services

3.4.1 Center City Approaches for Corridor Alternatives

**LRT**

The ongoing South Corridor LRT design effort has confirmed the validity of using the trolley corridor for the proposed LRT service to access and serve the Center City. Both LRT vehicles and trolleys will operate in the corridor.

The South Corridor LRT and trolley service will operate as far north as Ninth Street. For passenger level of service and operating efficiency reasons, this City-owned rail line was assumed to be the central element of the LRT system.

Northeast Corridor LRT options simply extend the South Corridor LRT line north of Ninth Street, using either the railroad corridor or Tryon Street.

Southeast Corridor concepts included two LRT approaches into the Center City:

- along Seventh Street to the railroad corridor;
- or operating LRT along Trade Street, possibly connecting to a West Corridor LRT Center City alignment on Trade Street.

West Corridor LRT approaches included:

- along Carson Street to the railroad corridor (Wilkinson Boulevard or West Boulevard alignment);
- or operating LRT along Trade Street via Fourth Street Extension and Sycamore Street (Wilkinson Boulevard alignment), possibly connecting to a Southeast Corridor LRT Center City alignment on Trade Street.
In selecting the streets for this purpose, every effort was made to design a network that permitted LRT vehicles to be through routed between corridors past the Charlotte Transportation Center.

**Commuter Rail**
Commuter rail was studied in all corridors but carried forward as a viable alternative in only the North Corridor. The alignment runs parallel and immediately west of the NS tracks west of Graham Street. The Center City station served by commuter rail would be part of a proposed Multi-Modal Station on West Trade Street.

The North Corridor commuter rail alignment includes a design option between the Brookshire Freeway and Atando Avenue to address community impact issues in the Greenville area. In this option, the alignment would divert from the NS rail line to North Mecklenburg and Mooresville in the vicinity of the ADM property, pass over a depressed CSX line and under the Brookshire Freeway and follow the most westerly NS track over North Tryon Street past the existing Amtrak Station. From there, this alignment option would rejoin the rail line to the northern towns via the Atando junction track. This alignment option would add travel time to the commuter rail trip to the Multi-Modal Station. However, if LRT service was extended north along either Tryon Street or the north-south rail spine to an intersection with the commuter rail line option, passengers headed for Center City with destinations along the north-south LRT line would have a more direct trip by making a cross-platform transfer. Also, a station near the existing Amtrak passenger facility would provide a more convenient connection between the South Corridor LRT and a North Corridor commuter rail service. Again, this is only feasible if the Greenville avoidance alternative is used for the North Corridor.

**BRT**
BRT is generally more flexible with regard to alignment than rail-based technologies. The selection of the preferred alignment should recognize the need to concentrate BRT services from all of the corridors on one street. Two one-way streets could be used with bus service split by direction; however, one BRT street is preferred. BRT street(s) should be centrally located to provide the maximum possible coverage to the Center City area. This allows BRT to be through-routed between corridors and provides the same easy-to-understand service characteristics as rail. It also means that different routes that serve common destinations can be accessed at the same stop, thus improving the transit level of service and therefore ridership.

The two rail corridors serving the Center City (LRT and commuter rail) run north/south and are separated by about 3500 feet. There is clearly a need to connect these corridors to permit inter-corridor trips. In addition, the development trends in Center City include new and projected developments that are well beyond a convenient walking distance of either rail line. Both of these factors suggest that the optimum alignment for the BRT street should be in an east/west direction. This would provide the connection between the rail corridors and provide BRT users access to the rail corridors and the Center City.

The North Corridor and Northeast Corridor BRT service concepts approach Center City via Graham Street to serve the Multi-Modal Station and then run through Center City in an east-west direction, serving the Charlotte Transportation Center on Trade Street. These BRT services could be routed to connect to the Gateway Village located on West Trade Street before passing the Multi-Modal Station.

The Southeast Corridor has two BRT approaches into the Center City:
• along Seventh Street over to southbound Brevard Street (connecting to a West Corridor BRT approach option) and operating outbound on North College;

• or operating along Elizabeth Avenue to Trade Street.

West Corridor BRT approaches include:

• along Carson Street to College and Brevard streets (Wilkinson Boulevard or West Boulevard alignment), tying into a Southeast Corridor option;

• or running on Trade Street via Fourth Street Extension and Sycamore Street (Wilkinson Boulevard alignment).

In selecting the streets for this purpose, every effort was made to design a network that permitted BRT vehicles to be through routed between corridors past the Charlotte Transportation Center/LRT Station and the Multi-Modal Station so as to permit easy transfer to the bus, commuter rail, and LRT services in the downtown.

### 3.4.2 Potential East-West Transit Streets

The east-west corridor considered for rapid transit services included Fourth, Fifth, and Trade streets.

The Government District and Gateway Village have created anchors at both ends of Trade Street. Additional commercial, and possibly residential development, along Trade Street would begin to link these two anchors to the Tryon Street area. Trade Street also connects directly to major generators just beyond the I-277 loop such as CPCC, Presbyterian Hospital, and Johnson C. Smith University.

**Figure 3-1** includes photographs of Fourth, Fifth and Trade streets. These photographs, together with the cross-sections of typical existing conditions shown in **Figure 3-2**, indicate clearly that Trade Street is a more pedestrian-oriented street when compared to the narrow sidewalks, pedestrian impediments, lack of landscaping and frequent curb cuts for garage entrances that are typical along Fourth and Fifth streets. Trade Street presents a front door approach to the core of Center City for commuters. Trade Street’s sidewalks are wider than Fourth and Fifth streets, and the beginning of streetscape improvements as part of the Tryon Street Mall establish it as the preferred location for a pedestrian/transit way.

Fourth and Fifth Streets present a different kind of front door for the auto commuter. These two streets are one-way with two to three lanes and provide access to numerous parking structures. They are classified as vehicular traffic “workhorse streets” in the **2010 Vision Plan**. High concentrations of pedestrians on Fourth and Fifth Streets are not desirable due to the narrow sidewalks. Although blank walls and parking structures contribute today to an unfavorable pedestrian environment, the **2010 Vision Plan** recommends adding lighting, landscaping, crosswalks, shade trees, and other amenities to create a more pleasant pedestrian experience along these two streets.

### 3.4.3 Evaluation of Corridor Approaches

**Tables 3-1** through **3-7** summarizes the advantages and disadvantages of the corridor approaches for each rapid transit technology. The evaluation is based on the north-south LRT spine and an east-west urban design/rapid transit spine along Trade Street. **Figures 3-3** through **3-5** illustrates approach options for the four MIS corridors.
Narrow sidewalks, impediments to pedestrian circulation, and an absence of landscaping characterize Fifth Street.

**TRADE STREET**

Trade Street’s expansive sidewalks, and the streetscape improvements made as part of the Tryon Street Mall provide an attractive environment for pedestrians.

Narrow sidewalks, blank building walls, frequent curb cuts for garage entrances and lack of landscaping make Fourth Street less attractive for pedestrians than Trade Street.

**Figure 3-1. Sidewalk/Streetscape Features along Fifth, Trade and Fourth Streets**
Trade Street’s sidewalks are wider than those on Fourth and Fifth Streets. Implementation of streetscape improvements as part of the Tryon Street Mall establish Trade Street as the preferred location for a pedestrian / transitway.
Figure 3-3. Southeast Corridor Approach Options
<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/PEDESTRIAN TRAFFIC</th>
<th>SERVICE/ OPERATIONS</th>
</tr>
</thead>
</table>
| East Trade Street     | • Strong urban design features | • Serves as front door to many buildings  
• Selected station blocks have significant open space  
• Minimal driveway entrances in selected blocks  
• Serves major generators | • Can accommodate either center or side platforms | • Identified in 2010 Vision Plan as transit/pedestrian street  
• Identified in Government District Master Plan as “Civic Street”, including transit corridor  
• Lower traffic volumes avoid need for designated lanes | • Provides direct connection between Transportation Center and Multi-Modal Station  
• Single street for passenger transfers |
| East Fourth Street    | • Minimal urban design features | • Rear door to buildings  
• Entrances to numerous parking garages and lots | • Inadequate width to provide station platforms | • Designated as “workhorse” street in 2010 Vision Plan  
• Higher traffic volumes could necessitate dedicated bus lane  
• Narrow sidewalks | • Provides direct connection between Transportation Center & Multi-Modal Station  
• One-block separation hinders passenger transfers |
| College/Brevard/Seventh Streets | • Better urban design features on College & Seventh, none on Brevard | • Does not serve Government District or CPCC  
• Entrances to numerous parking garages and lots  
• Serves possible baseball park near Memorial Stadium | • Inadequate width to provide station platforms | • College & Brevard are one-way “workhorse” streets in 2010 Vision Plan  
• Narrow sidewalks  
• Higher traffic volumes | • One-block separation hinders passenger transfers |
### Table 3-2. Evaluation of Southeast Corridor LRT Alignment Options

<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/PEDESTRIAN TRAFFIC</th>
<th>SERVICE/ OPERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Trade Street</td>
<td>• Strong urban design features</td>
<td>• Serves as front door to many buildings</td>
<td>• Can accommodate either center or side platforms</td>
<td>• Identified in 2010 Vision Plan as transit/pedestrian street</td>
<td>• Provides direct connection between Transportation Center and Multi-Modal Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Selected station blocks have significant open space</td>
<td>• Identified in Government District Master Plan as “Civic Street”, including transit corridor</td>
<td></td>
<td>• Single street for passenger transfers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Minimal driveway entrances in selected blocks</td>
<td>• Identified in 2010 Vision Plan as transit/pedestrian street</td>
<td></td>
<td>• Could accommodate streetcar operations for circulation purposes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serves major generators</td>
<td>• Provides direct connection between Transportation Center &amp; Multi-Modal Station</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Fourth Street</td>
<td>• Minimal urban design features</td>
<td>• Rear door to buildings</td>
<td>• Inadequate width to provide station platforms</td>
<td>• Designated as “workhorse” street in 2010 Vision Plan</td>
<td>• Provides direct connection between Transportation Center &amp; Multi-Modal Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Entrances to numerous parking garages and lots</td>
<td>• Higher traffic volumes could necessitate dedicated bus lane</td>
<td>• One-block separation hinders passenger transfers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Narrow sidewalks</td>
<td>• Creates second LRT corridor in Center City, hindering LRT through-routing</td>
<td></td>
</tr>
<tr>
<td>LRT Line/Seventh</td>
<td>• Serves South Corridor LRT Stations, with</td>
<td>• Does not serve Government District or CPCC</td>
<td>• Operates along primary LRT alignment in Center City</td>
<td>• Vehicular/pedestrian issues addressed by South Corridor design</td>
<td>• Uses LRT spine facilitating through-routing and LRT operations</td>
</tr>
<tr>
<td></td>
<td>Stations, with associated urban design features</td>
<td>• Serves possible baseball park at Memorial Stadium</td>
<td>• Impacts traffic operations along Seventh</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 3-4. West Corridor Approach Options
<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/ PEDESTRIAN TRAFFIC</th>
<th>SERVICE/ OPERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-77/West Trade Street</td>
<td>Strong urban design features</td>
<td>• Serves as front door to many buildings</td>
<td>• Can accommodate either center or side platforms</td>
<td>• Identified in 2010 Vision Plan as transit/pedestrian street</td>
<td>• Provides direct connection between Transportation Center &amp; Multi-Modal Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Selected station blocks have significant open space</td>
<td></td>
<td>• Lower traffic volumes avoid need for designated lanes</td>
<td>• Single street facilitates passenger transfers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Minimal driveway entrances in selected blocks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/Brevard/ Carson</td>
<td>Better urban design features on College than Brevard</td>
<td>• Serves as front door to Convention Center, BellSouth, One Wachovia</td>
<td>• Inadequate width to provide station platforms</td>
<td>• College &amp; Brevard are one-way “workhorse” streets in 2010 Vision Plan</td>
<td>• One-block separation hinders passenger transfers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serves proposed baseball stadium &amp; entertainment complex in South End</td>
<td></td>
<td>• Narrow sidewalks on Brevard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Higher traffic volumes</td>
<td></td>
</tr>
<tr>
<td>OPTION</td>
<td>URBAN DESIGN</td>
<td>ADJOINING LAND USE &amp; ENVIRONMENT</td>
<td>PHYSICAL ALIGNMENT NEEDS</td>
<td>VEHICULAR/ PEDESTRIAN TRAFFIC</td>
<td>SERVICE/ OPERATIONS</td>
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<td>-----------------------------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I-77/West Trade Street</td>
<td>• Strong urban design features</td>
<td>• Serves as front door to many buildings</td>
<td>• Can accommodate either center or side platforms</td>
<td>• Identified in 2010 Vision Plan as transit/pedestrian street</td>
<td>• Provides direct connection between Transportation Center and Multi-Modal Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Selected stationblocks have significant open space</td>
<td></td>
<td>• Identified in Government District Master Plan as “Civic Street”, including transit corridor</td>
<td>• Single street for passenger transfers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Promotes neighborhood retail as recommended in 2010 Vision Plan</td>
<td></td>
<td></td>
<td>• Could accommodate streetcar operations for circulation purposes</td>
</tr>
<tr>
<td>South LRT/Carson</td>
<td>• Serves South Corridor LRT Stations, with associated urban design features</td>
<td>• Serves Convention Center station</td>
<td>• Operates along primary LRT alignment in Center City</td>
<td>• Vehicular/pedestrian issues addressed by South Corridor design</td>
<td>• Uses LRT spine facilitating through-routing and LRT operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serves proposed baseball stadium &amp; entertainment complex in South End</td>
<td></td>
<td></td>
<td>• Faster travel times than on-street LRT operations</td>
</tr>
<tr>
<td>P &amp; N Railroad/Second Street</td>
<td>• Narrow sidewalks along Second Street</td>
<td>• Serves Stadium, New Arena, &amp; Duke Energy offices</td>
<td>• Connection with South LRT line will be tight</td>
<td>• Second St. identified in 2010 Vision Plan as “green street”</td>
<td>• Uses LRT spine facilitating through-routing and LRT operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Connects with LRT spine just north of Convention Center</td>
<td>• Operates in narrow Second St. between College &amp; Poplar</td>
<td>• Narrow sidewalks &amp; lanes along Second</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stadium garage accommodates LRT alignment</td>
<td></td>
<td>• Must share NS underpass at stadium with pedestrians &amp; possible future bicycle route</td>
<td></td>
</tr>
<tr>
<td>Mint Street/Second Street</td>
<td>• Narrow sidewalks along Second Street</td>
<td>• Serves Stadium, New Arena, &amp; Duke Energy offices</td>
<td>• Connection with South LRT line will be tight</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• New landscaping related to arena/park development</td>
<td>• Connects with LRT spine just north of Convention Center</td>
<td>• Operates in narrow Second Street between College &amp; Poplar</td>
<td></td>
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</tbody>
</table>

Table 3-4. Evaluation of West Corridor LRT Alignment Options
Figure 3-5. North and Northeast Corridor Approach Options
<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/PEDESTRIAN TRAFFIC</th>
<th>SERVICE/ OPERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norfolk Southern “O” Line</td>
<td>Passenger platform incorporated into Multi-Modal Station</td>
<td>Close to Gateway Center (office and residential)</td>
<td>Requires separate track for passenger service (no crossing or sharing of NS tracks)</td>
<td>Multi-Modal Station to be designed for good pedestrian and bicycle access</td>
<td>Connects to Northeast and West BRT lines</td>
</tr>
<tr>
<td></td>
<td>Multi-Modal Station will have strong urban design features</td>
<td>Retaining walls through Elmwood Cemetery</td>
<td>NCDOT’s project provides for “O” line separation from CSX line</td>
<td>Complements Trade Streetscape/ transit way project</td>
<td>Operates independently of NS and CSX operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Noise mitigation for Fourth Ward (as part of NCDOT project)</td>
<td>Turnaround and storage tracks are available near platform</td>
<td>Must include pedestrian access to stadium and arena</td>
<td>Streetcar service along Trade can provide LRT passenger connection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Serves Ericsson Stadium and new arena in Third Ward</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No pedestrian access to cemetery from Fourth Ward</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### Table 3-6. Evaluation of Northeast Corridor LRT Alignment Options

<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/ PEDESTRIAN TRAFFIC</th>
<th>SERVICE/ OPERATIONS</th>
</tr>
</thead>
</table>
| Charlotte-owned Rail Line | • Serves South Corridor LRT/ trolley stations, with associated urban design features | • Serves new developments in proposed North Tryon “urban village”  
• Proposed development in First Ward is being oriented to rail line | • Operates along LRT spine in Center City | • Vehicular/ pedestrian issues addressed by South Corridor design | • Connects to Transportation Center  
• Uses LRT spine facilitating through-routing and LRT operations  
• Faster travel times than on-street LRT operations |
| North Tryon Street      | • Provides potential for being incorporated into design of proposed North Tryon “urban village”  
• Connects Center City with North Tryon Corridor and Lockwood  
• Provides front door service to North Tryon Corridor | • Serves new developments in potential North Tryon “urban village”  
• In-street operation along North Tryon  
• Operates along LRT spine south of Tenth Street | • In-street operation along North Tryon  
• Impacts traffic operations along North Tryon | • Connects to Transportation Center  
• In-street operations along northern segment |
Table 3-7. Evaluation of North and Northeast Corridor BRT Alignment Options

<table>
<thead>
<tr>
<th>OPTION</th>
<th>URBAN DESIGN</th>
<th>ADJOINING LAND USE &amp; ENVIRONMENT</th>
<th>PHYSICAL ALIGNMENT NEEDS</th>
<th>VEHICULAR/PEDESTRIAN TRAFFIC</th>
<th>SERVICE/OPERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graham Street</td>
<td>• Minimal design features</td>
<td>• Multi-family and commercial development along Graham</td>
<td>• No special roadway treatments</td>
<td>• No bus stops/pasenger platforms along this portion of Graham</td>
<td>• Provide signal pre-emption for buses to improve travel times</td>
</tr>
</tbody>
</table>
<pre><code>                                                             | • Address issues of increased bus volumes with Friends of Fourth Ward                          |                                                |                                                | • Connects to Multi-Modal Station                        |
</code></pre>
3.5 Local Bus Services

The existing local routes that are not replaced by corridor rapid transit services should be analyzed for increased through-routing to minimize the number of transferring passengers. Local services also should be adjusted to take maximum advantage of the proposed terminal at the proposed Multi-Modal Station. These changes would improve the transfer opportunities between the local services and rapid transit modes, intercity rail operations, and intercity bus services.

3.6 Center City Circulation

The 2010 Vision Plan acknowledged the importance of circulation services in the Uptown area. The 2010 Vision Plan included several recommendations in this area:

- Re-assign Center City Circuit operations from Charlotte Center City Partners (CCCP) to CATS.

- Consider the design of “green” streets to accommodate a future trolley circulator. The 2010 Vision Plan states that Center City’s growing population will allow the exploration of a more permanent option for transit throughout downtown. “Green” street design should include the flexibility to add a trolley circulator at a later date, according to the 2010 Vision Plan. The document proposes Ninth, Davidson, Second, and Poplar as “green” streets.

As discussed in Section 2.2, CATS has assumed operation of the center city bus circulator service. The “Gold Rush” service (trolley replica vehicles) began operations in September 2001.

Two types of Center City service markets were identified: intra-Center City circulation, and connections to surrounding neighborhoods/trip attractions. Table 3-8 lists a number of specific service markets for each. The table also identifies existing or new services that could be addressing the markets, including: “Gold Rush” service, LRT and/or BRT services, Charlotte Trolley/streetcar services, and special shuttle services (dedicated shuttles to major employers such as Carolinas Medical Center).
The type of streetcar service being considered is similar to streetcar operations begun in Portland in 2001. The vehicle would operate in the street with frequent stops. The construction method used for the Portland Streetcar involved minimal excavation within the street to install the rail line, minimizing utility impacts. The Portland Streetcar is smaller than a LRT vehicle and its low-floor design enables passengers to board from the street.

Table 3-8 is the basis for the circulation services recommended in Section 4.6.

Table 3-8. Center City Circulation Options

<table>
<thead>
<tr>
<th>Center City Circulation Options*</th>
<th>Candidate Service Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gold Rush Service</td>
</tr>
<tr>
<td><strong>Intra–Center City Circulation</strong></td>
<td></td>
</tr>
<tr>
<td>LRT/BRT/CR Commuters to Work Locations</td>
<td>X</td>
</tr>
<tr>
<td>Cultural/Entertainment Venues with Employment and Hotel Locations</td>
<td>X</td>
</tr>
<tr>
<td>Uptown Residential Areas to LRT/BRT/CR/Local Bus Services</td>
<td>X</td>
</tr>
<tr>
<td>Uptown Residential Area to Other Center City Districts</td>
<td>X</td>
</tr>
<tr>
<td><strong>Connections to Surrounding Neighborhoods/Trip Attractions</strong></td>
<td></td>
</tr>
<tr>
<td>Lockwood (North)</td>
<td>X</td>
</tr>
<tr>
<td>Optimist Park (Northeast)</td>
<td>X</td>
</tr>
<tr>
<td>Central Piedmont Community College/Elizabeth (Southeast)</td>
<td>X</td>
</tr>
<tr>
<td>Presbyterian Hospital Area (Southeast)</td>
<td>X</td>
</tr>
<tr>
<td>Midtown/ Carolinas Medical Center Area (Southeast)</td>
<td>X</td>
</tr>
<tr>
<td>Dilworth Area (South)</td>
<td>X</td>
</tr>
<tr>
<td>South End/Wilmore Area</td>
<td>X</td>
</tr>
<tr>
<td>West Morehead/Wesley Heights (West)</td>
<td>X</td>
</tr>
<tr>
<td>Seversville (West)</td>
<td>X</td>
</tr>
<tr>
<td>Johnson C. Smith University/Biddleville Area</td>
<td>X</td>
</tr>
</tbody>
</table>

*Local bus serves all these areas today and is assumed to continue to do so in the future. These options are enhancements or substitutions for the local bus service.
4.0 CENTER CITY RECOMMENDATIONS

4.1 Overall Concept

The recommended concept for the Center City includes:

- Two major nodes, the Charlotte Transportation Center and the West Trade Multi-Modal Station, designed to complement each other;
- Two spines, a north-south LRT spine along the trolley/railroad corridor and a new east-west pedestrian/transit way along Trade Street that connects Johnson C. Smith University with Presbyterian Hospital;
- Circulation services connecting Center City districts not only with each other but also with areas just outside of I-277.

The rest of this section provides more detail on the recommendations of the Center City Study.

4.2 Charlotte Transportation Center

4.2.1 Rail/Bus/Pedestrian Interface

The passenger platforms for the South Corridor’s proposed Center City LRT station span Trade Street and extend parallel to the Transportation Center’s adjacent pavilion for approximately a third of the block between Trade and Fourth streets. The LRT station’s current concept provides for passengers who wish to transfer between rail and bus modes to do so along Trade Street, just north of the Transportation Center.

In addition to the Trade Street pedestrian connection, the rail/bus interface could be enhanced by:

- Providing vertical circulation at the southern end of the LRT passenger platforms to the ground level of the Center’s pavilion next to the rail line. The Transportation Center was designed to connect from the pavilion’s passenger waiting area to the area below the LRT platforms. Figure 4-1 provides a concept plan view of this connection and also shows how the Transportation Center could be connected to future re-development of the old Convention Center, enhancing pedestrian access to College Street. The Transportation Center subsequently could be connected to the Overstreet Mall walkway at College Street, creating the perception of a “front door” to the Transportation Center from Tryon Street. Figure 4-2 shows a cross-section of this pedestrian connection.
Figure 4-1. Connection of Transportation Center to LRT and Tryon Street
Cross Section

Figure 4-2. Potential Pedestrian and Transit Links (Tryon/College to Transportation Center)
Creating a second floor to the Center’s pavilion that could open to the northbound LRT passenger platform. Vertical circulation to the Transportation Center’s ground level would be internal to the pavilion. This option offers a way to expand the customer service functions currently located in the ground floor of the Center’s pavilion to the level of LRT operations.

4.2.2 Facilities/Operations Modifications

In order to accommodate the increasing number of buses to be operating along Trade Street, the use of dynamic bus bay allocation should be studied. The location of additional bays at the proposed West Trade Multi-Modal Station could reduce the need to increase the capacity of the Transportation Center.

As part of the design of Trade Street streetscape improvements, the addition of a passenger platform for westbound buses opposite of Bay A in the current Center eliminates the need for left turns into the Center. This concept should be further analyzed as part of the integration of the Transportation Center with the North-South LRT line and the Trade Street streetscape project.

4.3 West Trade Multi-Modal Station

4.3.1 Rail/Bus/Pedestrian Interface

Interior Connections

The design of the Multi-Modal Station in the block between Fourth and Trade Street should facilitate the connection of CATS passengers with both intercity rail and bus services. Auto drop-off and taxi operations should be separated from CATS and Greyhound operations for pedestrian safety reasons. These operations would work best along Graham Street or as an expanded drop-off area to the one proposed for Fourth Street under NCDOT’s preferred concept.

Pedestrian connections at the station’s grade level should be well designed to facilitate passengers’ transferring between CATS services and from CATS to intercity bus and rail services. This also is important for passengers coming to the Multi-Modal Station from the new campus of Johnson & Wales to be built nearby.

Connections to Trade Street

As discussed in Section 4.5, Trade Street would be improved to a high-quality, pedestrian-friendly environment similar to the urban design treatment implemented along Tryon Street. The street would be designed to accommodate a combination of pedestrians and transit services. Traffic calming measures would be studied to limit the number of motorists traveling through the CBD on Trade Street. Trade Street could be designed to have a limited number of transit “stations” where CATS passengers could access transit services. Because the proposed Multi-Modal Station would be one of these transit-boarding locations, passenger loading areas should be provided along both sides of Trade Street. Station design should permit Trade Street loading areas that are 15 feet wide and 200 feet long, located under and just east of the railroad overpass. As shown by Figure 4-3, there should be an eight-foot wide sidewalk located behind the passenger loading areas. The Multi-Modal Station should be designed to allow commuter
rail passengers to walk above Trade Street to access the platforms located on the north side of Trade Street. There also should be excellent vertical circulation from the commuter rail level to passenger platforms on the south side of Trade.

Because of streetscape improvements designed to enhance pedestrian use and safety along Trade Street, driveway access to the Multi-Modal Station for taxis or autos from Trade Street should be limited.

![Figure 4-3. Trade Street Cross-Section at Multi-Modal Center](image)

**4.3.2 Facilities and Operations**

In addition to the aforementioned passenger platforms located along both sides of Trade Street, CATS would require a minimum of 16 bus bays, and preferably 20 bays, located inside the station within the block between Trade and Fourth streets.

The design of the CATS operations area should retain the ability of CATS buses to circulate in both directions through the station. Bus aisles should be wide enough to allow buses to pull in and out while other buses are still at the platforms. Interior passenger platforms should be at least ten feet wide.

As part of the creation of a second transportation hub in the CBD, express transit services serving east and south Charlotte would originate and terminate at this location on West Trade Street. The Multi-Modal Station would include passenger waiting areas and a driver's lounge. CATS also could house selected functions at the station such as the agency's police force.

**4.4 North – South LRT Spine**

The North-South LRT spine would serve the South and Northeast Corridors. Implementation of Northeast LRT service could be accomplished incrementally by extending the South Corridor LRT line along the NCRR. The Northeast Corridor MIS includes a LRT station at Ninth Street, just beyond the Seventh Street station on the South Corridor LRT line.

LRT services could be through routed between the South and Northeast Corridors, providing direct LRT connections between opposite ends of Mecklenburg County. The inter-connection of the Northeast and South Corridors also permits LRT vehicles operating along the Northeast line to be maintained at the new LRT maintenance center near South Boulevard and Clanton Road. This facility has been constructed with additional capacity for LRT service expansion.
Pedestrian, bicycle, and urban design elements included in the design of the South Corridor could be extended through the Center City as part of Northeast LRT implementation.

### 4.5 East – West Streetscape/Transit Corridor along Trade Street

Trade Street would receive streetscape improvements similar to Tryon Street. This includes shaded/protected passenger waiting areas, excellent transit information and way finding, and meticulous installation of street furniture and landscaping.

**Figure 4-4** illustrates a design concept for Trade Street from Johnson C. Smith University to Presbyterian Hospital. **Figure 4-5** illustrates possible cross-sections along Trade Street based on adjacent land uses. This preliminary design concept eliminates non-transit vehicles from selected blocks along Trade Street in order that transit passengers using buses and streetcars can be well-served. **Figures 4-6 through 4-9** are sketches indicating how Trade Street could be transformed to create a memorable transit *and* pedestrian experience within the Center City.

The Trade Street transit way should be used by BRT services in the Southeast and West Corridors. The through routing of BRT services between these two corridors also provides frequent connection to the Charlotte Transportation Center and the West Trade Multi-Modal Station. CATS local routes could operate along the Trade Street transit way, maximizing use of the street’s amenities for system users. Operation of streetcar service along Trade Street also would further enhance this street as a pedestrian/transit way. The vehicles would operate in the curb lane in both directions with the car’s low-floor design permitting frequent stops for passengers. Passenger waiting areas will be designed for not only bus services but also streetcar operations.
Figure 4-4. Trade Street Design Concept
Cross Section Variations

Streetscape Considerations for Trade Street

Charlotte, North Carolina

Figure 4-5. Trade Street Cross Sections
Figure 4-6. Trade Street Between Church and Poplar Streets
Figure 4-7. Trade Street Between Davidson and Alexander Streets
Figure 4-8. Elizabeth Avenue at CPCC
4.6 Intra-Center City Circulation

As shown by Table 3-8, circulation within the Center City could be provided by several service types. The system plan recommends study of modern streetcar operations along Trade Street and a Center City loop initially assumed to operate along Graham, Second, Davidson, and Tenth streets. The 2010 Vision Plan recommended streetcar operations along these streets.

The recommended streetcar services are similar to the system implemented during 2001 in Portland. Operation of the streetcar along Trade Street would further enhance this street as a pedestrian/transit way. The vehicles would operate in the curb lane in both directions with the car’s low-floor design permitting frequent stops for passengers. Passenger waiting areas will be designed for not only bus services but also streetcar operations.

Proposed streetcar service on Trade Street could be extended eastward beyond the Center City along Elizabeth Avenue to Presbyterian Hospital and along Hawthorne Lane and Central Avenue to Eastland Mall. Figure 4-9 illustrates streetcar service along Elizabeth near Presbyterian Hospital. Route 9 Central Avenue is one of the most heavily used local routes in the CATS system. The larger capacity of the streetcar would reduce the number of buses needed to meet travel demand in the Central Avenue corridor. During the Southeast MIS, LRT service along Central Avenue was considered because of high transit usage along this corridor. Although LRT service along Central Avenue was eliminated because of the street’s narrow right-of-way and minimal building setbacks, the introduction of less intrusive streetcar service operating in the street could be appropriate. Figure 4-10 illustrates streetcar service through the commercial area located along Central Avenue near The Plaza. The extension of streetcar services to Plaza-Midwood and Elizabeth should be analyzed as a way of connecting these neighborhoods to the Center City.

The expansion of streetcar operations westward along Trade Street and Beatties Ford Road also should be studied. The North Corridor MIS proposed operation of rapid transit services in the Beatties Ford corridor. Extensions of streetcar services to Johnson C. Smith University and north to the proposed Beatties Ford Road transit hub would connect the Seversville, Biddleville, and University Park neighborhoods to Center City Charlotte. The streetcar could again provide a more effective means of accommodating travel demand in the Beatties Ford corridor.

As recommended in the Vision Plan, the design concept for the “green” streets should consider streetcar operations. This mode would meet the demand for circulation from emerging Center City residential areas to key locations such as the West Trade Multi-Modal Station, Convention Center, the proposed Uptown Arena, new West Park, and the core employment district.
Figure 4-9. Elizabeth Avenue near Presbyterian Hospital
Figure 4-10. Streetcar Concept along Central Avenue
4.7 Capital Costs

Table 4-1 lists the estimated capital costs (in current dollars) for the recommended improvements in Center City Charlotte that are shown in Figure 4-11.

Table 4-1. Estimated Capital Costs for Center City Improvements (current dollars)

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifications to Charlotte Transportation Center</td>
<td>$5,000,000</td>
</tr>
<tr>
<td>CATS participation in Multi-Modal Station facility</td>
<td>$35,000,000</td>
</tr>
<tr>
<td>Trade Street Pedestrian/Transitway Improvements</td>
<td>$25,000,000</td>
</tr>
<tr>
<td>Trade Street Streetcar</td>
<td>$84,000,000</td>
</tr>
<tr>
<td>Center City Streetcar Loop</td>
<td>$72,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$221,000,000</strong></td>
</tr>
</tbody>
</table>
Figure 4-11. Recommended Center City Transportation Plan
5.0 NEXT STEPS

Although implementation of certain rapid transit improvements within the Center City are tied to initiation of capital projects in the corridors themselves, work on selected key projects could provide immediate benefits in improved pedestrian accessibility to transit services. These projects also improve the liveability of the Center City.

5.1 Trade Street Streetscape/Transit way Plan

The next step in creating a pedestrian/transit way along Trade Street involves planning and design of the improvements along this street. The existing blocks of Trade Street between Church and College streets are extensions of the Tryon streetscape treatment. During the next phase of project development, the question of to what extent Trade will be similar to Tryon Street would be addressed. Design principles involving the consistency of materials, the level of design treatment of street furniture, plantings, lighting, and signage used on Tryon Street should be extended to Trade Street. This phase of project development also would include preparation of design criteria to be used by private developers when constructing new buildings along Trade Street.

The proposed project limits for Trade Street improvements extend from Johnson C. Smith University to Presbyterian Hospital. The upcoming planning and design phase would include streetscape, rapid transit, and streetcar elements. These should be designed jointly with phasing opportunities identified. This major effort could be undertaken over the next year.

Planning and design of Trade Street improvements also should address auto travel along the street. The 2010 Vision Plan recommended traffic calming devices to slow cars and protect sidewalk activity between Poplar Street and the north-south LRT line. The preliminary concept shown in Figure 4-4 restricts non-transit vehicles from certain Trade Street blocks. Changes in traffic operations along Trade Street should be developed in conjunction with Center City stakeholders and adjoining property owners.

5.2 West Trade Multi-Modal Station

The proposed Multi-Modal Station on West Trade Street is a key component of the overall Center City transportation system. Planning and design of the Multi-Modal Station should accommodate CATS space needs within the facility and incorporate Trade Street Streetscape/Transit way improvements. CATS and NCDOT should continue working together in the development of the Multi-Modal Station.

5.3 Center City Bus Operations Plan

Under Section 4.2.2, evaluation of dynamic scheduling of buses to the Charlotte Transportation Center was recommended to increase the capacity of the existing bays in this facility. This evaluation should be performed as part of a comprehensive review of the routing of buses within the Center City. An analysis of bus operations on Center City streets should consider growth in bus volumes as local and express services are expanded. It would re-evaluate locations where buses are currently laying over within the Center City. The study also would identify long-term opportunities for the West Trade Multi-Modal Station to serve as an additional primary destination for routes in Center City Charlotte. The plan would clarify capital improvements at the
Transportation Center and the Multi-Modal Station necessary to accommodate increasing bus volumes. The study also should include an assessment of the various transit technologies in the Center City.

5.4 Old Convention Center Design Guidelines

Under Section 4.2, two options for connecting the Charlotte Transportation Center to the South Corridor LRT station at Trade Street were discussed. This connection also should permit passengers to access re-development at the old Convention Center. Design criteria should be prepared for connecting the old Convention Center site to the north-south LRT line. These criteria also would ensure pedestrian access through this site from the rail line to College Street and potential connections to the Overstreet Mall to the block between College and Tryon streets. This planning effort would result in guidelines for use by private companies that are considering the re-development of the City-owned site.

5.5 Center City Circulation Planning

A review of current Center City circulation services in light of potential streetcar services should be undertaken. This study could include a market analysis of travel demand along both Trade Street and a potential Center City streetcar loop. The analysis also would examine use of current “Gold Rush” service and the need for revising these routes to accommodate present ridership.